HIRDLS

HIGH RESOLUTION DYNAMICS LIMB SOUNDER

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Contents / Description / Summary:

This report outlines the tests performed for verification of the functionality of the Unit (DUT).

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Purpose: EMI/EMC Test Report

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LIST OF ABBREVIATIONS

CSD	Contract Start Date
EM	Engineering Model
HIRDLS	High Resolution Dynamic Limb Sounder
IFC	In-Flight Calibrator Subsystem (Black Body)
IPS	Instrument Processor Subsystem
LMTC	Lockheed Martin Advanced Technology Center(Same as PAATC)
LMMS	Lockheed Martin Missile and Space
OBA	Optical Bench Assembly
PAATC	Palo Alto Advanced Technology Center(Same as LMATC)
PAIP	Performance Assurance Implementation Plan
PDR	Preliminary Design Review
PETR	Pre-Environmental Test Review
PFM	Proto-Flight Model
PMR	Program Management Review
SCA	Subcontract Administrator
SDRL	Supplier Data Requirement List
SOW	Statement of Work
SSG	Sensor System Group, Inc
SSG- Assembly	The Assembly of Components produced by SSG for LMMS to Support HIRDLS. The SSG-Assembly includes most of the Optical Bench Assembly, most of the Optical Elements, and the Scanner Mechanical Unit.
TIM	Technical Interchange Meeting
TSS	Telescope Subsystem
WBS	Work Breakdown Structure
WSEA	Wobble Sensor Electronic Assembly

1.0 ADMINISTRATIVE DATA

1.1. Purpose of Test

The objective of the HIRDLS Instrument EMI/EMC test was to verify that the instrument used as a test sample meets the requirement specifications outlined, stated, and described in EMI/EMC Test Procedure TP- LOC-820 Revision NC.

1.2. Certification of Test

The tests were witnessed by LMMS QA and EMI engineering representatives and by the NASA Goddard Space Lab representatives. This test report shall be approved and the data considered certified when appropriate signatures are affixed to the documents.

1.3. Disposition of Test Specimen

Upon completion of the test, the test specimen was moved to Advanced Technology Center, Building 202, LMMS, Palo Alto, CA

1.4. Description of Test Sample

HIRDLS is an infrared limb-scanning radiometer designed to sound the upper troposphere, stratosphere and, mesosphere to determine: temperature; the concentration of O3, H2O, CH4, N2O, NO2, HNO3, N2O5, CFC11, CFC12, C1ONO2, and aerosols; and the locations of polar stratospheric clouds and cloud tops. The goals are to provide sounding observations with horizontal and vertical resolution to that previously obtained; to observe the lower stratosphere with improved sensitivity and accuracy; and to improve understanding of atmospheric processes through data analysis, diagnostics, and use of two- and three–dimensional model.

HIRDLS performs limb scans in the vertical at multiple azimuth angles, measuring infrared emissions in 21 channels ranging from 6.12 to 17.76 mm. Four channels measure the emissions by CO2,. Taking advantage of the known mixing ratio of CO2, the transmittance is calculated, and the equation of the radiative transfer is inverted to determine the vertical distribution of the Plank black body function profile, from which the temperature is derived as a function of pressure. Once the temperature profile has been established, it is used to determine the Plank function profile for the trace-gas channels. The measured radiance and the Plank function profile are then used to determine the transmittance of each trace species add its mixing-ratio distribution.

Winds and potential velocity are determined from spatial variations of the height of geopotential surfaces. These are determined at upper levels by integrating the temperature profiles vertically from a known reference base. HIRDLS will improve knowledge in data-sparse regions by measuring the height variations of the reference surface with the aid of a gyro package. This level (near the base of the stratosphere) can also be integrated downward using nadir temperature soundings to improve tropospheric analysis.

1.5. Summary Table of Test Results

1.5.1. Table 1 of this report contains a summary of test results.

1.5.2. Summary of Conclusions and Recommendations.

The CE01 and CE03 Conducted Emissions results which were found to exceed the required limits can be traced to the test results performed on HIRDLS Power Converter Unit (PCU) by Rutherford Appleton Laboratory (Report No: EMTR 060200). A redesign of EMI/EMC filtering and shielding must be considered or a waiver request for failures must be submitted.

The Susceptibility test results point mostly to the insufficient protection in temperature sensor and perhaps in telemetry circuits. Susceptibility effects and failures could be eliminated by providing adequate EMI/EMC protection in the aforementioned circuits and by re-evaluating the EMI/EMC impacts during the full spacecraft EMI/EMC test.

Table 1 EMI/EMC HIRDLS Instrument Test Summary

Test Title Frequency Range	Test Procedure Paragraph	Instrument Part Side and direction tested	PASS	FAIL	Comments
Bonding and Grounding	13.1	Connector to Structure	X		Bonding resistance less than 2.5 mΩ
Circuit Isolation	13.2	Power Primary and Return	X		Isolation Resistance less than 1 MΩ
CE01 (30Hz to 20kHz) Conducted Current Emission CE01	13.4.6	Survival Bus A	X		CDR #'s AD 6419, AD 6426 written for all Busses. Over limit corrected for all Quiet and Noisy Busses. See Discussions in paragraph 4.1.1
		Survival Bus B	X		
		Quiet Bus A	X		
		Quiet Bus B	X		
		Noisy Bus A	X		
		Noisy Bus B	X		
CE03 (15 kHz to 50 MHz) Conducted Emissions Currents	13.4.13	Survival Bus A		X	CDR #'s AD 6433, AD 6442 Corrected over limit less than 6 dB
		Survival Bus B		X	CDR #'s AD 6433, AD 6442 Corrected over limit less than 6 dB
		Quiet Bus A		X	CDR #'s AD 6433, AD 6442 Corrected over limit less than 10 dB
		Quiet Bus B		X	CDR #'s AD 6433, AD 6442 Corrected over limit less than 10 dB

Test Title Frequency Range	Test Procedure Paragraph	Instrument Part Side and direction tested	PASS	FAIL	Comments
		Noisy Bus A Noisy Bus B		X X	CDR#' AD 6643, AD 6442. Corrected over limit less than 6 dB for both A and B Busses
RE02 (14kHz to 18GHz) E-Field Radiated Emissions	13.5	Side A Side B		X X	CDR # AD 6510 Over limit less than 6 dB CDR # AD 6511 Over limit less than 6 dB
RE04 (20Hz to 15kHz) H-Field Radiated Emissions	13.6	All Locations	X		
CS01 (30Hz to 50kHz) Audio Frequency Conducted Susceptibility	13.11.3	Survival Bus A Quiet Bus A Noisy Bus A	X	 X X	CDR # AD 6494 Minor Category Defect CDR #'S AD 6487, AD 6491 Minor Category Defect
CS02 (50 kHz to 400 MHz) Radio Frequency Conducted Susceptibility	13.11.14	Survival Bus A Quiet Bus A Noisy Bus A		X X X	CDR #'S AD 6490, AD 6495 Minor category Defect CDR #'S AD 6490, AD 6495 Minor Category Defect CDR #'S AD 6490, AD 6495 Minor Category Defect

Test Title Frequency Range	Test Procedure Paragraph	Instrument Part Side and direction tested	PASS	FAIL	Comments
CS06 (± 29 $Volt_{(0\text{-}pk)}$ spike) Spike Conducted Susceptibility	13.12	Survival Bus A Quiet Bus A Noisy Bus A		X X X	CDR #'s AD 6495, AD 6496 Minor Category Defect CDR #'s AD 6495, AD 6496 Minor Category Defect CDR #'s AD 6495, AD6496 Minor Category Defect
Magnetic Dipole Moment	13.7	All Locations	X		
RS01 (30 Hz to 200 kHz) AC H-Field Radiated Susceptibility	13.8	X Y Z	X X	 X	CDR # AD 6471 Minor Category Defect
RS03 (14 kHz to 18 GHz) E-Field Radiated Susceptibility	13.10	Side A Side B	X X		CDR # AD 6464
DC H-Field Susceptibility	13.9	X Y Z	X X X		No CDR written Minor Category Defect

2.0 APPLICABLE DOCUMENTS

2.1. Government

2.1.1. Military Specifications

MIL-STD-461C, Part C	Electromagnetic Emission and Susceptibility Requirements for the control of electromagnetic interference
MIL-STD- 1541A	Electromagnetic Compatibility Requirements for Space Systems
MIL-STD-5087B (ASG)	Bonding, Electrical and Lightning Protection for Aero Space Systems, Amendments 2

2.2. Lockheed Martin Missile and Space Company specifications

2.2.1. LAC 3250-00001	Electrostatic Discharge Control

2.3. HIRDLS Documents

GSFC-424- 28- 21-13	HIRDLS Instrument Technical Specification Document
GSFC-422-11-12-01 Rev. B	General Interface Requirement Document
2A 14636	Interface Control Document
00-LOCK-1023	HIRDLS Instrument Test Operation Orders for EMI Test
TP-LOC- 204	HIRDLS Proto-Flight Model Instrument Test Plan
TP-LOC-819	IEGSE Validation Procedure (Fraser)
TP-LOC-820 Rev. NC	HIRDLS Instrument Test

3.0 FACTUAL DATA

3.1. Scope

The HIRDLS Instrument EMI/EMC tests were performed under direction of an EMI test engineer during all three shifts of testing in the presence of representatives of QA, the program EMI engineer, the responsible test engineer, and the responsible equipment engineer. The EMI test technicians assisted the EMI test engineer during all of test phases in running the EMI test equipment and collecting the test data in prepared test logs. The customer was notified at least 72 hours in advance of start of the test and attended the observance and verification of test setting during the period of testing.

A test readiness review was conducted prior to start of the test, resulting in no major expected problems to be encountered during the tests.

Electrostatic discharge and contamination protective measures were observed anytime human contact had to be made with HIRDLS Instrument as a test sample. The EMI testing was performed on a 24-hour- per- day basis in building 152 shielded enclosure. The data for each of the tests can found under EMI test type heading in the appendices of this test report. Each Appendix includes an illustration of test conditions and copies of the data sheets. A copy of the Flash Report and the Test Procedure are included in Appendices A and B of this report.

3.2. Description of Equipment

A description of the equipment is provided in section 1.4 of this report as a part of plastic covered, ESD and contamination protected UUT.

3.3. Classification

The data included in this report and submitted as a part of HIRDLS Instrument EMI/EMC final report is unclassified.

3.4. EMI Tests Performed

The EMI/EMC tests performed were as outlined and described in HIRDLS instrument TP-LOC-820, Rev. NC, dated April 25, 2002, as given in Appendix B of the test report. The following tests were performed.

Bonding and Grounding Test- This test measures the resistance between each panel and the connector of the Instrument and the metal transporter. Program personnel performed this test during assembly in Palo Alto.

Circuit Isolation- This test measures the electrical isolation between the Instrument input power lead, plus and return, and ground. Program personnel performed this test during assembly in Palo Alto.

CE01- Conducted narrowband emission test was performed on the primary and the return lines of DC power Survival Bus A and B, Quiet Bus A and B, and the Noisy Bus A and B in 30 Hz to 20 KHz frequency range.

CE03- Conducted narrowband emission test was performed on the primary and the return lines of DC power Survival Bus A and B, Quiet Bus A and B, and the Noisy Bus A and B in the 20 KHz to 50 MHz frequency range.

CS01- Conducted Susceptibility test from 30 Hz to 50 KHz was performed on DC power input primary and return lines of Survival Bus A, Quiet Bus A, and the Noisy Bus A.

CS02- Conducted Susceptibility test from 50 KHz to 400 MHz was performed on the DC input power primary and return lines of Survival Bus A, Quiet Bus A, and the Noisy Bus A.

CS06- Spike conducted susceptibility test was performed on the DC input power primary and return lines of Survival Bus A, Quiet Bus A, and the Noisy Bus A

RE02- Radiated narrowband Electric field emissions tests in the 14KHz to 18 GHz frequency range were performed on "Side A", and "Side B" of the HIRDLS Instrument as illustrated in the test procedure.

RE04- Radiated magnetic field emissions test was performed in the 20 Hz to 50 KHz frequency range in selected locations outlined in the test procedure.

RS01- AC Magnetic field susceptibility test was performed from 30 Hz to 200 KHz with magnetic loop antenna in vertical and horizontal positions near the UUT plastic cover.

RS03- Electric field radiated susceptibility test was performed in 14KHz to 18GHz frequency range. The test antennas were placed facing the "Side A" and "Side B" of the HIRDLS Instrument as described in the test procedure.

DC Magnetic Dipole Moment Test- This test was performed to measure the residual dipole moment of the UUT.

DC Magnetic Field Susceptibility Test- This test was designed and performed to verify the effect of 800Amps/M magnetic field intensity on UUT.

Ripple Voltage Test- This test was run for information only. The time domain variation of the voltage between the DC input power primary and its return and between each power lead and chassis were monitored and recorded for Quiet Bus only.

3.5. Operating Modes

The HIRDLS modes of operations during performance of EMI/EMC tests are described in EMI/EMC test procedure for each of the emissions and susceptibility tests. The highlights of the operating modes for the tests are as follows;

1. Off Mode
2. Survival Mode
3. Idle Mode
4. Standing Mode

5. Mission Mode

The EMI/EMC testing for HIRDLS Instrument was all performed in Mission Mode.

3.6. EMI Test Equipment

Table 2 Equipment used in EMI/EMC emission, susceptibility, DC Magnetic Moment, and Ripple Voltage tests

Nomenclature	Manufacturer	Model	Serial	Tag No.	Calib. Due Date	TE
Power line Iso. Transformer	(Lab type)	N/A	N/A	N/A	N/A	R.W.
Signal Generator	Solar	6550-1	N/A	N/A	N/A	R.W.
Audio Iso.Trans.	Solar	6220-1A	N/A	N/A	N/A	R.W.
Transient Pulse Generator	Solar	8282-1	N/A	M200830	N/A	R.W.
Synthesizer	H. P.	3325A	N/A	M137238	5/10/2002	DO
Amplifier	Amp. Research	100L	N/A	LMSC 98996	CMR	DO
Amplifier	Amp. Research	10W1000	N/A	M18741	CNR	R.W.
Amplifier	LOGIMETRICS	A600L	N/A	N/A	N/A	R.W.
Amplifier	LOGIMETRICS	A600S	N/A	N/A	N/A	R.W.
Amplifier	LOGIMETRICS	A600C	N/A	N/A	N/A	R.W.
Amplifier	LOGIMETRICS	A600X	N/A	N/A	N/A	R.W.
Amplifier	LOGIMETRICS	A600U	N/A	N/A	N/A	R.W.
Field Strength Monitor	AERITALIA	TE3107B	N/A	N/A	N/A	R.W.
Field Strength Monitor	HOLIDAY	HI-3004	N/A	N/A	N/A	R.W.
Field Strength Monitor	RAHAM	484	N/A	N/A	N/A	R.W.
Antenna	EMCO	3301B	N/A	M189504	N.C.R.	R.W.
Antenna	EMCO	3104P	N/A	M135304	N.C.R.	R.W.
Antenna	EMCO	3146B	N/A	N/A	N/A	R.W.
Antenna	STODDART	93490-1	N/A	N/A	N/A	R.W.
Antenna	STODDART	94612-1	N/A	N/A	N/A	R.W.
Antenna	ELECTROMETRICS	LCA-25	N/A	N/A	N/A	R.W.
Spectrum Analyzer	H. P.	8566B	N/A	M217780	8/30/2002	DO
Printer	H. P.	Thinkjet	N/A	N/A	N/A	R.W.
Close Field Probe Set	EMCO	7405	N/A	MSL19856	CNR	R.W.
Current Probe	Fairchild	PCL-10	MS OL		CNR	DO
Current Probe	Empire	CP 105	GH- 1	----	CNR	DO
Oscilloscope	Tektronix	TOS 5206	-----	LPOL5828	6-13-03	DO
Amplifier	McIntosh	Mc 2500	-----	M202617	CNR	DO
Amplifier	AILTECH	15100	-----	LMSC---	CNR	DO

Nomenclature	Manufacturer	Model	Serial	Tag No.	Calib. Due Date	TE
				113892		
Oscilloscope	Tektronix	540 D	-----	016264	8-16-2002	DO
Current Probe Amp.	Tektronix	A503	-----	MSL------ 097053	9-06-2002	DO
Scope Probe	Tektronix	P6137	----	------	------	
Current Probe Amp.	Tektronix	AM503	-----		9-062002	
Current Probe Amplifier, Power Module	Tektronix	TM 501	-----	MSL------- 097053	------	-----
RFI Transient Generator	Solar Electronics	6254-5S	-----	H122244	------	
TRIAXIAL MAGNETMETER	WALKER SCIENTIFIC	FGM-5DTAA	NASA C806057	NASA C806057	12-272002	DO

3.7. Test Conditions

3.7.1. Shielded Enclosures

The HIRDLS Instrument EMI test was performed in the shielded enclosure in Building 152 at Lockheed Martin Company in Sunnyvale, CA. The test sample was installed in room #3 of the test chamber facility.

3.7.2. Ground Plan

The ground plane in the HIRDLS Instrument test was a copper plate connected to the copper test bench top in one side, and to the Instrument chassis in the opposite side. The bench top is fastened to the adjacent wall of the shielded room #3 in the facility test chamber.

3.7.3. Environmental Conditions

The following environmental conditions were maintained as standard laboratory ambient during the performance of the HIRDLS Instrument EMI/EMC testing.

Ambient temperature	+65 F to +85 F
Relative humidity	30% to 80%
Atmospheric pressure	650-850 Tors

3.7.4. RF Ambient Profile

An ambient profile test was performed prior to radiated emission tests to verify the ambient noise in the chamber. The ambient test results exceeded the limit line

with the exception of the test results which were below the limit when the UUT was turned off and cabling were disconnected between the UUT and the feed-through plates in the chamber wall.

3.7.5. Test Sample Arrangement

A clean copper sheet was clamped to the test bench ground plane using 2 clamps on each end. The copper sheet was then bolted to the ground plane. The measured bonding resistance of both clamp contacts were measured and found to be below 2.5 milliohms. During conducted CE01 and CE03 emission tests 10 microfarad capacitors were connected between the power input lines and the ground plane through junction box terminations for all Survival Bus A, B, Noisy Bus A, and B, and the Quiet Bus A, and B conducted emission tests. Shielded harnesses connected to the HIRDLS Instrument were routed through an approximately 4" opening in the shielded enclosure wall and were connected to HIRDLS Test Panel and other test equipment located in the adjoining auxiliary room. Shields from harnesses were terminated to the wall at the opening, which was completely closed off and shielded. The harnesses were separated from the bench by at least 2"in the test chamber. The UUT was properly grounded for electrostatic shielding and protection, and covered by a gas filled plastic bag for ESD and contamination protection.

3.8. Interference Measurement

3.8.1. Specification Limits—Emissions

Only narrow band interference measurement was performed during both conducted CE01, CE03 and radiation RE02, RE04 tests. The specification test limits for conducted emission, radiated emission and DC magnetic dipole moments, are provided in Appendix B; EMI/ EMC Test procedure TP-LOC-820. Rev NC. For the purpose of comparison, the limits are also displayed in measurement plots of CE01, CE03, RE02, and RE04 interference emission tests.

3.8.2. Identification of Interference Signals

The interference signals are identified in Appendix D by obtaining CE01 and CE03 conducted and emission plots for both power inputs plus and return lines of quiet survival power bus and the noisy power bus. RE02 Electric field radiation emission and RE04 magnetic field emissions are depicted in RE02 and RE02 plots of Appendix E. The DC magnetic moment were calculated for DC magnetic fields measured at test location.

The number of interference peaks exceeding the specification limit curves were counted and reported in both HIRDLS EMI/ EMC Flash Report and also in Appendix D and E of this report for each frequency in terms of the magnitude of peaks and their deviation (Δ) from the specification limits in terms of dB μA and dB μV/m for conducted and radiated emissions respectively were measured and are included in test data.

3.9.Susceptibility Measurements

3.9.1. Susceptibility Test Signal Levels

The susceptibility test signal levels for conducted susceptibility test CE01 in 30Hz to 50 kHz frequency range and for conducted susceptibility test CE03 in the 50 kHz to 400 MHz frequency range are given in Figure 16 of HIRDLS Instrument EMI/ EMC Test Procedure TP-LOC-820 Rev. NC in Appendix B of this report.

The signal levels in Figure 16 were used for conducted susceptibility testing of all Survival A, Noisy A and Quiet A buses. The limit for the pulse peaks used during the spike tests for all the Survival A, Noisy A, and Quiet A buses were +29 for positive and -29V for negative spikes respectively. The susceptibility signal levels used for radiated AC magnetic field susceptibility test RS01 in the 30 Hz to 200 KHz frequency range and for electric field susceptibility test in the 14 kHz to 18 GHz frequency range are given in Figure 11 and 14 of the a-fore mentioned HIRDLS Instrument Test Procedure respectively. During the DC magnetic field susceptibility test, the HIRDLS Instrument was subjected to a DC magnetic field intensity level of 800 A/m.

3.9.2. Criteria for Susceptibility

Visual observances of the loss in telemetry data or changes in temperature on HIRDLS Instrument monitor displays outside of shielded enclosure were the only indication of pass or failure of the HIRDLS Instrument for both conducted and radiated susceptibility test.

3.9.3. Circuits Monitored

Telemetry circuits were monitored by checking the data on the telemetry output display. Display output connected to the temperature sensor circuitry were monitored to verify the changes in temperature.

3.10. Test Results

The results of HIRDLS Instrument EMI/EMC Test are as follows:

3.10.1. Bonding, Grounding, and Isolation Tests

Bonding, grounding and isolation tests were performed in building 201 lab at Palo Alto, CA. The measured test results indicate the bonding resistances were within the limit and less than 2.5 mohms. Line isolation resistances of more than 1 Mohm were measured. The measured bonding and isolation data are presented in Appendix C of this report.

3.10.2. CE01 Conducted Emissions Test (30 Hz to 20 kHz)

Tests were performed on Survival Bus A and B Primary Power Input (PI-SB-A,B) and Return (PR-SB-A,B), Noisy Bus A and B Primary Power Input (PI-NB-A,B) and Return (PR-NB-A,B) and on the Quiet Bus A and B Primary Power Input (PI-QB-A,B) and Return (PR-QB-A,B).

For Survival Bus A and B the CE01 emissions were below the specification limit with no over limit emissions recorded. Over limit emissions were observed and recorded for both Noisy and Quiet Bus A and B. The CE01 data is presented in Appendix D of this report. The number of over limit peaks, the frequency range where the over limit peaks were observed, worst case maximum over limit peak and the frequency at which it occurred are given in TABLE 3. Common Discrepancy Report # AD 6419 was written as a result of over limit anomalies in Noisy Bus A and B and Quiet Bus A and B. No over limit peaks were observed or recorded in CE01 emission ambient tests.

3.10.3. CE03 Conducted Emissions Test (20 kHz to 50 MHz)

Tests were performed on Survival Bus A and B Primary Power Input (PI-SB-A,B) and Return (PR-SB-A,B), Noisy Bus A and B Primary Power Input (PI-NB-A,B) and Return (PR-NB-A,B) and on the Quiet Bus A and B Primary Power Input (PI-QB-A,B) and Return (PR-QB-A,B). Ambient tests for all busses were performed under selected conditions.

Noise emissions were found to exceed the limits with over limit peaks occurring on all three busses in differing frequency locations. The CE03 data is presented in Appendix D of this test report. The number of over limit peaks, the frequency range of the over limit peaks, the frequency and amplitudes of the worst case (maximum) over limit peaks are given in TABLE 4. The corresponding data for ambient tests are provided in TABLE 5. Anomalies for CE03 conducted emissions are reported in CDRs AD 6433 and AD 6442.

3.10.4. Noise Source Investigation Tests

Ambient noise in CE03 emissions exceeded the limit lines in many of the Survival Bus, Noisy Bus and Quiet Bus ambient tests. In order to help the analysis of test results several noise source investigation tests on Quiet Bus A were performed as follows:

1. UUT OFF, GSE ON, Vacuum Pump On

Ambient noise levels were under the limit line up to 2 MHz. From 2 to 12 MHz noise levels varied from 3 dB below to 3 dB above the limit line. Ambient noise levels exceeded the limit line from 10 to 12 dB in the 12 to 50 MHz frequency range.

2. UUT OFF, GSE ON, Vacuum Pump OFF

The ambient noise levels remained the same as with the Vacuum Pump On with no significant change in levels noticed.

3. UUT OFF, GSE ON, Vacuum Pump OFF (with HP 8447D pre-amp.)

Ambient noise levels were found to be under the limit line up to 2 MHz. From 2 to 9.2 MHz several large over limit peaks occurred with a value of 11 dB over the limit appearing at 2.2 MHz and a value of 9 dB over the limit appearing at 3.1 MHz. The ambient limit level was exceeded by a maximum of 2 dB from 6 to 7 MHz with other peaks of 1 dB over occurring at 9.2 MHz and 5.6 dB over at 16 MHz.

4. UUT OFF, GSE OFF, Vacuum Pump OFF (with HP 8447D pre-amp.)

As in tests 1,2,3 above cables remained connected to the GSE. There were many peaks observed over the limit, with peaks at 263kHz (Ethernet noise) over the limit by 14dB, at 1.24 MHz over the limit by 5.4 dB, at 2 MHz over the limit by 8.6 dB and at 3 MHz over the limit by 4.6 dB.

5. UUT OFF, Cables to T/V plate on wall disconnected (with HP 8447D pre-amp.)

Ambient noise levels were significantly reduced with no cables connected through the T/V plate on the wall. All peaks were under the limit line, by less than 10 db from 500kHz to 1 MHz and by at least 10 dB at all other frequencies.

Table 3 CE01 Audio Conducted Emissions

Primary Power Input & Return Bus	***Number of Peaks***	***Frequency Range***	Maximum Peak and Frequency
Survival Bus			
PI-SB-A	0	N.A.	N.A.
PR-SB-A	0	N.A.	N.A.
PI-SB-B	0	N.A.	N.A.
PR-SB-B	0	N.A.	N.A.
Noisy Bus			
PI-NB-A	44	3.5 to 8 kHz	13 dB at 6.6 kHz
PR-NB-A	37	3.5 to 8 kHz	15 dB at 6.6 kHz
PI-NB-B	44	3.5 to 8.4 kHz	17 dB at 6.8 kHz
PR-NB-B	75	3.5 to 9.6 kHz	16 dB at 6 kHz
Quiet Bus			
PI-QB-A	38	3.5 to 12 kHz	12.7 dB at 5.7 kHz
PR-QB-A	37	3.5 to 13.3 kHz	10.8 dB at 5.1 kHz
PI-QB-B	38	3.5 to 11 kHz	9.1 dB at 6.9 kHz
PR-QB-B	40	3.5 to 11.89 kHz	11.9 dB at 6.8 kHz

Table 4 CE03 Radio Conducted Emissions

Primary Power Input & Return Bus	Number of Peaks	Frequency Range	Maximum Peak and Frequency
Survival Bus			
PI-SB-A	44	500 kHz to 2.2 MHz 10 MHz to 20 MHz	8.8 dB at 851 kHz 10.9 dB at 10 MHz
PR-SB-A	53	599 kHz to 2.2 MHz 10 MHz to 44 MHz	12.1 dB at 1.03 MHz
PI-SB-B	28	594 kHz to 15 MHz	11.7 dB at 1.06 MHz
PR-SB-B	51	541 kHz to 2.2 MHz	15 dB at 1.01 MHz
Noisy Bus			
PI-NB-A	Many 6 Many	20 kHz to 39 kHz 600 kHz to 2.3 MHz 12 MHz to 50 MHz	4 dB at 39 kHz 7 dB at 600 kHz 11 to 13 dB for all
PR-NB-A	38	550 kHz to 2.2 MHz 12 MHz to 50 MHz	4.2 dB at 595 kHz All over limit by 11-12 dB
PI-NB-B	1	594 kHz	2.7 dB at 594 KHz
PR-NB-B	Many	20 kHz to 819 kHz	7.2 dB at 599 KHz
***QUIET BUS**			
*PI-QB-A	128	37 kHz to 50 MHz	22.1 dB at 590 kHz 21.7 dB at 1.06 MHz
*PR-QB-A	136	300 kHz to 50 MHz	24.1 dB at 594 kHz
PI-QB-B	98	430 kHz to 2.4 MHz 3.5 MHz 35 MHz	22.5 dB at 590 kHz 10.9 dB at 10 MHz
PR-QB-B	97	300 kHz to 2 MHz 3 MHz to 21 MHz	23.4 dB at 599 kHz 6.5 dB at 18.24 MHz

* Peaks and Frequency ranges are basically the same with or without the HP 8447D pre-amp.

Table 5 CE03 Radio Conducted Emissions, Ambients

Primary Power Input & Return Bus	***Number of Peaks***	***Frequency Range***	Maximum Peak and Frequency	Conditions
PI-SB-A	0	.....	.....	No pre-amp.
PR-SB-A	0	.....	.....	No pre-amp.
PI-SB-B	21	15 MHz to 44.1 MHz	12.5 dB at 44.1 MHz	No pre-amp. Door closed
PR-SB-B	0	.....	.....	No pre-amp. Door closed
PI-NB-A	1	5.3 MHz to 6.3 MHz	17.7 dB at 5.78 MHz	No Pre-amp.
PR-NB-A	1	5.3 MHz to 6.15 MHz	16 dB at 5.87 MHz	No Pre-amp.
PI-NB-B	4	7.3 MHz to 7.7 MHz	4.6 dB at 7.4 MHz	No Pre-amp.
PR-NB-B	2	7.2 MHz and 44.12 MHz	1 dB at 7.2 MHz	No Pre-amp. Door closed
PR-NB-B	13	13 MHz to 43.98 MHz	11.3 dB at 43.78 MHz	No Pre-amp. Door closed
PI-QB-A	2	2 MHz to 6 MHz	11 dB at 2.14 MHz	
PR-QB-A	2	2 MHz to 6 MHz	11 dB at 1.2 MHz	With HP pre-amp.
PI-QB-B	0	.....	.....	No pre-amp. door closed
PR-QB-B	0	.....	.....	No pre-amp. door closed

3.10.5. RE 02, E-Field Radiated Emissions Test (14kHz to 10 GHz)

Plots of the RE02 Emissions Test results obtained from the test performed on HIRDLS Instrument side A (-Y) and side B (+Y) are presented in Appendix E of this test report. Peaks exceeding the limit line on side A are mostly between 1MHz and 2 MHz and 30 MHz to 400 MHz in the horizontal polarity of the antenna. Several peaks were observed from 200 kHz to 2 MHz and from 15 MHz to 20 MHz. Upper frequency over limits were concentrated in the 200 MHz to 400 MHz frequency range. The maximum peak was 20dB over limit at 60 MHz in the horizontal antenna polarization and 10 dB over limit at 1.8 MHz, 16 MHz and 300 MHz in the vertical antenna polarization.

On side B the over limit emission peaks in the horizontal antenna polarization were in the 20 MHz to 500 MHz frequency range with the maximum 14 dB over the limit peak occurring in the 50 MHz to 60MHz frequency range. In the vertical antenna polarization the over limit peaks were concentrated between 300 kHz to 2 MHz and between 20 MHz to 800 MHz with the maximum 20 dB over limit peak at 58 MHz. The emissions were observed under the following conditions: Instrument On, Vacuum system On and blower Off.

Ambient measurements on side B had over limit emissions concentrated in the 20 MHz to 300 MHz frequency range in the vertical antenna polarization and concentrated in the 200 MHz to 300 MHz frequency range in the horizontal antenna polarization. Ambient measurements on side A had over limit emission peaks from 1.5 MHz to 2 MHz and from 30 MHz to 400 MHz in the horizontal antenna polarization and over limit emission peaks from 20 MHz to 300 MHz in the vertical antenna polarization.

3.10.6. RE04, (AC) H-Field Radiated Emissions Test (20 Hz to 50kHz)

Plots of the RE04 Emissions Test results obtained from the test performed on HIRDLS Instrument are presented in Appendix E of this test report. The test data plots for this test show that all AC magnetic emissions in the test frequency range from 20 Hz to 50kHz are below the test limit line as shown in Figure 8 of the test procedure and in Appendix E of this report.

3.10.7. CS01, Conducted Susceptibility Test (30 Hz to 50 kHz)

Because of A and B Bus similarity only Survival Bus A, Noisy Bus A and Quiet Bus A were tested. The test was performed by injecting a 7-volt peak to peak sine wave signal from 30 Hz to 50 kHz across each of the Primary power lines on each Bus. The Survival Bus primary power input and return lines were affected by the interference signal. The Noisy Bus primary power input line was susceptible at 19 kHz with a threshold voltage of essentially above zero volts

and the power return line was susceptible at 29.7 kHz with a threshold of 0.56 volts. Several AD 590's showed susceptibility at these frequencies. The Quiet Bus primary power input was susceptible at 1.49 kHz with a threshold of 1.0 volts and at 42 kHz with a threshold of essentially above zero volts. The power return was found susceptible at 23 kHz with a threshold of 0.5 volts. The anomalies were recorded as AD 590's susceptibility in CDR AD 6494.

3.10.8. CS02, Conducted Susceptibility Test (50 kHz to 400 MHz)

Only side A primary power input and return were tested because of A/B similarity. The test was performed by injecting a 3-volt peak to peak sine wave signal from 50 kHz to 400 MHz into each of the Primary power lines on each Bus. The Noisy Bus power input and return lines were shown to be immune to the injected susceptibility signals with no anomalies recorded or reported. The Quiet Bus power return was not susceptible to the interference signal but the power input to return was susceptible at 39.7 MHz, 50 MHz and 55 MHz with threshold levels of essentially zero volts, 0.5 volts and 2.5 volts respectively. The Survival Bus power input to return was not susceptible to the interference signal but the power return to chassis was susceptible at 46 MHz with a threshold level of essentially zero volts.

For the Quiet Bus susceptibility that occurred at 39.7 MHz there was an IPU reset. The temperature sensors on OBA and on electronics boxes were effected by the Quiet Bus and Survival Bus susceptibilities. The Gyro heaters could not bring the Gyro's up to operational temperature for this test. CDR AD 6490 and CDR AD 6495 were written to document the CS02 test anomalies.

3.10.9. CS06 Transient Conducted Susceptibility Test

Only side A primary power input and return were tested because of A/B similarity. This test was performed by injecting ±29 $Volt_{0\text{-}pk}$, 10 μS wide pulses into the power input and return lines on the Survival Bus, Noisy Bus and Quiet Bus, all were found to be susceptible to the injected noise signals.

The threshold for the Quiet Bus was ±29 $Volt_{0\text{-}pk}$. The threshold for the Survival Bus was 19.1 $Volt_{0\text{-}pk}$ for positive pulse injection and 19.2 $Volt_{0\text{-}pk}$ for negative pulse injection. The threshold for the Noisy Bus positive pulse injection was 29 $Volt_{0\text{-}pk}$ and for negative pulse injection was 9 $Volt_{0\text{-}pk}$. Several of the AD 590 and PRT temperature sensors were susceptible to the CS06 injected pulses. CDR# AD 6496 was written to document these anomalies. The results of CS 06 are presented in Appendix F.

3.10.10. RS01, (AC) H-Field Radiated Susceptibility (30 Hz to 200 kHz)

The HIRDLS Instrument was exposed to a radiated magnetic field in the frequency range from 30 Hz to 200kHz.. The loop antenna was taped to the plastic bag enclosing the HIRDLS Instrument in X, -X, Y and-Y directions on four sides of the Instrument. No susceptibility to the magnetic field was observed in the X, -Y and Y directions but the Instrument was found to be susceptible in the –X direction in the 30 Hz to 520 Hz frequency range. The telemetry focal point temperature reading dropped 0.5 degree C and the compressor stroke exceeded its 80% allowable limit. CDR# AD 6471 was written to document the test anomalies.

3.10.11. RS03, E-Field Radiated Susceptibility (14 kHz to 18 GHz Test)

The HIRDLS Instrument was exposed to the radiated electric field on sides A and B as indicated in the test procedure. The frequencies were swept from 14 kHz to 18 GHz at the levels called for in the test procedure to verify that there was no malfunction or degradation of performance while the Instrument was operated in its Mission Mode. Anomalies occurred during side A exposure at frequencies of 40, 94, 110, 115, 129, 141, 156, 169, 193 MHz and at 1.554 and 1.666 GHz. There was one test anomaly during side B exposure at 48.75 MHz with a threshold level of 0.7 V/m. The anomaly was a significant drop in the temperature sensor data and was found to be a software related problem. When the frequency sweep was repeated no drop in temperature was observed, therefore, no CDR was written.

3.10.12. DC Magnetic Field Susceptibility Test

The HIRDLS Instrument was exposed to a DC Magnetic Field that was produced by an 8-foot diameter square wooden frame holding a 96 turn 12 gauge wire coil. A current of approximately 20 Amperes was used to generate an 800Amp/meter magnetic field. The frame was placed in 3 positions around the Instrument in each of its three major axes (X, Y and Z).

No susceptibility was observed in the X or Y axis. An anomaly was observed in the Z axis at a threshold level of 88 Amp/meter. No CDR was written to document this anomaly.

3.10.13. DC Magnetic Dipole Moment Measurement

The DC magnetic field generated by the HIRDLS Instrument was monitored at locations specified in the test procedure with the Instrument operating in the Mission Mode. The magnetic field was measured and residual magnetic moments were calculated at each position. All magnetic moments were found to be below the limit specified in the test procedure (0.5 A-m^2 maximum). The

highest reading was 2.47 $*10^{-4}$ A-m^2 well below the aforementioned maximum level.

3.10.14. DC Ripple Test

This test was performed to measure the AC noise level on the DC power line and provide plots of ripple variations in time domain superimposed on 29 V power lines. It was done only for information with no failure criteria given. The highest ripple voltage of 1.208 V_{p-p} was observed on the Noisy Bus between the primary power input and Instrument structure. The plots of ripple voltages are presented in Appendix G of this test report.

3.10.15. Common Discrepancy Reports

The anomalies in test results were reported in common discrepancy reports (CDR) in each of the HIRDLS EMI/EMC tests. A total of 19 CDRs were written during the performance of the EMI/EMC test. CDRs which were written specifically to address EMI/EMC test anomalies are referred to in each test result section where anomalies were reported. Several CDRs were written which were not directly related to the EMI/EMC test. These CDRs are as follows:

AD 6416 – Bagging material was making contact with sunshield door.

AD 6417 -- CCU box temperature exceeded 35° C

AD 6418 – PSS REG 28V telemetry voltage oscillated between 29.2 and 31.1V.

AD 6491 – Gyros could not be heated to the minimum operational temperature (55° C).

AD 6516 – CCU compressor stroke was low (20% (with 80% minimum allowed)).

Note : Appendix H contains all of the CDRs written during the HIRDLS Instrument EMI/EMC test.

3.11. Data Verification

The data submitted in this report and verified by performance of EMI/ EMC test is complete and within limits specified in HIRDLS Instrument Test Procedure TP-LOC-820NC by a margin less than 6 dB.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1. Discussions

4.1.1. CE01 Anomalies

The ambient noise for all Survival Bus, Noisy Bus, and Quiet Bus is below the limit as depicted in all CE01 plots of Appendix C. When UUT is operating in Mission mode, an increase in noise level is observed from 30 Hz to 20 kHz. The noise exceeds the limit with many over limit peaks from 3.5 kHz to 8 kHz with a maximum peak of 15 dB. Such an increase can easily be attributed to one hundred fold increase in bandwidth from 10 HZ to 1KHz at 3.5 KHz to 20 KHz (See 13.4.2 , page 14 of the Test Procedure). As the bandwidth becomes comparable to the measured frequencies from 3.5 to 7 KHz, the emission results are more likely in broadband than in narrowband. Based on proportionality of noise power to the bandwidth, a correction factor of 20 dB may be applied in order to correct the over limit peaks of CE01 emission curves. When corrections are considered, emissions fall below the limit line by approximately 5 dB.

4.1.2. CE03 Anomalies

The results of CE03 emission measurement indicates an ambient noise level below the limit line for the primary power input and the return lines of the Survival Bus A. With the UUT operating in the mission mode, the emission level for both primary and return increases and exceeds the limit line from 6 KHz to 2.2 MHz with a maximum over limit peak of 12 dB. Some over limit emission peaks of less than 5 dB was also observed in the 12 to 15 MHz frequency range. The ambient measurement with the shielded room door closed has emissions below limit line for the Survival Bus B return line and shows some over limit emissions for the primary input line from 15 to 50 MHz with a maximum of 13 dB at 45 MHz. Emissions in the UUT mission mode for Survival Bus B were similar to those for the Survival Bus A and the over limit emissions were confined to frequencies from 600 KHz to 2.2 MHz. Sources of over limit emissions can be traced to converter switching noise and to the cable noise carried from the outside of the chamber to within the instrument primary power and the return lines. Similar emissions on Noisy Bus power lines have been observed during the HIRDLS Power Converter Unit (PCU) EMI/EMC testing in Rutherford Appleton Laboratory (# EMCRT 060200). Ambient test runs with cables from chamber walls to UUT connected and disconnected indicate that most of the emissions in 600 KHz to 2.2 MHz are the results of the noise and spurious fields brought into the shielded chamber from the outside. Most emissions were seen disappeared as the cables from wall to UUT were disconnected. Emissions

from the Noisy Bus A appear to have continuous over limit above 12 MHz, pointing out to the converter switching noise as the likely source of over limit emissions above 12 MHz. These peaks have a maximum of 13 dB above the limit line. In Noisy Bus B some over limit peaks were observed from 400 KHz to 1 MHz for both primary input and return but no over limit peak above 10 MHz. Quiet Bus emissions from 400KHz to 2.2 MHz were similar to emissions from Survival and Noisy Busses except that the over limit peaks were much higher with maximums exceeding 20 dB. For quiet Bus A, emissions above 12 MHz were similar to emissions from Noisy Bus A. A comparison of ambient data obtained with and without cables connected to the wall, with GSE on and off, and with and without HP 8447D present, confirms that the same converter noises and the noises carried from outside sources including those from HP 8447D and GSE, are the main contributors to the Quiet Bus emissions in the radio frequency range. CE03 Ambient and the Mission Mode operating emission data are presented in Appendix C of this report.

4.1.3. RE02 Emission Anomalies

Ambient measure using the RE02 emission measuring equipment points out to the over limit emission from 1 to 2.2 MHz and from 30 to 300 MHz with a maximum over limit emission of 60 MHz (Ambient: Horizontal Antenna, Vacuum System On, Blower off) at the HIRDLS Instrument side A. Similar measurements are obtained at the same side A with Instrument operating in Mission modes indicating that emissions are mostly from outside sources carried into the shielded chamber by cablings from equipment outside the shielded enclosure. Ambient noise level is reduced some with antenna on B side of the UUT.

Vertical antenna measurements in side A with UUT operating show no emissions above the limit lines from 20 to 200 MHz. In contrast, emission from side B has numerous over limit in the same frequency range.
A comparison with ambient plots with cables between the shielded chamber wall and the Instrument disconnected, indicate that most of the ambient noise is carried by cablings from outside. In addition, it can be concluded that with the Instrument operating the increase in emission levels is less than 6 dB within the whole RE02 measurement spectrum. With ambient noise not present, the radiated electric field from equipment will be well below the specification limit line.

4.1.4. RS03 Anomalies

During performance of RS03 radiated electric field susceptibility test several anomalies were observed at several frequencies at side A, ranging from 40 MHz to 1.666 GHz as reported in the section of Test Results. Also in side B radiation testing there was an anomaly at 48.75 MHz with a threshold of 0.7 V/m. Most of the anomalies were in terms of MIF packet

drop out as reported in CDR AD6464. In the second sequence of sweep no anomalies were found, indicating that the anomalies recorded during the first sweep, were caused by the inadequate tools used to determine the reported MIF drops. After checking the relevant indicators and counters, it was found that drop outs causing data gap were due to IE GSE being overloaded.

4.1.5. CS01, CS02, CS06 Anomalies

The conducted susceptibility tests were only performed on A side power input lines due to A/B similarity. In CS01 susceptibility tests Noisy Bus and Quiet Bus lines were found to be susceptible at frequencies with threshold leads ranging from essentially above zero volts to 1 volt. Only the temperature sensors were affected with the defects categorized as minor. CS02 susceptibility were observed in Survival Bus at 46 MHz and in Quiet Bus at 39.7 MHz, 50 MHz, and 55 MHz with threshold levels varying from essentially zero to 2.5 V. In CS02 testing also only temperature sensor were affected with no major category defects reported. Similar anomalous behaviors were recorded during the Spike Susceptibility test.

4.2. General Conclusions

Based on the flash report submitted after the performance of HIRDLS Instrument EMI/ EMC Test (05/07/02), in all conducted and radiated emission tests over limit peaks in certain frequency range were noticed. After an analysis of the results, the peaks were found to be due to abnormal changes of the bandwidth and due to the ambient data contaminated by noise carried into the shielded enclosure by cablings from outside. After adjusting for the environment and measurement errors, the results of emission tests were found to be within the limits specified for CE01 tests. In the case of CE03 and RE02 tests, corrections were performed to account for the noise carried by cabling from outside. However, because of the converter switching noises present, an average over limit peaks of 6dB were found to exist for most of the CE03, and the RE02 emissions.

Anomalies observed during the susceptibility test were categorized as minor defect with no major impact in overall operation of HIRDLS Instrument.

The results of the HIRDLS Instrument EMI/ EMC tests suggest the following recommendations in order to improve EMI protection design and to minimize the impact of susceptibility testing on modules and circuitry used in HIRDLS Instrument assembly.

Further improvement in filtering and shielding in power converter unit may reduce the conducted and radiated over limit emissions.

Improvement in temperature sensor circuitry can eliminate or minimize the impact of interfering signals on sensors and in particular, making the sensors immune from the damage and upset effects of transient pulses.

APPENDIX A
Flash Report

LOCKHEED MARTIN MISSILES & SPACE

TEST FLASH REPORT

TEST TITLE	PART NUMBER	TEST SPECIMEN NAME
EMI/EMC TEST OF THE HIRDLS Instrument	--------	HIRDLS Instrument

TESTING AGENCY	LOCATION	TEST FLASH REPORT NO. FL –	PAGE
Electronic Test	B/152		1 of

REQ. ORGN.	LIAISON ENGINEER	TEST ENGINEER	TEST START	TEST COMP.
L9 - 24	Don Wilson	Ivan Beck	4-28-02	5-7-02

TEST AUTHORIZATION AND SPECIFICATIONS	PREPARED:	DATE:
EMI/EMC Test Procedure TP-LOC-820 NC	I. Beck (N-ATR)	
	APPROVAL: Norm Beck L3-10	DATE:
	APPROVAL: D. Wyandt L3-01	DATE:

PURPOSE: The test objective was to demonstrate the Electromagnetic Interference (EMI) compliance of a High Resolution Dynamics LIMB Sounder (HIRDLS) Instrument. Achievement of the test was to the EMI/EMC Test Procedure TP-LOC-820, Revision NC. Performance of the test was in the Building 152 Shielded Enclosure. The individual EMI tests consisted of the following: Conducted and Radiated Emission Tests, Conducted and Radiated Susceptibility, DC Magnetic Dipole Moment, DC Magnetic Field Susceptibility.

RESULTS: All tests were performed with the HIRDLS Instrument in the large room (Room 3) of the shielded enclosure. The cables and auxiliary hoses to the Instrument were connected to Thermal/Vacuum plates (two) mounted to the shielded enclosure wall. The EMI test setups are shown in the EMI/EMC Test Procedure TP-LOC-820 Rev. NC. The Instrument Test Consoles used to monitor and control the Instrument were outside the large room (Room 3) of the shielded enclosure. Visual observances of the Instrument monitor displays were the only indication of pass or failure of the Instrument for the susceptibility tests. The EMI/EMC HIRDLS Instrument TEST SUMMARY in this report shows the final results of the EMI test. Nineteen Common Discrepancy Reports (CDR) were written for the tests or parameters that failed to meet the test requirements or specification limits. The program EMC engineering staff is doing further analysis of the failed parameters to prepare final dispositions of the CDR's. Any follow-on testing of the Instrument or any change to the Instrument EMI specification limits is to be made at a later time. The EMI testing was performed on a 24-hour-per-day, 7-day-per-week basis.

TEST SUMMARY: The High Resolution Dynamics LIMB Sounder (HIRDLS) Instrument completed the EMI Tests on May 7, 2002. The Instrument and monitor equipment were returned to Building 202. No re-testing is presently planned for the Instrument.

DISTRIBUTION:

File L3-10 Bldg 181 (1) Don Wilson L9-24 Bldg 202 (1) Andy Nalbandian L3-40 Bldg 157 (1)
Norm Beck L3-10 Bldg 181 (1)

TEST SUMMARY: (Continued) A brief summary of each test phase follows.

Bonding and Grounding: This test measures the resistance between each panel and connector of the Instrument and the metal transporter. Program personnel performed this test during assembly in Palo Alto.

Circuit Isolation: This test measures the electrical isolation between the Instrument input power lead, plus and return, and ground . Program personnel performed this test during assembly.

CE01 Conducted Emissions: This test measures the frequency domain steady state current emissions from 30 Hz to 15 KHz (CE01) on each Instrument input power line and its return, control and signal lines. The CE01 Conducted Emission test did not meet all of the requirements. The primary input and return survival bus A & B lines all passed. The primary input and return noisy bus A & B lines had 200 peaks that exceeded the limit line by a maximum of 17 dB from 6.0 to 6.8 KHz. The primary input and return quiet bus A & B lines had 153 peaks that exceeded the limit line by a maximum of 12.7 dB from 5.1 to 6.9 KHz. CDR (Common Discrepancy Report) AD 6419 was written to document the CE01 test anomalies.

CE03 Conducted Emissions: This test measures the frequency domain steady state current emissions from 15 KHz to 50 MHz (Narrowband only) on each Instrument input power line and its return, control and signal lines. The survival, quiet and noisy buses, primary input and return of both A & B sides were tested. There were many peaks which exceeded the limit line with a maximum of 24.1 dB above the line at 594 KHz. CDR's AD 6433 and AD 6442 were written to document the CE03 test anomalies. Some of the ambient test runs also exceeded the limit line. The only ambient runs (UUT turned off) below the limit line were with all of the cables disconnected between the UUT and the feed-through plates indicating that much of the noise was coming from the test equipment outside of the chamber.

CS01 Conducted Susceptibility: This test is to show that the Instrument will not be susceptible to Audio Conducted signals in the range of 30 Hz to 50 KHz applied in series with the input power line, and then the power return line. For this test, only the A side power input and return were tested due to A/B similarity. The survival bus lines passed all measurements. The noisy bus power input line was susceptible at 19 KHz with a threshold level of essentially zero; the power return line was susceptible at 29.7 KHz with a threshold of 0.56 V. The quiet bus power input line was susceptible at 1.49 KHz with a threshold of 1.0 V and at 42 KHz with a threshold of essentially zero; the power return was susceptible at 23 KHz with a threshold of 0.5V. CDR AD 6494 was written to document the CS01 test anomalies.

CS02 Conducted Susceptibility: This test is to show that the Instrument will not be susceptible to radio frequency (RF) conducted signals in the range of 50 KHz to 400 MHz applied through a coupling capacitor in parallel from input power to power return, and from power return to chassis of the Instrument. For this test, only the A side power input and return were tested due to A/B similarity. The noisy bus power lines passed all measurements. The quiet bus power return to chassis combination passed all measurements; the power input to return combination was susceptible at 39.7 MHz, 50 MHz and 55 MHz with thresholds at essentially zero V, 0.5 V and 2.5 V respectively. The survival bus power input to return combination passed; the return to chassis combination was susceptible at 46 MHz with a threshold of essentially zero. CDR's AD 6490 and AD 6495 were written to document the CS02 anomalies.

CS06 Conducted Susceptibility: This test is to show that the Instrument will not be susceptible to positive and negative spike interference in parallel from input power to power return of the Instrument. Only the A side power input and return were tested due to A/B similarity. The UUT was susceptible to + and – spike injection on all three power lines (quiet bus A, noisy bus A and survival bus A). The threshold for the quiet bus both + and – injection was 29.0 V. The threshold for the survival bus for + injection was 19.1 V and for – injection was 19.2 V. The threshold for the noisy bus for + injection was 29.0 V and for the – injection was 9.0 V. CDR's AD 6495 and AD 6496 were written to document the CS06 anomalies.

RE02 Radiated Emissions: This test measures the narrowband electric field radiated emissions from 14 KHz to 18 GHz with the measuring antenna located on "Side A" and "Side B" of the UUT. Due to time constraints, a faster sweep spectrum analyzer bandwidth was used which resulted in ambient levels that exceeded the limit line by as much as 12 dB from 30 to 300 MHz on Side B and by as much as 15 dB from 1 to 2 MHz and from 30 to 400 MHz in both vertical and horizontal polarities. On Side B in both polarities, the data exceeded the limit line from 385 KHz to 1.8 MHz, and from 30 to 800 MHz with a maximum of 19.4 dB at 56.63 MHz in the horizontal polarity. On Side A in both polarities, the data exceeded the limit line from 1.2 to 2.2 MHz and from 16 to 400 MHz with a maximum of 19.7 dB at 58.24 MHz in the horizontal polarity. The data in all frequency notches lay right on top of the limit line with no discreet noise peaks. CDR's AD 6510 and AD 6511 were written to document the RE02 anomalies.

RE04 Magnetic Field Radiated Emissions: This test measures the magnetic field radiated emissions from the UUT in the frequency range from 20 Hz to 50 KHz with the measuring antenna in both the parallel vertical and perpendicular vertical polarities. All measurements were below the limit line; this test passed.

RS01 AC Magnetic Field Radiated Susceptibility: This test is to determine the susceptibility of the UUT to radiated magnetic fields in the frequency range from 30 Hz to 200 KHz. The test was performed with the magnetic loop antenna taped to the plastic bag enclosing the UUT and pushed against four sides of the UUT (+ and –X and + and –Y). The +X, +Y and –Y axes passed the entire frequency range. The –X axis exhibited susceptibility (telemetry focal plane temperature reading dropped 0.5 degree C. and the Compressor stroke exceeded the 80% limit) from 30 to 520 Hz. CDR AD 6471 was written to document this RS01 anomaly.

RS03 Electric Field Radiated Susceptibility: This test is to determine that the UUT can operate without any change in indication, malfunction or degradation of performance when subjected to radiated signals from 14 KHz to 18 GHz. The test antennas were placed on two sides of the UUT (Side A and Side B). Side A experienced anomalies at 40, 94, 110, 115, 129, 141 156, 169 and 193 MHz and 1.666 and 1.554 GHz. Side B had an anomaly at 48.75 MHz with a threshold level of 0.7 V/M. CDR AD 6464 was written to document these RS03 anomalies.

Ripple Voltage: This test is to measure the AC noise level superimposed on the DC power lines. This test was performed for information only with no failure criteria given. The highest ripple value was 1.208 Vp-p measured from PI-NB-A to structure. See data sheets for details.

DC Magnetic Dipole Moment: This test is to measure the residual dipole moment of the UUT when operating in the Mission Mode. The highest reading was 2.47 x 10^{-4} A-m^2 (0.5 A-m^2 maximum allowed) in Position 3. All readings were well within the limit. See data sheets for details.

DC Magnetic Field Susceptibility: This test is to determine that the Instrument is not susceptible to a DC magnetic field generated by a large coil surrounding the UUT. An 8-foot square wooden frame with 96 loops of 12 gauge wire was placed in 3 positions around the UUT in each of the three major axes (X, Y and Z) with 20 amps of current flowing producing a field of 800 Amps/Meter. The Test Log indicated that there was a performance anomaly in the Z axis with a threshold of 1.75 amps; however, there has been no CDR written to date.

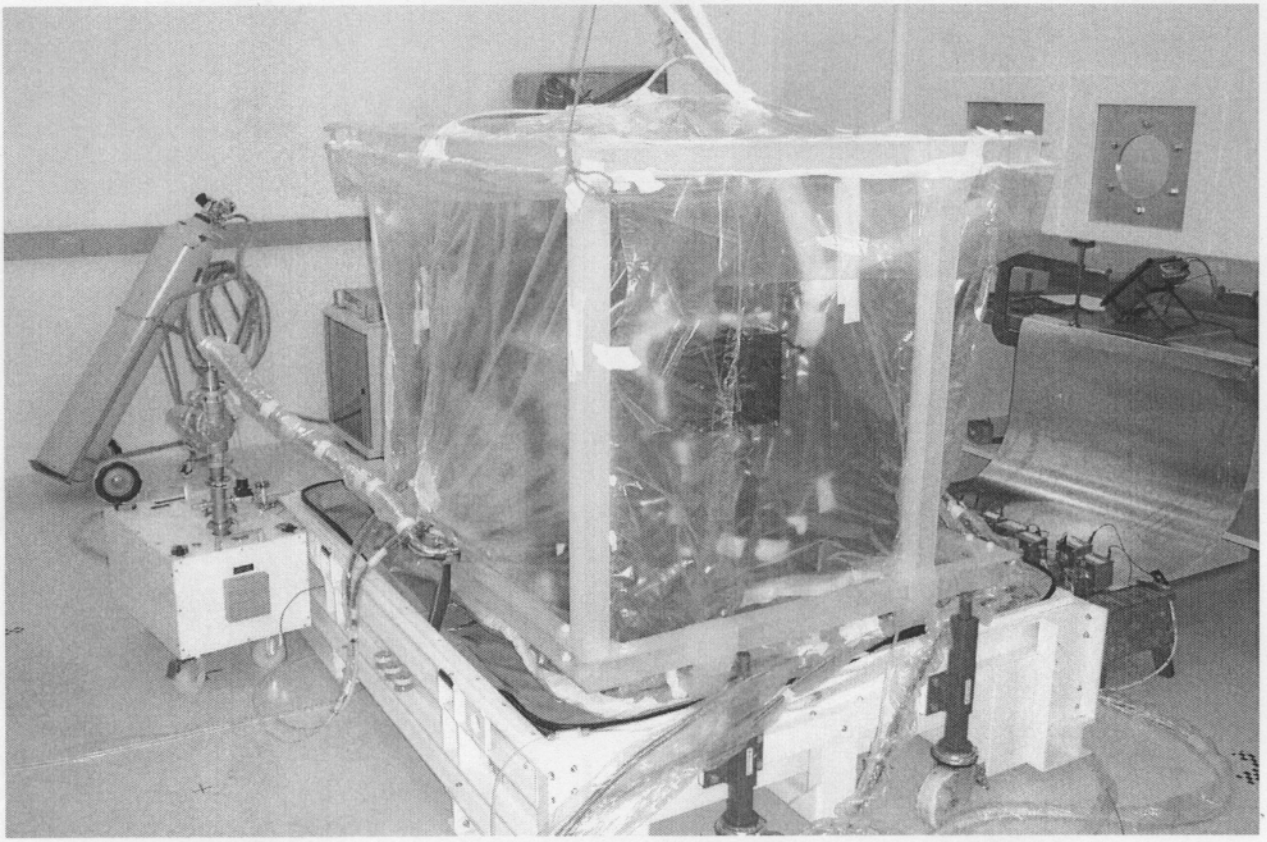
CDR Summary of Problems Not Related to EMI:
AD 6416—Bagging material was making contact with sunshield door.
AD 6417—CCU box temperature exceeded 35°C.
AD 6418—PSS REG 28V telemetry voltage oscillated between 29.2 and 31.1V.
AD 6491—Gyros could not be heated to the minimum operational temperature (55°C).
AD 6516—CCU compressor stroke was low (20% with 80% minimum allowed).

CONCLUSIONS: See the TEST SUMMARY table for the Pass/Fail results for each of the above tests. The only tests that did not exhibit any failures were the DC Magnetic Dipole Moment and the DC Magnetic Field Susceptibility tests. The program EMC engineering staff is doing further analysis of the failed parameters to prepare final dispositions of the CDR's. Any follow-on testing of the Instrument or any changes to the Instrument EMI specification limits are to be made at a later time.

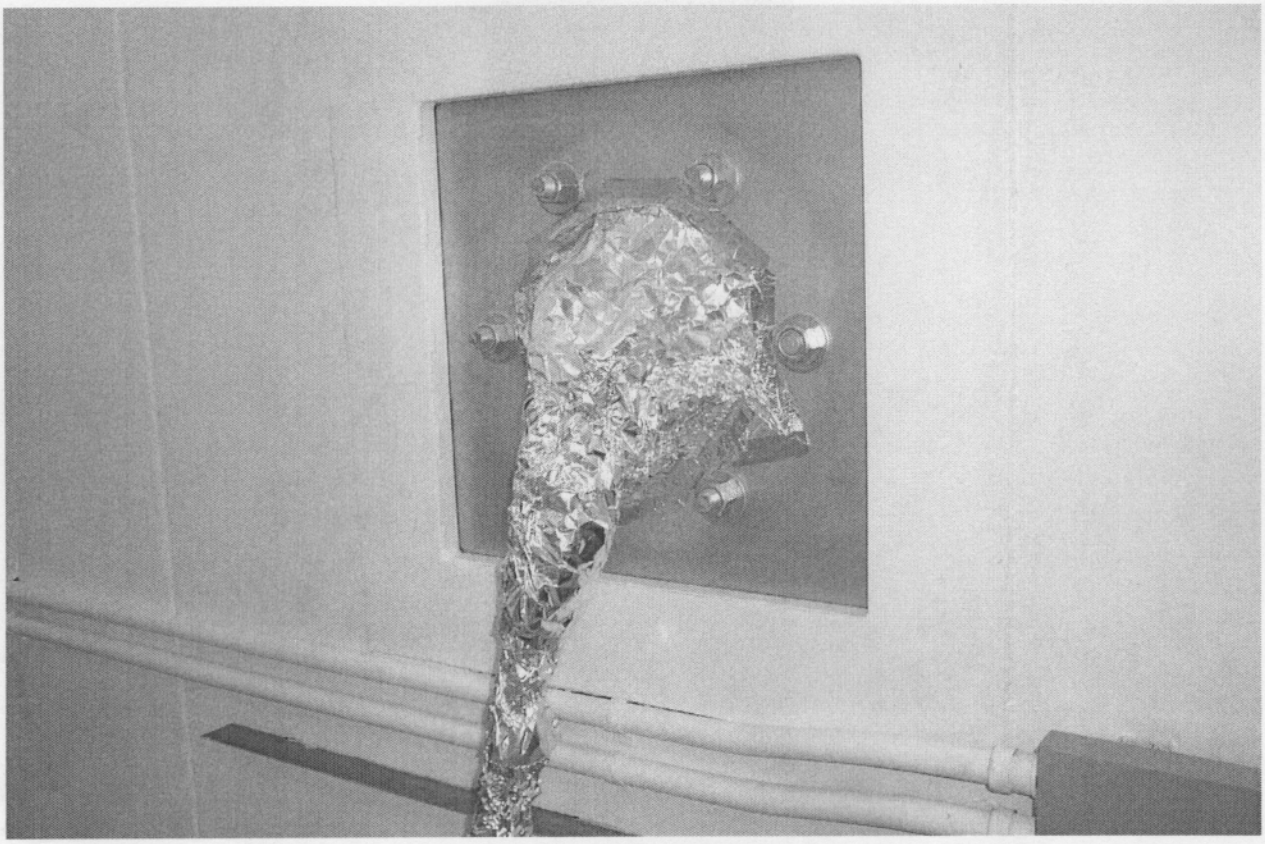
EMI/EMC HIRDLS Instrument TEST SUMMARY
Test Procedure TP-LOC-820, NC

Test Paragraph	Test Title	Pass	Fail	Comments
13.1	Bonding and Grounding			Performed during build.
13.2	Circuit Isolation			Performed during build.
13.4.6	CE01 Conducted Emissions, 30 Hz to 15 KHz			
	Survival Bus A	X		
	Noisy Bus A		X	*CDR #AD6419
	Quiet Bus A		X	CDR #AD6419
	Survival Bus B	X		
	Noisy Bus B		X	CDR #AD6419, AD6426
	Quiet Bus B		X	CDR #AD6419
13.4.13	CE03 Conducted Emissions, 15 KHz to 50 MHz			
	Survival Bus A		X	CDR #AD6433, AD6442
	Noisy Bus A		X	CDR #AD6433, AD6442
	Quiet Bus A		X	CDR #AD6433, AD6442
	Survival Bus B		X	CDR #AD6433, AD6442
	Noisy Bus B		X	CDR #AD6433, AD6442
	Quiet Bus B		X	CDR #AD6433, AD6442
13.5	RE02 Radiated Emissions, Electric Field, 14 KHz to 18 GHz		X	CDR #AD6510, AD6511
13.6	RE04 Radiated Emissions, Magnetic Field, 20 Hz to 50 KHz	X		
13.7	DC Magnetic Dipole Moment	X		
13.8	RS01 AC Magnetic Field Radiated Susceptibility 30 Hz to 200 KHz		X	CDR #AD6471
13.9	DC Magnetic Field Susceptibility		X	Failed but no CDR written
13.10	RS03 Radiated Susceptibility Electric Field, 14 KHz to 18 GHz		X	CDR #AD6464
13.11.3	CS01 Audio Frequency Conducted Susceptibility 30 Hz to 50 KHz		X	CDR #AD6494, AD6487, AD6491
13.11.14	CS02 Radio Frequency (RF) Conducted Susceptibility 50 KHz to 400 MHz		X	CDR #AD6495, AD6490
13.12	CS06 Power Lead Spike Susceptibility		X	CDR #AD6496, AD6491, AD6497
	Non-EMI related problems		X	CDR #AD6416, AD6417, AD6418, AD6491, AD6516

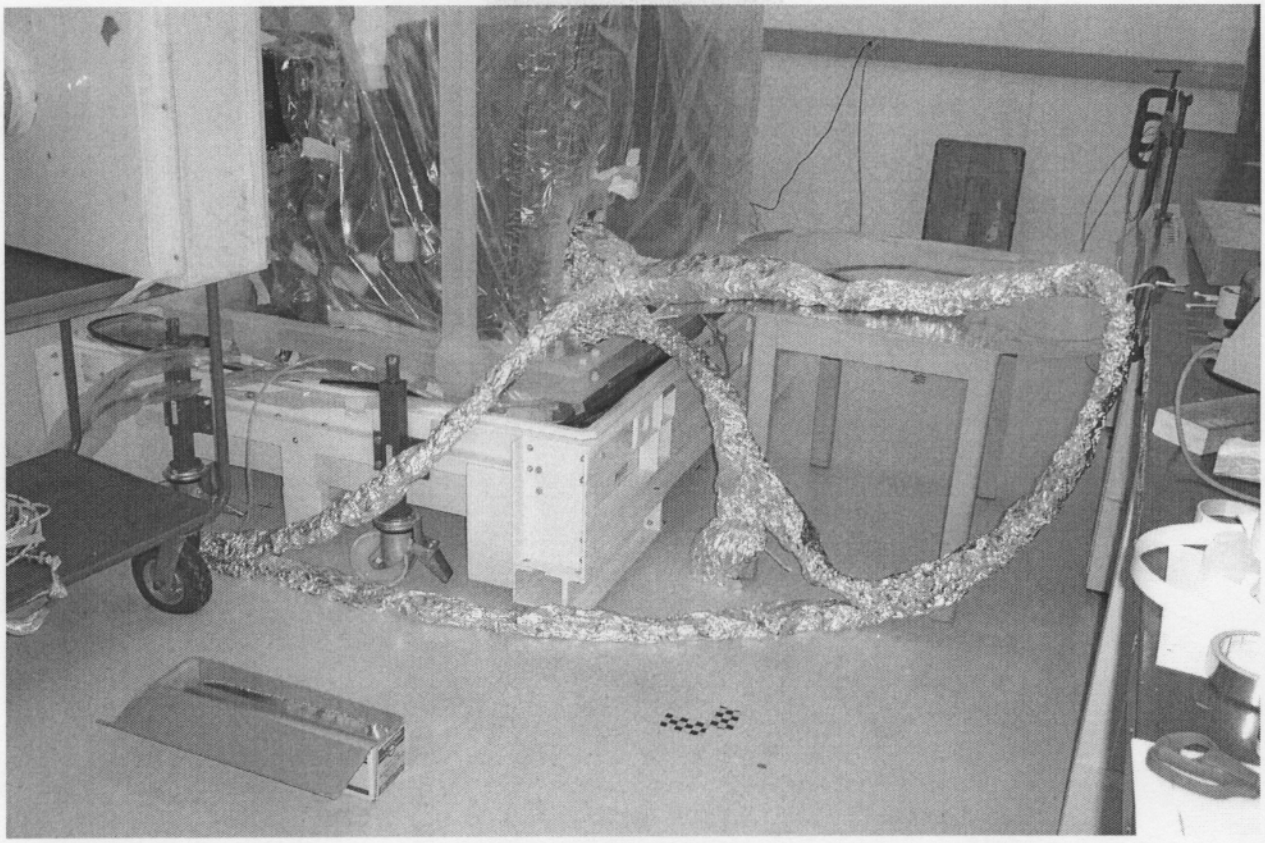
*CDR = COMMON DISCREPANCY REPORT



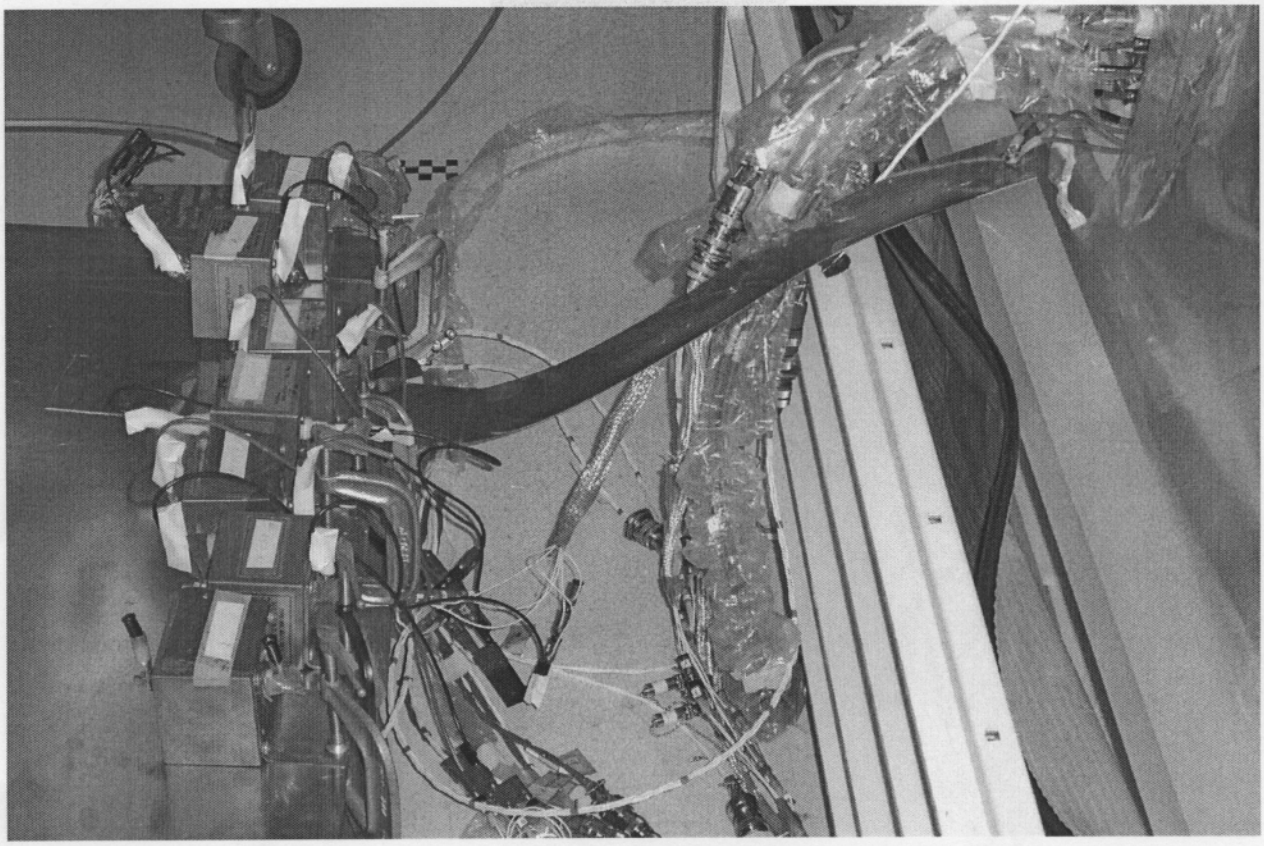
Front view of HIRDLS Instrument during EMI Test



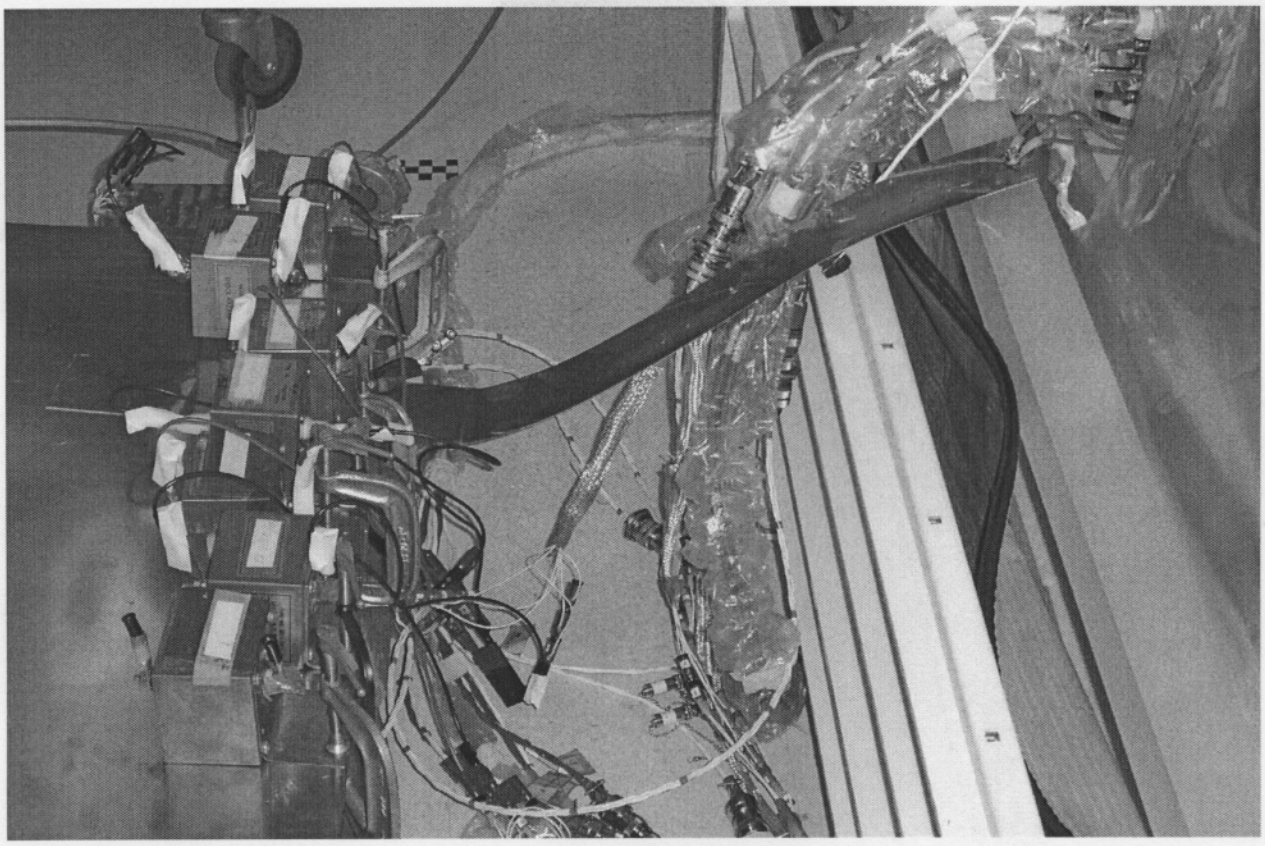
Foil Shielding on cables



Foil shielding on cables

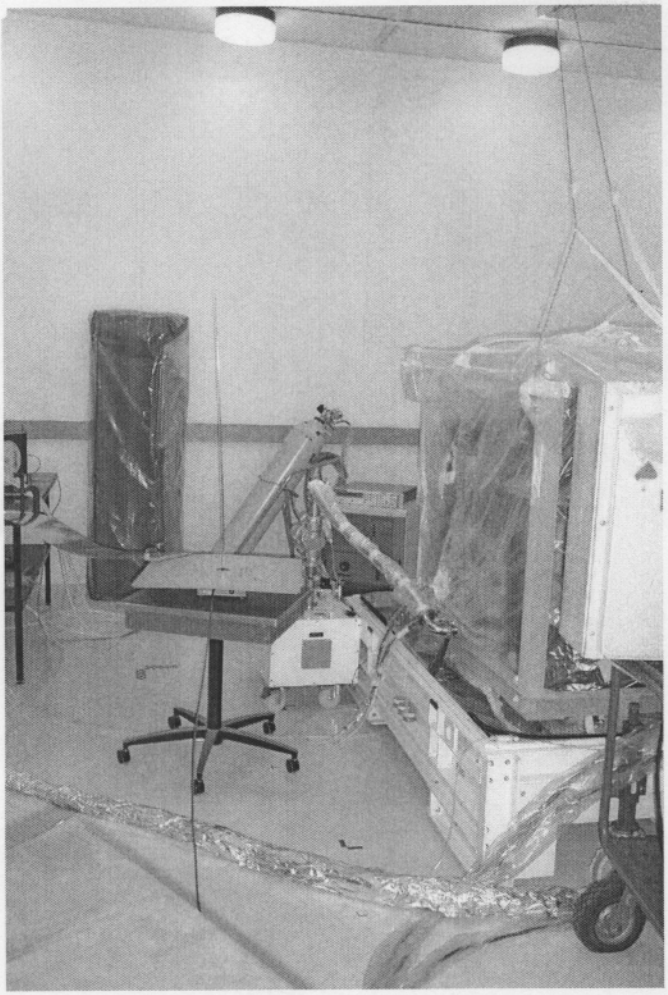


CE01/CE03 Test Setup



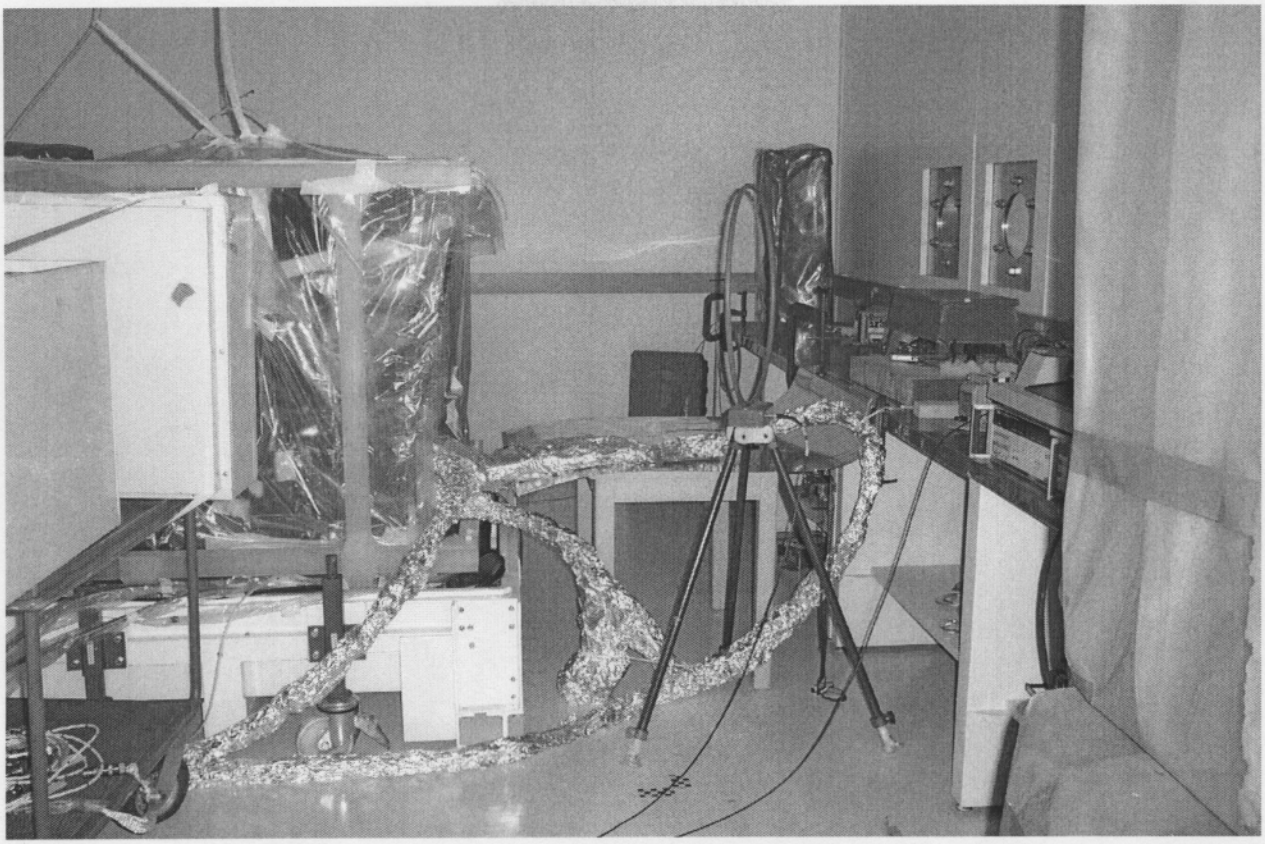
CE01/CE03 Test Setup

CE01/CE03 Conducted Emissions test setup

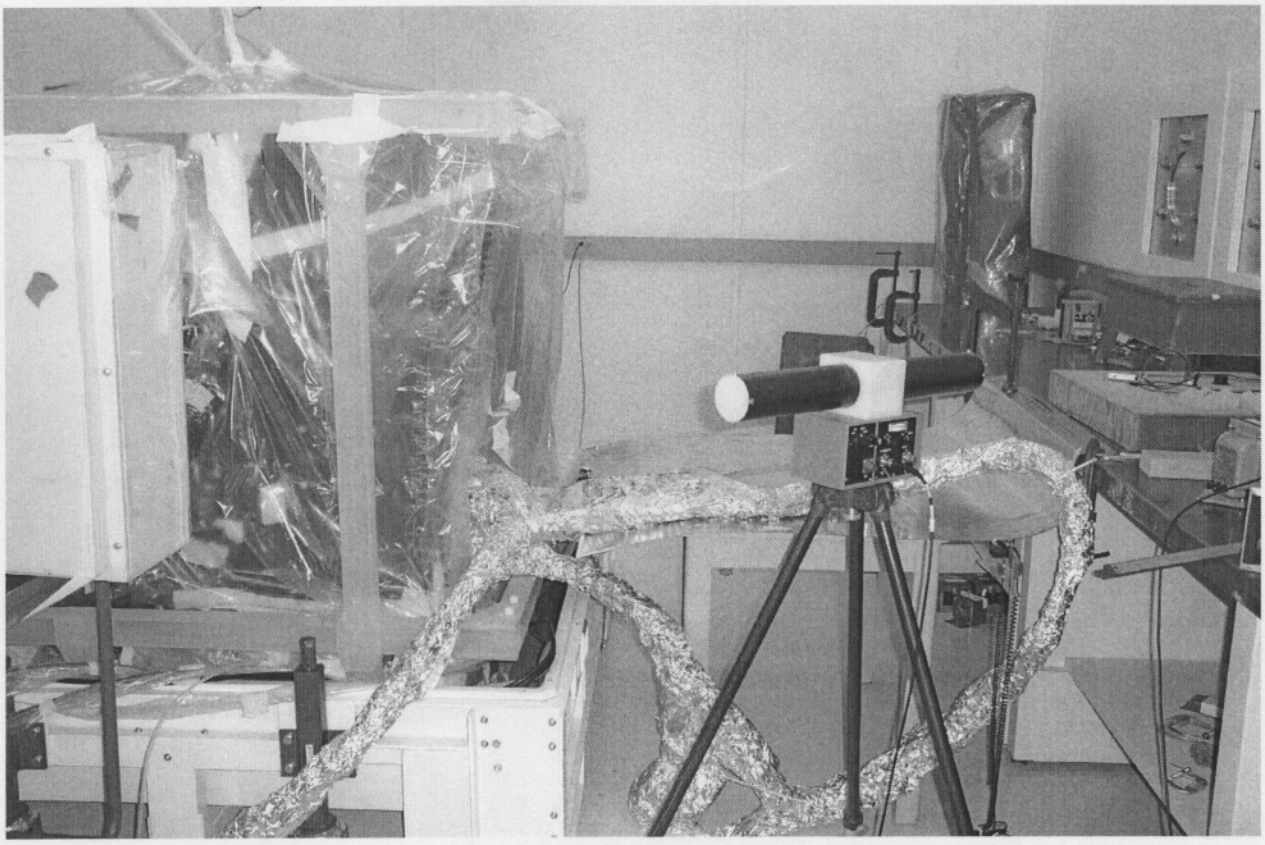


RE02, E-Field Radiated Emissions using the active rod antenna

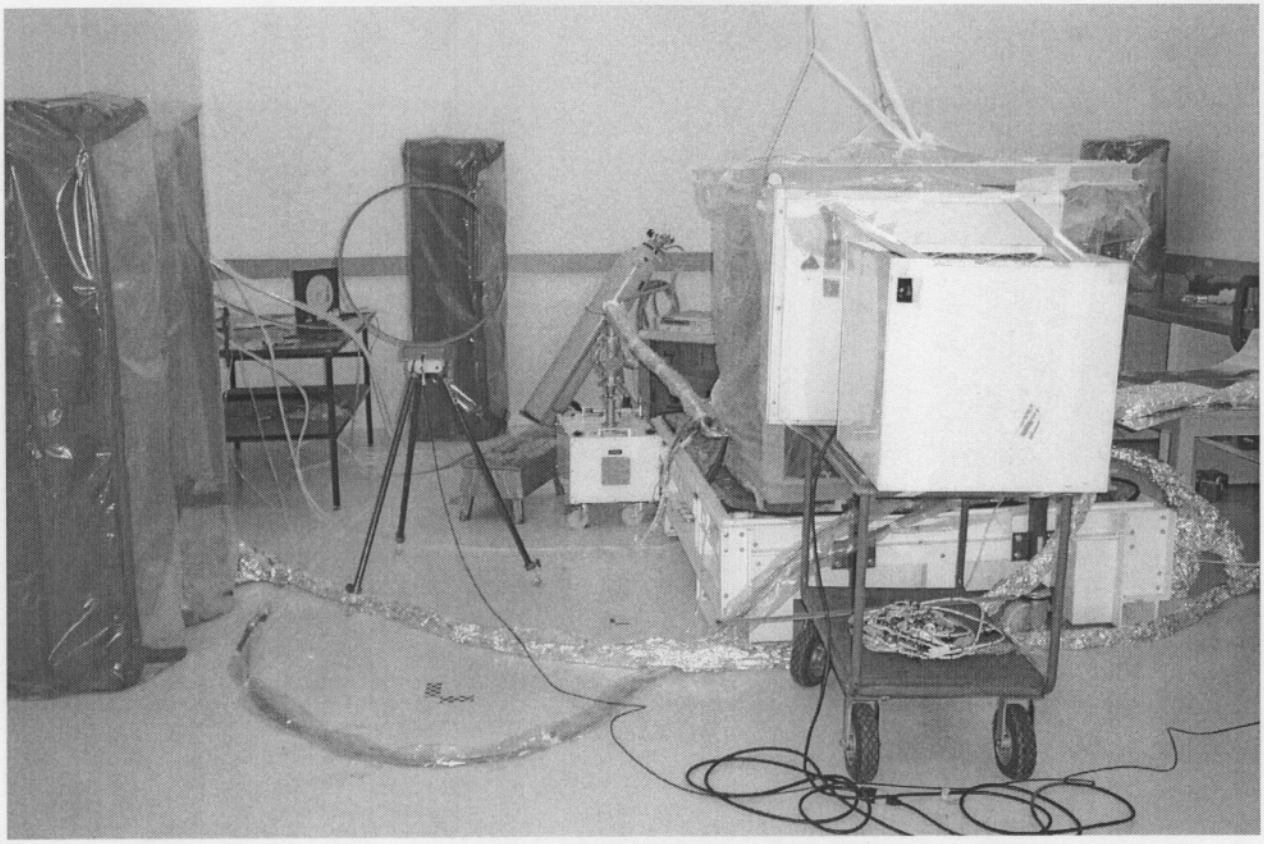
RE04 Magnetic Radiated Emissions – Perpindicular



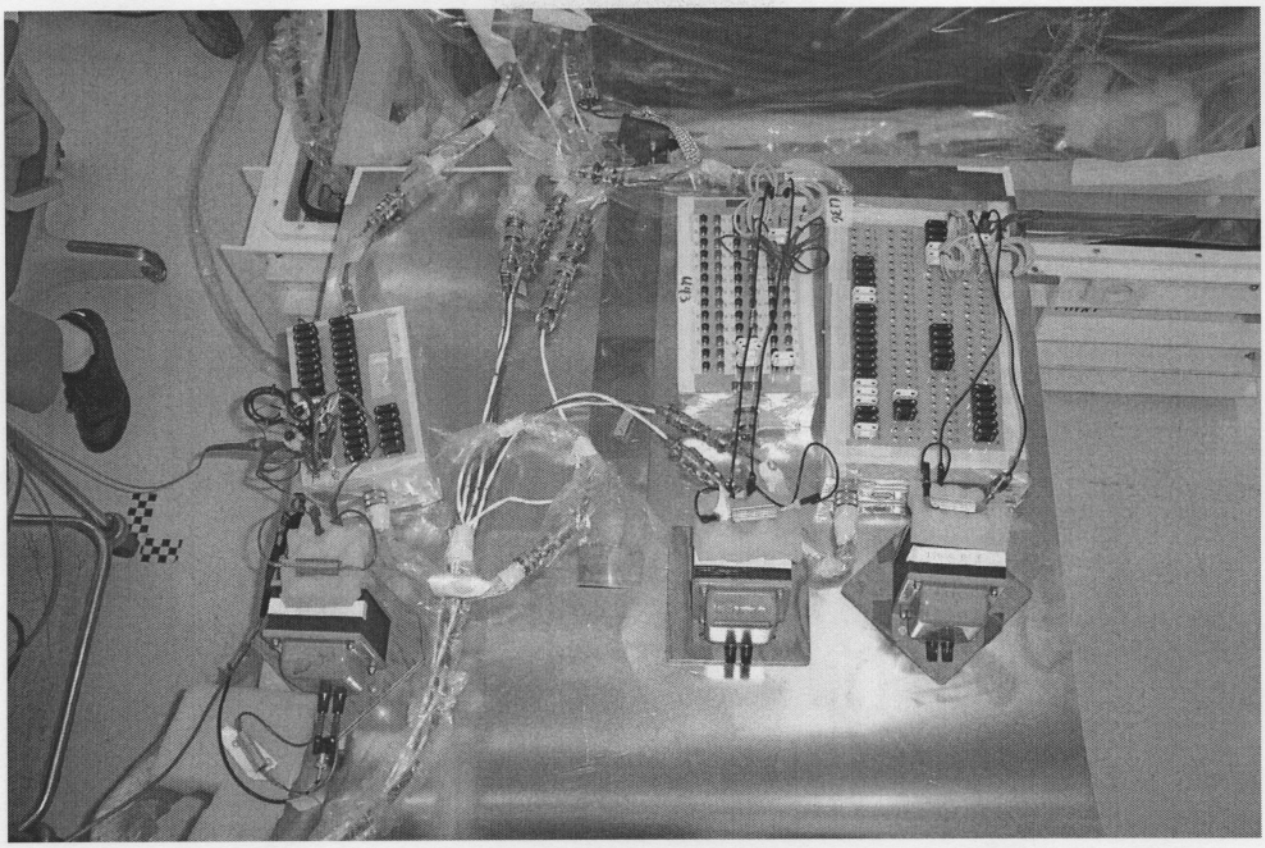
RE04 Magnetic Radiated Emissions – parallel



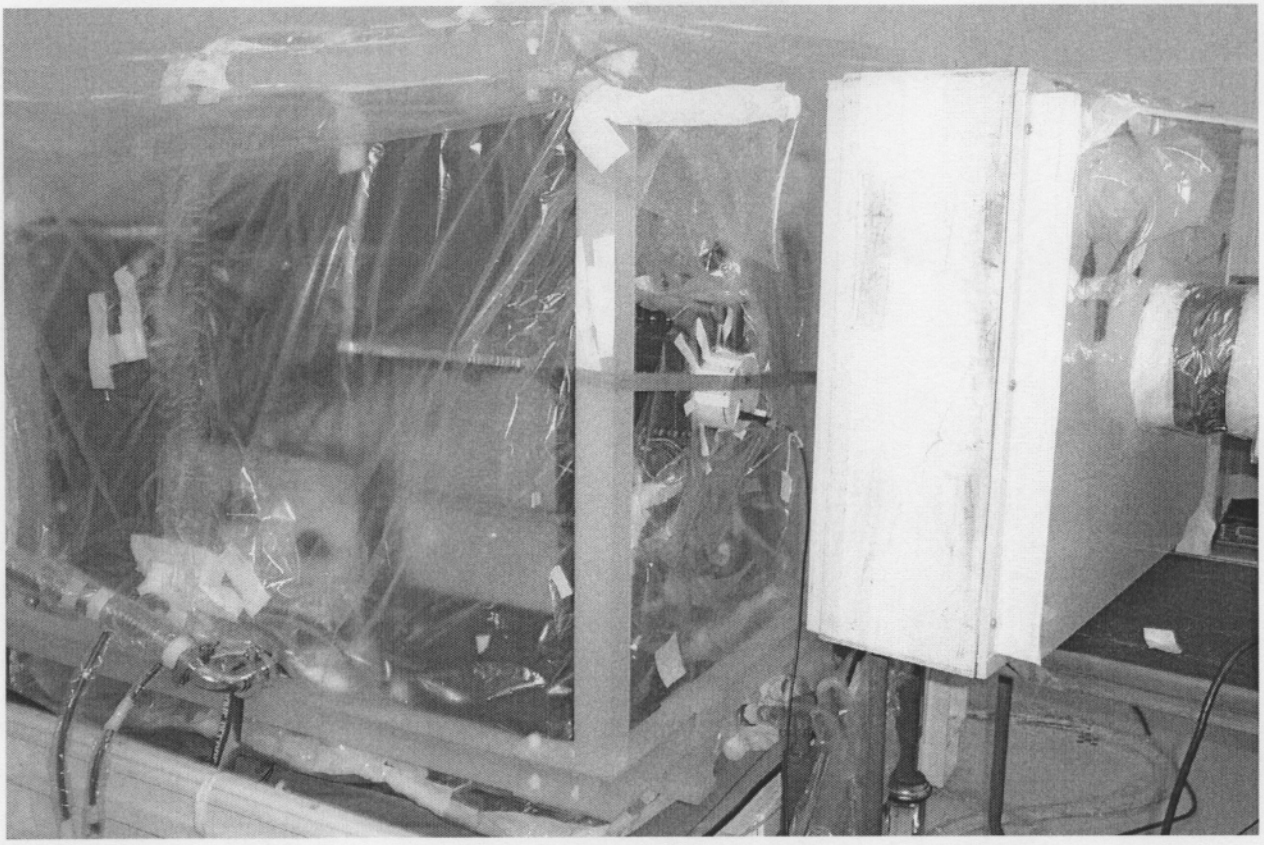
RE04 Magnetic Radiated Emissions – parallel



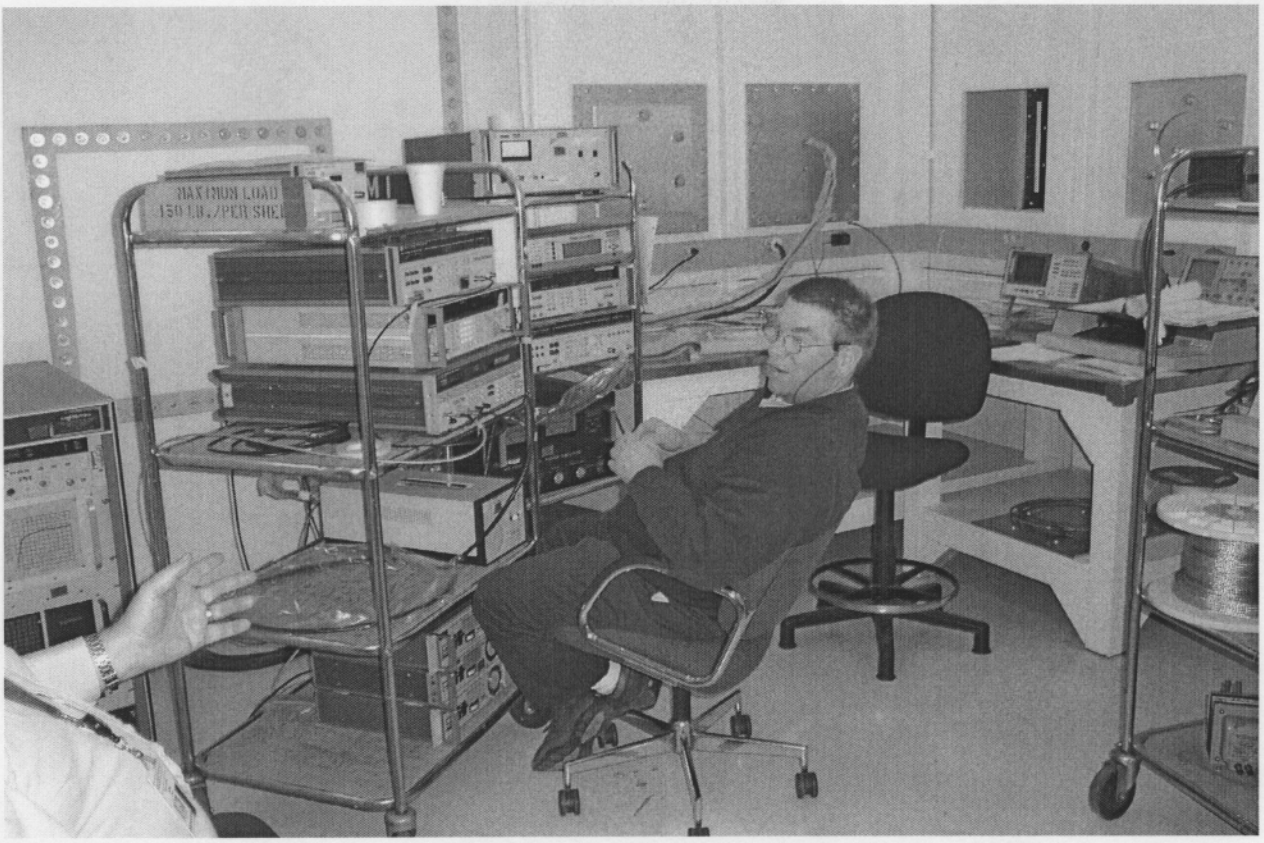
RE04 Magnetic Radiated Emissions – Perpindicular



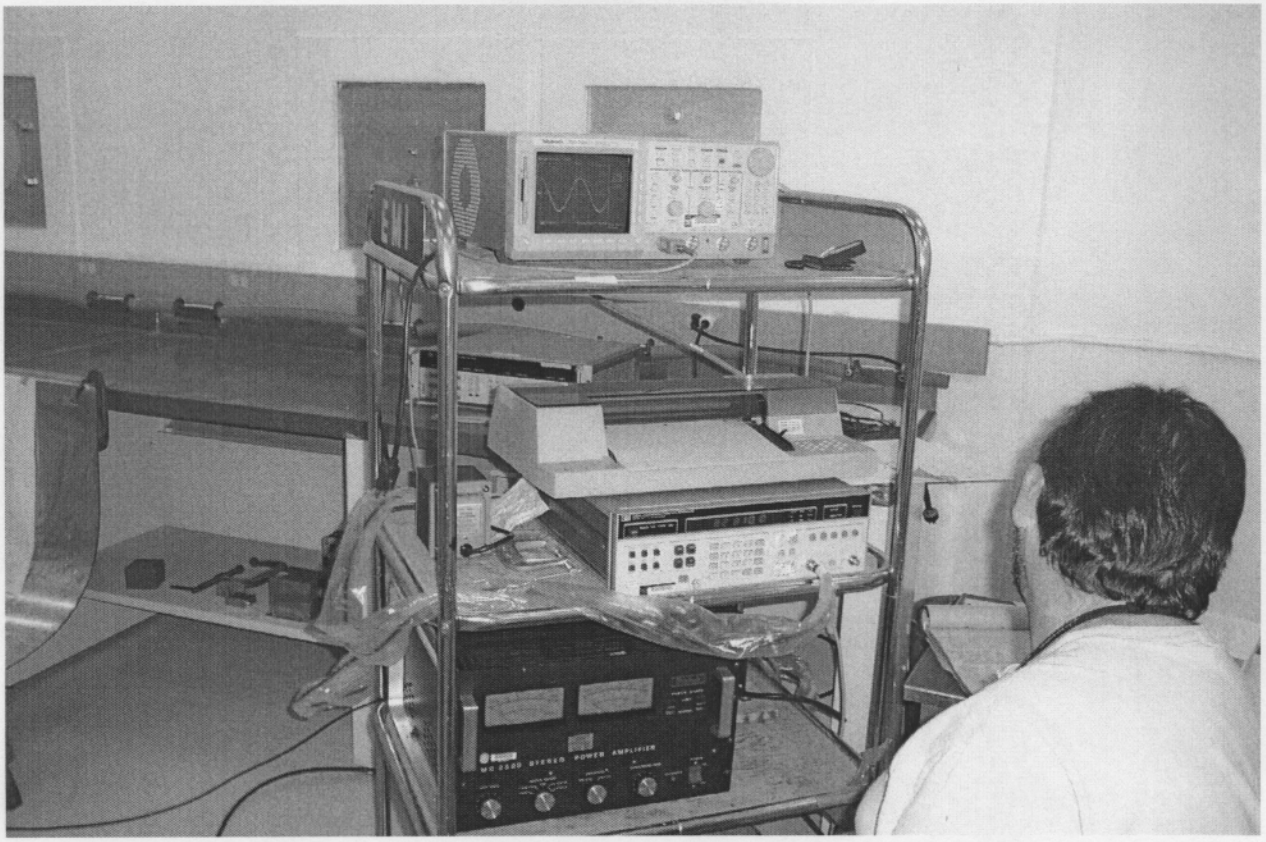
CS01 Test Setup



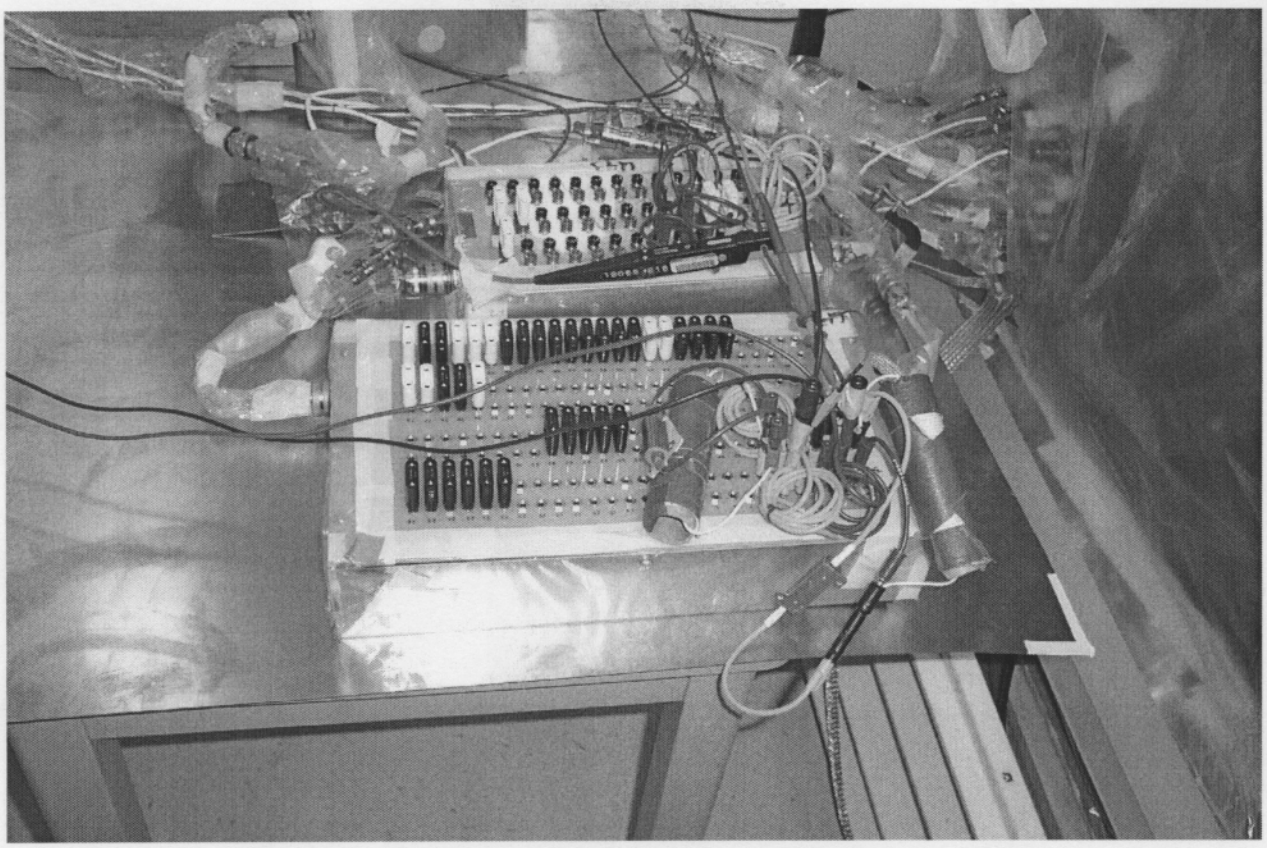
Magnetic Field probe taped to Hirdls Instrument for RS01 Test



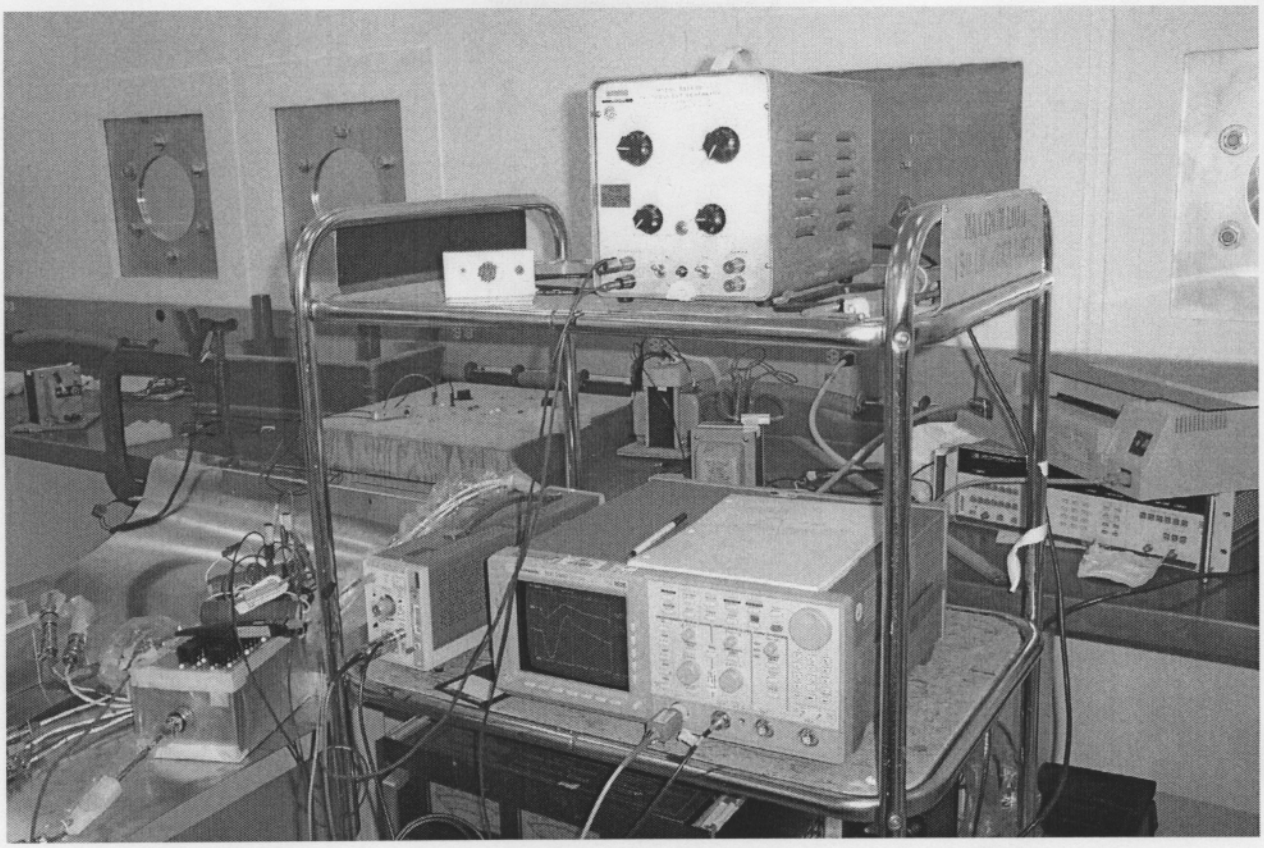
RS02 Test Equipment Setup



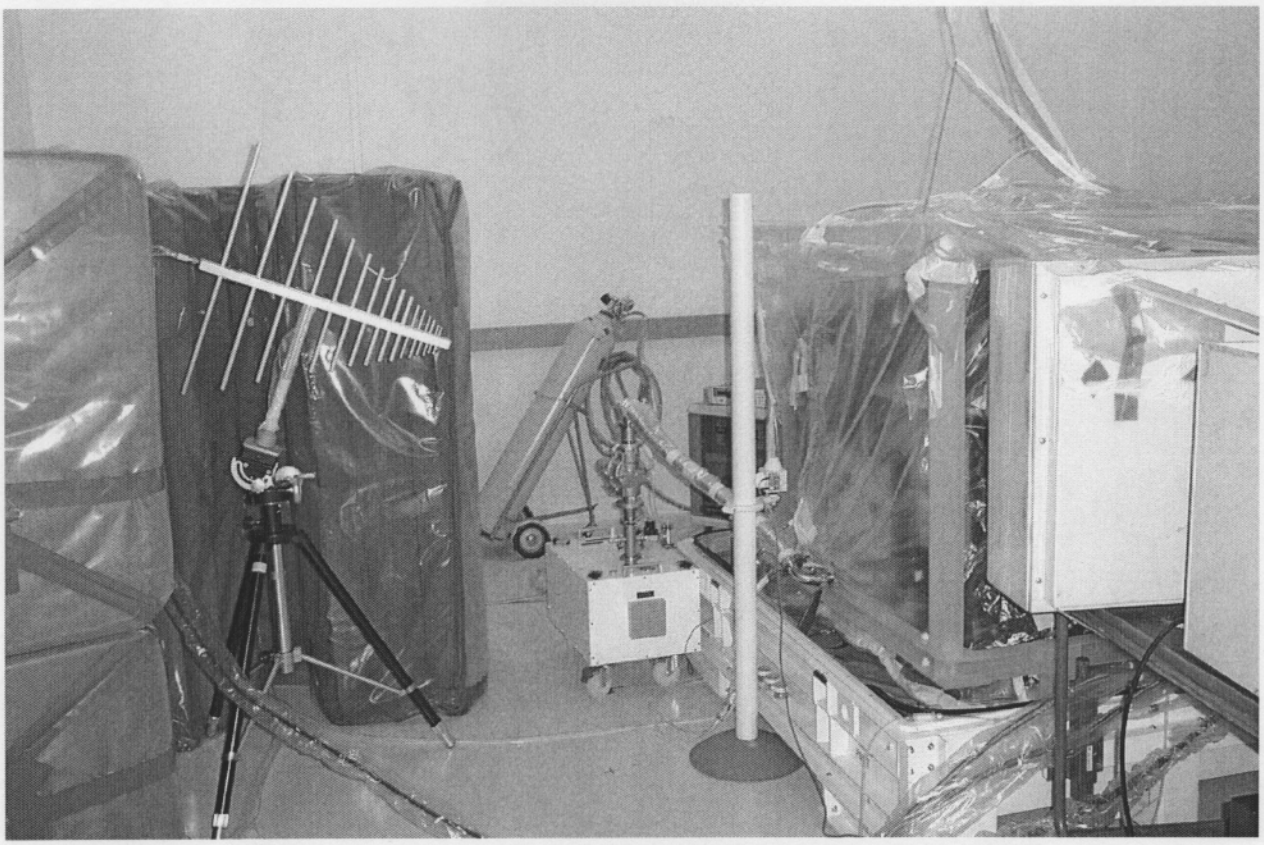
CS01Test Equipment Setup



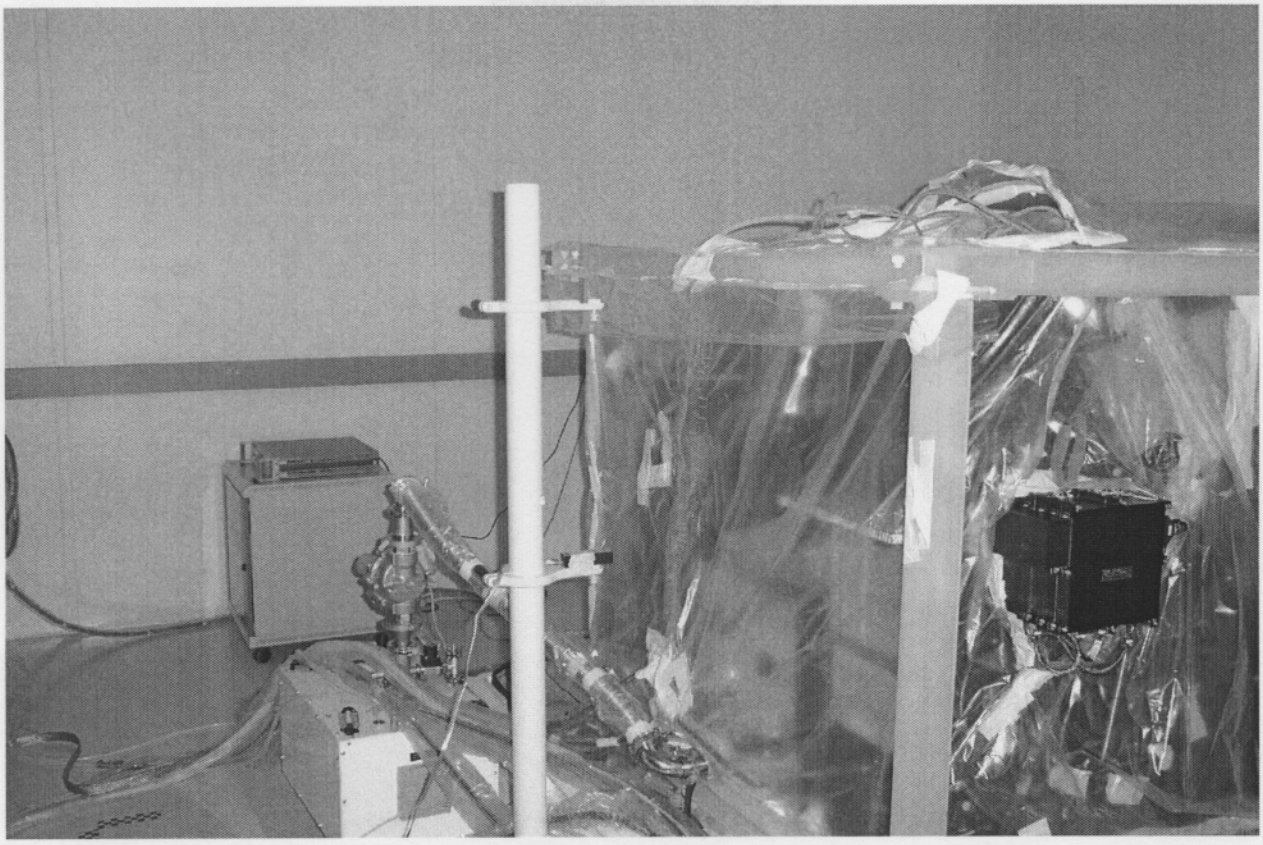
CS02 Test Setup



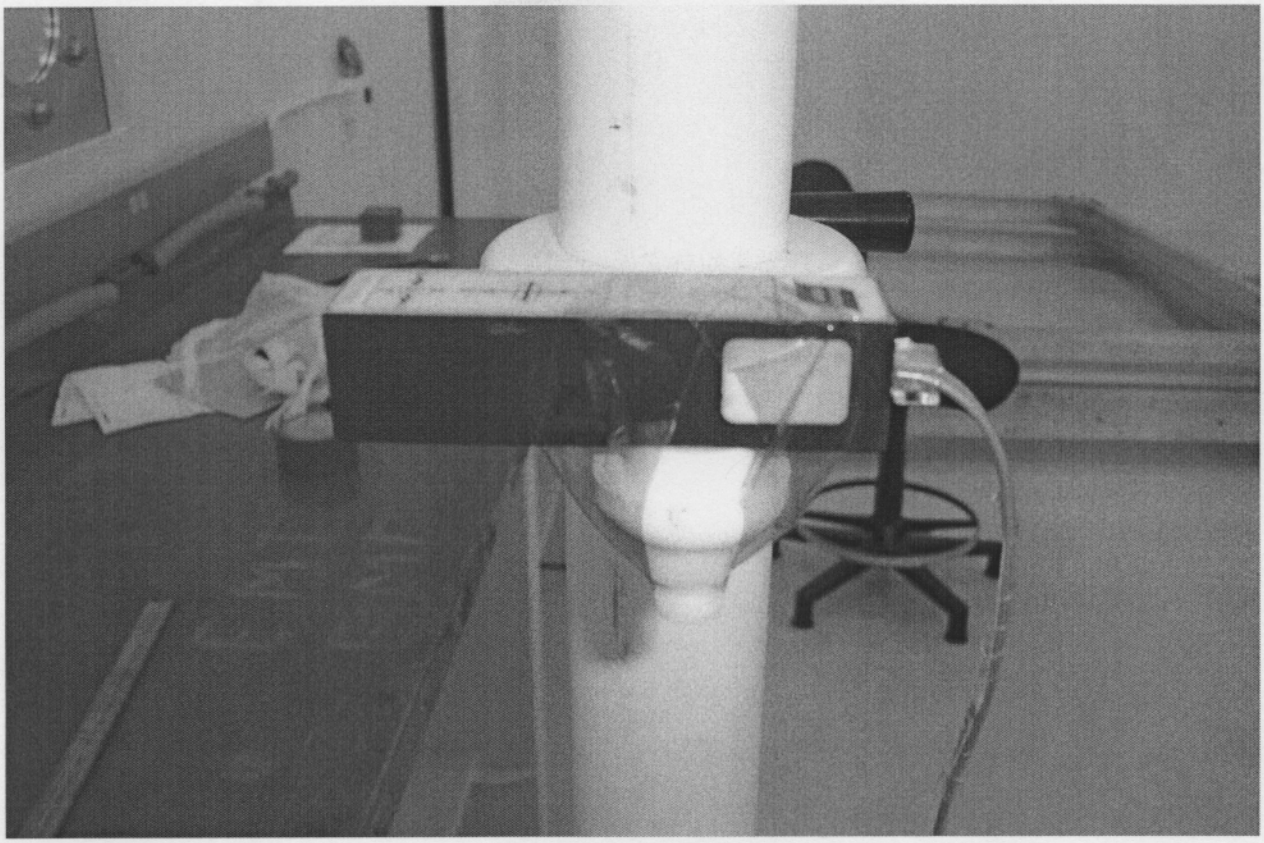
CS06 Test Setup and Equipment



E-Field Radiated Susceptibility Test using Log Periodic Antenna in the vertical polarity

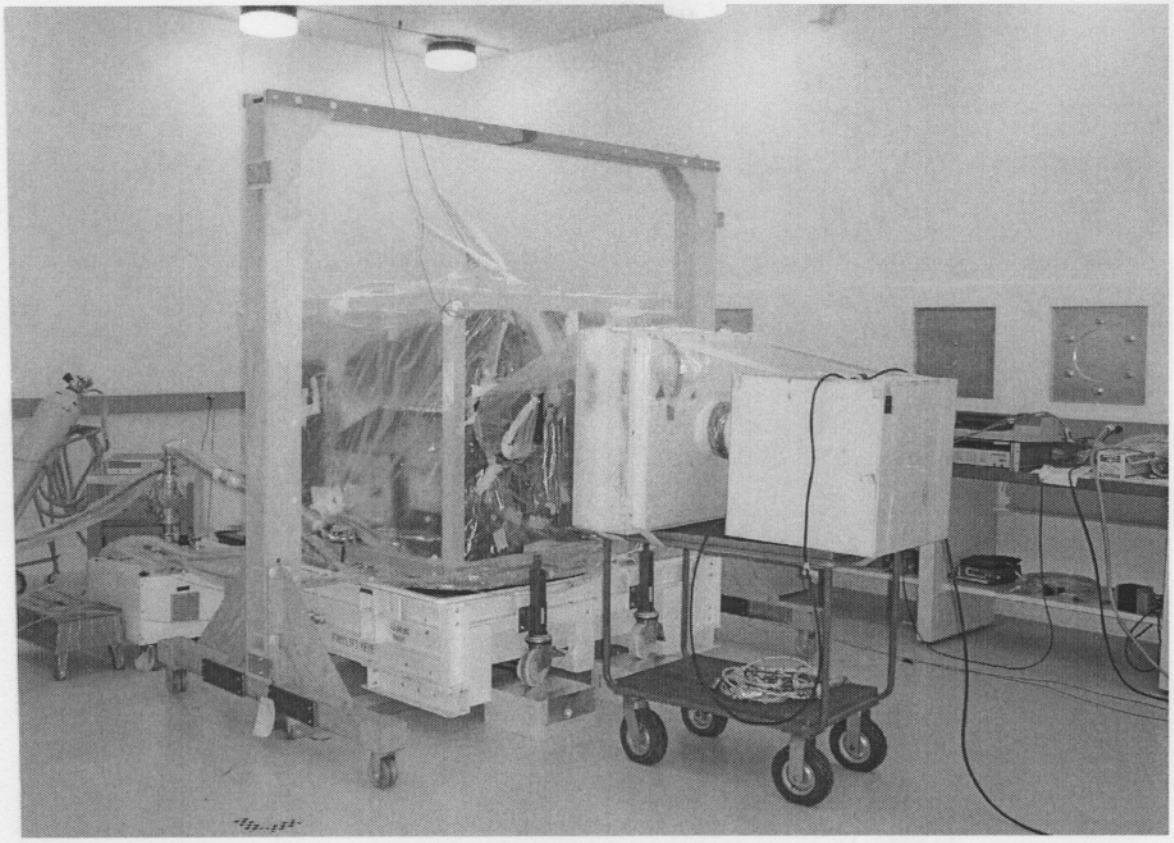


Magnetic Dipole Moment Measurment

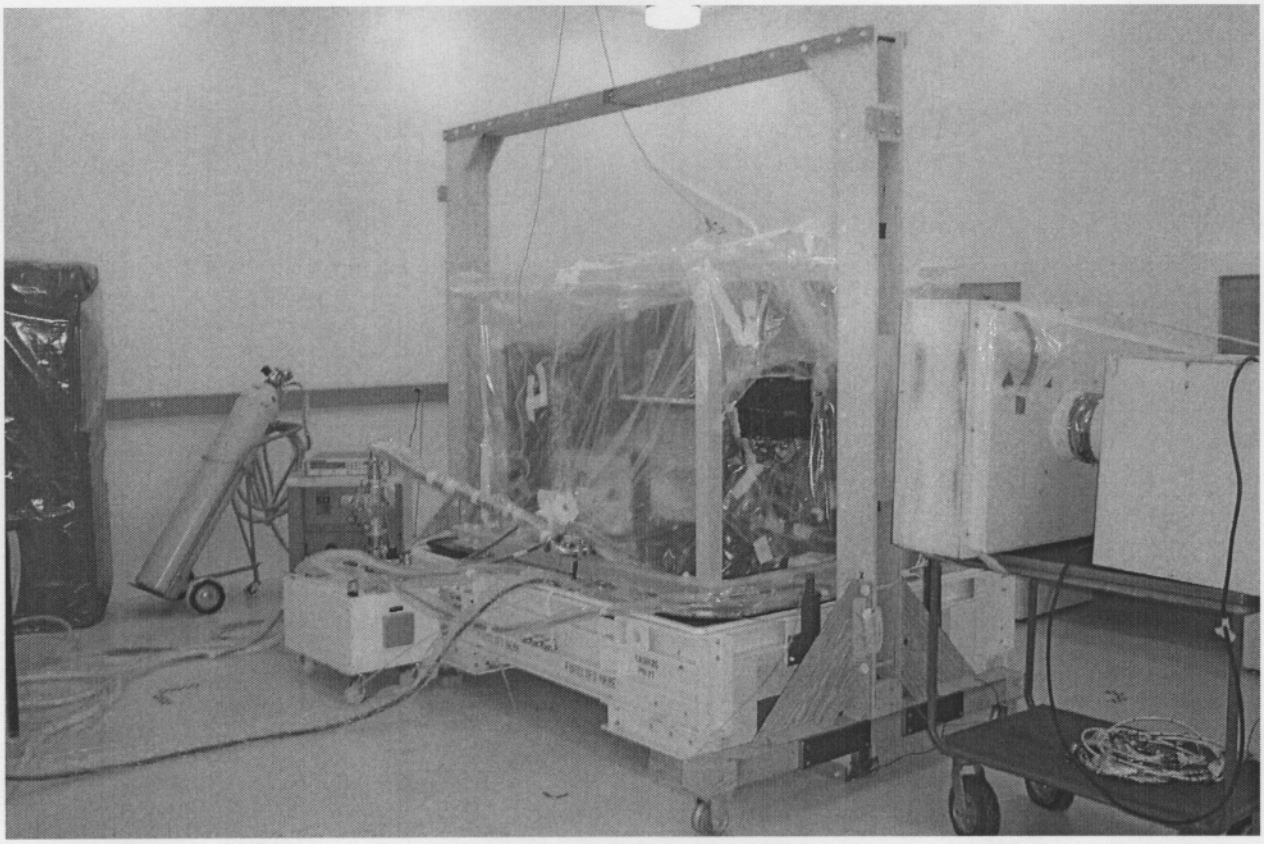


Magnetic Sensor used in Magnetic Dipole Moment Test

DC Magnetic Susceptibility Test - Horizontal



DC Magnetic Susceptibility Test - Vertical



DC Magnetic Susceptibility Test - Vertical

APPENDIX H

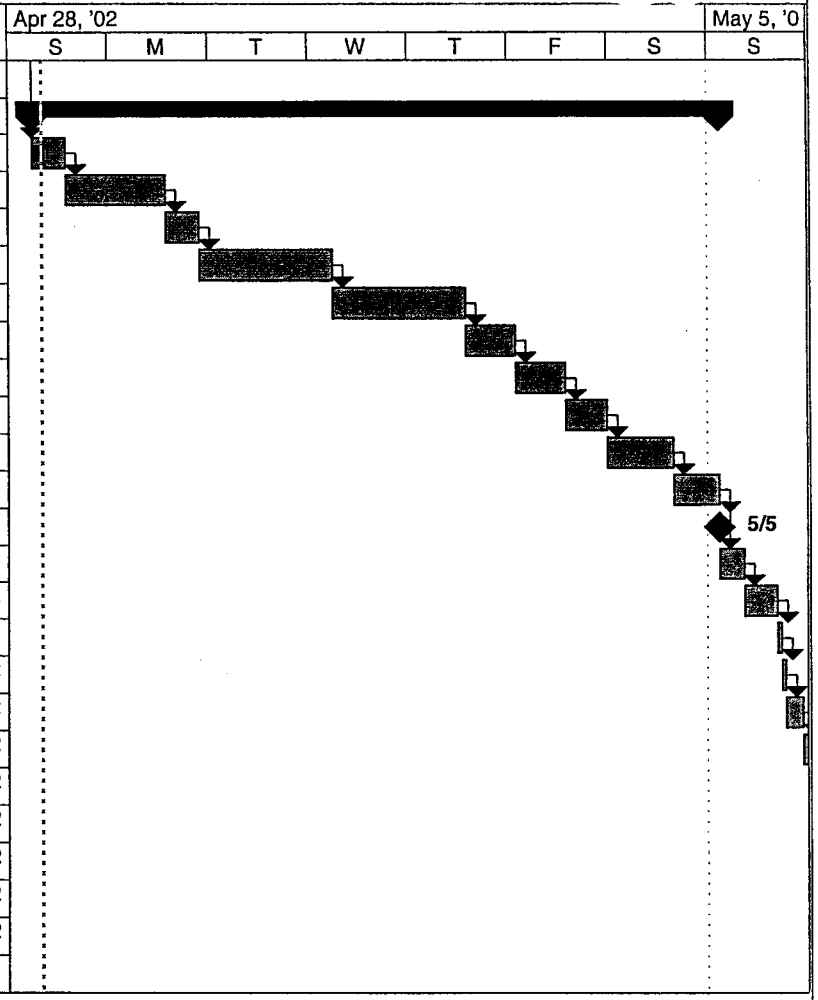
HIRDLS INSTRUMENT EMI/EMC TEST DATA

CDR INDEX

APPENDIX B
Test Procedure
TP-LOC-820 Rev. NC

HRDLS Enviror Test Schedule

ID	Task Name	Duration	Start
26	Stage 4 six packs of GN2 at B/152	0 days	Thu 4/25/02
27	**EMI/EMC Test per TP-LOC-820**	**6.88 days**	**Sun 4/28/02**
28	CE01/CE03 Power line conducted Emissions	8 hrs	Sun 4/28/02
29	RS03 Electric Field Radiated Susceptibility Test	24 hrs	Sun 4/28/02
30	RS01 AC Magnetic Field Radiated Susceptibility Test	8 hrs	Mon 4/29/02
31	CS01/CS02 Audio and Radio Frequancy Conducted Susce	32 hrs	Mon 4/29/02
32	CS06 Power Lead Spike Suseptibility Test	32 hrs	Wed 5/1/02
33	DC Magnetic Dipole Moment	12 hrs	Thu 5/2/02
34	RE02 Electric Field Radiated Emission	12 hrs	Fri 5/3/02
35	RE04 Magnetic Field Radiated Emission	10 hrs	Fri 5/3/02
36	DC Magnetic Field Suseptibility Test	16 hrs	Sat 5/4/02
37	**Data Go**	**11 hrs**	Sat 5/4/02
38	**OK to Break Configuration**	**0 days**	Sun 5/5/02
39	Disconnect Instrument from IGSE	6 hrs	Sun 5/5/02
40	Pack IGSE	8 hrs	Sun 5/5/02
41	Remove CMU Cooler	1 hr	Sun 5/5/02
42	Remove Flexable Vacuum Enclosure	1 hr	Sun 5/5/02
43	Install second cover over instrument	4 hrs	Sun 5/5/02
44	Backfill instrument with GN2	4 hrs	Sun 5/5/02
45	Install transporter hard cover	2 hrs	Mon 5/6/02
46	Transport to B/202	1 day	Mon 5/6/02
47	**IPU, TEU, SMA Repair**	**35 days**	**Tue 5/7/02**
48	Move the Instr from EMI to ATC for IPU,TEU,SMA Repair	35 days	Tue 5/7/02
49	Ok to start Environmental Test	0 days	Mon 6/10/02
50			



Project: ScheduleEMI_VIB_TV
Date: Sun 4/28/02
Michael J. Spier 408-398-3402

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks
External Milestone
External Milestone
External Milestone
External Milestone
External Milestone
External Milestone
External Milestone
External Milestone
External Milestone
External Milestone
Deadline

ID	Task Name	Duration	Start
26	Stage 4 six packs of GN2 at B/152	0 days	Thu 4/25/02
27	**EMI/EMC Test per TP-LOC-820**	**6.88 days**	**Sat 4/27/02**
28	CE01/CE03 Power line conducted Emissions	8 hrs	Sat 4/27/02
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30	RS01 AC Magnetic Field Radiated Susceptibility Test	8 hrs	Mon 4/29/02
31	CS01/CS02 Audio and Radio Frequancy Conducted Susce	32 hrs	Mon 4/29/02
32	CS06 Power Lead Spike Suseptibility Test	32 hrs	Tue 4/30/02
33	DC Magnetic Dipole Moment	12 hrs	Thu 5/2/02
34	RE02 Electric Field Radiated Emission	12 hrs	Thu 5/2/02
35	RE04 Magnetic Field Radiated Emission	10 hrs	Fri 5/3/02
36	DC Magnetic Field Suseptibility Test	16 hrs	Fri 5/3/02
37	**Data Go**	**11 hrs**	Sat 5/4/02
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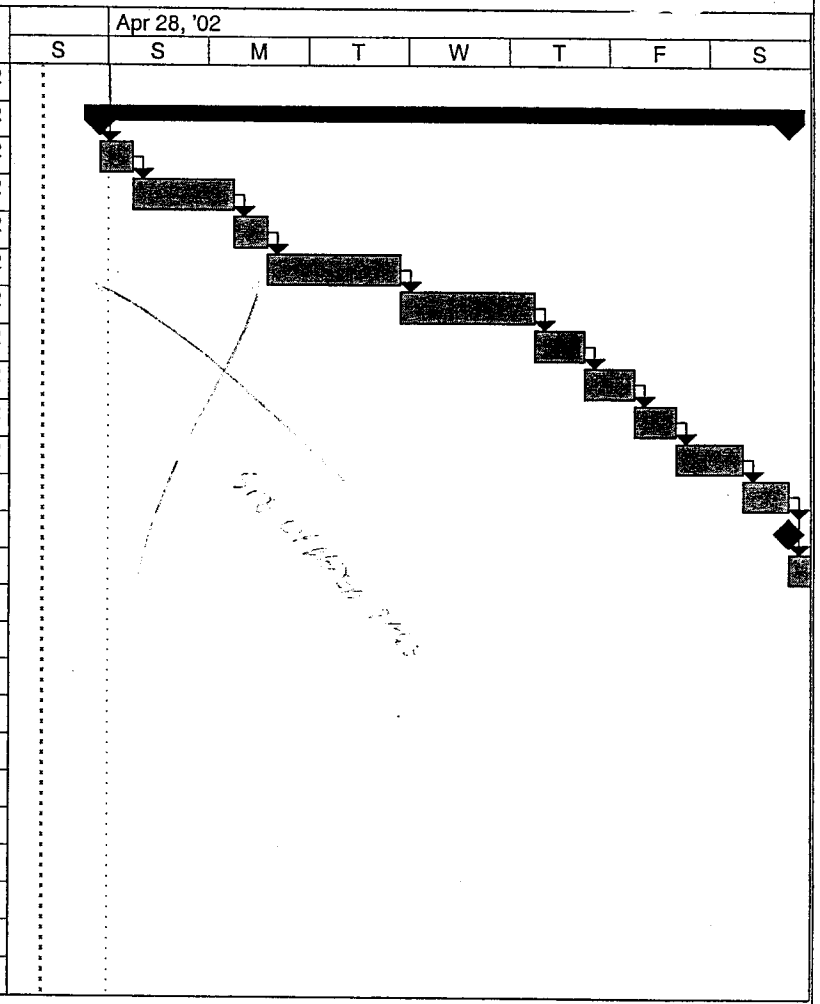
48	Move the Instr from EMI to ATC for IPU,TEU,SMA Repair	35 days	Mon 5/6/02
49	Ok to start Environmental Test	0 days	Mon 6/10/02
50			



Project: ScheduleEMI_VIB_TV
Date: Sat 4/27/02
Michael J. Spier 408-398-3402

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks

External Milestone
External Milestone
External Milestone
External Milestone
External Milestone
External Milestone
External Milestone

External Milestone
External Milestone
External Milestone
External Milestone
Deadline

HIRDLS

HIGH RESOLUTION DYNAMICS LIMB SOUNDER

Originator: George Hosmer

Date: 25-April-2002

Subject / Title: **EMI/EMC Test Procedure, HIRDLS Instrument**

Contents / Description / Summary:
This procedure outlines the tests to be performed for verification of the functionality of the Unit (DUT).

Keywords: HIRDLS Instrument, EMI/EMC Test Procedure

Purpose: EMI/EMC Test Procedure

Reference:

Approvals

/s/ Don Wilson, RE

/s/ Tim Crews, Systems Engineer

/s/ Althea McField, Quality Engineer

/s/ Talin Kaloustian, Test Engineer

/s/ Syndie Meyer, Contamination Engineer

Advanced Technology Center, CAGE code 65113

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United States of America

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EOS

Revision Record

Rev	Description	Date	Approved
NC	Original Release	25-April-02	

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1.0 Scope

This document, in conjunction with the Test Plan, describes the procedures to be followed for the EMI/EMC Test to be performed on the flight model of the High Resolution Dynamics Limb Sounder (HIRDLS) Instrument.

As the procedure is performed, the EMI Test Engineer and the Quality Engineer shall sign and date the procedure where indicated after each test is completed.

If a measurement called out in the procedure falls outside the parameters given, the test will be halted and the EMI Test Engineer will be contacted. Upon resolution of the problem, the test will continue from the point in the test procedure agreed upon by the Responsible Equipment Engineer and the Quality Engineer.

With the exception of **Bonding** and **Isolation** measurements, the test operations may be performed in a sequence other than presented in this test procedure to facilitate the test.

2.0 Applicable Documents

The following documents were used during preparation of this test procedure and should be readily available for use during the test. Refer to specific revisions for all applicable documents listed below.

Military Standards

MIL-STD-461C, Part 6	Electromagnetic Emission and Susceptibility Requirements for the Control of Electromagnetic Interference
MIL-STD-462, Notice 3	Test Method Standard for Measurement of Electromagnetic Interference Characteristics
MIL-STD-1541A	Electromagnetic Compatibility Requirements for Space Systems
MIL-STD-5087B (ASG)	Bonding, Electrical, and Lightning Protection for Aerospace Systems Amendment 2

Lockheed Martin Missiles and Space Specifications

Electrostatic Discharge Control	LAC 3250-000001

HIRDLS Documents

GSFC 424-28-21-13	HIRDLS Instrument Technical Specification Document
GSFC 422-11-12-01, Rev. B	General Interface Requirements Document
2A14636	Interface Control Document
TP-LOC-204	HIRDLS Proto-Flight Model Instrument Test Plan
OO-LOC-1023	HIRDLS Instrument test operations order for EMI / EMC test
TP-LOC-819 Rev. B	IEGSE Validation Procedure (Fraser)

3.0 GENERAL REQUIREMENTS

3.1 Facility

All EMI/EMC tests shall be performed in the Organization L3-10 EMI/EMC (a.k.a. Tempest) Test Facility in B152, Sunnyvale, California. During this EMI test the Instrument is to be located in the Room #3 Test Chamber, the Instrument support equipment is to be located outside Room #3 and the EMI test equipment is to be located in the Room #1 Control Room.

3.2 Facility Power Requirements

Facility power requirements shall include 3 each, 115 VAC ± 10%, 60 Hz, 15 amperes, single phase.

3.3 Environmental Conditions

The following environmental (standard laboratory ambient) conditions shall be maintained throughout this procedure:

Ambient Temperature:	+65 °F to +85 °F
Relative Humidity:	30% to 80% Maximum
Atmospheric Pressure:	650- 850 torr

3.4 Test Facility Ambient Conditions

Ambient tests shall be performed to demonstrate the Instrument actual radiated and conducted emissions. One ambient test with the STE and Instrument unpowered, and another ambient test with the STE powered and Instrument unpowered should provide the necessary ambient data.

4.0 Contamination Control

The Instrument shall be bagged, with connector and grounding points exposed. At no time during the testing shall the Instrument be removed from the bag. Dust covers shall be placed over all unused connectors. The Instrument shall be purged with clean Dry Nitrogen, per the CCP (PA-HIR-006) throughout the test and all handling.

5.0 Instrument Support and Cooling

A special water-cooled cold plate under the Instrument is used for cooling. A nitrogen gaseous purge is used as a cooling gas to cool the bagged area of the Instrument during test. The bag will have a low positive pressure applied during the testing to keep out particles.

The CMU cryo pump will have an external cooling unit attached and the sensor assembly will have a vacuum pump connected during testing.

6.0 Electrostatic Discharge (ESD) Control

The Instrument is ESD sensitive and requires proper handling and grounding procedures per LAC 3250-000001. When the Instrument is removed from its ESD protective container or other enclosure (with the exception of the nylon bag required for contamination control) all personnel

handling the Instrument shall wear ESD wrist straps and all work surfaces and equipment shall be in conformance with proper ESD protection practices. Note: The HIRDLS Instrument to be grounded at all time when shipping container is open. When Shipping container is closed, ground container when container is stored and grounding is available. Use travelling ground when moving Instrument in closed container if possible.

7.0 Test Equipment

7.1 Special Test Equipment and Cables

The following special test equipment (STE) called out in TP-LOC-819 (Rev B) is required to operate the Instrument. Personnel using the STE shall be proficient in its operation. System interconnect for STE is called in TP-LOC-819 (Rev B).

7.2 Shielded Enclosure Feed-Through Plates

For radiated testing, connections from the Instrument to the Special Test Equipment (STE) shall be made through bulkhead feed-through plates. Connections from the EMI test equipment to antennas and probes shall be made by means of coaxial cables via a feed-through connector panel penetrating the shielded enclosure wall.

7.3 Breakout Cables

Special power breakout cables shall be used for conducted susceptibility and conducted emissions testing where the wire length between the Instrument power connector and the injection point is between two inches and one foot. The power breakout cables shall be connected between the Instrument and the internal STE cable.

7.4 EMI/EMC Test Equipment

The following EMI/EMC test equipment is required to perform the EMI/EMC test. The test equipment listed can be replaced by functionally equivalent equipment under direction of the EMI Test Engineer. Test instrument accuracy will be 10% of the tolerance maximum on the parameter being measured. The tolerances specified include instrumentation inaccuracies up to 10% of the allowable parameter tolerance. All measurements will be made and recorded with instruments or test equipment whose accuracy has been verified in accordance with established industry standards derived from MIL-STD-462A. All instruments used in the performance of the tests described herein shall be inspected for proper calibration as recommended by the manufacturer and as required by EMP No.: 2.91-1, LMMS Calibration System. The test equipment used during the Instrument EMI/EMC test shall be listed on the bottom of the appropriate Test Data Sheet along with the date of calibration. The EMI test engineer or EMI technician shall verify that all instruments are in calibration during their use.

Nomenclature	Manufacturer	Model
Power line Iso. Transformer	(Lab type)	N/A
Signal Generator	Solar	6550-1
Audio Iso. Transformer	Solar	6220-1A
Transient Pulse Generator	Solar	8282-1
Synthesizer	H. P.	3325A
Signal Generator	Fluke	6071A
Signal Generator	H. P.	8672A
Amplifier	Amp. Research	100L
Amplifier	Amp. Research	10W1000
Amplifier	Logimetrics	A600L
Amplifier	Logimetrics	A600S
Amplifier	Logimetrics	A600C
Amplifier	Logimetrics	A600X
Amplifier	Logimetrics	A600U
Field Strength Monitor	Aeritalia	TE3107B
Field Strength Monitor	Holday	HI-3004
Field Strength Monitor	Raham	484
Antenna	EMCO	3301B
Antenna	EMCO	3104P
Antenna	EMCO	3146B
Antenna	Stoddart	93490-1
Antenna	Stoddart	94612-1
Antenna	ElectroMetric	LCA-25
Spectrum Analyzer	H. P.	8566B
Printer	H. P.	Thinkjet
Close Field Probe Set	EMCO	7405

8.0 Safety

At a minimum, the following safety precautions and practices shall be observed to prevent damage to equipment and personnel:

8.1 General Precautions

8.1.1 The Operator shall be familiar with the operating procedures for all test equipment used in this procedure.

8.1.2 Arrange all cables and equipment to prevent accidental contact with any exposed terminal points.

8.1.3 Provide adequate supports on the test cables to relieve any unnecessary strain on the connectors.

8.1.4 Exercise caution when connecting and disconnecting the connectors to avoid damaging the pins and inserts.

8.1.5 Do not permit cable connectors to strike other objects forcefully.

8.1.6 Ensure that all current carrying components are properly grounded.

8.1.7 Examine the test specimen and test aids for damage prior to use and after each application.

8.1.8 The test specimen shall be stored and transported in a padded container.

8.1.9 Protect all electrical connectors with plastic caps when the connectors are unmated.

8.1.10 Examine all mating connectors before attempting to mate them.

8.1.11 Remove any foreign material and look for any damaged pins or sockets.

8.1.12 Ensure that keyways are aligned when mating connectors. Do not force the coupling action if excessive resistance is encountered.

8.1.13 Double check the test setup before power application.

8.1.14 Power shall be removed from cable assemblies and equipment switched off before connecting or disconnecting equipment or cable connectors.

8.1.15 Store the test specimen in a designated cabinet following completion of testing each day. Do not leave the specimen connected to the functional test equipment overnight (unless specified to do so by the test procedure).

8.1.16 Notes, cautions and warnings listed in this procedure shall be observed to prevent injury to personnel or damage to the test specimen or test equipment. Warning signs shall be posted outside the test chamber to prevent access to RF hazard zones. The RF amplifiers connected to the transmitting antennas shall be in standby condition or "OFF" while personnel are in the test chamber. All personnel shall leave the test chamber and all access doors to the test chamber shall be closed before performing any portion of the radiated susceptibility test.

8.2 Industrial Safety

All standard LMMS Industrial Safety precautions shall be observed during test operations with emphasis on safety of personnel and equipment.

9.0 Test Personnel

9.1 EMI Test Engineer

The EMI Test Engineer is responsible for all areas of the EMI testing and maintaining the test log. The EMI Test Engineer shall verify all EMI test setups, record and annotate the test data.

9.2 EMC Engineer

The EMC Engineer shall be present during the EMI tests. Any changes to the EMI test procedures shall be approved by the EMC Engineer and by the Responsible Product Engineer (RPE).
The EMC Engineer shall evaluate the EMI test data, shall provide recommendations for troubleshooting over limit conditions, and shall assist in the disposition of any discrepancies.

9.3 I&T Engineers and Technician

The I&T Engineers and technician will be operation of the IEGSE and support equipment required to operate the HIRDLS Instrument. They will provide Instrument performance test data. Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or mag0netic fields

9.4 Test Technician

The test technician shall operate the test equipment and assist the EMI test engineer in EMI testing related tasks.

9.5 **Responsible Product Engineer (RPE)** The RPE shall ensure that the operation of the Instrument satisfies the requirements of the applicable specifications. Any changes to the EMI test procedures shall be approved by the Responsible Product Engineer (RPE) and by the EMC Engineer.

9.6 **Product Assurance**

The PA representative shall affix his/her stamp in the test procedures and/or operations orders when the requirements in the EMI test procedures are completed.

9.7 **STE Operator**

The STE operator shall monitor the STE for proper operation, and execute the computer program that sets the Instrument in the required operating mode. The STE operator shall notify the EMI test personnel immediately in case he/she detects any out-of-spec condition so that threshold level can be determined.

10.0 Documentation

10.1 **Test Log**

A Test Log shall be maintained during the EMI tests. This log shall document the test setup, start and completion dates of each test, test pass/fail results, and any incidents and/or abnormalities occurring during the tests.

10.2 **Test Equipment Log**

A test equipment log shall be maintained denoting model number, frequency range, serial number, calibration expiration date, and manufacturer of the test equipment used for each test.

10.3 **Discrepancy Logs/Reports**

The EMC Engineer shall generate all EMI discrepancy logs and reports related to EMI failures. The disposition of all discrepancy and EMI failures will be by **HIRDLS MRB.**

11.0 Modes of Operation

The Instrument will be operated in the following modes: Off Mode, Survival Mode, Safe Mode, Idle Mode, Standby Mode. See figure 11-1. Mission mode. Note that Instrument testing will be performed in Mission Mode.

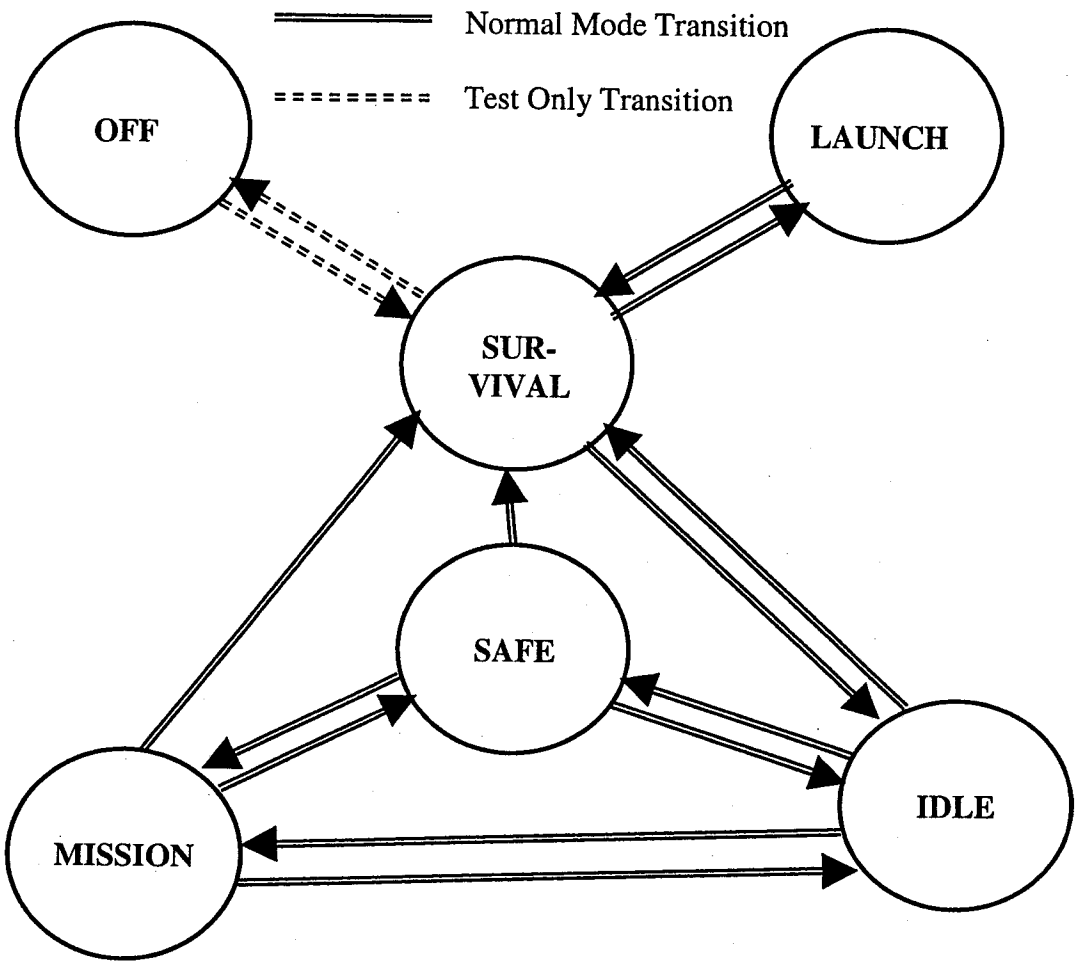

Figure 11-1

12.0 Order of Testing

Bonding measurements, ground connection checks, and isolation measurements shall be performed before connecting cable harness and starting other EMI tests. Other EMI tests may be performed in any order. The EMI test engineer shall determine the testing sequences according to test equipment availability and/or ease of test setup changes.

13.0 Instrument EMI Test Procedure

13.1 Electrical Bonding

13.1.1 The test requirement for all bonding measurements is < 2.5 milliohms. This includes all exterior housings to structure, exterior mounting surfaces to structure, electrical connectors to structure and redundant grounding jumpers of all gimbaled, hinged and jointed interfaces. Refer to Figure 1.

13.1.2 Use a Keithley 580 micro-ohmmeter or equivalent to measure and record the bonding measurements on the applicable Test Data Sheet.

13.1.3 Verify that the bonding test is complete and the results are acceptable.

Test Engineering N/A Date N/A

Quality Engineering N/A Date N/A

Previous taken Per 00-LOC-

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13.2 Primary Power Isolation

13.2.1 The test requirement for isolation is > 1 Meg ohm. This includes all primary power and return leads (quiet bus and noisy bus) with respect to chassis.

13.2.2 Use a Fluke multimeter or equivalent to measure and record on the applicable Test Data Sheet the resistance between the test points/connector contacts and chassis ground.

13.2.3 Verify that the Power Isolation test is complete and the results are acceptable.

Test Engineering N/A Date N/A

Quality Engineering N/A Date N/A

Previous taken Per 00-LOC

QE J16786 J10276 4/30/02

13.3 Instrument Power On Procedure

Perform the Instrument power on procedure per TP-LOC-819, after performing paragraph 13.4.2 of this procedure.

13.4 CE01/CE03 Powerline Conducted Emissions 30Hz to 20KHz/20KHz to 50MHz

(GIRD 10.11.1)

13.4.1 The requirements for this test are shown in Figures 2A, 2B, and Figure 3. Only narrowband CE01/CE03 measurements will be performed. Narrowband ~~and broadband CE03~~ measurements will be performed. Measurements will be performed on the following power leads:

QE J16786 4/24/02

PI-SB-A	Primary power input lead (Survival Bus A)	Cable PSA/ connect together wires A, B, C
PR-SB-A	Primary power return lead (Survival Bus A)	Cable PSA/ connect together wires D, E, F
PI-SB-B	Primary power input lead (Survival Bus B)	Cable PSB / connect together wires A, B, C
PR-SB-B	Primary power return lead (Survival Bus B)	Cable PSB / connect together wires D, E, F
PI-NB A	Primary power input lead (Noisy Bus A)	Cable PNA / connect together wires A,B,C
PR-NB A	Primary power return lead (Noisy Bus A)	Cable PNA / connect together wire D,E,F
PI-NB B	Primary power input lead (Noisy Bus B)	Cable PNB / connect together wire A,B,C
PR-NB B	Primary power return lead (Noisy Bus B)	Cable PNB / connect together wire D,E,F
PI-QB A	Primary power input lead (Quiet Bus A)	Cable PQA / connect together wire A,B,C
PR-QB A	Primary power return lead (Quiet Bus A)	Cable PQA / connect together wire D,E,F
PI-QB B	Primary power input lead (Quiet Bus B)	Cable PQB / connect together wire A,B,C
PR-QB B	Primary power return lead (Quiet Bus B)	Cable PQB / connect together wire D,E,F

13.4.2 The spectrum analyzer resolution bandwidth shall be as follows:

Analyzer Resolution Bandwidth		Frequency Band
NB Test	~~BB Test~~	
10Hz	~~N/A~~	30Hz to 3.5KHz
1KHz	~~N/A~~	3.5KHz to 20KHz
1KHz	~~10KHz~~	20KHz to 2.5MHz
10KHz	~~100KHz~~	2.5MHz to 12MHz
100KHz	~~1MHz~~	12MHz to 50MHz

13.4.3 Verify that the test equipment is setup shown in Figure 4. Turn the EMI test equipment ON and allow a minimum of 15 minutes for warm-up and stabilization.

13.4.4 If not already performed, load the EMI measurement software and open the measurement application.

13.4.5 If not already performed, calibrate the EMI measurement equipment per standard lab practice. Update and save the BWi.

13.4.6 Select Test Library at the EMI Top Level Screen and scroll down to the CE01 test file under the HIRDLS Instrument header.

13.4.7 Print a copy of the test setup and verify that it is correct for the planned test activity. Include a copy of the current probe transfer impedance and limit tables. Verify that the current probe table agrees with the test equipment that will be used to perform the measurements. Verify that the limit table agrees with the limit shown in Figure 2. Make any necessary changes and re-store. Post copies to the test log book.

13.4.8 Clamp the current probe on to one of the power leads listed in paragraph 13.4.1.

13.4.9 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test.

13.4.10 Start the EMI measurement program and follow the instructions on the computer screen.

13.4.11 If any emissions are measured above the limits, turn the Instrument off and perform ambient measurements at the direction of EMI test engineering.

13.4.12 Repeat paragraphs 13.4.8 through 13.4.11 for each power lead listed in paragraph 13.4.1.

13.4.13 Select Test Library at the EMI Top Level Screen and scroll down to the CE03 test file under the HIRDLS Instrument header.

13.4.14 Print a copy of the test setup and verify that it is correct for the planned test activity. Include a copy of the current probe transfer impedance and limit tables. Verify that the current probe table agrees with the test equipment that will be used to perform the measurements. Verify that the limit

EMC TPCN NC-1 TPLOC-820 REV. NC

Paragraph 13.4A

1. Ripple voltage measurements to be performed in parallel with spectrum analyzer measurements. Alternate test points between the measurement setups.

2. Setup oscilloscope (20 MHz or greater bandwidth) with a 10X voltage probe, and HP 7475 potter.

3. Initially set the oscilloscope horizontal rate for 2.0 milliseconds and the vertical scale for 50 millivolts per division. Adjust for best display of ripple data.

4. Allow a minimum of 10 sweeps on the oscilloscope. Obtain a plot of the ripple data and on disk.

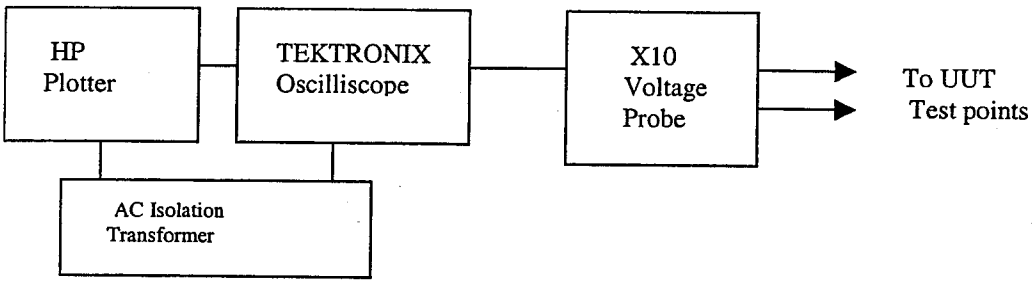

table agrees with the limit shown in Figure 21. Make any necessary changes and re-store. Post copies to the test log book.

~~13.4.15 Clamp the current probe on to one of the power leads listed in paragraph 13.4.1.~~

~~13.4.16 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test.~~

~~13.4.17 Start the EMI measurement program and follow the instructions on the computer screen.~~

~~13.4.18 If any emissions are measured above the limits, turn the Instrument off and perform ambient measurements at the direction of EMI test engineering.~~

~~13.4.19 Repeat paragraphs 13.4.15 through 13.4.18 for each power lead listed in paragraph 13.4.1.~~

TPCN #1 REV N.C. RIPPLE VOLTAGE MEAS. WERE

13.4.20 Verify that the CE01/CE03 test is complete and the results are acceptable.

Test Engineering _____ Date 4/30/02

Quality Engineering _____ Date 4/30/02 CE J16786

WITH DRS AD6417 & AD6433 AD6442 REF AD6442

13.5 RE02 Electric Field Radiated Emissions (14KHz to 18GHz) (GIRD 10.11.6)

13.5.1 The requirements for this test are shown in Figures 5 and 6. Both narrowband ~~and broadband~~ emissions will be measured for the entire frequency range.

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13.5.2 The spectrum analyzer resolution bandwidth shall be as follows:

Analyzer Resolution Bandwidth		Frequency Band
NB Test	~~BB Test~~	
1KHz	~~10KHz~~	14KHz to 2.5MHz
10KHz	~~100KHz~~	2.5MHz to 30MHz
100KHz	~~1MHz~~	30MHz to 1GHz
1MHz	~~10MHz~~	1GHz to 18GHz

13.5.3 Connect the test setup shown in Figure 7. Turn the EMI test equipment ON and allow a minimum of 15 minutes for warm-up and stabilization.

13.5.4 If not already performed, load the EMI measurement software and open the measurement application.

13.5.5 If not already performed, calibrate the EMI measurement equipment per standard lab practice. Update and save the BWi. Calibration of room with HIRDLS Instrument and IEGSE support equipment switched off.

13.5.6 Perform background check for base line with IEGSE switched on and HIRDLS Instrument switched off.

13.5.7 Perform background check for base line with IEGSE switched on and HIRDLS Instrument switched on.

13.5.8 Select Test Library at the EMI Top Level Screen and scroll down to the RE02 narrowband test file under the HIRDLS Instrument header.

13.5.9 Print a copy of the test setup and verify that it is correct for the planned test activity. Include a copy of the antenna correction factor for each antenna, the gain/loss table and the limit tables. Verify that the antenna correction factor tables and the gain/loss table agree with the test equipment that will be used to perform the measurements. Verify that the limit tables agree with the limit shown in Figure 5. Make any necessary changes and re-store. Post copies to the test log book.

13.5.10 Position the active rod antenna, with appropriate counter poise extension, 1m from the area of the Instrument that is considered the most likely to emit the highest-level electric field emissions.

13.5.11 Turn the antenna ON and close the chamber doors.

13.5.12 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test.

13.5.13 Start the EMI measurement program. Follow the instructions on the computer screen, replacing the test antenna and other equipment for each frequency range. Make sure that linearly polarized antennas are used for both horizontal and vertical polarities.

13.5.14 If any emissions are measured above the limits, turn the Instrument off and perform ambient measurements at the direction of EMI test engineering.

13.5.15 Verify that the RE02 narrowband test is complete and the results are acceptable.

Test Engineering Adam Beck Date _____

Quality Engineering _____ Date _____

DR's AD6510 AD6511

~~13.5.16 Repeat paragraphs 13.5.6 through 13.5.13 for the broadband limit shown in Figure 6.~~

~~13.5.17 Verify that the RE02 broadband test is complete and the results are acceptable.~~

~~Test Engineering _____ Date _____~~

~~Quality Engineering _____ Date _____~~

13.6 RE04 Magnetic Field Radiated Emissions 20 Hz to 50 KHz (GIRD 10.11.5.1)

13.6.1 The requirement for the peak magnetic field radiated emissions measured at7 cm. is shown in Figure 8. The requirement is applicable for the three axes of the test antenna.

13.6.2 The spectrum analyzer resolution bandwidth shall be as follows:

Analyzer Resolution Bandwidth	Frequency Band
10Hz	20Hz to 200Hz

100Hz	200Hz to 20KHz
1KHz	20KHz to 50KHz

13.6.3 Connect the test setup shown in Figure 9. Turn the EMI test equipment ON and allow a minimum of 15 minutes for warm-up and stabilization.

13.6.4 If not already performed, load the EMI measurement software and open the measurement application.

13.6.5 If not already performed, calibrate the EMI measurement equipment per standard lab practice. Update and save the BWi.

13.6.6 Select Test Library at the EMI Top Level Screen and scroll down to the RE04 test file under the HIRDLS Instrument header.

13.6.7 Print a copy of the test setup and verify that it is correct for the planned test activity. Include a copy of the antenna correction factor for each antenna, the gain/loss table and the limit tables. Verify that the antenna correction factor tables and the gain/loss table agree with the test equipment that will be used to perform the measurements. Verify that the limit tables agree with the limit shown in Figure 8. Make any necessary changes and re-store. Post copies to the test log book.

13.6.8 Position the loop antenna 1m from the area of the Instrument that is considered most likely to emit the highest level magnetic field emissions. Start with the vertical parallel polarization. Close the chamber doors.

13.6.9 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test.

13.6.10 Start the EMI measurement program. Follow the instructions on the computer screen.

13.6.11 If any emissions are measured above the limits, turn the Instrument off and perform ambient measurements at the direction of EMI test engineering.

13.6.12 Repeat paragraphs 13.6.8 through 13.6.11 for the vertical perpendicular polarization.

13.6.13 Repeat paragraphs 13.6.8 through 13.6.11 for the horizontal polarization.

13.6.14 Verify that the RE04 test is complete and the results are acceptable.

Test Engineering _____ Date 5/6/02

Quality Engineering _____ Date 5/6/02

13.7 DC Magnetic Dipole Moment (GIRD 10.11.5.2)

13.7.1 The residual magnetic dipole moment of the Instrument shall be less than 0.5 A-m^2 with the instrument operating in the Mission mode. Ambient measurements shall be performed in the shielded chamber with the Instrument moved to one side. This is necessary so that the Instrument will be out of range of the magnetometer. Measurements shall be performed at four equally spaced locations around the Instrument.

13.7.2 Connect the test setup shown in Figure 10. Turn the magnetometer on and allow a minimum of 15 minutes for warm-up and stabilization.

13.7.3 Mark on the floor around the Instrument the four locations where the magnetometer will be placed to measure the Instrument magnetic dipole moment.

13.7.4 Move the Instrument to one side of the chamber so that it is out of range of the magnetometer.

13.7.5 Measure the ambient magnetic dipole moment at each of the locations identified in paragraph 13.7.3.

13.7.6 Move the Instrument back to the center of the chamber.

13.7.7 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test.

13.7.8 Measure the operating magnetic dipole moment at each of the locations identified in paragraph 13.7.3. Record the measurements on the applicable Test Data Sheet at the back of the test procedure.

13.7.9 Verify that the DC Magnetic Dipole Moment test is complete and the results are acceptable.

Test Engineering _____ Date _____

Quality Engineering _____ Date _____

13.8 RS01 AC Magnetic Field Radiated Susceptibility Test 30Hz to 200KHz (GIRD 10.11.7.1)

13.8.1 The requirement for this test is shown in Figure 11.

13.8.2 A magnetic field generating coil, capable of producing a magnetic flux density of 5×10^{-5} Tesla/Amp at a point exactly 5 cm from the face of the coil will be used to perform the test. The test coil shall be moved over all accessible areas of the Instrument.

13.8.3 Connect the test set up shown in Figure 12. Turn the EMI test equipment ON and allow a minimum of 15 minutes for warm-up and stabilization.

13.8.4 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test.

13.8.5 Place the magnetic coil on the area of the Instrument that will be tested first. Increase the susceptibility signal to the level indicated in Figure 11 for the start of the frequency sweep (30Hz). Monitor the Instrument for evidence of susceptibility. Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields. If susceptibility is observed reduce the signal level until the Instrument returns to normal operation and record the threshold on the applicable Test Data Sheet.

13.8.6 Sweep the signal up in frequency very slowly as the magnetic coil is moved over the area of the Instrument. Time the frequency sweep such that the coil will have been moved over the entire area of the Instrument at the end of the sweep (200KHz).

13.8.7 Repeat paragraphs 13.8.5 through 13.8.6 for each area of the Instrument to be tested.

RED LINE CHANGES

13.8.8 Set frequency to 480 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for 10 min..

13.8.9 Set frequency to 495 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for 10 min..

13.8.10 Set frequency to 505 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for 10 min..

13.8.11 Set frequency to 520 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for 10 min..

13.8.12 Verify that the RS01 test is complete and the results are acceptable.

Test Engineering David Cho Date 5/3/02

Quality Engineering REVIEWED TEST LOG Date 5/3/02 QE→ J16786

RED LINE CHANGES

13.8.8 Set frequency to 480 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for ~~5~~ 10 min.. JE 116786

13.8.9 Set frequency to 495 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for ~~5~~ 10 min.. JE 116786

13.8.10 Set frequency to 505 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for ~~5~~ 10 min.. JE 116786

13.8.11 Set frequency to 520 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for ~~5~~ 10 min. JE 116786

13.8.12 Verify that the RS01 test is complete and the results are acceptable.

Test Engineering _____ Date _____

Quality Engineering _____ Date _____

RED LINE CHANGES

QE→ J16786 MAY 06 2012

SEE PAGE 19 A

13.8.8 ~~Set frequency to 480 Hz. and move coil over for each area of the Instrument to be tested, see Figure 21.~~

13.8.9 ~~Set frequency to 520 H~~ ADD TO 13.8.8 ~~of the Instrument to be tested, see Figure 21.~~ THIS 13.8.9

13.8.10 ~~Verify that the RS01 te~~ Frequencies 480, 495, ceptable.

~~Test Engineering~~ 505, 520 TO RUN ON ~~Date~~

~~Quality Engineering~~ STAIN AT AF-1 ~~Date~~

13.9 DC Magnetic Field Susceptibility Test (GIRD 10.11.7.2)

13.9.1 The Instrument shall perform normally when exposed to a DC magnetic field of 1000 uTesla (800A/m) for a period of 5 minutes minimum.

13.9.2 A square or circular coil of wire large enough to encircle the Instrument shall be constructed and used to provide the DC magnetic field. The coil shall be calibrated for an 800A/m field without the Instrument in the field. The source of power for the coil shall be a DC power supply capable of supplying the current necessary to establish the required field. Use the following formula to design the coil: H = NI/2R where:

H = magnetic flux density (A/m) 800 A/m

N = number of wire turns in the coil, 96 TURNS

R = radius of coil (meters), 93" (1.2m)

I = current (20 amps)

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13.9.3 Connect the test setup as shown in Figure 13. Position the coil such that it SEE RED LINES the X, Y or Z axis of the Instrument. 13.9.3.1

13.9.4 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors col Mission mode and Instrument telemetry monitoring ready for test.

13.9.5 Turn on the coil power supply and adjust the voltage and current control the current calculated in paragraph 13.9.2.

13.9.6 Monitor the Instrument for evidence of susceptibility as the coil is slowly moved along the axis of the Instrument. Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields. If susceptibility is observed reduce the power supply voltage and current until the Instrument returns to normal operation and record the threshold on the applicable ~~Test Data Sheet~~ Test Log Book at the back of the procedure.

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A 686894 R/L MAY 06 2012

13.9.7 Maintain the susceptibility signal at 800A/m for a minimum of 5 minutes. At the end of the 5 minute period turn the coil power supply off.

13.9.8 Reverse the coil connections at the power supply and repeat paragraphs 13.9.5 through 13.9.7.

13.9.9 Turn the Instrument OFF and reposition the coil such that its plane is parallel with an axis different than the one used in paragraph 13.9.3.

HIRDLS Lateral Coil Frame Fixture (SK14182) Assembly Procedure

Equipment:
Rope
Tools

Inspection to witness all operations

1. Conduct briefing of operations to be performed, personnel roles, and safety precautions.

Engr QA
5-6-2002
MAY 06 2002

2. Using four people, position the coil frame in desired location then lift the coil frame to vertical position by pivoting on bottom edge. **CAUTION:** The coil frame weighs approx 140 lbs. Do not lift near critical hardware or allow to stand without at least two people supporting ends.

3. Position the caster side support near one side of coil frame. Install caster side support to coil frame.

4. Position the opposite caster side support. Then install the caster side support.

5. Verify the all the restraining rods and nuts are snug. Verify proper motion and stability of assembly. Verify operation complete.

Engr QA
5-6-2002
MAY 06 2002

MAY 06 2002

HIRDLS Vertical Coil Frame Fixture (SK14182) Assembly Procedure

Equipment:

- 2 carts
- 2 Ladders
- Rope
- Tools

Inspection to witness all operations

1. Conduct briefing of operations to be performed, personnel roles, and safety precautions. Establish area where frame is to be assembled and precautions and keepout areas around the test specimen.

   _____ Engr _____ QA

   5-6-2002

   MAY 06 2002

2. Using a minimum of 4 people carefully raise one side frame (approx 150 lbs). Then position and carefully raise the other side frame.

3. While supporting the side frames, install front crossbeam with diagonals (approx 40 lbs). Then install back crossbeam with diagonals. Tighten all bolts and nuts. **CAUTION:** The side frames must be supported with adequate personnel during this operation to prevent them from possibly falling over.

4. Lift one side of frame and set on 6 inch blocks. Install casters with swivel locks on the bottom of side frame beam on the raised side, then lift side slightly, remove blocks, and set on casters. Repeat for other side of frame.

5. Install cable assemblies and 3 overhead pulley support beams (approx 27 lbs each) as a unit. Tighten all bolts and nuts.

6. Install 4 pulleys to the side beams. Attach with 3 bolts each. Tighten all bolts and nuts.

7. Position 2 carts supporting coil frame and counterweight under support frame. Make sure cables are routed properly, then connect cable assembly to 4 corners of the coil frame.

8. Using one person at each corner carefully lift coil frame (approx 140 lbs) until the counterweight can be attached, then attach counterweight. Slowly lower the coil frame until it's weight is supported by cables.

9. Verify all nuts and bolts and installed and tightened. Verify that cables are run properly. Verify free motion of the coil frame up and down. Then tie ropes to secure coil frame in upper position.

   _____ Engr _____ QA

   5-6-2002

   MAY 06 2002

10. Make sure that wheel locks are off and swivel locks are in the desired position on the casters. Using a minimum of 4 people carefully move the frame into test position around the test specimen. Lock all caster wheels. Carefully remove the ropes securing the coil frame and lower frame to the desired test position. Secure area, power up coil, and run test series. .

    _____ Engr _____ QA

    5/6/02

11. Repeat step 10 for other two positions.

12. Verify power is removed from coil. Raise coil frame to upper position and secure at each corner with ropes. Unlock wheels and move frame to a convenient location away from test specimen. .

    _____ Engr _____ QA

    5/6/02

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5/6/02

HIRDLS Vertical Coil Frame Fixture (SK14182) Disassembly Procedure

Equipment:
- 2 carts
- 2 Ladders
- Tools

Inspection to Witness all operations

1. Conduct briefing of operations to be performed, personnel roles, and safety precautions.

   Engr 5-8-2002 QA 686894 MAY 08 2002

2. Place cart centered on both open sides of the frame on which to place counterweight and coil frame.

3. Using one person at each corner of coil frame, lift coil frame (approx 140 lbs) until counterweight is resting on cart. Remove cable assembly from counterweight.

4. Lower coil frame onto the two carts. Remove cable assemblies from the coil frame (4 places).

5. Remove 4 pulleys from the side beams (3 bolts per pulley).

6. Remove 3 overhead pulley support beams (approx 27 lbs each) keeping pulleys and cables installed. Store as a unit.

7. Lift one side of frame and set on 6 inch high blocks. Remove casters and swivel locks on raised side. Lift side of frame, remove blocks, then set back on floor. Lift opposite side of frame and set on 6 inch high blocks. Remove casters and swivel locks. Lift side of frame, remove blocks, then set back on floor.

8. While supporting the side frames, remove front crossbeam with diagonals (approx 40 lbs). Then remove back crossbeam with diagonals. **CAUTION:** The side frames must be supported with adequate personnel during this operation to prevent them from possibly falling over.

9. Using a minimum of 4 people carefully lower one side frame (approx 150 lbs). Then carefully lower the other side frame.

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686894 MAY 08 2002

DC Magnetics Coil Assembly

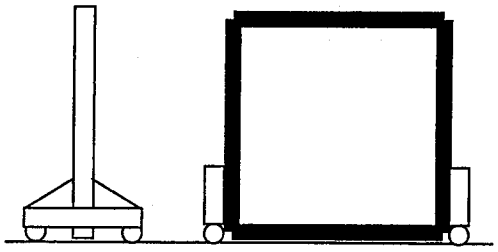


Figure 1
Note: Perform with Instrument power Off

13.9.3.1 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point B, lower down to support Instrument on block.

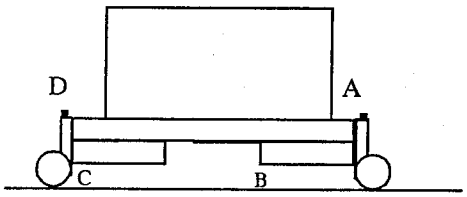


Figure 1

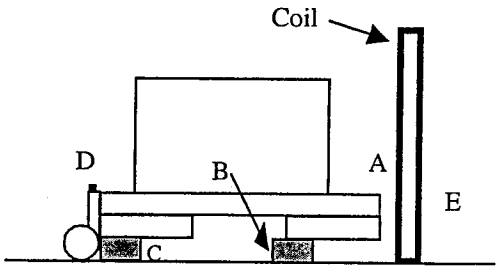


Figure 2

13.9.3.2 With handtruck, lift instrument cart end D, up 7 inch. Place 6 inch block under frame of Instrument support cart at point C, lower down to support Instrument on block.

13.9.3.3 Slide coil assembly under Instrument support cart.

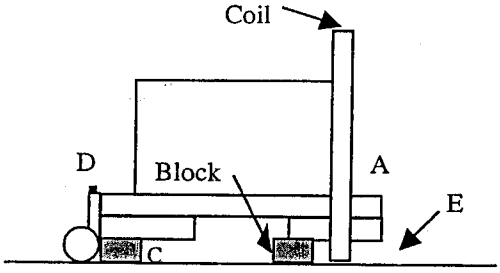


Figure 3

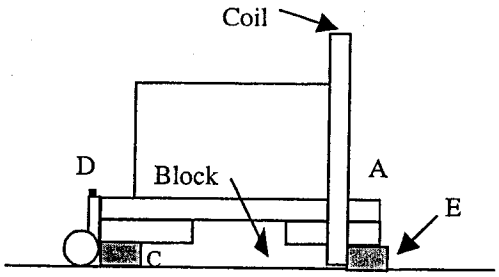


Figure 4

13.9.3.4 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point E, lower down to support Instrument on block.

13.9.3.5 Position coil at point X1 and perform DC magnetic field test. Move coil to X2, X3 and perform test.

13.9.3.6 Move coil back to block E when test is complete.

13.9.3.7 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point E, lower down to support Instrument on block.

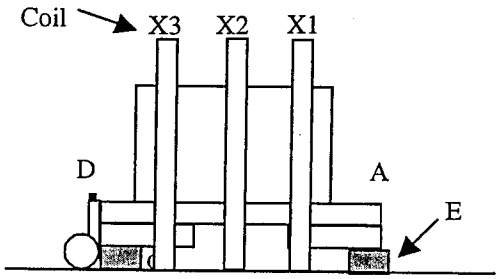


Figure 5

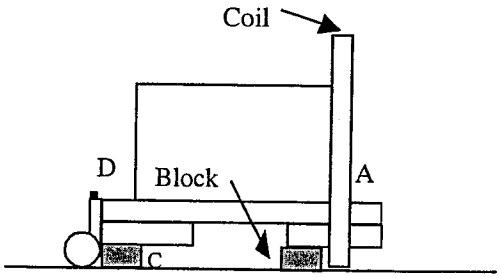


Figure 6

13.9.3.8 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point B, lower down to support Instrument on block.

13.9.3.9 Move coil off of Instrument.

Y-Axis DC Magnetic Field Test

13.9.3.10 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point B, lower down to support Instrument on block.

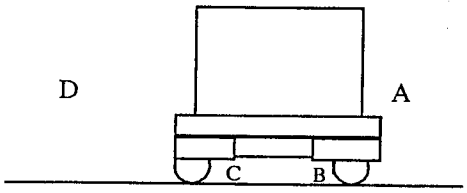


Figure 7

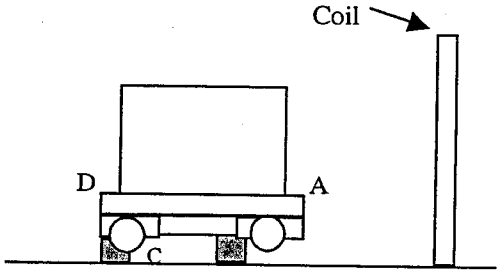


Figure 8

13.9.3.11 With handtruck, lift instrument cart end D, up 7 inch. Place 6 inch block under frame of Instrument support cart at point C, lower down to support Instrument on block.

13.9.3.12 Slide coil assembly under Instrument support cart

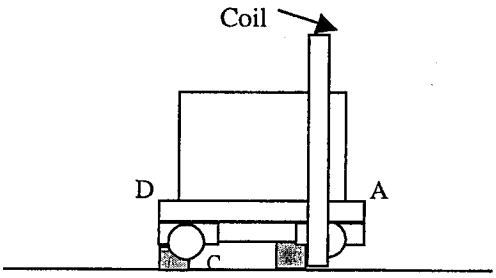


Figure 9

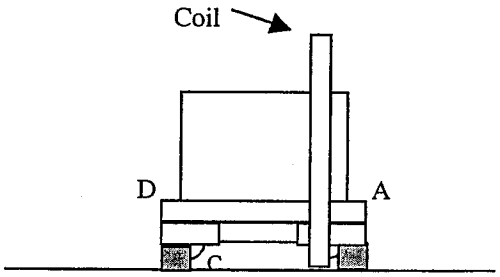


Figure 10

13.9.3.13 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point E, lower down to support Instrument on block.

13.9.3.14 Position coil at point X1 and perform DC magnetic field test. Move coil to X2, X3 and perform test.

13.9.3.15 Move coil back to block E when test is complete.

13.9.3.16 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point E, lower down to support Instrument on block.

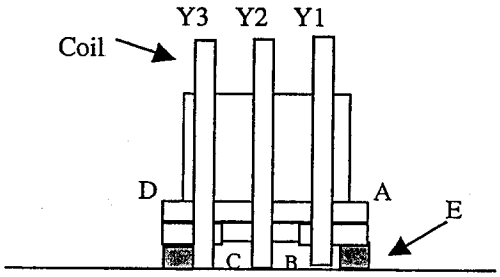


Figure 11

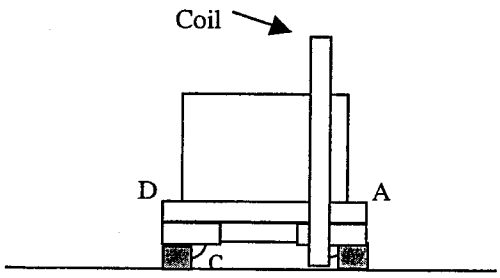
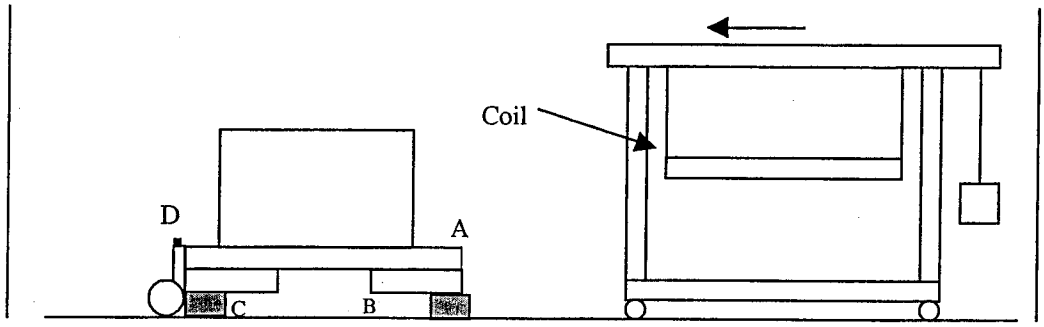


Figure 12

13.9.3.17 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point B, lower down to support Instrument on block.

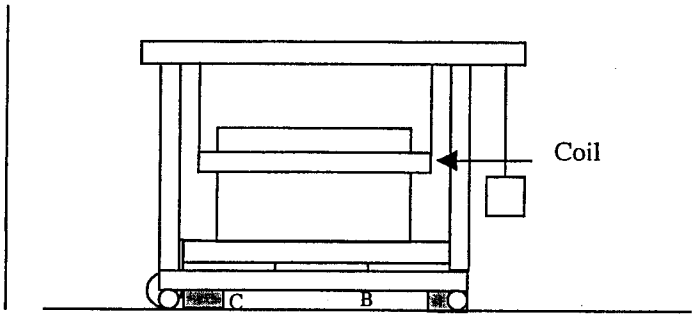
13.9.3.18 Move coil off of Instrument.

Z-Axis

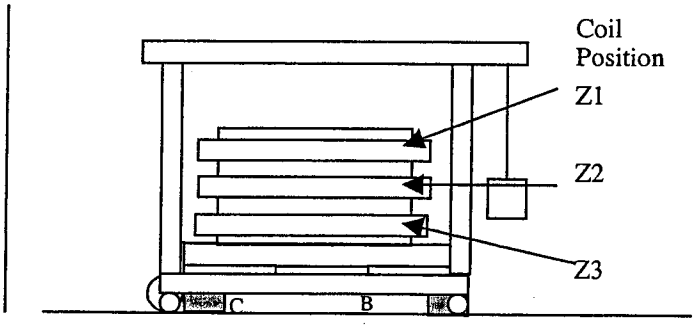


13.9.3.19 With Instrument up on blocks. Raise the coil in support cage to top most position and tie in place.

13.9.3.20 Move Coil and Cage assembly over the Instrument. Slowly lower the coil down over Instrument. Do not hit Instrument with coil. Position coil at locations Z1, Z2, Z3.



13.9.3.21 Position coil at point Z1 and perform DC magnetic field test. Move coil to Z2, Z3 and perform test.



13.9.3.22 At end of test, lift coil to top and tie up coil. Slide coil assembly off and away from instrument.

13.9.10 Repeat paragraphs 13.9.4 through 13.9.8.

13.9.11 ~~Turn the Instrument OFF and~~ Reposition the coil such that its plane is parallel with an axis different than the one used in paragraph 13.9.3 and 13.9.9.

13.9.12 Repeat paragraphs 13.9.4 through 13.9.8.

13.9.13 Verify that the DC Magnetic Field Susceptibility Test is complete and the results are acceptable.

Test Engineering Dawn Beck Date _____

Quality Engineering _____ Date _____

D 686894 MAY 05 2003 DR AD6464

13.10 RS03 Electric Field Radiated Susceptibility Test 14KHz to 18GHz (GIRD 10.11.8)

13.10.1 The requirement for this test is shown in Figure 14. Linearly polarized antennas will be used in both the horizontal and vertical polarities.

13.10.2 Connect the test setup shown in Figure 15. Turn the EMI equipment ON and allow a minimum of 15 minutes for warm up and stabilization.

Note: Performance of this test requires the use of many different signal generators, amplifiers, antennas and field measuring probes for different frequency ranges. Many different combinations are possible. It is not the intent of this procedure to show every possible combination; therefore Figure 16 is only a generic test setup. It is the responsibility of the EMI/EMC Test Engineer to decide what test equipment will be used for each frequency range.

13.10.3 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test.

13.10.4 Close the chamber door and adjust the susceptibility signal for 2 V/m at 14 KHz with 50%AM at a 1KHz rate. Monitor the Instrument for evidence of susceptibility. Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields. If susceptibility is observed, reduce the signal level until the Instrument returns to normal operation and record the threshold on the applicable Test Data Sheet.

13.10.5 Sweep the signal up in frequency from 14KHz to 2GHz at a rate not to exceed three frequencies per octave in 30 seconds. Maintain a level of 2V/m. Continue to monitor for susceptibility. Make sure that the EMI test equipment (antennas, signal generators, TWTAs, field strength meters) is compatible with each of the frequency ranges.

13.10.6 Sweep the signal up in frequency from 2 GHz to 18 GHz at a rate not to exceed three frequencies per octave in 30 seconds. Maintain a level of 10V/m except as indicated in the table below. Continue to monitor for susceptibility. Make sure that the EMI test equipment (antennas, signal generators, TWTAs, field strength meters) is compatible with each of the frequency ranges.

Sweep Frequency	Level
14 KHz to 2 GHz	2 V/m

13.10.6.1 Perform RS03 Test on areas noted on FIGURE 15A;

13.10.6.2 Perform RS03 SWEEP ON RF-1 AREA FROM 14K TO 18 GHz. (HIRDS +Y SIDE)

13.10.6.3 Perform RS03 SWEEP on RF-2 AREA PER FIGURE 15A (HIRDS--Y Side)

13.10.6.4 Sweep Per RS03 2ND Antenna Position (HIRDS —X, -Y)

Page 1 of 3

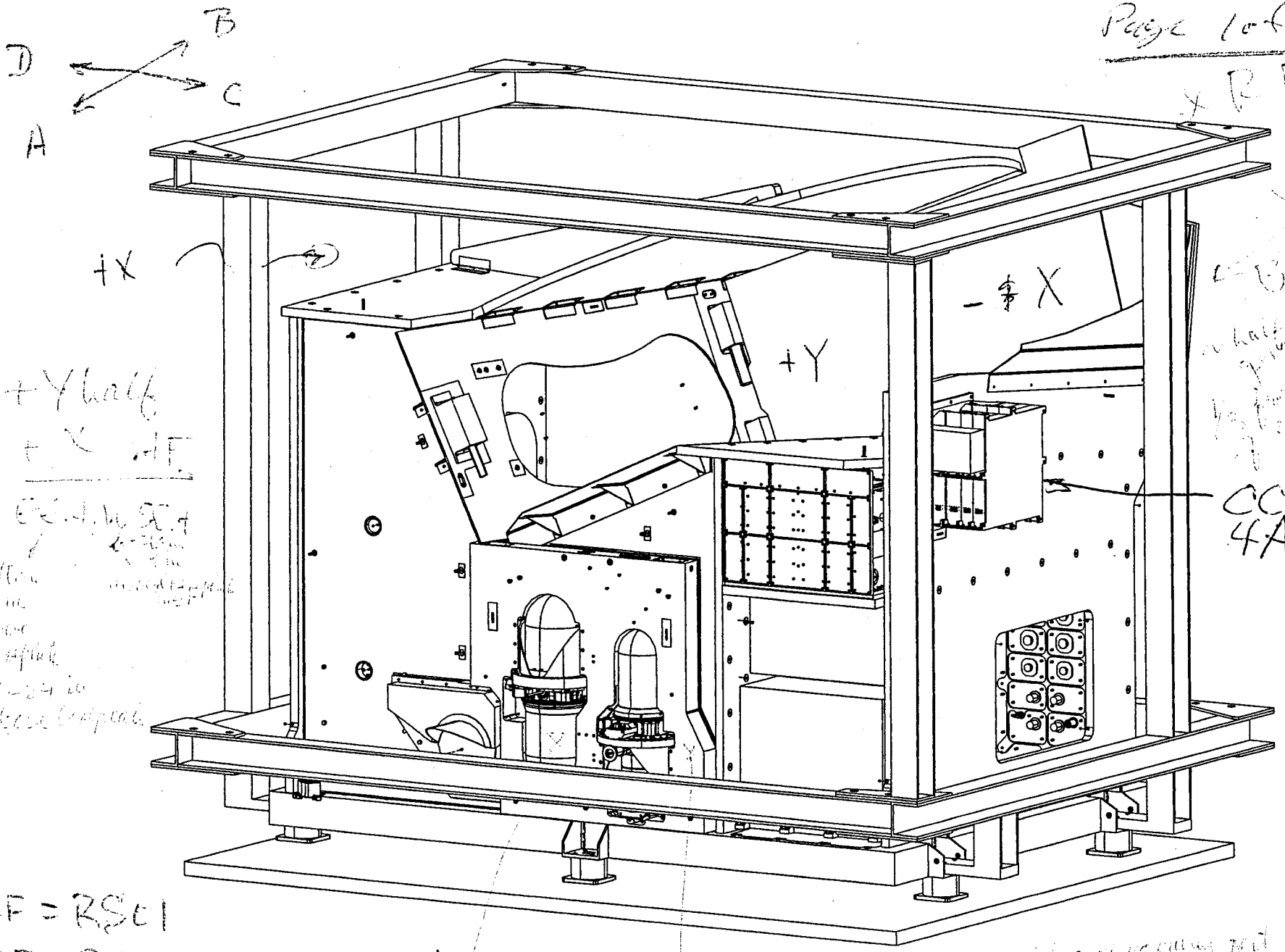
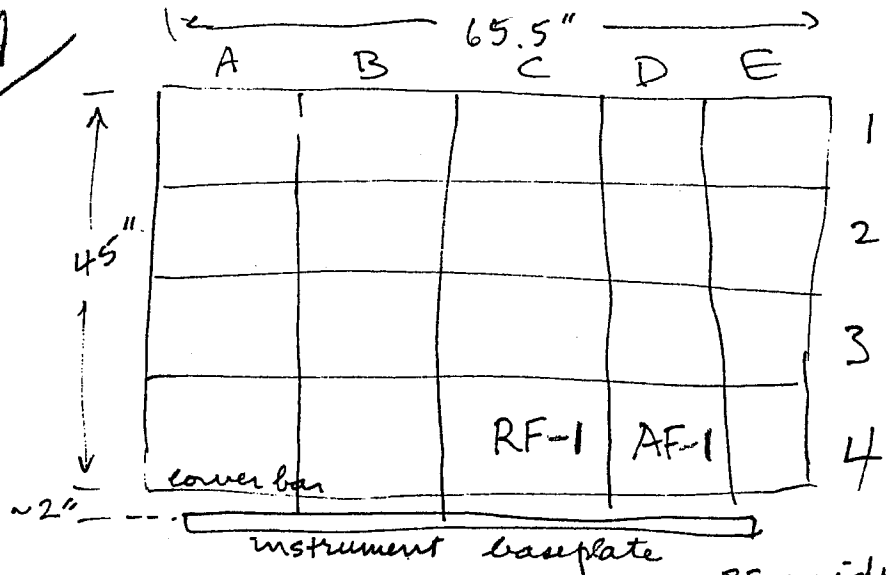


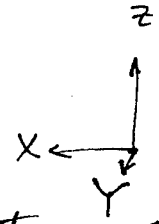
FIGURE 15M

A/



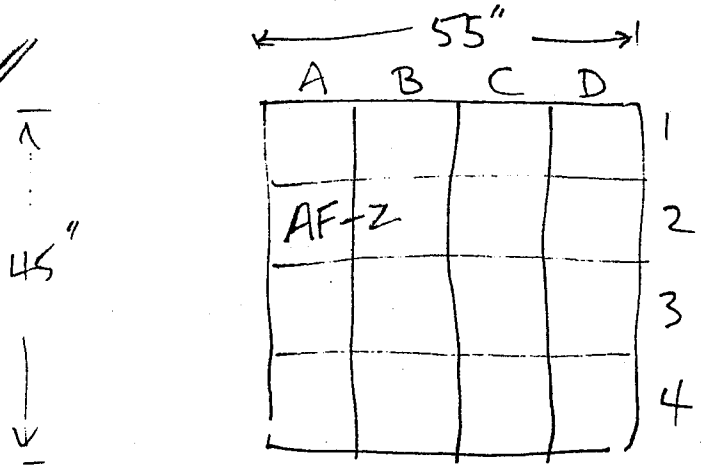
Gorilla cage

view of +Y side

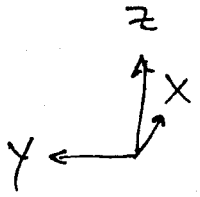


RF: midway between IPU & TEU
AF: DSS-SPU

D/

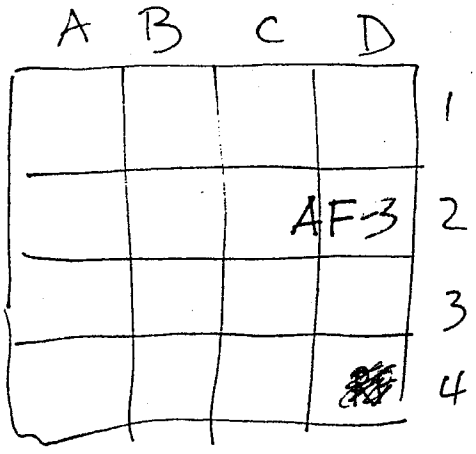


view of −X side

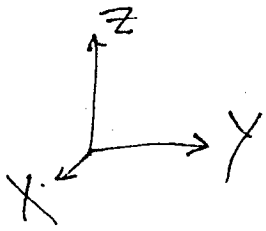


AF: CCU

C/



view of +X side



AF: midway between EEU and WSEA

FIGURE 15A
Page 71 C

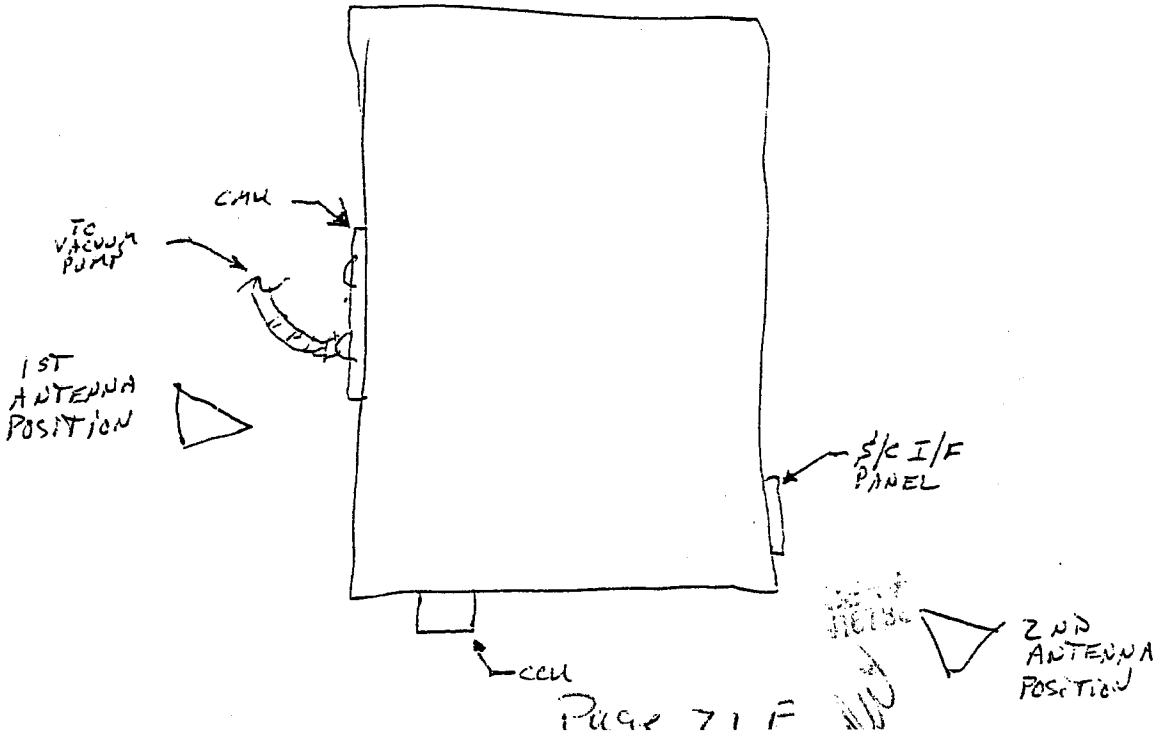
RS03 2ND ANTENNA POSITION (HIRDLS -X, -Y)

SWEEP	START	TO	STOP
	14 KHz		20 MHz
	20 MHz		80 MHz
	119 MHz		160 MHz
	180 MHz		190 MHz
	210 MHz		390 MHz
	470 MHz		700 MHz
	1.5 GHz		2 GHz
	2 GHz		18 GHz

NOTES:

1) SAME SWEEP FREQUENCY RANGES FOR BOTH H & V POLARITY

2) STEP PER ~~~ IVAN'S TABLE



2 GHz to 18 GHz	10 V/m
Spacecraft Transmitter Frequence	
2.2875GHz ± 2.0MHz	**20V/m**
8.2125GHz ± 187.5MHz	**20V/m**

QE J16786

13:10.6.1 SEE PAGE 21A

13.10.7 Verify that the RS03 test is complete and the results are acceptable.

Test Engineering Dan Ano Date 5/3/02

Quality Engineering REVIEWED TEST LOG Date 5/3/02 QE J16786

OK (AN) LESS DR #6464 MAY 05 2002

13.11 CS01/CS02 Audio and Radio Frequency Conducted Susceptibility Test 30 Hz to 50KHz/50KHz to 400 MHz (GIRD 10.11.3)

13.11.1 The requirement for this test is shown in Figure 16. The susceptibility signal shall be injected onto the PCU power input lines.

The Quite Bus and Survival Bus is Series injection (CS01) will be used from 30 Hz to 50 KHz and parallel injection, 3 V p-p or 4.0 Amp. p-p max.. Series injection (CS02) will be limited to 3 V p-p (1.07 Vrms) or 1 Watt from a 50 Ohm load, used from 50 KHz to 400 MHz. . As shown in Figure 16.

The Noisy Bus (CS01) susceptibility signal will start at 7 V p-p or 8.0 Amp. p-p max., from 30 Hz. To 2 KHz then ramp down to 3 V p-p or 8.0 Amp. p-p max., at 50 KHz. Series injection (CS02) will be 3 V p-p or 8.0 Amp. p-p max., used from 50 KHz to 400 MHz.

to 400 MHz Hz. As shown in Figure 16.

D 686894 DR AD648 MAY 05 2002

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D 686894 AD649 MAY 05 2002

13.11.2 The series injection test configuration will apply the signal onto the positive Primary Power Lines and Power Return Lines. The susceptibility tests will be performed on the following:

PI-QB-A	Primary power input lead (Quiet Bus A)	Cable PQA / connect together wire A,B,C
PR-QB-A	Primary power return lead (Quiet Bus A)	Cable PQA / connect together wire D,E,F
PI-QB-B	Primary power input lead (Quiet Bus B)	Cable PQB / connect together wire A,B,C
PR-QB-B	Primary power return lead (Quiet Bus B)	Cable PQB / connect together wire D,E,F
PI-SB-A	Power Input lead (Survival Bus A)	Cable PSA/ connect together wires A, B, C
PR-SB-A	Power Return lead (Survival Bus A)	Cable PSA/ connect together wires D, E, F
PI-SB-B	Power Input lead (Survival Bus B)	Cable PSB / connect together wires A, B, C
PR-SB-B	Power Return lead (Survival Bus B)	Cable PSB / connect together wires D, E, F
PI-NB A	Primary power input lead (Noisy Bus A)	Cable PNA / connect together wires A,B,C
PR-NB A	Primary power return lead (Noisy Bus A)	Cable PNA / connect together wire D,E,F

PI-NB B	Primary power input lead (Noisy Bus B)	Cable PNB / connect together wire A,B,C
PR-NB B	Primary power return lead (Noisy Bus B)	Cable PNB / connect together wire D,E,F

13.11.3 Connect the CS01 setup shown in Figure 17. Begin with series injection for the Quite Bus-A positive power input line. Turn the EMI test equipment ON and allow a minimum of 15 minutes for warm-up and stabilization. SEE FIGURE 17A, PAGE 22A. QE J18575A

13.11.4 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test. MAY 02 2002

13.11.5 Increase the level of the susceptibility signal to 3 V p-p or 4.0 Amp. p-p max. or Injected Signal of 50 Watt max., at 30 Hz. Monitor the Instrument for evidence of susceptibility.

13.11.6 Sweep the susceptibility from 30 Hz to 50 KHz at a rate not to exceed three frequencies per octave in 30 seconds. Continue to monitor the Instrument for evidence of susceptibility. Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields. If susceptibility is observed, reduce the level of the susceptibility signal until the Instrument returns to normal operation and record the signal threshold on the applicable Test Data Sheet. At 50 KHz reduce the signal to zero and turn the Instrument off.

13.11.7 Repeat paragraphs 13.11.3 through 13.11.6 for the Quite Bus-A return lead. SEE PAGE 22C QE J18575A MAY 02 2002

13.11.8 Repeat paragraphs 13.11.3 through 13.11.6 for the Quite Bus-B positive lead.

13.11.9 Repeat paragraphs 13.11.3 through 13.11.6 for the Quite Bus-B return lead.

13.11.10 Repeat paragraphs 13.11.3 through 13.11.6 for the Survival Bus-A positive lead.

13.11.11 Repeat paragraphs 13.11.3 through 13.11.6 for the Survival Bus-A Return lead.

13.11.12 Repeat paragraphs 13.11.3 through 13.11.6 for the Survival Bus-B positive lead.

13.11.13 Repeat paragraphs 13.11.3 through 13.11.6 for the Survival Bus-B Return lead.

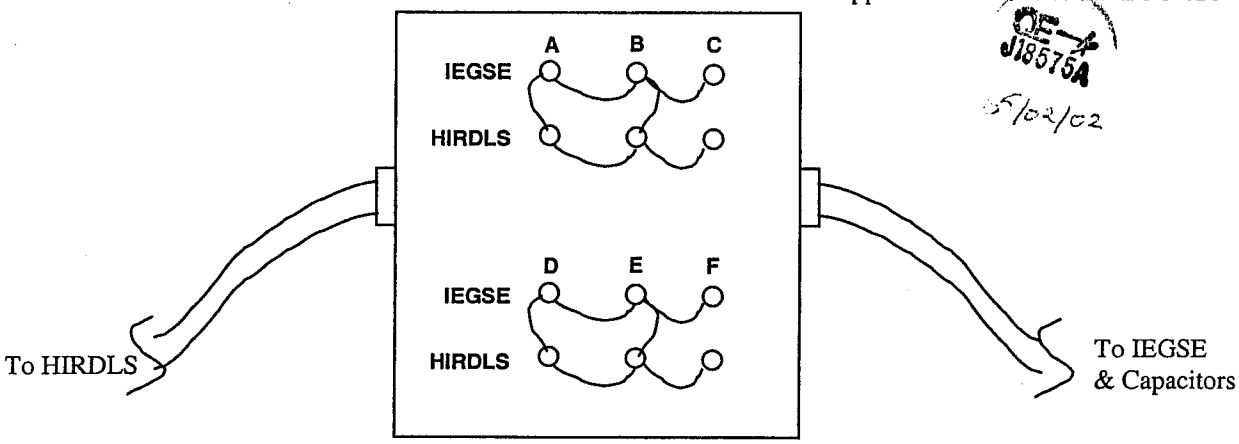
13.11.14 Configure the test setup for CS02 parallel injection to inject the susceptibility signal between the positive power input and return lines for the Quite Bus-A. Refer to Figure 18. Turn the EMI test equipment ON and allow a minimum of 15 minutes for warm-up and stabilization. SEE PAGE 22D.

13.11.15 Increase the level of the susceptibility signal to 3 V p-p p or 0.6 ~~4.0~~ Amp. p-p, or 1 watt from a 50 Ohm Source Max. at 50KHz. Monitor the Instrument for evidence of susceptibility. QE J18575A

13.11.16 Sweep the susceptibility from 50 KHz to 400MHz at a rate not to exceed three frequencies per octave in 30 seconds. Continue to monitor the Instrument for evidence of susceptibility. If susceptibility is observed, reduce the level of the susceptibility signal until the Instrument returns to normal operation and record the signal threshold on the applicable Test Data Sheet. At 400 MHz reduce the signal to zero and turn the Instrument off. MAY 02 2002

13.11.17 Repeat paragraphs 13.11.14 through 13.11.16 for the other Quite Bus-A return lead.

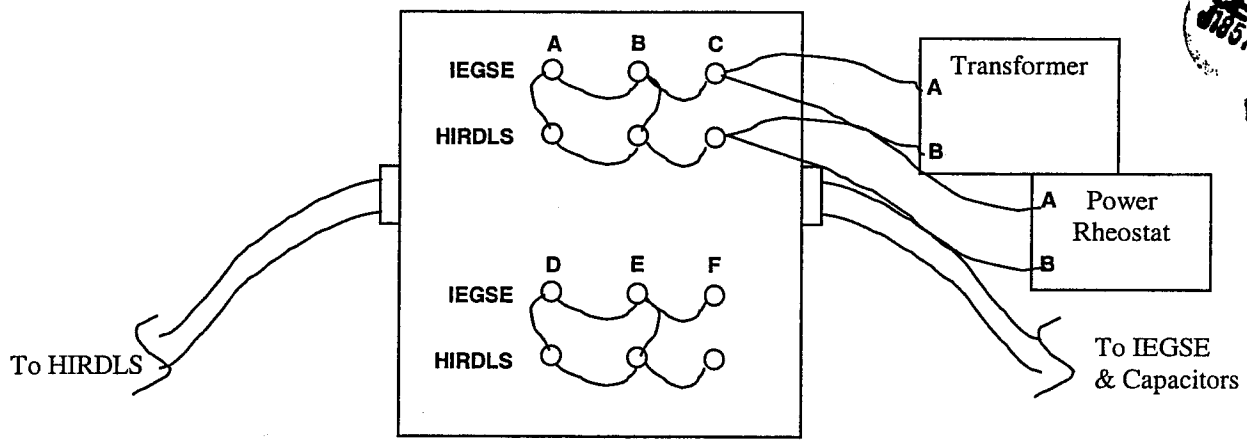
13.11.18 Repeat paragraphs 13.11.14 through 13.11.16 for the other Quite Bus-B positive lead.



BOB Basic Setup:
Before power is applied to the system perform the following steps.

1.0 Cable a BOB in each A-side power bus (Quiet, Noisy, Survival)
2.0 Place a jumper wires on each BOB in the following positions -

From	To
IEGSE-A	IEGSE-B
IEGSE-B	IEGSE-C
IEGSE-D	IEGSE-E
IEGSE-E	IEGSE-F
IEGSE-A	HIRDLS-A
IEGSE-B	HIRDLS-B
IEGSE-D	HIRDLS-D
IEGSE-E	HIRDLS-E



NOTE: INITIAL SETUP (EACH BUS - A-SIDE)

BOB Setup for CS01 (high side):

1.0 Verify that the BOB is in the "Basic Setup" configuration.

~~2.0 Test conductor to note time in the log and give OK to make connections to instrument.~~

3.0 Connect the transformer ~~and rheostat~~ wires on the BOB in the following positions (Amplifier output off) -

From	To
x-former-A	IEGSE-C
x-former-B	HIRDLS-C
~~Pot-A~~	~~HIRDLS-C~~
~~Pot-B~~	~~IEGSE-C~~

~~4.0 Set the rheostat to maximum minimum (0 Ohms)~~

5.0 With the amplifier off remove the jumper wires

From	To
IEGSE-B	HIRDLS-B
IEGSE-A	HIRDLS-A

~~6.0 Slowly increase the rheostat resistance to maximum. Then remove the rheostat~~

~~From~~	~~To~~
~~Pot-A~~	~~HIRDLS-C~~
~~Pot-B~~	~~IEGSE-C~~

7.0 Notify test conductor that re-configuration is complete.

BOB Setup for CS01 (high side) after completion of the test:

8.0 Test conductor to note time in the log and give OK to make connections to instrument.

9.0 Set the rheostat resistance to maximum. Then connect to the bob.

From	To
Pot-A	HIRDLS-C
Pot-B	IEGSE-C

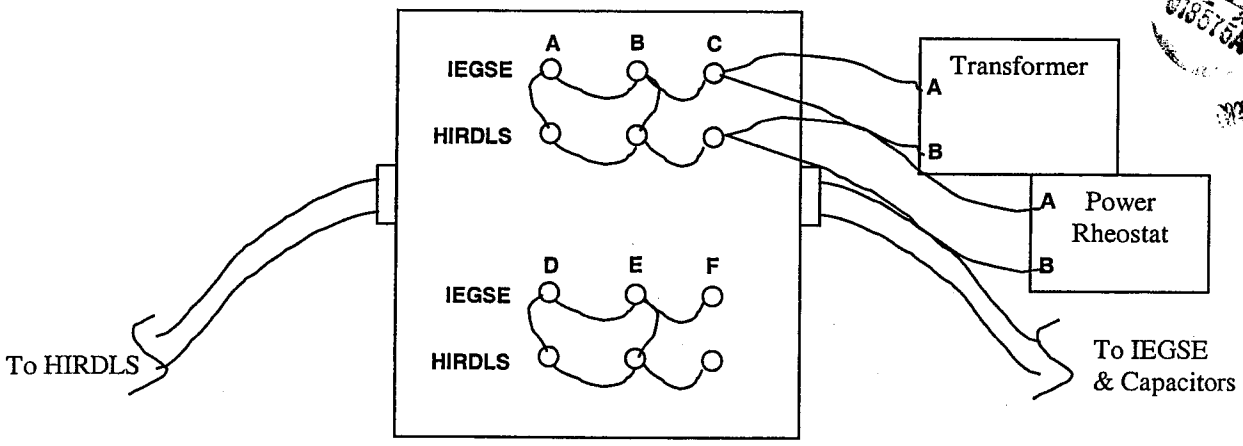
10.0 With the amplifier off, slowly reduce the rheostat resistance to minimum (0 Ohms), then connect the following jumper wires

From	To
IEGSE-B	HIRDLS-B
IEGSE-A	HIRDLS-A

11.0 Disconnect the transformer and rheostat wires on the BOB in the following positions -

From	To
x-former-A	IEGSE-C
x-former-B	HIRDLS-C
Pot-A	HIRDLS-C
Pot-B	IEGSE-C

12.0 Notify test conductor that re-configuration is complete.



BOB Setup for CS01 (high side):

1.0 Verify that the BOB is in the "Basic Setup" configuration.

2.0 Test conductor to note time in the log and give OK to make connections to instrument.

3.0 Connect the transformer and rheostat wires on the BOB in the following positions (Amplifier output off) -

From	To
x-former-A	IEGSE-C
x-former-B	HIRDLS-C
Pot-A	HIRDLS-C
Pot-B	IEGSE-C

4.0 Set the rheostat to maximum minimum (0 Ohms)

5.0 With the amplifier off remove the jumper wires

From	To
IEGSE-B	HIRDLS-B
IEGSE-A	HIRDLS-A

6.0 Slowly increase the rheostat resistance to maximum. Then remove the rheostat

From	To
Pot-A	HIRDLS-C
Pot-B	IEGSE-C

7.0 Notify test conductor that re-configuration is complete.

BOB Setup for CS01 (high side) after completion of the test:

8.0 Test conductor to note time in the log and give OK to make connections to instrument.

9.0 Set the rheostat resistance to maximum. Then connect to the bob.

From	To
Pot-A	HIRDLS-C
Pot-B	IEGSE-C

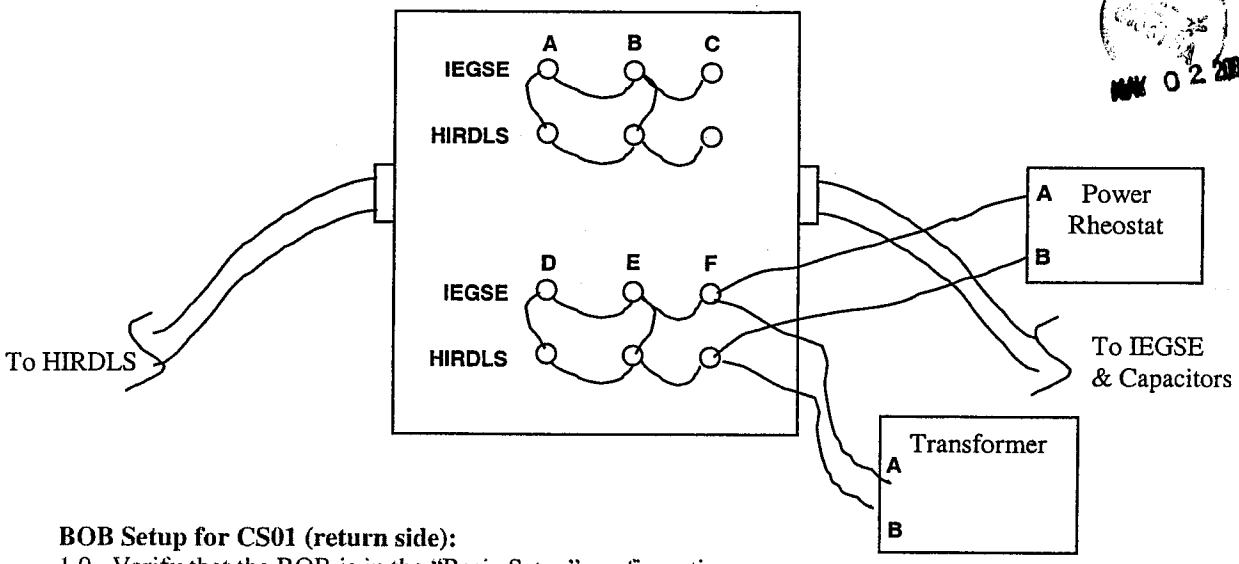
10.0 With the amplifier off, slowly reduce the rheostat resistance to minimum (0 Ohms), then connect the following jumper wires

From	To
IEGSE-B	HIRDLS-B
IEGSE-A	HIRDLS-A

11.0 Disconnect the transformer and rheostat wires on the BOB in the following positions -

From	To
x-former-A	IEGSE-C
x-former-B	HIRDLS-C
Pot-A	HIRDLS-C
Pot-B	IEGSE-C

12.0 Notify test conductor that re-configuration is complete.



BOB Setup for CS01 (return side):

1.0 Verify that the BOB is in the "Basic Setup" configuration.

2.0 Test conductor to note time in the log and give OK to make connections to instrument.

3.0 Connect the transformer and rheostat wires on the BOB in the following positions (Amplifier output off) -

From	To
x-former-A	IEGSE-F
x-former-B	HIRDLS-F
Pot-A	HIRDLS-F
Pot-B	IEGSE-F

4.0 Set the rheostat to maximum minimum (0 Ohms)

5.0 With the amplifier off remove the jumper wires

From	To
IEGSE-E	HIRDLS-E
IEGSE-F	HIRDLS-F

6.0 Slowly increase the rheostat resistance to maximum. Then remove the rheostat

From	To
Pot-A	HIRDLS-F
Pot-B	IEGSE-F

7.0 Notify test conductor that re-configuration is complete.

BOB Setup for CS01 (return side) after completion of the test:

8.0 Test conductor to note time in the log and give OK to make connections to instrument.

9.0 Set the rheostat resistance to maximum. Then connect to the bob.

From	To
Pot-A	HIRDLS-F
Pot-B	IEGSE-F

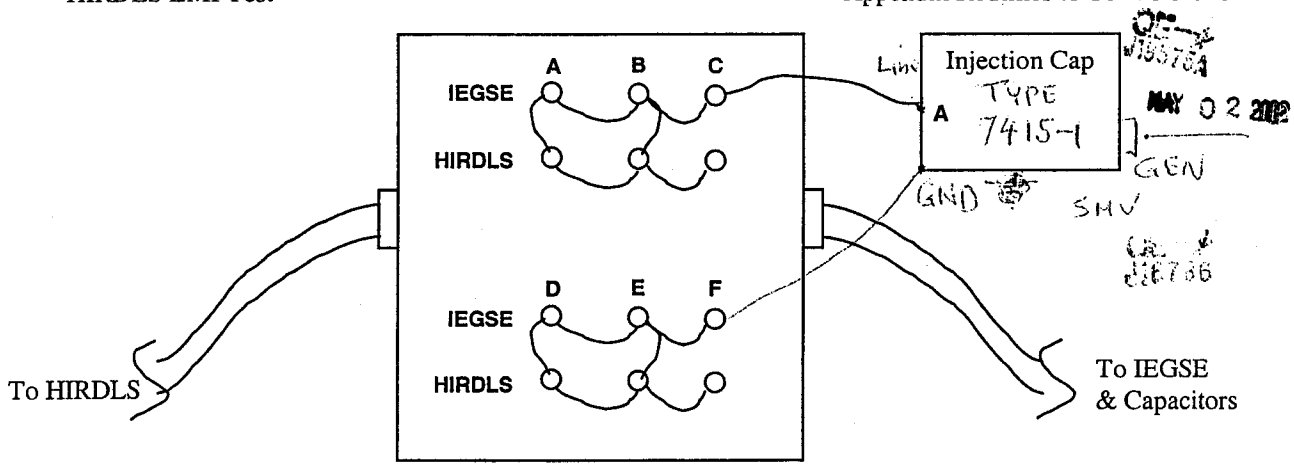
10.0 With the amplifier off, slowly reduce the rheostat resistance to minimum (0 Ohms), then connect the following jumper wires

From	To
IEGSE-E	HIRDLS-E
IEGSE-F	HIRDLS-F

11.0 Disconnect the transformer and rheostat wires on the BOB in the following positions -

From	To
x-former-A	IEGSE-F
x-former-B	HIRDLS-F
Pot-A	HIRDLS-F
Pot-B	IEGSE-F

12.0 Notify test conductor that re-configuration is complete.



BOB Setup for CS02 (high side):

1.0 Verify that the BOB is in the "Basic Setup" configuration.

2.0 Test conductor to note time in the log and give OK to make connections to instrument.

3.0 Connect the injection capacitor wires on the BOB in the following positions -

From	To
Capacitor-A	IEGSE-C

4.0 Notify test conductor that re-configuration is complete.

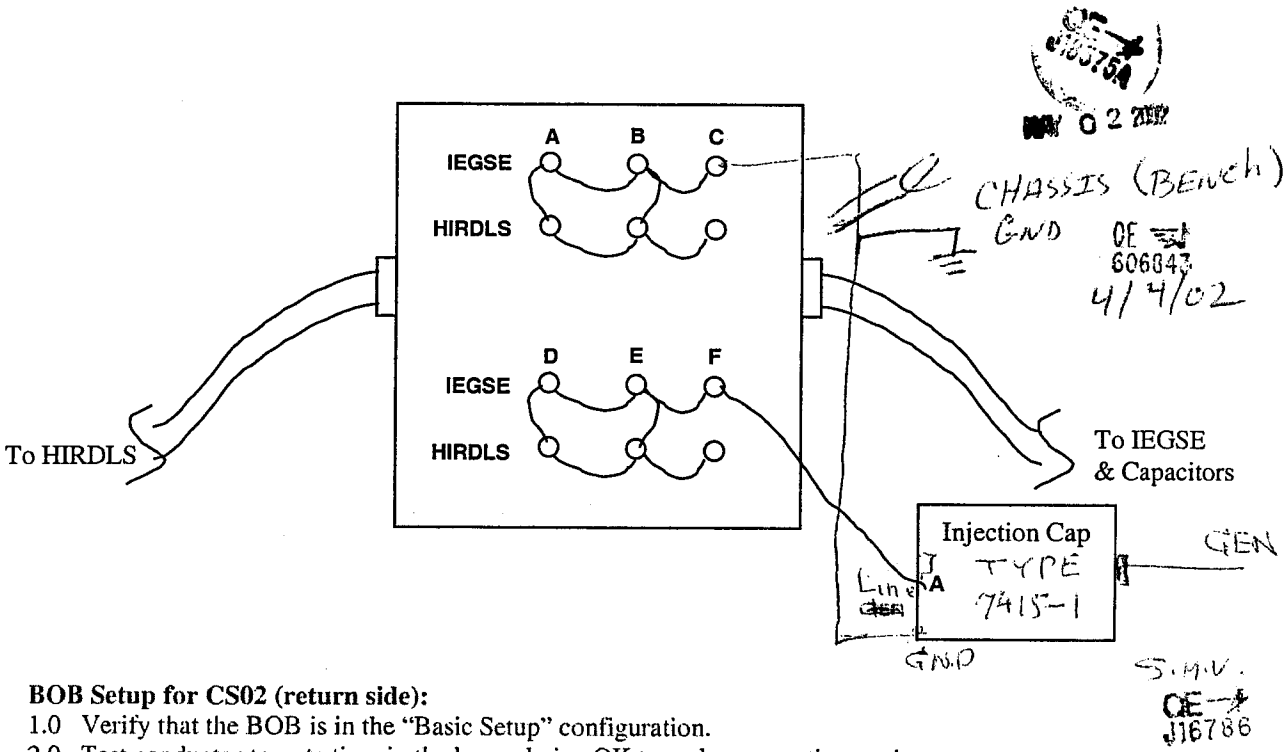
BOB Setup for CS02 (high side) after completion of the test:

5.0 Test conductor to note time in the log and give OK to make connections to instrument.

6.0 Disconnect the injection capacitor wires on the BOB in the following positions -

From	To
Capacitor-A	IEGSE-C

7.0 Notify test conductor that re-configuration is complete.



BOB Setup for CS02 (return side):

1.0 Verify that the BOB is in the "Basic Setup" configuration.

2.0 Test conductor to note time in the log and give OK to make connections to instrument.

3.0 Connect the injection capacitor wires on the BOB in the following positions -

From	To
Capacitor-A	IEGSE-F

4.0 Notify test conductor that re-configuration is complete.

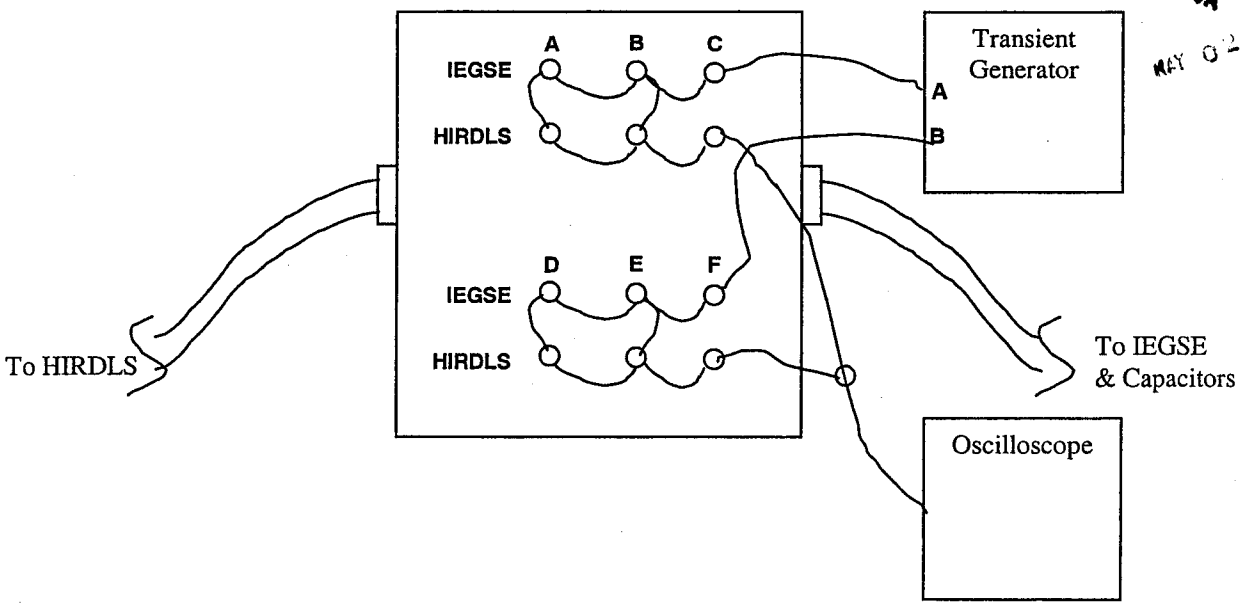
BOB Setup for CS02 (return side) after completion of the test:

5.0 Test conductor to note time in the log and give OK to make connections to instrument.

6.0 Disconnect the injection capacitor wires on the BOB in the following positions -

From	To
Capacitor-A	IEGSE-F

7.0 Notify test conductor that re-configuration is complete.



BOB Setup for CS06:

1.0 Verify that the BOB is in the "Basic Setup" configuration.

2.0 Test conductor to note time in the log and give OK to make connections to instrument.

3.0 Connect the Transient Generator wires on the BOB in the following positions -

From	To
TG-A	IEGSE-C
TG-B	IEGSE-F

4.0 Connect the oscilloscope leads on the BOB in the following positions -

From	To
Probe (+)	HIRDLS-C
Probe (-)	HIRDLS-F

5.0 Notify test conductor that re-configuration is complete.

BOB Setup for CS06 after completion of the test:

6.0 Test conductor to note time in the log and give OK to make connections to instrument.

7.0 Disconnect the Transient Generator wires on the BOB in the following positions -

From	To
TG-A	IEGSE-C
TG-B	IEGSE-F

8.0 Disonnect the oscilloscope leads on the BOB in the following positions -

From	To
Probe (+)	HIRDLS-C
Probe (-)	HIRDLS-F

9.0 Notify test conductor that re-configuration is complete.

13.11.19 Repeat paragraphs 13.11.14 through 13.11.16 for the other Quite Bus-B return lead.

13.11.20 Repeat paragraphs 13.11.14 through 13.11.16 for the Survival Bus-A positive lead.

13.11.21 Repeat paragraphs 13.11.14 through 13.11.16 for the Survival Bus-A return lead.

13.11.22 Repeat paragraphs 13.11.14 through 13.11.16 for the Survival Bus-B positive lead.

13.11.23 Repeat paragraphs 13.11.14 through 13.11.16 for the Survival Bus-B return lead.

13.11.24 Connect the CS01 setup shown in Figure 17. Begin with series injection for the Noisy Bus-A positive power input line. Turn the EMI test equipment ON and allow a minimum of 15 minutes for warm-up and stabilization.

13.11.25 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test. QE→ J16786

13.11.26 Increase the level of the susceptibility signal to 7 V p-p or ~~4.0~~ 20 Amp p-p Amp. p-p max., at 30 Hz. Monitor the Instrument for evidence of susceptibility.

13.11.27 Sweep the susceptibility from 30 Hz to 2KHz at a rate not to exceed three frequencies per octave in 30 seconds. Continue to monitor the Instrument for evidence of susceptibility. Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields. If susceptibility is observed, reduce the level of the susceptibility signal until the Instrument returns to normal operation and record the signal threshold on the applicable Test Data Sheet. At 2 KHz.

13.11.28 Ramp down the 7 V p-p, 2 KHz to 3 V p-p at 50 KHz, 2KHz at a rate not to exceed three frequencies per octave in 60 seconds.

13.11.29 Sweep the susceptibility from 50 Hz to 400 MHz at a rate not to exceed three frequencies per octave in 30 seconds. Continue to monitor the Instrument for evidence of susceptibility. Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields. If susceptibility is observed, reduce the level of the susceptibility signal until the Instrument returns to normal operation and record the signal threshold on the applicable Test Data Sheet. . At 400 MHz reduce the signal to zero and turn the Instrument off.

13.11.30 Repeat paragraphs 13.11.24 through 13.11.29 for the other Noisy Bus-B positive lead.

13.11.31 Configure the test setup for CE02 to inject the susceptibility signal into the positive power input lines for the Noisy Bus-A. Refer to Figure 18. Turn the EMI test equipment ON and allow a minimum of 15 minutes for warm-up and stabilization. 0.84mp P-P OR QE→ J16786

13.11.32 Increase the level of the susceptibility signal to 3 V p-p p or 1 watt from a 50 Ohm Source max., at 50KHz. Monitor the Instrument for evidence of susceptibility.

13.11.33 Sweep the susceptibility from 50 KHz to 400MHz at a rate not to exceed three frequencies per octave in 30 seconds. Continue to monitor the Instrument for evidence of susceptibility. If susceptibility is observed, reduce the level of the susceptibility signal until the Instrument returns

to normal operation and record the signal threshold on the applicable Test Data Sheet. At 400 MHz reduce the signal to zero and turn the Instrument off.

13.11.34 Repeat paragraphs 13.11.31 through 13.11.33 except configure the test setup to inject the susceptibility signal between the Noisy Bus-A return power input line.

13.11.35 Repeat paragraphs 13.11.31 through 13.11.33 except configure the test setup to inject the susceptibility signal between the Noisy Bus-B positive power input line.

13.11.36 Repeat paragraphs 13.11.31 through 13.11.33 except configure the test setup to inject the susceptibility signal between the Noisy Bus-B return power input line.

13.11.37 Verify that the CS01 / CS02 test is complete and the results are satisfactory.

Test Engineering _____ Date 05/05/02

Quality Engineering _____ Date 05/07/02

13.12 CS06, Power Lead Spike Susceptibility Test (GIRD 10.11.4)

The requirement for this test is shown in the table below. The susceptibility signal will be injected between the Instrument input power lines. Note: (+29V Power Line)+(+29V Spike Amplitude superimposed on top of power line) = +58V Peak Amplitude .

D 686694 PR AD649 MAY 05 2002

D 686694 PR AD6497 MAY 05 2002

13.12.1 Tests will be performed on the following:

	Test Point	Spike Amplitude	Pulse Width	Pulse Repetition Rate
PI-NB A&B PR-NB A&B	Primary power input lead (Noisy Bus A & B)	+29V peak superimposed on top of power line	10u sec	60 pps For 5 Minutes Minimum
PI-NB A&B PR-NB A&B	Primary power input lead (Noisy Bus A & B)	-29V peak superimposed on top of power line	10u sec	60 pps For 5 Minutes Minimum
PI-SB A&B PR-SB A&B	Primary power input lead (Survival Bus A & B)	+29V peak superimposed on top of power line	10u sec	60 pps For 5 Minutes Minimum
PI-SB A&B PR-SB A&B	Primary power input lead (Survival Bus A & B)	-29V peak superimposed on top of power line	10u sec	60 pps For 5 Minutes Minimum
PI-QB A&B PR-QB A&B	Primary power input lead (Quiet Bus A & B)	+29V peak superimposed on top of power line	10u sec	60 pps For 5 Minutes Minimum
PI-QB A&B PR-QB A&B	Primary power input lead (Quiet Bus A & B)	-29V peak superimposed on top of power line	10u sec	60 pps For 5 Minutes Minimum

PI-QB-A	Primary power input lead (Quiet Bus A)	Cable PQA / connect together wire A,B,C
PR-QB-A	Primary power return lead (Quiet Bus A)	Cable PQA / connect together wire D,E,F
PI-QB-B	Primary power input lead (Quiet Bus B)	Cable PQB / connect together wire A,B,C
PR-QB-B	Primary power return lead (Quiet Bus B)	Cable PQB / connect together wire D,E,F

PI-SB-A	Power Input lead (Survival Bus A)	Cable PSA/ connect together wires A, B, C
PR-SB-A	Power Return lead (Survival Bus A)	Cable PSA/ connect together wires D, E, F
PI-SB-B	Power Input lead (Survival Bus B)	Cable PSB / connect together wires A, B, C
PR-SB-B	Power Return lead (Survival Bus B)	Cable PSB / connect together wires D, E, F
PI-NB A	Primary power input lead (Noisy Bus A)	Cable PNA / connect together wires A,B,C
PR-NB A	Primary power return lead (Noisy Bus A)	Cable PNA / connect together wire D,E,F
PI-NB B	Primary power input lead (Noisy Bus B)	Cable PNB / connect together wire A,B,C
PR-NB B	Primary power return lead (Noisy Bus B)	Cable PNB / connect together wire D,E,F

13.12.2 Connect the calibration setup shown in Figure 19. Increase the output of the transient generator to 29 volts peak. Temporarily mark the position of the amplitude control. SEE PAGE 25A (Dw

13.12.3 Connect the test setup shown in Figure 20 to inject the transient between the Noisy Bus primary power and return leads. Turn the EMI test equipment ON and allow a minimum of 15 minutes for warm-up and stabilization. SEE PAGE 25A. QE-4 02 J18575A

13.12.4 Verify that Instrument is powered up to **29.0 VDC ±0.5 VDC**, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test.

13.12.5 Increase the transient generator amplitude control to the +29 volt mark. Monitor the Instrument for evidence of susceptibility. Maintain the transient for a minimum of five (5) minutes. Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields. If susceptibility is observed, reduce the level of the susceptibility signal until the Instrument returns to normal operation and record the signal threshold on the applicable Test Data Sheet.

13.12.6 At the end of the five (5) minute period reduce the level of the transient to zero and turn the Instrument off. Turn the Instrument power supply off.

13.12.7 Repeat paragraphs 13.12.4 through 13.12.6 for a –29V peak transient.

13.12.8 Reconfigure the test setup to inject the transient between the Survival Bus primary power input lead and return leads.

13.12.9 Repeat paragraphs 13.12.4 through 13.12.6.

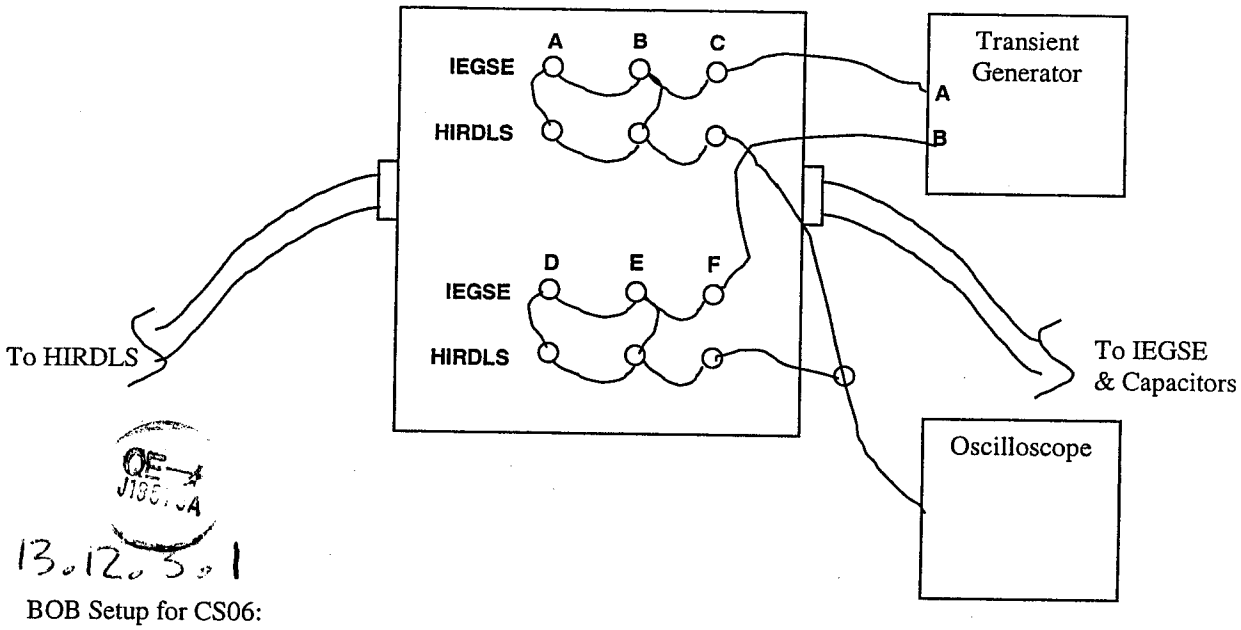
13.12.10 Repeat paragraphs 13.12.7.

13.12.11 Reconfigure the test setup to inject the transient between the Quite Bus return lead and return leads.

13.12.12 Repeat paragraphs 13.12.4 through 13.12.6.

13.12.13 Repeat paragraphs 13.12.7.

13.12.14 Verify that the CS06 test is complete and the results are satisfactory.



OE J18575A

13.12.3.1

BOB Setup for CS06:

1.0 Verify that the BOB is in the "Basic Setup" configuration.
2.0 Test conductor to note time in the log and give OK to make connections to instrument.
3.0 Connect the Transient Generator wires on the BOB in the following positions -

From	To
TG-A	IEGSE-C
TG-B	IEGSE-F

4.0 Connect the oscilloscope leads on the BOB in the following positions -

From	To
Probe (+)	HIRDLS-C
Probe (-)	HIRDLS-F

5.0 Notify test conductor that re-configuration is complete.

BOB Setup for CS06 after completion of the test:
6.0 Test conductor to note time in the log and give OK to make connections to instrument.

7.0 Disconnect the Transient Generator wires on the BOB in the following positions -

From	To
TG-A	IEGSE-C
TG-B	IEGSE-F

8.0 Disonnect the oscilloscope leads on the BOB in the following positions -

From	To
Probe (+)	HIRDLS-C
Probe (-)	HIRDLS-F

9.0 Notify test conductor that re-configuration is complete.

OE J18575A

MAY 02 2012

Test Engineering R. Woodhouse Date _____

Quality Engineering _____ Date 9/07/02

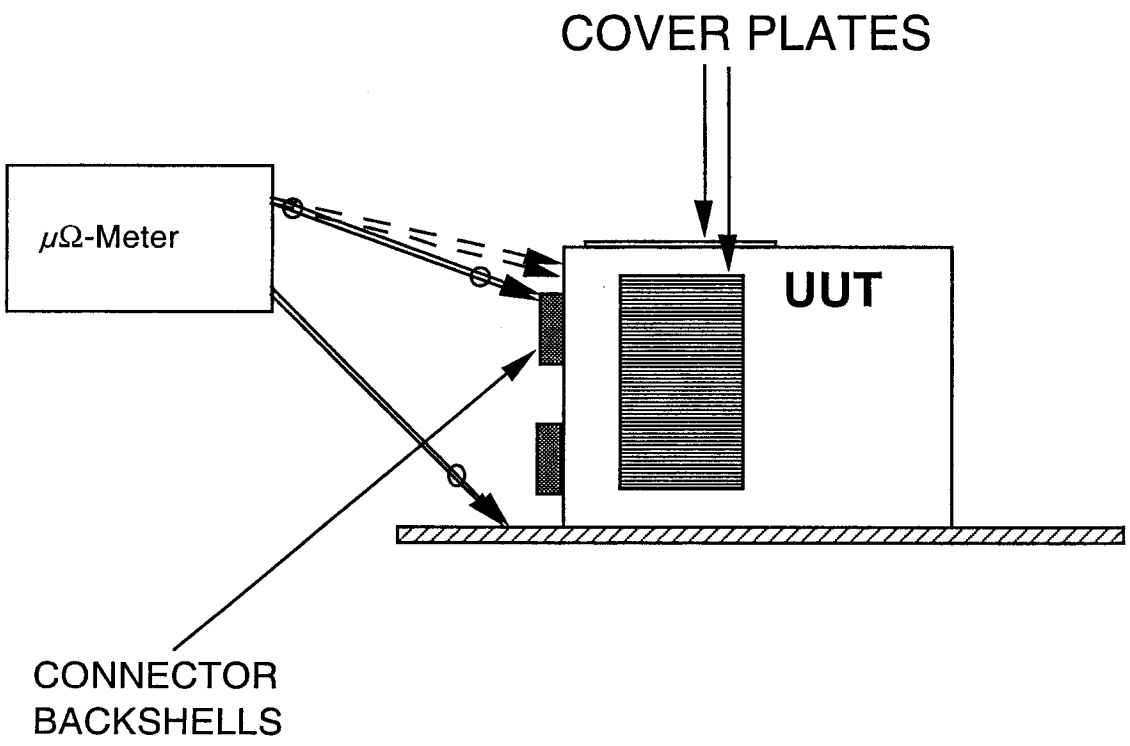


Figure 1
Bonding Test setup

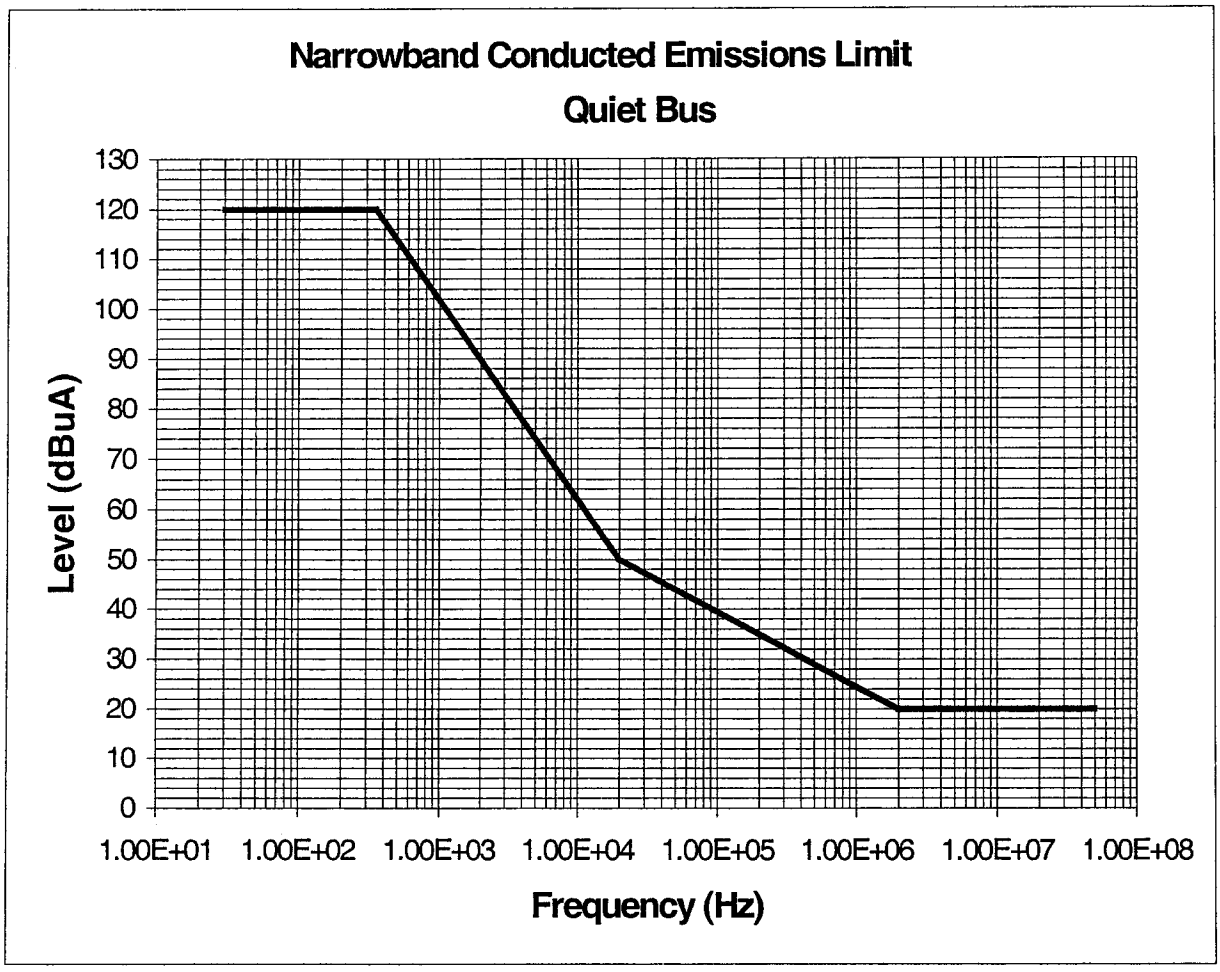


Figure 2 Quiet Bus, Survival Bus, Noisy Bus, CE01/CE03 Narrowband Conducted Emissions Limit

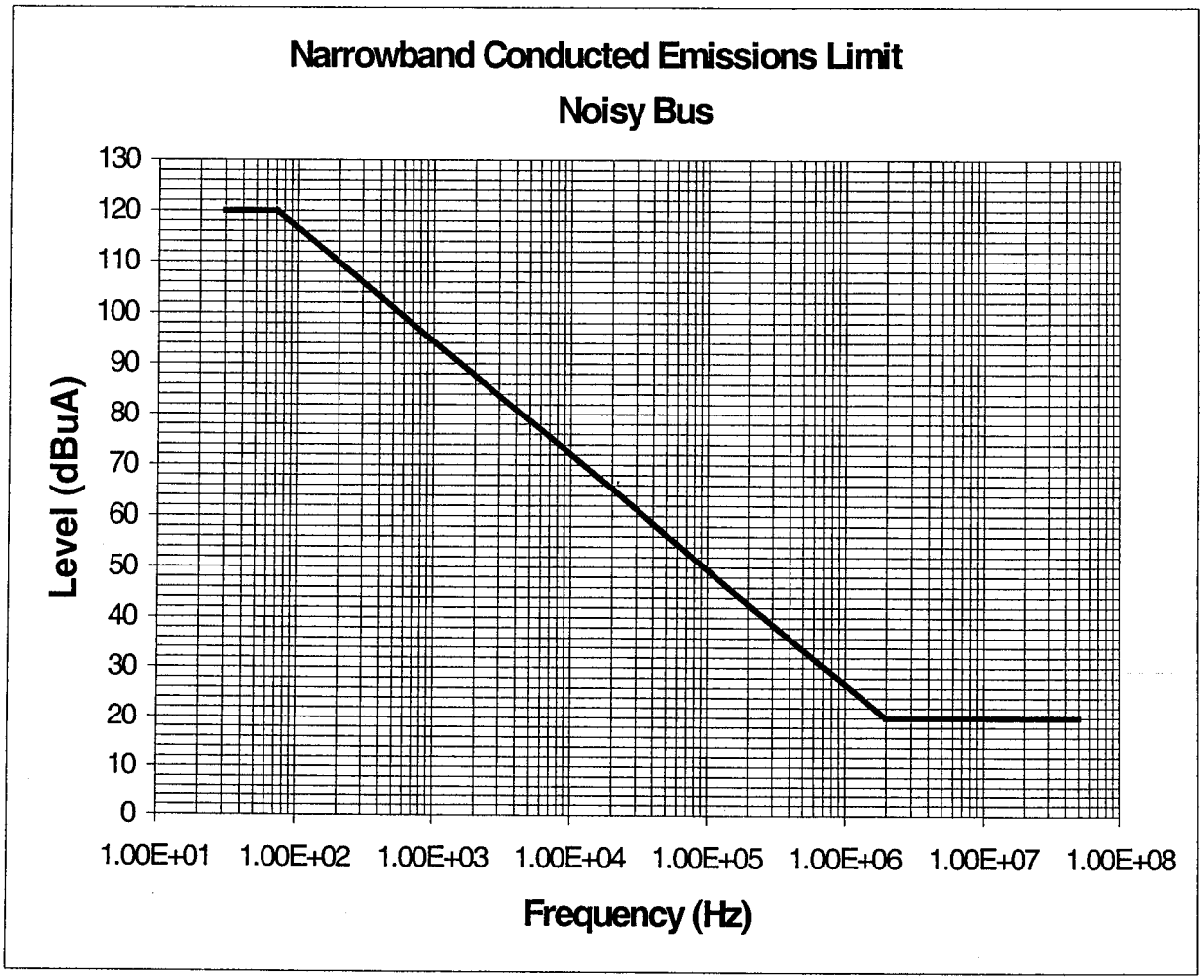


Figure 2B Noisy Bus
CE01/CE03 Narrowband Conducted Emissions Limit

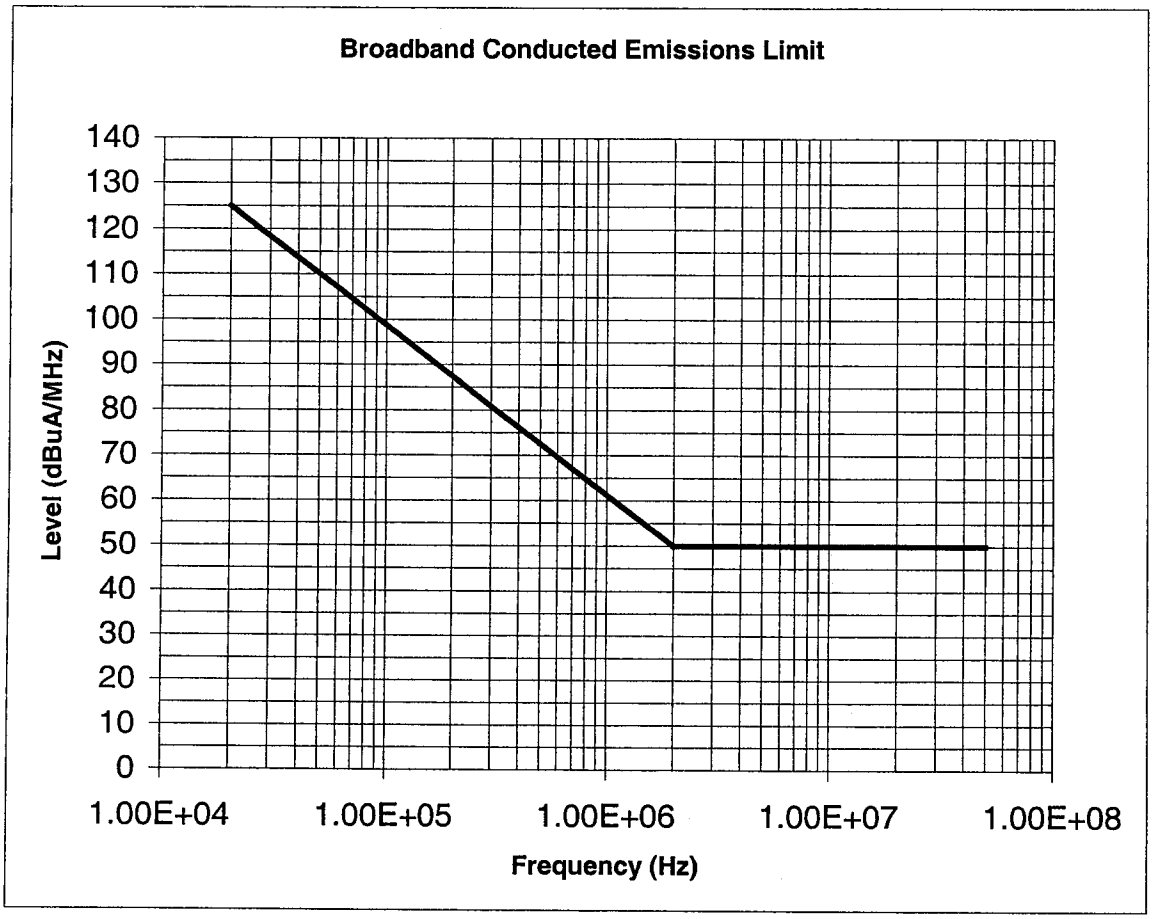


Figure 3
CE03 Broadband Conducted Emissions Limit

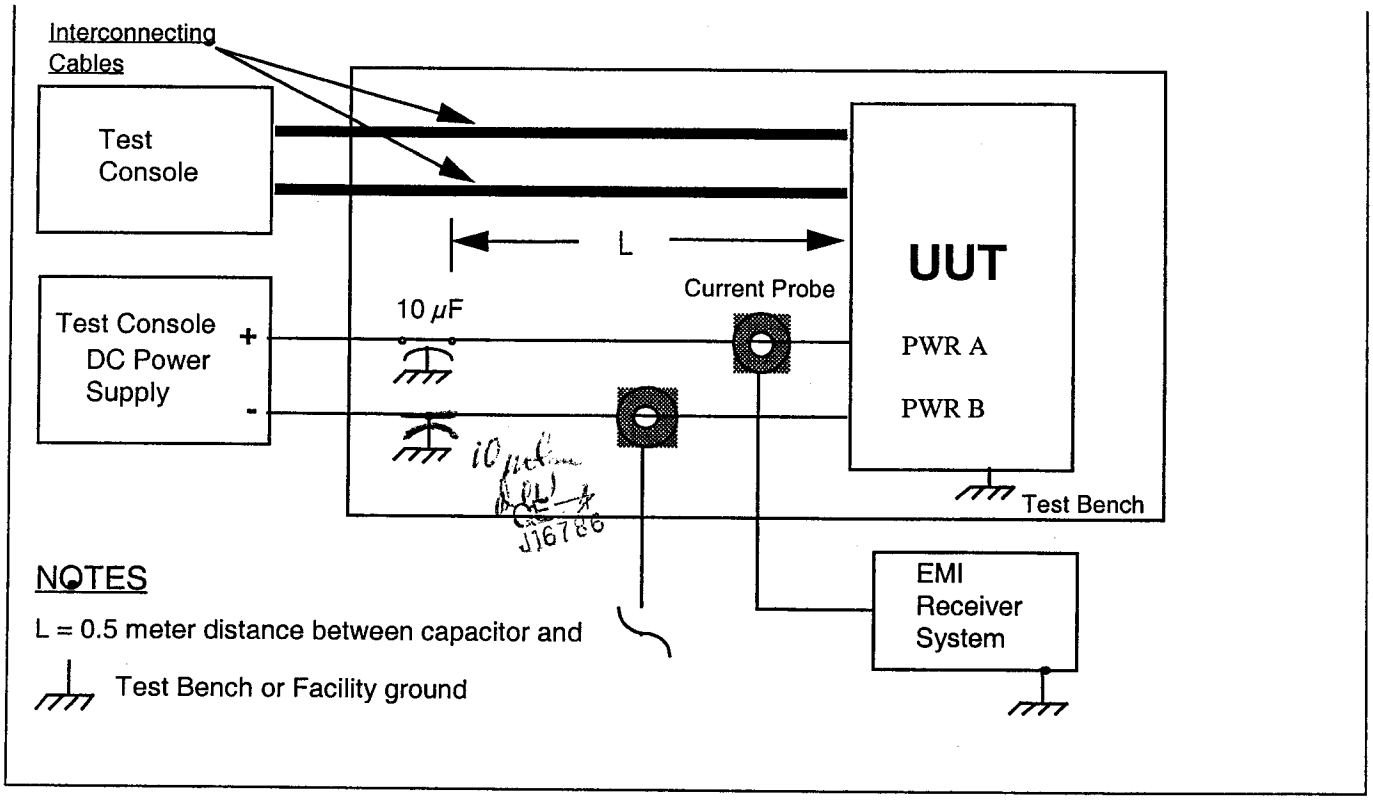


Figure 4
CE01/CE03 Conducted Emissions Test Setup

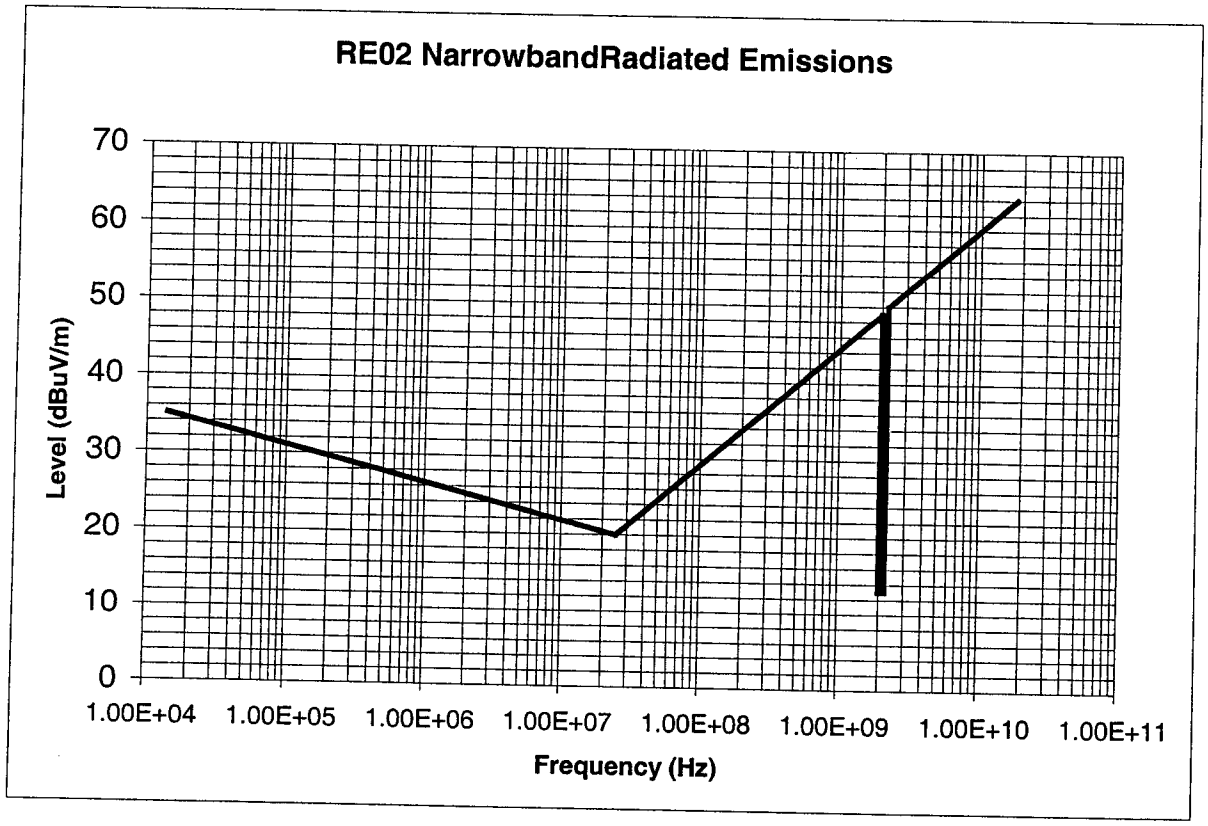


Figure 5
RE02 Narrowband Electric Field Radiated Emissions Limit

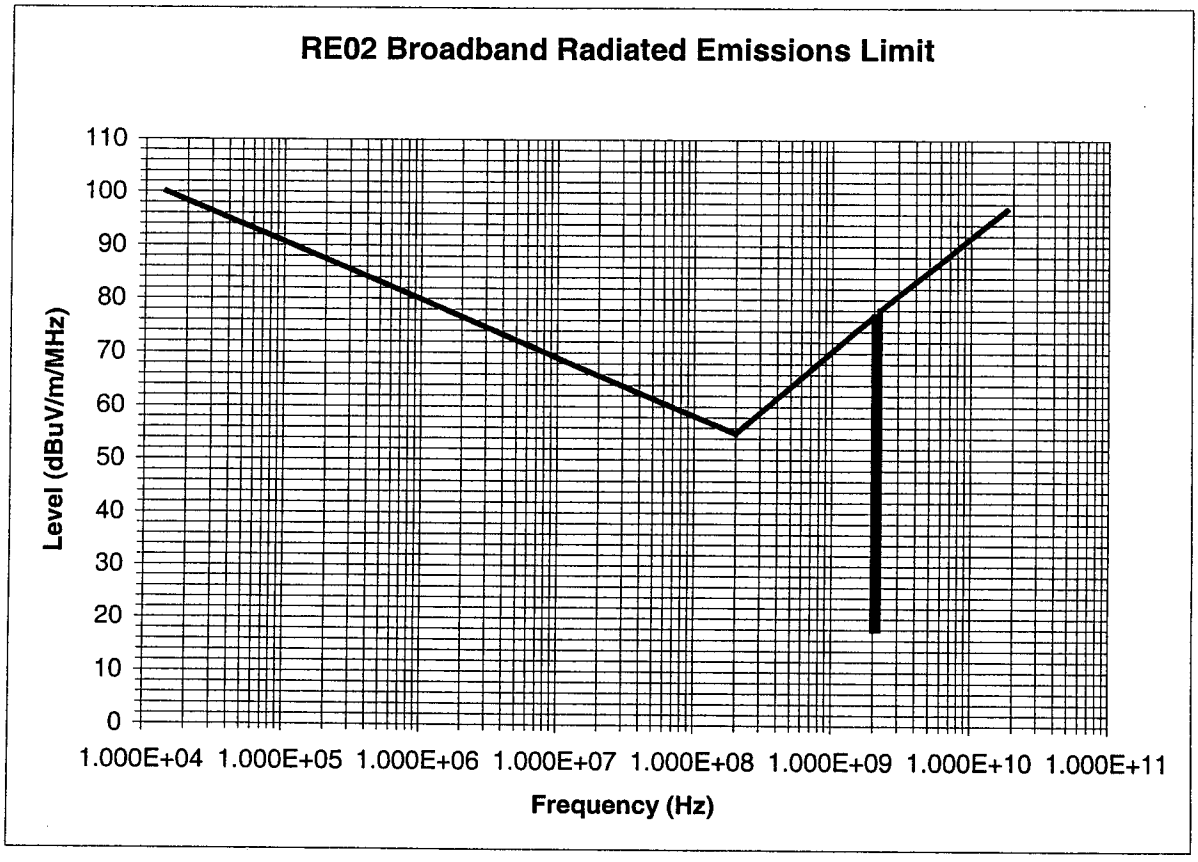


Figure 6
RE02 Broadband Electric Field Radiated Emissions Limit

RE04 Magnetic Field Radiated Emissions Limit

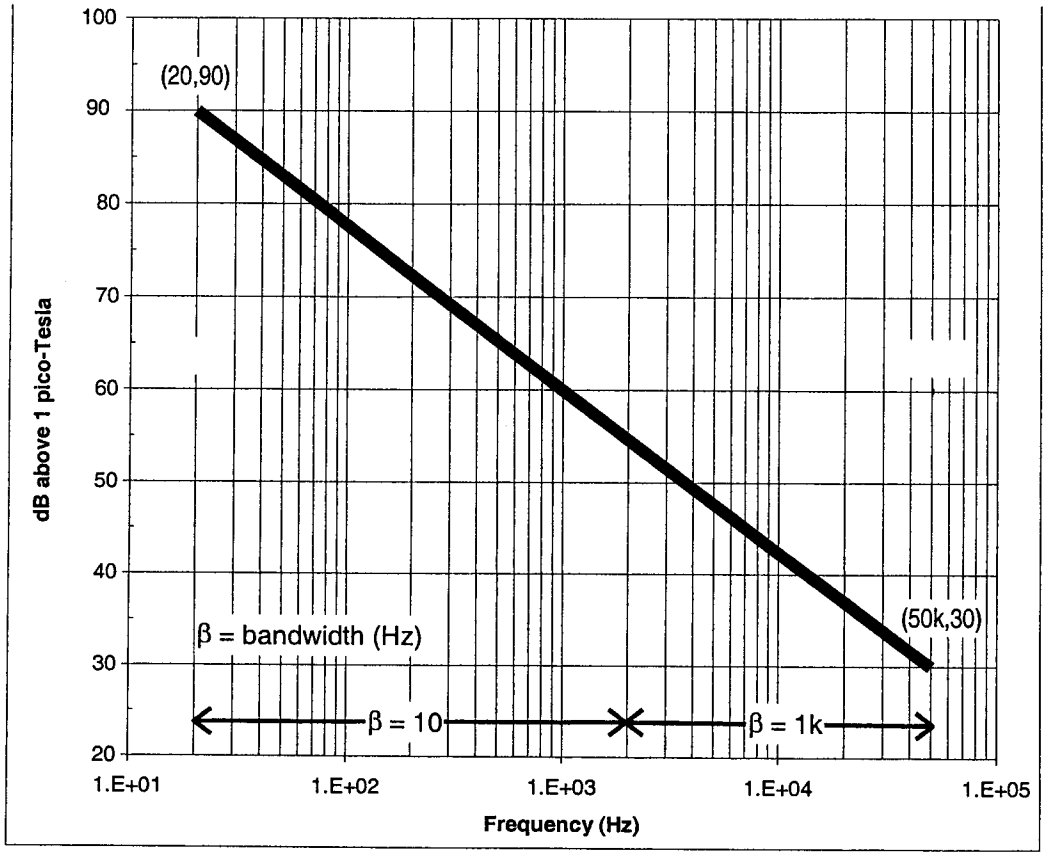
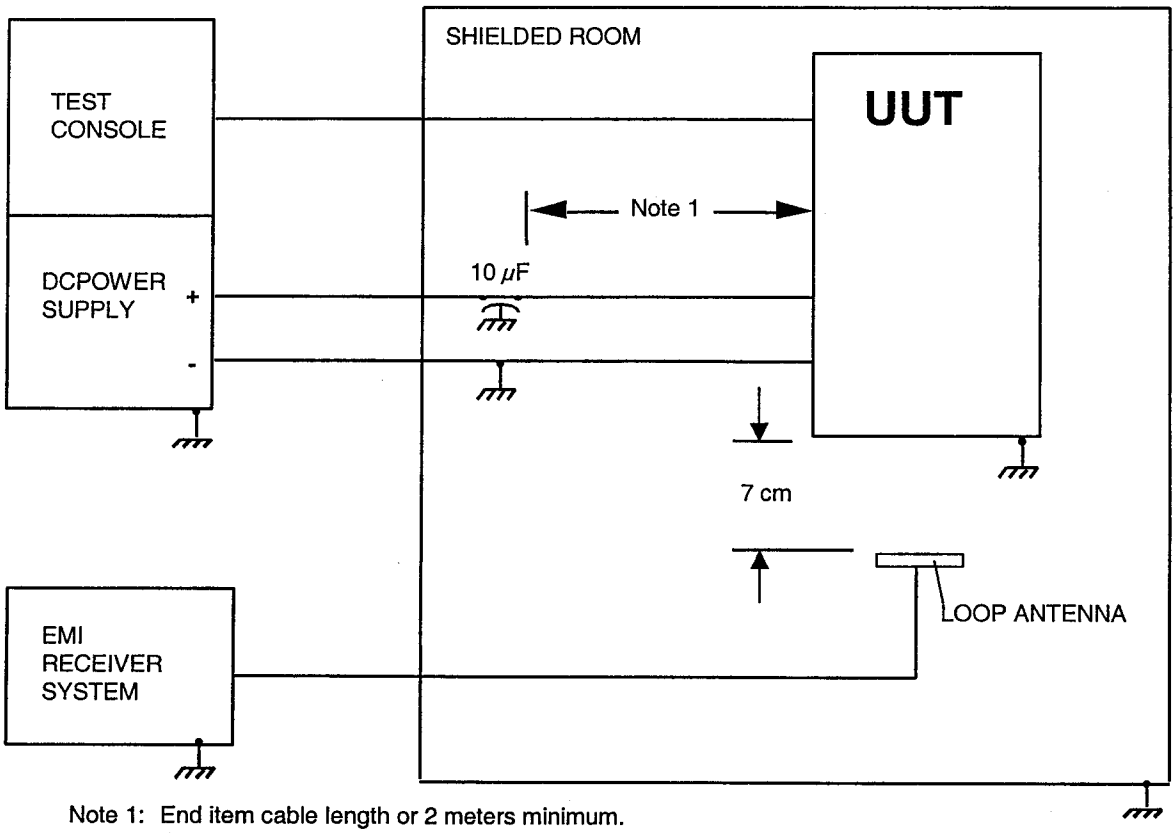


Figure 8
RE04 Magnetic Field Radiated Emissions Test Limit



Note 1: End item cable length or 2 meters minimum.
Cable shielding to simulate actual configuration.
ALL cables must be 5 cm above the ground plane.
UUT bonded to copper bench.

Figure 9
RE04 Magnetic Field Radiated Emissions Test Setup

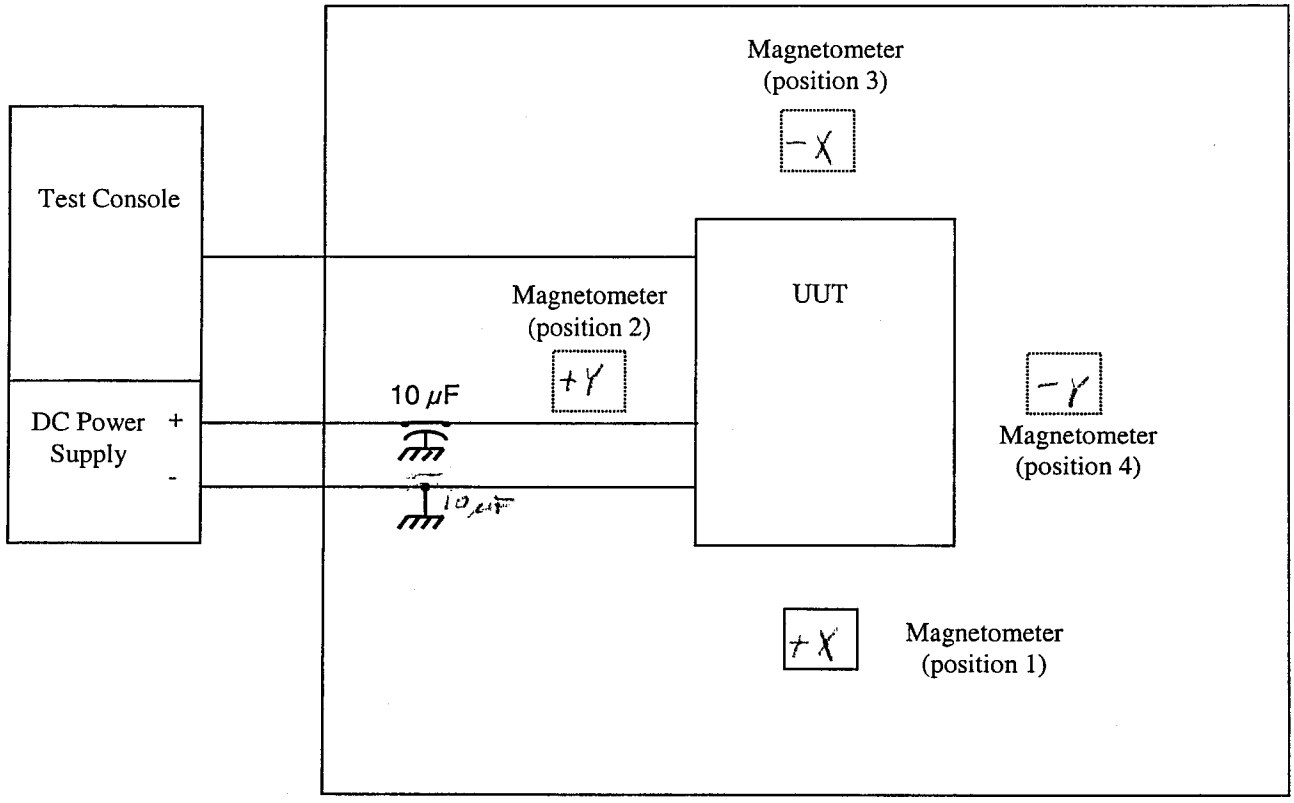


Figure 10
DC Magnetic Dipole Moment Test Setup

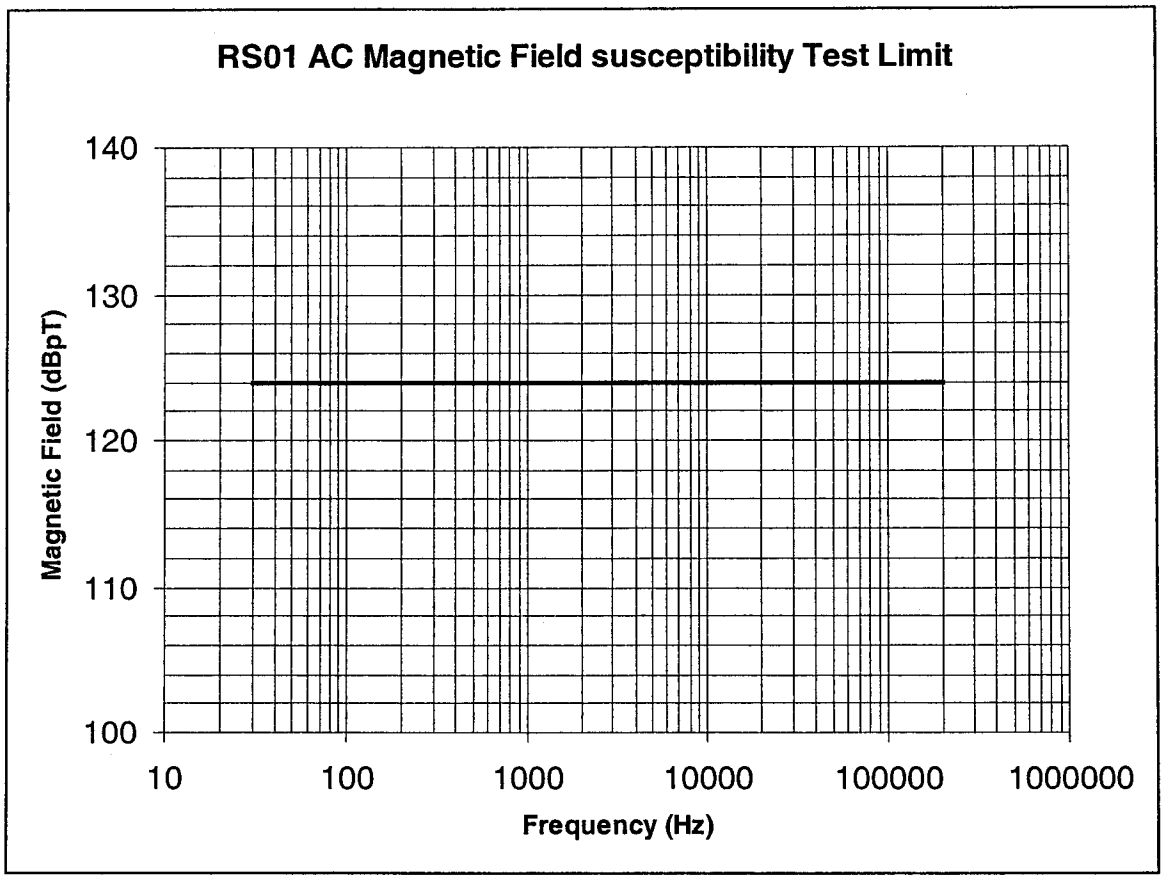
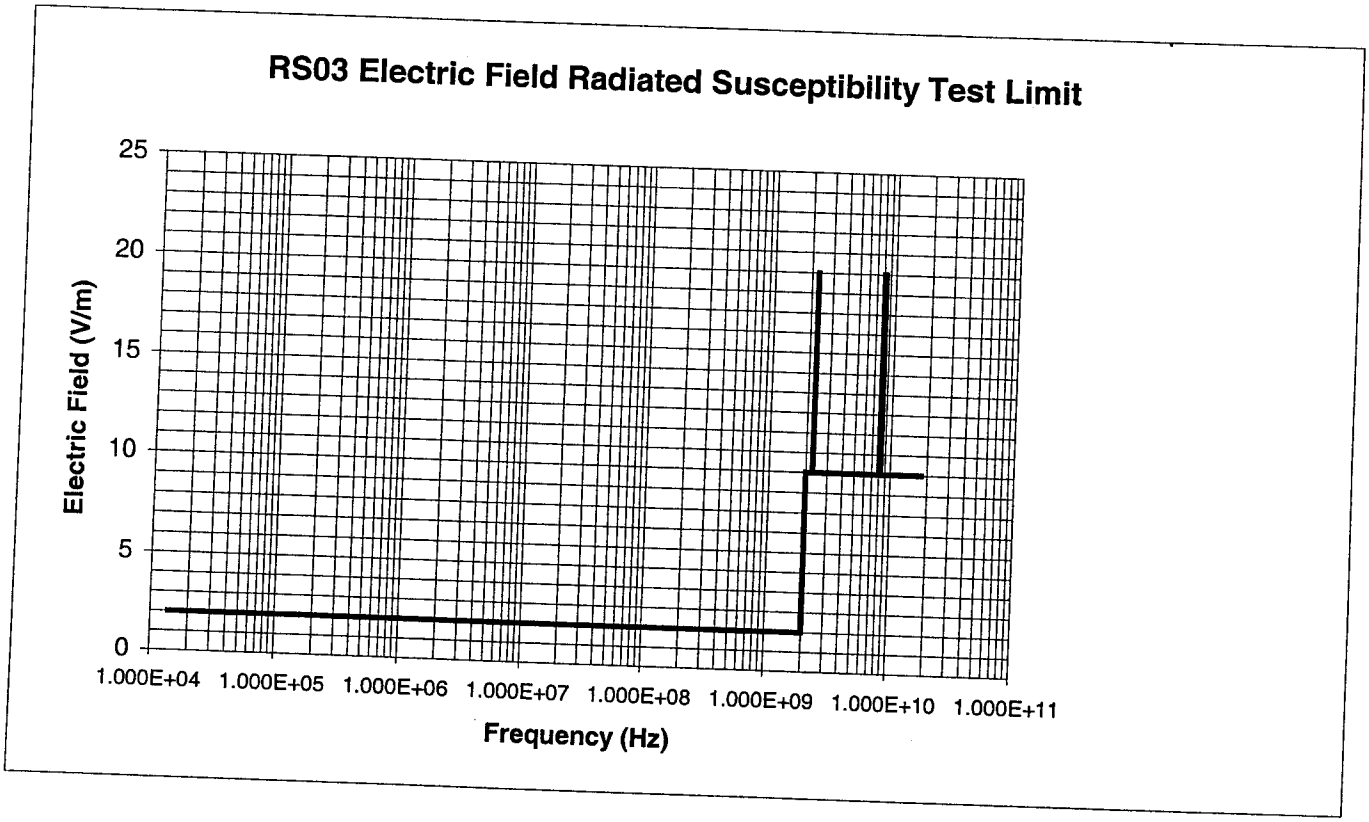


Figure 11
RS01 AC Magnetic Field Radiated Susceptibility Test Limit



Frequency	Electric Field (V/m)	Modulation
14.0KHz	2	50% AM @ 1KHz
2.0GHz	10	50% AM @ 1KHz
2.2855GHz	20	50% AM @ 1KHz
2.2895GHz	20	50% AM @ 1KHz
8.06GHz	20	50% AM @ 1KHz
8.26GHz	20	50% AM @ 1KHz
18.0GHz	10	50% AM @ 1KHz

Figure 14
RS03 Electric Field Radiated Susceptibility Test Limit

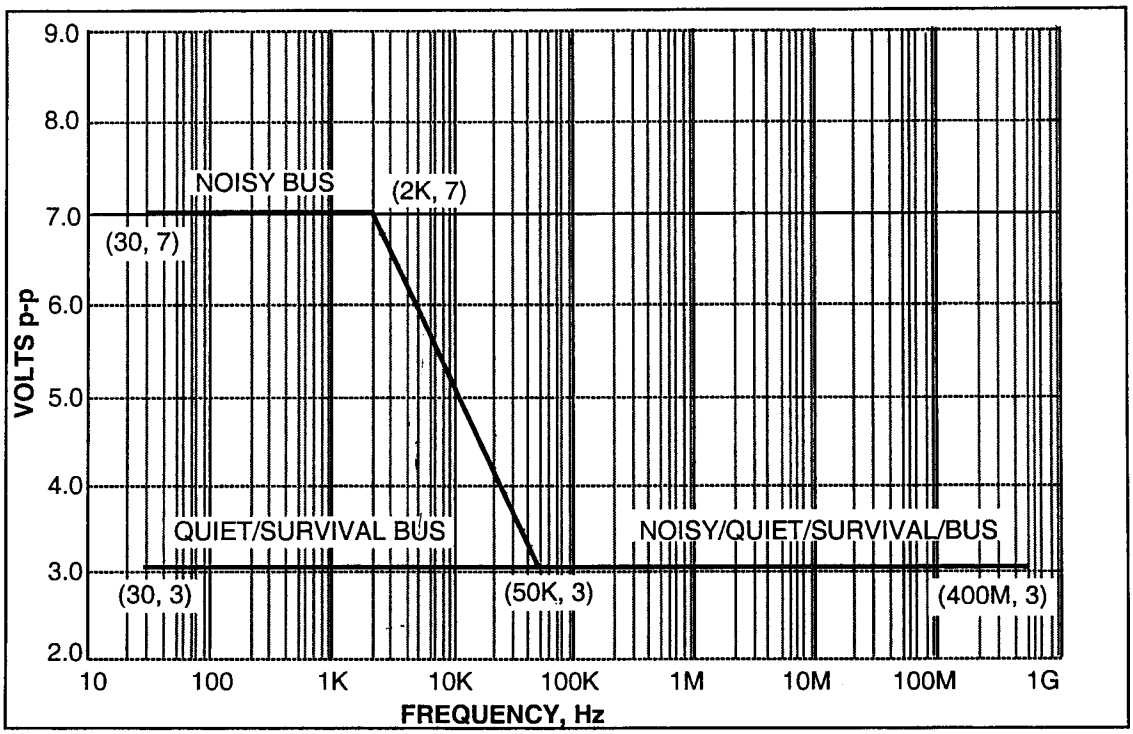


Figure 16
CS01/CS02 Conducted Susceptibility Test Limit

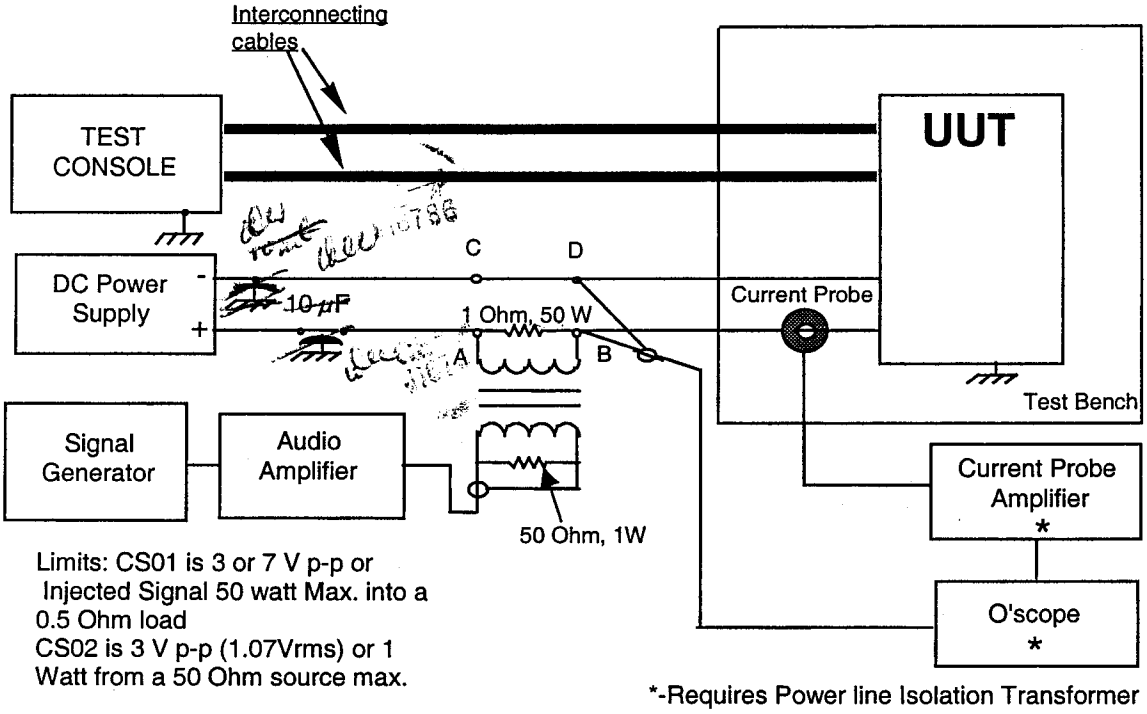


Figure 17
CS01 Audio Frequency Conducted Susceptibility Test Setup

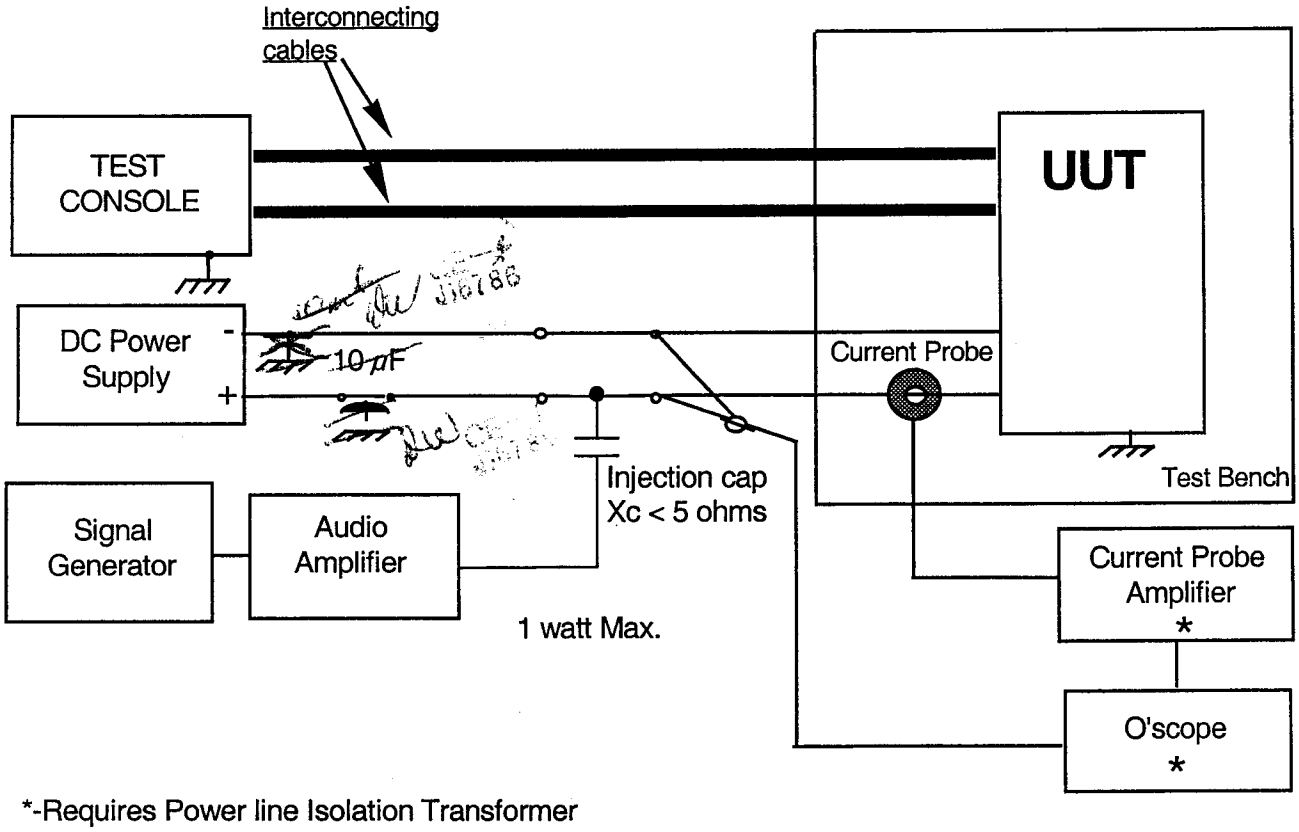


Figure 18
CS02 Radio Frequency Conducted Susceptibility Test Setup

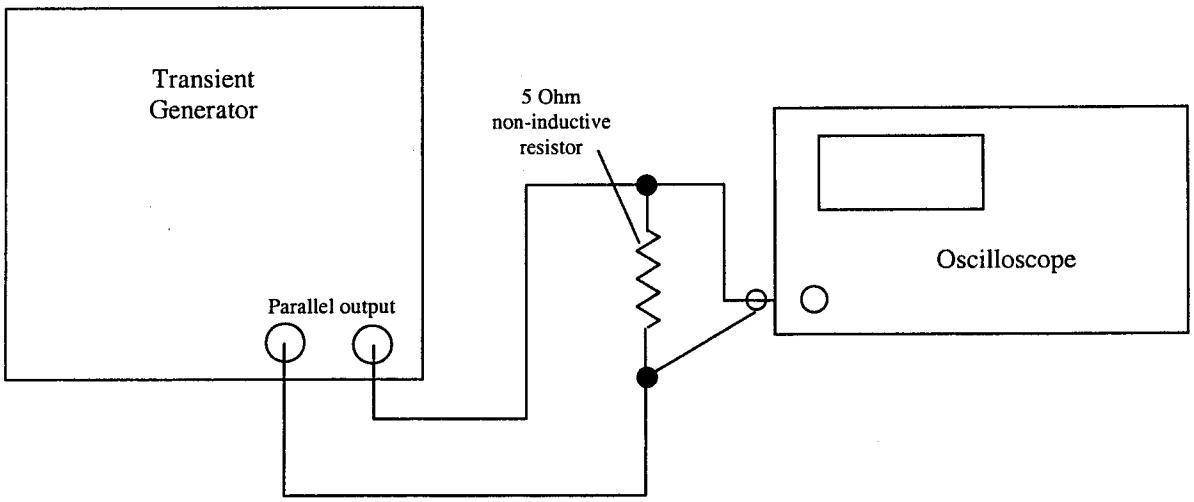
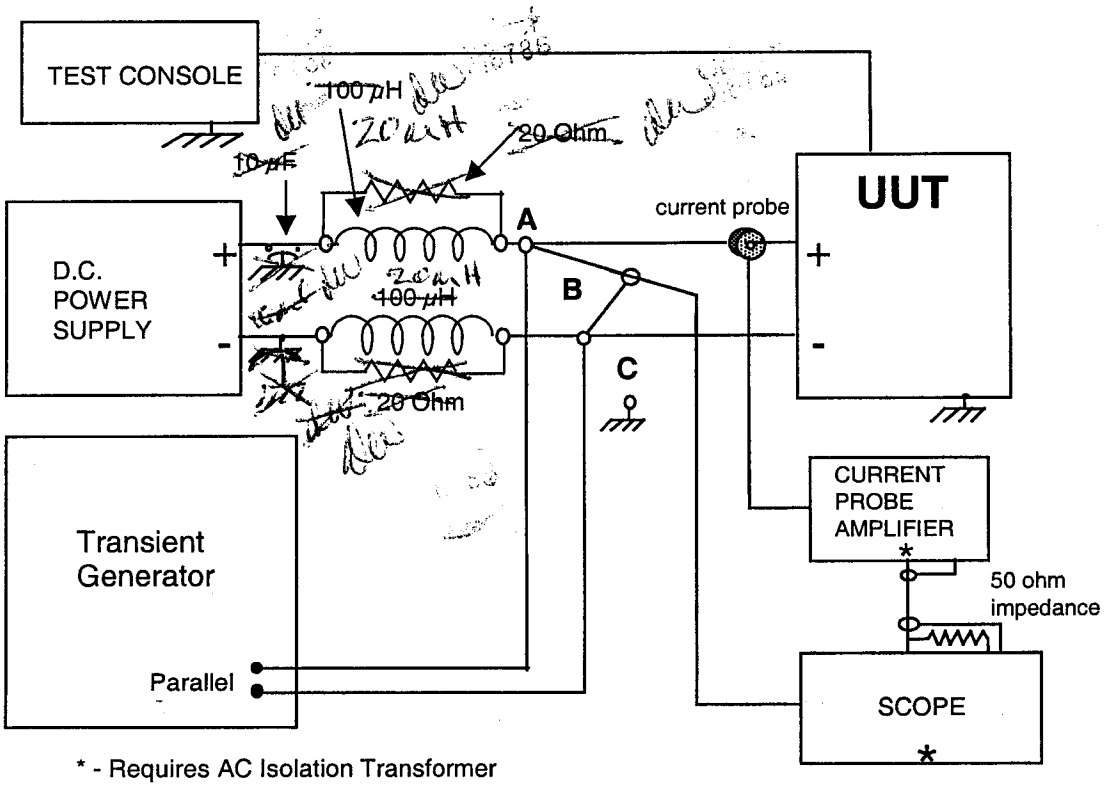


Figure 19
CS06 Power Lead Spike Susceptibility Test Calibration Setup



DISREGUARD THIS PAGE SEE 47A

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MAY 05 2002

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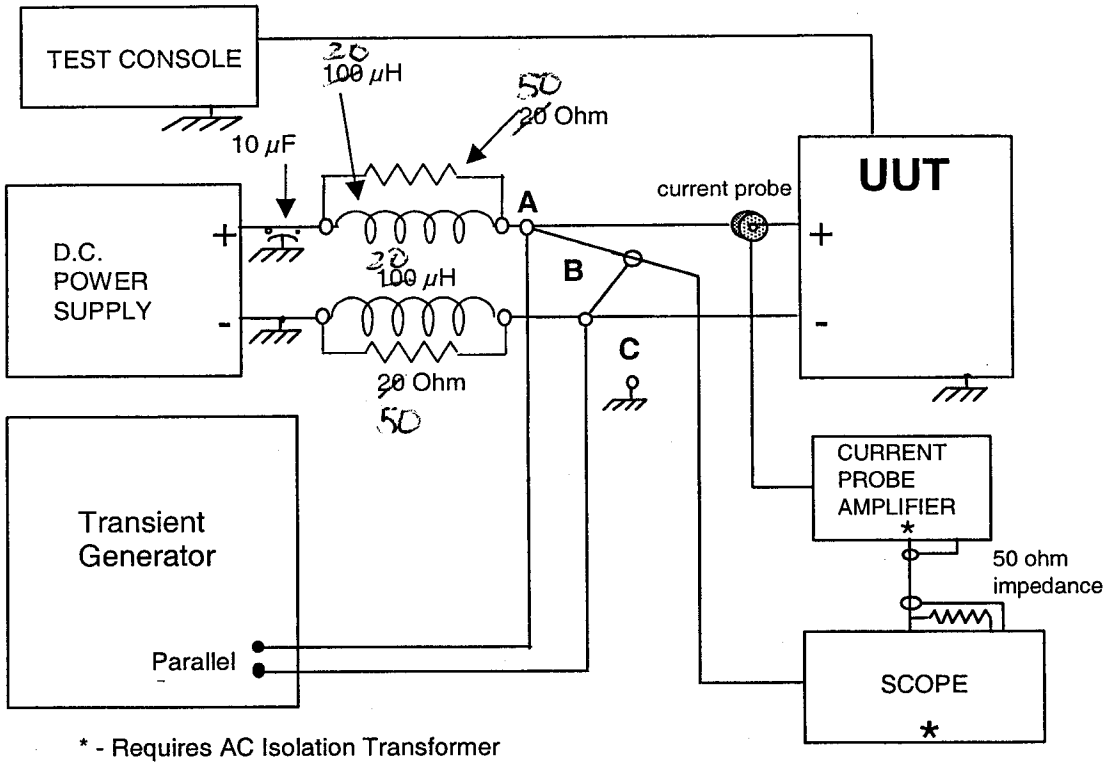
JJS. 5/05/2002

Figure 20
CS06 Power Lead Spike Susceptibility Test Setup



R/L Redline
All Ohms 23-10
5-5-02
J. J Svrack
J19983
5/05/2002

Figure 20
CS06 Power Lead Spike Susceptibility Test Setup

47A

TEST DATA SHEET

Electrical Bonding	
PARAGRAPH 13.4	DATE OF TEST
PART NO. 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: DC resistance between connector back-shell and SC-IF-P/ chassis shall not exceed 2.5 milliohms. All cables disconnected from UUT.

From Conn. Backshell	To SC-IF-P	Resistance (milliohms)	Pass	Fail	Remarks
J107P	Chassis				
J110P	Chassis				
J101P	Chassis				
J102P	Chassis				
J105P	Chassis				
J106P	Chassis				
J111P	Chassis				
J112P	Chassis				
J108	Chassis				
J109	Chassis				
J103	Chassis				
J104	Chassis				

TEST DATA SHEET

Primary Power Isolation

PARAGRAPH 13.2.2 | DATE OF TEST

PART NO. 1A27800 | CCA/SERIAL NO. 01 | TEST TECHNICIAN

NOTES: The Primary Power Isolation shall be ≥ 1 Megohm

From Connector Contact	To SCIFP / Chassis	Resistance (ohms)	Pass	Fail	Remarks
J107P-A	Chassis				
J107P-B	Chassis				
J107P-C	Chassis				
J107P-D	Chassis				
J107P-E	Chassis				
J107P-F	Chassis				
J110P-A	Chassis				
J110P-B	Chassis				
J110P-C	Chassis				
J110P-D	Chassis				
J110P-E	Chassis				
J110P-F	Chassis				
J101P-A	Chassis				
J101P-B	Chassis				
J101P-C	Chassis				
J101P-D	Chassis				
J101P-E	Chassis				
J101P-F	Chassis				
J102P-A	Chassis				
J102P-B	Chassis				
J102P-C	Chassis				
J102P-D	Chassis				
J102P-E	Chassis				
J102P-F	Chassis				
J111P-A	Chassis				
J111P-B	Chassis				
J111P-C	Chassis				
J111P-D	Chassis				
J111P-E	Chassis				
J111P-F	Chassis				
J112P-A	Chassis				
J112P-B	Chassis				
J112P-C	Chassis				
J112P-D	Chassis				
J112P-E	Chassis				
J112P-F	Chassis				

TEST DATA SHEET

CE01/CE03 Powerline Conducted Emissions

PARAGRAPH 13.4	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

Notes: V91981P 5/3/02

Cable/Lead	CE01 Complete	Pass	Fail	~~CE03 Complete~~	~~Pass~~	~~Fail~~	Remarks
PI-SB-A	✓	✓		✓		✓	
PR-SB-A	✓	✓		✓		✓	
PI-NB-A	✓	✓	✓	✓		✓	(CE01 AMBIENT PASS)(CE03 AMBIENT FAIL)
PR-NB-A	✓		✓	✓		✓	(CE01 AMBIENT PASS)(CE03 AMBIENT FAIL)
PI-NB-B	✓		✓	✓		✓	(CE01 AMB PASS)
PR-NB-B	✓		✓	✓		✓	(CE01 AMB PASS)
PI-QB-A	✓		✓	✓ w/AMB		✓ w/AMB	4/29/02 (CE01 AMB PASS)(CE03 AMBIENT FAIL)
PR-QB-A	✓		✓	✓ w/AMB		✓ w/AMB	4/29/02 (CE01 AMB PASS)(CE03 AMBIENT FAIL)
PI-QB-B	✓		✓	✓		✓	(CE01 AMB PASS)
PR-QB-B	✓✓		✓✓	✓		✓	first run Gyro's were off (CE01 AMB PASS) Second run Gyro's ON
PI-NB-A	✓		✓				4/29/02 REPEAT
PR-NB-A	✓		✓				4/29/02 REPEAT
PI-NB-A TO PR-NB-A	✓						RIPPLE VOLTAGE
PI-NB-A TO STRUCTURE	✓						
PI-QB-A TO PR-QB-A	✓						
PI-QB-A TO STRUCTURE	✓						
PI-QB-A TO ~~PR-QB-A~~	✓						

4/28/02 CE01 ONLY

4/28/02 CE01 ONLY

TEST DATA SHEET

RE02 Electric Field Radiated Emissions
(14KHz to 18GHz)

PARAGRAPH 13.5 | DATE OF TEST 5-6-02

PART NO. . 1A27800 | CCA/SERIAL NO. 01 | TEST TECHNICIAN

NOTES: SIDE A & B TESTED

Antenna/Frequency Range	Scan Complete	Pass	Fail	Comments
Active Rod Antenna 14 KHz – 20MHz			✓	
Biconical Antenna Vertical Polarity 20MHz-200MHz		X E1C	✓	
Biconical Antenna Horizontal Polarity 20MHz-200MHz			✓	
Log periodic antenna Vertical Polarity 200MHz – 1GHz			✓	
Log periodic antenna Horizontal Polarity 200MHz – 1GHz			✓	
Double Ridged Guide Horn Antenna, Vertical Polarity 1GHz-18GHz			✓	
Double Ridged Guide Horn Antenna, Horizontal Polarity 1GHz-18GHz			✓	
DOUBLE RIDGED GUIDE HORN			✓	
HORIZ. 2GHz – 2.4GHz			✓	SIDE A (+Y)
VERT. 2GHz – 2.4GHz			✓	SIDE A (+Y)
HOR. 2GHz – 2.4GHz			✓	SIDE B (-Y)
VERT. 2GHz – 2.4GHz			✓	SIDE B (-Y)

PQC 686894 MAY 06 2002

PQC 601336 MAY 06 2002

MANUAL TEST DATA

TEST PROCEDURE TYPE & NUMBER	REV	TEST DATE
PROTO-QUALIFICATION TEST - TP-LOC- 820	N/C	5/7/02
TEST DATA TITLE: DC Magnetic Dipole Moment	PARA. NO.: 13.7	
PART NO.: IA 27800	SERIAL NO.: 01	TEST TECHNICIAN: A. Fugelseth
MODEL:	MANUFACTURER: LMMSC	TEST ENGINEER: I. Beck/D. Kokawa

Test Results Must Be Recorded In Units Specified

Paragraph	POSITION	AXIS X (nT)	AXIS Y (nT)	AXIS Z (nT)	MIN	MAX	UNITS	ACTUAL
5.6								
5.6.2.3								
AMB.	1	22,750	-5,640	23,180	NA	NA	nT	NA
	2	20,358	-5,398	20,412	NA	NA	nT	NA
	3	20,368	-4,583	17,995	NA	NA	nT	NA
	4	23,204	-2,491	20,782	NA	NA	nT	NA
5.6.2.6								
OPER.	1	-692	-21,077	15,174	NA	NA	nT	NA
	2	22,636	-3,535	21,859	NA	NA	nT	NA
	3	22,560	2,356	25,785	NA	NA	nT	NA
	4	-23,540	1,260	21,905	NA	NA	nT	NA
5.6.2.8								
UUT	~~1~~ 3	4,381	23,469	25,744	NA	NA	nT	NA
OFF	2	23,062	-2,441	22,364	NA	NA	nT	NA
	~~3~~ 1	-2,227	-20,887	15,158	NA	NA	nT	NA
	4	-23,565	172	21,806	NA	NA	nT	NA
5.6.2.12								
5.6.2.6 – 5.6.2.3		A-m²	A-m²	A-m²				
OPER	1	-9.65×10^{-6}	-1.19×10^{-6}	1.00×10^{-7}	NA	~~0.5~~	A-m²	-1.07×10^{-5}
	2	2.68×10^{-6}	-6.87×10^{-6}	3.17×10^{-6}	NA	~~0.5~~	A-m²	-1.024×10^{-6}
	3	1.14×10^{-4}	1.33×10^{-4}	2.76×10^{-7}	NA	~~0.5~~	A-m²	2.47×10^{-4}
	4	-1.57×10^{-7}	6.83×10^{-6}	6.22×10^{-7}	NA	~~0.5~~	A-m²	1.14×10^{-6}
5.6.2.8 – 5.6.2.6					R. Woollpert 5-3-02 5/2/02			
AMB	1	4.11×10^{-6}	-2.52×10^{-5}	1.09×10^{-5}	NA	~~0.5~~	A-m²	-1.02×10^{-5}
	2	5.28×10^{-6}	-1.43×10^{-5}	6.55×10^{-6}	NA	~~0.5~~	A-m²	-2.44×10^{-6}
	3	3.75×10^{-6}	-1.07×10^{-5}	6.33×10^{-6}	NA	~~0.5~~	A-m²	-6.09×10^{-7}
	4	5.72×10^{-7}	-1.66×10^{-5}	1.60×10^{-5}	NA	~~0.5~~	A-m²	-8.8×10^{-8}

PQC
601335
05/29/02

TEST DATA SHEET

RE04 Magnetic Field Radiated Emissions (20Hz to 50KHz)

PART NO. . 1A27800	PARAGRAPH 13.6	DATE OF TEST 05-06-02
	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES:

Antenna Polarity	Test Completed	Pass	Fail	Comments
Parallel Vertical		✓		
Perpendicular Vertical		✓		
Horizontal				N/A

PQC 601335 MAY 06 2002

TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility (30Hz to 200KHz)

PARAGRAPH 13.8	DATE OF TEST
SIDE "A" AF1 + Y	5/2/02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
30	124 dBpT		✓		0.1 Hz steps
40	124 dBpT		✓		
50	124 dBpT		✓		
60	124 dBpT		✓		
80	124 dBpT		✓		
100	124 dBpT		✓		
120	124 dBpT		✓		
160	124 dBpT		✓		
200	124 dBpT		✓		
240	124 dBpT		✓		
320	124 dBpT		✓		
400	124 dBpT		✓		change to 1Hz steps
500	124 dBpT		✓		
60	124 dBpT		✓		
800	124 dBpT		✓		
1.0K	124 dBpT		✓		
1.2K	124 dBpT		✓		
1.6K	124 dBpT		✓		
2.0K	124 dBpT		✓		
2.4K	124 dBpT		✓		
3.2K	124 dBpT		✓		
4.0K	124 dBpT		✓		
5.0K	124 dBpT		✓		change to 10Hz steps

A 686844 O.K. LESS P.Q.C. MAY 03 2002

P.O. 686813 MAY 03 2002

A 686844 MAY 03 2002

TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility (30Hz to 200KHz)

PARAGRAPH 13.8 SIDE AF1	DATE OF TEST 5/2/02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
6.0K	124 dBpT		✓		
8.0K	124 dBpT		✓		
10.0K	124 dBpT		✓		
12.0K	124 dBpT		✓		
16.0K	124 dBpT		✓		
20.0K	124 dBpT		✓		
24.0K	124 dBpT		✓		
32.0K	124 dBpT		✓		
40.0K	124 dBpT		✓		
50.0K	124 dBpT		✓		
60.0K	124 dBpT		✓		
80.0K	124 dBpT		✓		
100.0K	124 dBpT		✓		CHANGE TO 100HZ STEP
120.0K	124 dBpT		✓		
160.0K	124 dBpT		✓		
200.0K	124 dBpT		✓		

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686843 MAY 03 2002

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility (30Hz to 200KHz)

PARAGRAPH 13.8	DATE OF TEST
SIDE D AF2 -X	5/2/02
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
30	124 dBpT		✓		0.1 HZ STEPS
40	124 dBpT		✓		
50	124 dBpT		✓		
60	124 dBpT		✓		
80	124 dBpT		✓		
100	124 dBpT		✓		
120	124 dBpT		✓		
160	124 dBpT		✓		
200	124 dBpT		✓		
240	124 dBpT		✓		
320	124 dBpT		✓		
400	124 dBpT		✓		CHANGE TO 1 HZ Steps
500	124 dBpT		✓		
60	124 dBpT		✓		
800	124 dBpT		✓		
1.0K	124 dBpT		✓		
1.2K	124 dBpT		✓		
1.6K	124 dBpT		✓		
2.0K	124 dBpT		✓		
2.4K	124 dBpT		✓		
3.2K	124 dBpT		✓		
4.0K	124 dBpT		✓		
5.0K	124 dBpT		✓		CHANGE TO 10 HZ Steps

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility

(30Hz to 200KHz) +Y (AF1)

PARAGRAPH 13.8	DATE OF TEST 5/2/02
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
30	124 dBpT		✓		
40	124 dBpT				
50	124 dBpT				
60	124 dBpT				
80	124 dBpT				
100	124 dBpT				
120	124 dBpT				
160	124 dBpT				
200	124 dBpT				
240	124 dBpT				
320	124 dBpT				
400	124 dBpT				
500	124 dBpT				
60	124 dBpT				
800	124 dBpT				
1.0K	124 dBpT				
1.2K	124 dBpT				
1.6K	124 dBpT				
2.0K	124 dBpT				
2.4K	124 dBpT				
3.2K	124 dBpT				
4.0K	124 dBpT				
5.0K	124 dBpT		✓		

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MAY 09 2002

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MAY 09 2002

TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility (30Hz to 200KHz)

PART NO. . 1A27800	PARAGRAPH 13.8 SIDE "D" AF2 - X CCA/SERIAL NO. 01	DATE OF TEST 5/2/02 TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
6.0K	124 dBpT		✓		
8.0K	124 dBpT		✓		
10.0K	124 dBpT		✓		
12.0K	124 dBpT		✓		
16.0K	124 dBpT		✓		
20.0K	124 dBpT		✓		
24.0K	124 dBpT		✓		
32.0K	124 dBpT		✓		
40.0K	124 dBpT		✓		
50.0K	124 dBpT		✓		
60.0K	124 dBpT		✓		
80.0K	124 dBpT		✓		
100.0K	124 dBpT		✓		CHANGE → 100 HZ Steps
120.0K	124 dBpT		✓		
160.0K	124 dBpT		✓		
200.0K	124 dBpT		✓		

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility (30Hz to 200KHz)

PARAGRAPH 13.8	DATE OF TEST
SIDE "C" AF3 +X	5/2/02
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
30	124 dBpT		✓		.1 HZ Steps
40	124 dBpT		✓		
50	124 dBpT		✓		
60	124 dBpT		✓		
80	124 dBpT		✓		
100	124 dBpT		✓		
120	124 dBpT		✓		
160	124 dBpT		✓		
200	124 dBpT		✓		
240	124 dBpT		✓		
320	124 dBpT		✓		
400	124 dBpT		✓		1 HZ Steps
500	124 dBpT		✓		
60	124 dBpT		✓		
800	124 dBpT		✓		
1.0K	124 dBpT		✓		
1.2K	124 dBpT		✓		
1.6K	124 dBpT		✓		
2.0K	124 dBpT		✓		
2.4K	124 dBpT		✓		
3.2K	124 dBpT		✓		
4.0K	124 dBpT		✓		
5.0K	124 dBpT		✓		10 HZ Steps

PQG 686843 OCT 03 2002

TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility (30Hz to 200KHz)

PARAGRAPH 13.8	DATE OF TEST
SIDE "C" AF3 + X	5/2/02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
6.0K	124 dBpT		✓		
8.0K	124 dBpT		✓		
10.0K	124 dBpT		✓		
12.0K	124 dBpT		✓		
16.0K	124 dBpT		✓		
20.0K	124 dBpT		✓		
24.0K	124 dBpT		✓		
32.0K	124 dBpT		✓		
40.0K	124 dBpT		✓		
50.0K	124 dBpT		✓		
60.0K	124 dBpT		✓		
80.0K	124 dBpT		✓		
100.0K	124 dBpT		✓		change to 100 Hz steps
120.0K	124 dBpT		✓		
160.0K	124 dBpT		✓		
200.0K	124 dBpT		✓		

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility (30Hz to 200KHz)

PART NO. . 1A27800	PARAGRAPH 13.8 Side "B" AF-4 -Y Side CCA/SERIAL NO. 01	DATE OF TEST 5-3-02 TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
30	124 dBpT		✓		.1 Hz Steps
40	124 dBpT		✓		
50	124 dBpT		✓		
60	124 dBpT		✓		
80	124 dBpT		✓		
100	124 dBpT		✓		
120	124 dBpT		✓		
160	124 dBpT		✓		
200	124 dBpT		✓		
240	124 dBpT		✓		
320	124 dBpT		✓		
400	124 dBpT		✓		1 Hz Steps
500	124 dBpT		✓		
60	124 dBpT		✓		
800	124 dBpT		✓		
1.0K	124 dBpT		✓		
1.2K	124 dBpT		✓		
1.6K	124 dBpT		✓		
2.0K	124 dBpT		✓		
2.4K	124 dBpT		✓		
3.2K	124 dBpT		✓		
4.0K	124 dBpT		✓		
5.0K	124 dBpT		✓		10Hz Steps

TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility (30Hz to 200KHz)

PARAGRAPH 13.8 SIDE "B" AF-4 -Y SIDE | DATE OF TEST 5-3-02

PART NO. . 1A27800 | CCA/SERIAL NO. 01 | TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
6.0K	124 dBpT		✓		
8.0K	124 dBpT		✓		
10.0K	124 dBpT		✓		
12.0K	124 dBpT		✓		
16.0K	124 dBpT		✓		
20.0K	124 dBpT		✓		
24.0K	124 dBpT		✓		
32.0K	124 dBpT		✓		
40.0K	124 dBpT		✓		
50.0K	124 dBpT		✓		
60.0K	124 dBpT		✓		
80.0K	124 dBpT		✓		
100.0K	124 dBpT		✓		change to 100 Hz steps
120.0K	124 dBpT		✓		
160.0K	124 dBpT		✓		
200.0K	124 dBpT		✓		

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility
(30Hz to 200KHz) +Y (AF1)

PART NO. . 1A27800	PARAGRAPH 13.8	DATE OF TEST 5/2/02
	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
6.0K	124 dBpT		✓		
8.0K	124 dBpT				
10.0K	124 dBpT				
12.0K	124 dBpT				
16.0K	124 dBpT				
20.0K	124 dBpT				
24.0K	124 dBpT				
32.0K	124 dBpT				
40.0K	124 dBpT				
50.0K	124 dBpT				
60.0K	124 dBpT				
80.0K	124 dBpT				
100.0K	124 dBpT				
120.0K	124 dBpT				
160.0K	124 dBpT				
200.0K	124 dBpT		✓		

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MAY 09 2002

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MAY 09 2002

TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility
(30Hz to 200KHz) -X (AF2)

PARAGRAPH 13.8	DATE OF TEST 5/2/02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
30	124 dBpT		✓		
40	124 dBpT				
50	124 dBpT				
60	124 dBpT				
80	124 dBpT				
100	124 dBpT				
120	124 dBpT				
160	124 dBpT				
200	124 dBpT				
240	124 dBpT				
320	124 dBpT				
400	124 dBpT				
500	124 dBpT				
60	124 dBpT				
800	124 dBpT				
1.0K	124 dBpT				
1.2K	124 dBpT				
1.6K	124 dBpT				
2.0K	124 dBpT				
2.4K	124 dBpT				
3.2K	124 dBpT				
4.0K	124 dBpT				
5.0K	124 dBpT		✓		

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility
(30Hz to 200KHz) -X (AF2)

PARAGRAPH 13.8	DATE OF TEST 5/2/02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
6.0K	124 dBpT		✓		
8.0K	124 dBpT				
10.0K	124 dBpT				
12.0K	124 dBpT				
16.0K	124 dBpT				
20.0K	124 dBpT				
24.0K	124 dBpT				
32.0K	124 dBpT	—			
40.0K	124 dBpT				
50.0K	124 dBpT				
60.0K	124 dBpT				
80.0K	124 dBpT				
100.0K	124 dBpT				
120.0K	124 dBpT				
160.0K	124 dBpT		✓		
200.0K	124 dBpT			✓	* CDR AD6471 focal plane temp. dropped

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility
(30Hz to 200KHz) +X (AF3)

PART NO. . 1A27800	PARAGRAPH 13.8 CCA/SERIAL NO. 01	DATE OF TEST 5/3/02 TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
30	124 dBpT		✓		
40	124 dBpT				
50	124 dBpT				
60	124 dBpT				
80	124 dBpT				
100	124 dBpT				
120	124 dBpT				
160	124 dBpT				
200	124 dBpT				
240	124 dBpT				
320	124 dBpT				
400	124 dBpT				
500	124 dBpT				
60	124 dBpT				
800	124 dBpT				
1.0K	124 dBpT				
1.2K	124 dBpT				
1.6K	124 dBpT				
2.0K	124 dBpT				
2.4K	124 dBpT				
3.2K	124 dBpT				
4.0K	124 dBpT				
5.0K	124 dBpT		✓		

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility
(30Hz to 200KHz) TX(AF3)

PARAGRAPH 13.8	DATE OF TEST 5/3/02
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
6.0K	124 dBpT		✓		
8.0K	124 dBpT				
10.0K	124 dBpT				
12.0K	124 dBpT				
16.0K	124 dBpT				
20.0K	124 dBpT				
24.0K	124 dBpT				
32.0K	124 dBpT				
40.0K	124 dBpT				
50.0K	124 dBpT				
60.0K	124 dBpT				
80.0K	124 dBpT				
100.0K	124 dBpT				
120.0K	124 dBpT				
160.0K	124 dBpT				
200.0K	124 dBpT		✓		

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility
(30Hz to 200KHz) -Y(AF4)

PARAGRAPH 13.8	DATE OF TEST 5/3/02
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
30	124 dBpT		✓		
40	124 dBpT				
50	124 dBpT				
60	124 dBpT				
80	124 dBpT				
100	124 dBpT				
120	124 dBpT				
160	124 dBpT				
200	124 dBpT				
240	124 dBpT				
320	124 dBpT				
400	124 dBpT				
500	124 dBpT				
60	124 dBpT				
800	124 dBpT				
1.0K	124 dBpT				
1.2K	124 dBpT				
1.6K	124 dBpT				
2.0K	124 dBpT				
2.4K	124 dBpT				
3.2K	124 dBpT				
4.0K	124 dBpT				
5.0K	124 dBpT		✓		

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility

(30Hz to 200KHz) -Y(AF4)

PARAGRAPH 13.8	DATE OF TEST 5/3/02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
6.0K	124 dBpT		✓		
8.0K	124 dBpT				
10.0K	124 dBpT				
12.0K	124 dBpT				
16.0K	124 dBpT				
20.0K	124 dBpT				
24.0K	124 dBpT				
32.0K	124 dBpT				
40.0K	124 dBpT				
50.0K	124 dBpT				
60.0K	124 dBpT				
80.0K	124 dBpT				
100.0K	124 dBpT				
120.0K	124 dBpT				
160.0K	124 dBpT				
200.0K	124 dBpT		✓		

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TEST DATA SHEET

RS03 Electric Field Radiated Susceptibility (14KHz to 18GHz)

PARAGRAPH 13.10 SIDE "A"	DATE OF TEST 4-30-02
PART NO. . 1A27800 CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
14.0K	2 V/m		✓		
20.0K	2 V/m		✓		
24.0K	2 V/m		✓		
32.0K	2 V/m		✓		
40.0K	2 V/m		✓		
50.0K	2 V/m		✓		
60.0K	2 V/m		✓		
80.0K	2 V/m		✓		
10.0K	2 V/m		✓		
120.0K	2 V/m		✓		
160.0K	2 V/m		✓		
200.0K	2 V/m		✓		
240.0K	2 V/m		✓		
320.0K	2 V/m		✓		
400.0K	2 V/m		✓		
50.0K	2 V/m		✓		
600.0K	2 V/m		✓		
800.0K	2 V/m		✓		
1.0M	2 V/m		✓		
1.2M	2 V/m		✓		
1.6M	2 V/m		✓		
2.0M	2 V/m		✓		
2.4M	2 V/m		✓		

POS 886043 MAY 03 2002

TEST DATA SHEET

RS03 Electric Field Radiated Susceptibility (14KHz to 18GHz)

PART NO. . 1A27800	PARAGRAPH 13.10 SIDE "A"	DATE OF TEST 4-30-02
	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency (Hz)	Level	Test Complete	Pass		Fail		Comments
			V	H	V	H	
3.2M	2 V/m		✓	✓			
4.0M	2 V/m		↑	↑			
5.0M	2 V/m						
6.0M	2 V/m						
8.0M	2 V/m						
10.0M	2 V/m						
12.0M	2 V/m						
16.0M	2 V/m						
20.0M	2 V/m						
24.0M	2 V/m						
32.0M	2 V/m						
40.0M	2 V/m						
50.0M	2 V/m						
60.0M	2 V/m						
80.0M	2 V/m						
100.0M	2 V/m						
120.0M	2 V/m						
160.0M	2 V/m						
200.0M	2 V/m						
240.0M	2 V/m						
320.0M	2 V/m						
400.0M	2 V/m						
500.0M	2 V/m		↓ ✓	↓ ✓			

TEST DATA SHEET

RS03 Electric Field Radiated Susceptibility (14KHz to 18GHz)

PARAGRAPH 13.10 Side A | DATE OF TEST 4-30-02

PART NO.. 1A27800 | CCA/SERIAL NO. 01 | TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass V	Pass H	Fail V	Fail H	Comments
600.0M	2 V/m		✓	✓			
800.0M	2 V/m		✓	✓			
1.0G	2 V/m		*				* 1011MHz VERT POL "y21" changed @ 9:21:57 T.SW FAULT STAT
1.2G	2 V/m		✓	**			** AT 1554 MHz 13:32 Instrument keel dragged Horizontal Polarity
1.6G	~~2~~ 1.27 V/m		✓	✓			DR # AD6464
2.0G	10 V/m		✓	✓			MAY 03 2002 686894
2.2855G	20 V/m		✓	✓			
2.2895G	20 V/m		✓	✓			
4.0G	~~2~~ 1.27 V/m		✓	✓			
5.0G	~~2~~ 1.27 V/m		✓	✓			
6.0G	~~2~~ 1.27 V/m		✓	✓			
8.06G	20 V/m		✓	✓			
8.26GHz	20 V/m		✓	✓			
10.0G	2 V/m		✓	✓			
12.0G	10 V/m		✓	✓			
16.0G	10 V/m		✓	✓			
18.0G	10 V/m		✓	✓			

PQC 686843

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TEST DATA SHEET

RS03 Electric Field Radiated Susceptibility
(14KHz to 18GHz)

PART NO. . 1A27800	PARAGRAPH 13.10 SIDE B	DATE OF TEST 5-1-02
	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
14.0K	2 V/m		✓		
20.0K	2 V/m				
24.0K	2 V/m				
32.0K	2 V/m				
40.0K	2 V/m				
50.0K	2 V/m				
60.0K	2 V/m				
80.0K	2 V/m				
10.0K	2 V/m				
120.0K	2 V/m				
160.0K	2 V/m				
200.0K	2 V/m				
240.0K	2 V/m				
320.0K	2 V/m				
400.0K	2 V/m				
50.0K	2 V/m				
600.0K	2 V/m				
800.0K	2 V/m				
1.0M	2 V/m				
1.2M	2 V/m				
1.6M	2 V/m				
2.0M	2 V/m				
2.4M	2 V/m		✓		

PGC 586543 A 586594
MAY 03 2002

TEST DATA SHEET

RS03 Electric Field Radiated Susceptibility (14KHz to 18GHz)

PART NO. . 1A27800	PARAGRAPH 13.10 SIDE B	DATE OF TEST
	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency (Hz)	Level	Test Complete	Pass V	Pass H	Fail V	Fail H	Comments
3.2M	2 V/m		✓	✓			
4.0M	2 V/m						
5.0M	2 V/m						
6.0M	2 V/m						
8.0M	2 V/m						
10.0M	2 V/m						
12.0M	2 V/m						
16.0M	2 V/m						
20.0M	2 V/m		✓	✓			
24.0M	2 V/m						
32.0M	2 V/m						
40.0M	2 V/m						
50.0M	2 V/m						
60.0M	2 V/m						
80.0M	2 V/m		✓	✓			
100.0M	2 V/m						
119M ~~120.0M~~	2 V/m						
160.0M	2 V/m		✓	✓			
180M-190M ~~200.0M~~	2 V/m		✓	✓			
215M 240.0M	2 V/m						
320.0M	2 V/m						
390M ~~400.0M~~	2 V/m		✓	✓			
470M 500.0M	2 V/m						
520M	2V/m		✓	✓			

PQC 656343

TEST DATA SHEET

RS03 Electric Field Radiated Susceptibility (14KHz to 18GHz)

PART NO. . 1A27800	PARAGRAPH 13.10 SIDE B	DATE OF TEST 5-1-02
	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass V	Pass H	Fail V	Fail H	Comments
600.0M	2 V/m		✓	✓			
~~800~~ 700.0M	2 V/m		✓	✓			
1.0G	2 V/m		✓	✓			
1.2G	2 V/m		✓	✓			
1.6G	2 V/m		✓	✓			
2.0G	10 V/m		✓	✓			
2.2855G	20 V/m		✓	✓			
2.2895G	20 V/m		✓	✓			
4.0G	~~2~~ 10 V/m		✓	✓			
5.0G	~~2~~ 10 V/m		✓	✓			
6.0G	~~2~~ 10 V/m		✓	*			* 7097 MHz STOPPED BURST REQUESTED BY TIMING 7726 MHz HIGHS RECORDED & DATA DROPOUT IN TELEMETRY
8.06G	20 V/m		✓	✓			
8.26GHz	20 V/m		✓	✓			
10.0G	~~2~~ 10 V/m		✓	✓			
12.0G	10 V/m		✓	✓			
16.0G	10 V/m		✓	✓			
18.0G	10 V/m			✓			

PQC 686843 MAY 03 2002

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to 15KHz

PARAGRAPH 13.11	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Survival Bus -A Plus Lead
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
30	3.0		✓		
40	3.0				
50	3.0				
60	3.0				
80	3.0				
100	3.0				
120	3.0				
160	3.0				
200	3.0				
240	3.0				
320	3.0				
400	3.0				
500	3.0				
600	3.0				
800	3.0				
1.0K	3.0				
1.2K	3.0				
1.6K	3.0				
2.0K	3.0				
2.4K	3.0				
3.2K	3.0				
4.0K	3.0				
5.0K	3.0		✓		

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to 15 KHz

PARAGRAPH 13.11		DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Survival Bus -A Plus Lead
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
6.0K	3.0		✓		
8.0K	3.0				
10.0K	3.0				
12.0K	3.0				
15.0K	3.0				
20K	3.0				
24K	3.0				
32K	3.0				
40K	3.0				
50K	3.0		✓		

O.K. LESS P&C. 5-4-02

A 686894 R/L MAY 04 2002

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to 15KHz

PART NO. . 1A27800	PARAGRAPH 13.11
CCA/SERIAL NO. 01 A RTN QE J16786 MAY 06 2002	DATE OF TEST 5-3-02
	TEST TECHNICIAN

NOTES: Survival Bus ~~-D Plus~~ Lead
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
30	3.0		✓		
40	3.0		✓		
50	3.0		✓		
60	3.0		✓		
80	3.0		✓		
100	3.0		✓		
120	3.0		✓		
160	3.0		✓		
200	3.0		✓		
240	3.0		✓		
320	3.0		✓		
400	3.0		✓		
500	3.0		✓		
600	3.0		✓		
800	3.0		✓		
1.0K	3.0		✓		
1.2K	3.0		✓		
1.6K	3.0		✓		
2.0K	3.0		✓		
2.4K	3.0		✓		
3.2K	3.0		✓		
4.0K	3.0		✓		
5.0K	3.0		✓		

A 686894 O.K. LESS P.Q.C. PQO 686047 5-4-02 MAY 04 2002

686894 MAY 03 2002

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to 15 KHz

PARAGRAPH 13.11	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Survival Bus ~~B~~ Plus Lead

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
6.0K	3.0		✓		
8.0K	3.0		✓		
10.0K	3.0		✓		
12.0K	3.0		✓		
15.0K	3.0		✓		
20K	3.0		✓		
24K	3.0		✓		
32K	3.0		✓		
40K	3.0		✓		
50K	3.0		✓		

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to 15KHz SO J16786

PARAGRAPH 13.11	DATE OF TEST
CCA/SERIAL NO. 01	TEST TECHNICIAN

PART NO. . 1A27800

NOTES: Quiet Bus A Plus Lead
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
30	3.0		✓		
40	3.0		✓		
50	3.0		✓		
60	3.0		✓		
80	3.0		✓		
100	3.0		✓		
120	3.0		✓		
160	3.0		✓		
200	3.0		✓		
240	3.0		✓		
320	3.0		✓		
400	3.0		✓		
500	3.0		✓		
600	3.0		✓		148 @ current limit of 4Ap-p
800	3.0		✓		
1.0K	3.0		✓		
1.2K	3.0		✓		
1.6K	3.0	@ E.T.	✓	✓	1.48K susceptible threshold is 1.0 V
2.0K	3.0		✓		
2.4K	3.0		✓		
3.2K	3.0		✓		
4.0K	3.0		✓		3.9K @ 4Ap-p current limit
5.0K	3.0		✓		@ current limit

DR D=1 AD 686894 648 MAY 04 2002

POC 686843 5/8/02

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility 30Hz to 15 KHz

PARAGRAPH 13.11	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Quiet Bus A Plus Lead
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
6.0K	3.0		✓		at current limit
8.0K	3.0		✓		"
10.0K	3.0		✓		2V @ 4A current limit
12.0K	3.0		✓		"
15.0K	3.0		✓		"
20K	3.0		✓		"
24K	3.0		✓		"
32K	3.0		✓		"
40K	3.0		✓		"
50K	3.0			✓	Susceptible at 42KHz threshold @ 0V

R/C
A 686894 MAY 04 2002

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to 15KHz

SOW-A-10 J16786

PARAGRAPH 13.11	DATE OF TEST 5-3-02
CCA/SERIAL NO. 01	TEST TECHNICIAN

A MAY QE-4 J16786 MAY 06 2002

PART NO. . 1A27800

NOTES: Quiet Bus ~~Plus~~ Lead

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
30	3.0		✓		
40	3.0				
50	3.0				
60	3.0				
80	3.0				
100	3.0				
120	3.0				
160	3.0				
200	3.0				
240	3.0				
320	3.0				
400	3.0				
500	3.0				CURRENT LIMIT 590 HZ
600	3.0				
800	3.0				
1.0K	3.0				
1.2K	3.0				1246 HZ CURRENT LIMIT
1.6K	3.0				
2.0K	3.0				
2.4K	3.0				
3.2K	3.0				
4.0K	3.0				
5.0K	3.0		✓		

A 686894 MAY 04 2002 O.K. LESS P.Q.C. 5-4-02 PQO 685047

A R/L 686894 MAY 04 2002

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility 30Hz to 15 KHz

PARAGRAPH 13.11	DATE OF TEST
PART NO. . 1A27800 CCA/SERIAL NO. 01	TEST TECHNICIAN

A R/L QE H16786 MAY 04 2002

NOTES: Quiet Bus ~~B-Plus~~ Lead

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
6.0K	3.0		✓		
8.0K	3.0		✓		
10.0K	3.0		✓		
12.0K	3.0		✓		
15.0K	3.0		✓		16K 2.4V
20K	3.0		✓		CURRENT LIMIT @ 3296 Hz
24K	3.0			✓	23 Susceptible Threshold 1/2 V
32K	3.0				
40K	3.0		✓		
50K	3.0		✓		CURRENT LIMIT @ 50KHz 1.6V

R/L A 686894 MAY 04 2002

D 686894 MAY 04 2002 PK AD 6494

PQC 686047 5-4-02

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to 15KHz

50 KHz

PARAGRAPH	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Noisy Bus -A Plus Lead
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
30	7.0		✓		
40	7.0				
50	7.0				
60	7.0				
80	7.0				
100	7.0				
120	7.0				
160	7.0				
200	7.0				
240	7.0				
320	7.0				
400	7.0				
500	7.0				
600	7.0				
800	7.0				
1.0K	7.0				
1.2K	7.0				
1.6K	7.0				
2.0K	7.0				
2.4K	6.9				
3.2K	6.6				
4.0K	5.6				
5.0K	5.8		✓		

O.K. LESS P.Q.C. 5-4-02

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to 15 KHz

PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN
	PARAGRAPH 13.11	DATE OF TEST

NOTES: Noisy Bus -A Plus Lead
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
6.0K	3.0		✓		
8.0K	3.0		✓		
10.0K	3.0		✓		
12.0K	3.0		✓		
15.0K	3.0			✓	19K susceptible Set Time Threshold = 0V
20K	4.2		✓		
24K	3.8		✓		
32K	3.4		✓		
40K	3.2		✓		
50K	3.0		✓		

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to 15KHz

PARAGRAPH	DATE OF TEST

PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Noisy Bus ~~B Plus~~ Lead

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
30	7.0		✓		
40	7.0		✓		
50	7.0		✓		
60	7.0		✓		
80	7.0		✓		
100	7.0		✓		
120	7.0		✓		
160	7.0		✓		
200	7.0		✓		
240	7.0		✓		
320	7.0		✓		
400	7.0		✓		
500	7.0		✓		
600	7.0		✓		
800	7.0		✓		
1.0K	7.0		✓		
1.2K	7.0		✓		
1.6K	7.0		✓		
2.0K	7.0		✓		
2.4K	6.9		✓		
3.2K	6.6		✓		
4.0K	~~5.6~~ 6.2		✓		
5.0K	5.8		✓		

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to ~~15~~ 50 KHz

PARAGRAPH 13.11	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Noisy Bus ~~Plus~~ A Plus Lead J16786

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
6.0K	~~3.0~~ 5.6		✓		
8.0K	~~3.0~~ 5.4		✓		
10.0K	~~3.0~~ 5.0		✓		
12.0K	~~3.0~~ 4.3		✓		
15.0K	~~3.0~~ 4.0		✓		
20K	4.2		✓		
24K	3.8			✓	29.7 V susceptible Threshold @ 56.0mA
32K	3.4		✓		
40K	3.2		✓		
50K	3.0		✓		

616071A 5/5/02

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility 50 15KHz to 400MHz

PARAGRAPH 13.11	DATE OF TEST 5-5-02
CCA/SERIAL NO. 01	TEST TECHNICIAN QE-A

PART NO. . 1A27800

NOTES: Survival Bus -A Plus Lead to RTN LEAD J16786 MAY 0[illegible] 2002
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
~~15.0K~~ e	~~3.0~~ e				
~~20.0K~~ e	~~3.0~~ e				
~~24.0K~~ e	~~3.0~~ e				
~~32.0K~~ e	~~3.0~~ e				
~~40.0K~~ e	~~3.0~~ e				
50.0K	3.0		✓		
60.0K	3.0		✓		
80.0K	3.0		✓		
100.0K	3.0		✓		
120.0K	3.0		✓		
160.0K	3.0		✓		
200.0K	3.0		✓		
240.0K	3.0		✓		
320.0K	3.0		✓		
400.0K	3.0		✓		
500.0K	3.0		✓		
600.0K	3.0		✓		
800.0K	3.0		✓		
1.0M	3.0		✓		
1.2M	3.0		✓		
1.6M	3.0		✓		
2.0M	3.0		✓		
2.4M	3.0		✓		

QE-A J16786 MAY 06 2002

A 616071A 5/5/02

PQG 686047 5-4-02

QE-A J16786

5/5/02

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility 15KHz to 400MHz

QE-J16786-50

PARAGRAPH 13.11	DATE OF TEST 5-5-02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN QE-J16786 MAY 06 2002

NOTES: Survival Bus- A , Plus Lead to RTN LEAD

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
3.2M	3.0		✓		
4.0M	3.0		✓		
5.0M	3.0		✓		
6.0M	3.0		✓		
8.0M	3.0		✓		
10.0M	3.0		✓		
12.0M	3.0		✓		
16.0M	3.0		✓		
20.0M	3.0		✓		
24.0M	3.0		✓		
32.0M	3.0		✓		
40.0M	3.0		✓		
50.0M	3.0		✓		CURRENT LIMIT 52-56 mHz
60.0M	3.0		✓		
80.0M	3.0		✓		CURRENT LIMIT 76 mHz
100.0M	3.0		✓		
120.0M	3.0		✓		
160.0M	3.0		✓		
200.0M	3.0		✓		
240.0M	3.0		✓		CURRENT LIMIT @ 296-303 mHz
320.0M	3.0		✓		
400.0M	3.0		✓		

5-4-02

5/5/02

A 616017A 5/5/02

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility 15KHz to 400MHz

PARAGRAPH 13.11	DATE OF TEST 5-5-02
PART NO. . 1A27800	CCA/SERIAL NO. 01 A	TEST TECHNICIAN

NOTES: Survival Bus ~~-B, -Plus Load~~ RTN LEAD TO CHASSIS

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
~~15.0K~~	~~3.0~~				
~~20.0K~~	~~3.0~~				
~~24.0K~~	~~3.0~~				
~~32.0K~~	~~3.0~~				
~~40.0K~~	~~3.0~~				
50.0K	3.0		✓		
60.0K	3.0		✓		
80.0K	3.0		✓		
100.0K	3.0		✓		
120.0K	3.0		✓		
160.0K	3.0		✓		
200.0K	3.0		✓		
240.0K	3.0		✓		
320.0K	3.0		✓		
400.0K	3.0		✓		
500.0K	3.0		✓		
600.0K	3.0		✓		
800.0K	3.0		✓		
1.0M	3.0		✓		
1.2M	3.0		✓		
1.6M	3.0		✓		
2.0M	3.0		✓		
2.4M	3.0		✓		

PQO 686047 5-5-02

A 616017A 5/5/02

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility 15KHz to 400MHz

CE-7 J16786 SD

PARAGRAPH 13.11	DATE OF TEST 5-5-02
PART NO. . 1A27800	CCA/SERIAL NO. 01 A
	TEST TECHNICIAN CE-4

NOTES: Survival Bus ~~B, Plus Lead~~ RTN LEAD TO CHASSIS J16786 5-5-2002

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
3.2M	3.0		✓		
4.0M	3.0		✓		
5.0M	3.0		✓		
6.0M	3.0		✓		
8.0M	3.0		✓		
10.0M	3.0		✓		
12.0M	3.0		✓		
16.0M	3.0		✓		
20.0M	3.0		✓		
24.0M	3.0		✓		
32.0M	3.0		✓		
40.0M	3.0			✓	46MHZ THRESHOLD @ 4V
50.0M	3.0		✓		
60.0M	3.0		✓		
80.0M	3.0		✓		CURRENT LIMIT @ 75MHZ
100.0M	3.0		✓		
120.0M	3.0		✓		
160.0M	3.0		✓		
200.0M	3.0		✓		
240.0M	3.0		✓		
320.0M	3.0		✓		
400.0M	3.0		✓		

L 616071A S/F 10

5-5-02

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility 15KHz to 400MHz 50

PARAGRAPH	DATE OF TEST
	5/4/02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Quite Bus -A , Plus Lead to Return

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
~~15.0K~~	~~3.0~~				
~~20.0K~~	~~3.0~~				
~~24.0K~~	~~3.0~~				
~~32.0K~~	~~3.0~~				
~~40.0K~~	~~3.0~~				
50.0K	3.0		✓		CURRENT LIMIT 700mV
60.0K	3.0		✓		CURRENT LIMIT 650mV
80.0K	3.0		✓		CURRENT LIMIT 720mV
100.0K	3.0		✓		CURRENT LIMIT 800mV
120.0K	3.0		✓		CURRENT LIMIT 960mV
160.0K	3.0		✓		CURRENT LIMIT 1.1V
200.0K	3.0		✓		CURRENT LIMIT 1.12V
240.0K	3.0		✓		CURRENT LIMIT 1.28V
320.0K	3.0		✓		CURRENT LIMIT 1.96V
400.0K	3.0		✓		CURRENT LIMIT 2.24V
500.0K	3.0		✓		CURRENT LIMIT 2.64V
600.0K	3.0		✓		3.1V
800.0K	3.0		✓		3.2V
1.0M	3.0		✓		3.2V
1.2M	3.0		✓		3.1V
1.6M	3.0		✓		3.2V
2.0M	3.0		✓		3.2V
2.4M	3.0		✓		2.8V

R/L

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility 15KHz to 400MHz

QE-J16786-50

PARAGRAPH	DATE OF TEST
	5/4/02

PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Quite Bus -A , Plus Lead +C RTN J16786 MAY 06 2002

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
3.2M	3.0		✓		3.1V
4.0M	3.0		✓		3.1V
5.0M	3.0		✓		3.1V
6.0M	3.0		✓		3.0V
8.0M	3.0		✓		3.1V
10.0M	3.0		✓		3.0V
12.0M	3.0		✓		3.1V
16.0M	3.0		✓		3.0V
20.0M	3.0		✓		3.1V
24.0M	3.0		✓		3.1V
32.0M	3.0		✓		3.0V
40.0M	3.0			✓	39.935MHz, ENCODER GLITCH
50.0M	3.0		✓		50MHz@0.5V
60.0M	3.0		✓		2.5V@55MHz 3.0V
80.0M	3.0		✓		
100.0M	3.0		✓		
120.0M	3.0		✓		
160.0M	3.0		✓		
200.0M	3.0		✓		
240.0M	3.0		✓		
320.0M	3.0		✓		
400.0M	3.0		✓		

D 686894 MAY 04 2002

DR AD6495

DR AD 6496 D 686894 MAY 04 2002

PQC 647347 MAY 05 2002

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility ~~15~~ 50KHz to 400MHz

PART NO. . 1A27800	CCA/SERIAL NO. 01 A RTA	DATE OF TEST 5/4/02
	PARAGRAPH 13.11	TEST TECHNICIAN M. Frazier

NOTES: Quite Bus -~~B~~, ~~Plus~~ Lead to Chassis

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
~~15.0K~~	~~3.0~~				
~~20.0K~~	~~3.0~~				
~~24.0K~~	~~3.0~~				
~~32.0K~~	~~3.0~~				
~~40.0K~~	~~3.0~~				
50.0K	3.0		✓		
60.0K	3.0		✓		
80.0K	3.0		✓		
100.0K	3.0		✓		
120.0K	3.0		✓		
160.0K	3.0		✓		
200.0K	3.0		✓		
240.0K	3.0		✓		
320.0K	3.0		✓		
400.0K	3.0		✓		
500.0K	3.0		✓		
600.0K	3.0		✓		
800.0K	3.0		✓		
1.0M	3.0		✓		
1.2M	3.0		✓		
1.6M	3.0		✓		
2.0M	3.0		✓		
2.4M	3.0		✓		

CE #16786 MAY 06 2002

POC 647347 MAY 04 2002

CE #16786

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility 15KHz to 400MHz

J16786 50

PARAGRAPH 13.11	DATE OF TEST 5/4/02
PART NO. . 1A27800	CCA/SERIAL NO. 01 A RTA'
	TEST TECHNICIAN M. Frazier

NOTES: Quite Bus -~~R~~, ~~Plus~~ Lead to CHASSIS MAY 06 2002 J16786

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
3.2M	3.0		✓		
4.0M	3.0		✓		
5.0M	3.0		✓		
6.0M	3.0		✓		
8.0M	3.0		✓		
10.0M	3.0		✓		
12.0M	3.0		✓		
16.0M	3.0		✓		
20.0M	3.0		✓		
24.0M	3.0		✓		
32.0M	3.0		✓		
40.0M	3.0		✓		
50.0M	3.0		✓		
60.0M	3.0		✓		
80.0M	3.0		✓		
100.0M	3.0		✓		
120.0M	3.0		✓		
160.0M	3.0		✓		
200.0M	3.0		✓		
240.0M	3.0		✓		
320.0M	3.0		✓		
400.0M	3.0		✓		

PQC
647347
MAY 0 4 2002

A 6160718 RL 5/5/02

CE-A J16786 MAY 06 2002 50

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility 15KHz to 400MHz

PARAGRAPH 13.11	DATE OF TEST 5-4-02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN M. Frazier

NOTES: Noisy Bus -A , Plus Lead to Return Lead

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
~~15.0K~~	~~3.0~~				
~~20.0K~~	~~3.0~~				
~~24.0K~~	~~3.0~~				
~~32.0K~~	~~3.0~~				
~~40.0K~~	~~3.0~~				
50.0K	3.0		✓		
60.0K	3.0		✓		
80.0K	3.0		✓		
100.0K	3.0		✓		
120.0K	3.0		✓		
160.0K	3.0		✓		
200.0K	3.0		✓		
240.0K	3.0		✓		
320.0K	3.0		✓		
400.0K	3.0		✓		
500.0K	3.0		✓		
600.0K	3.0		✓		
800.0K	3.0		✓		
1.0M	3.0		✓		
1.2M	3.0		✓		
1.6M	3.0		✓		
2.0M	3.0		✓		
2.4M	3.0		✓		

CE-A J16786 MAY 06 2002

CE-A J16786 PQC 886047 5-4-02

A 6160718 5/5/02

A 616071A R/L 5/5/02

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility
CE--A 15KHz to 400MHz
116786 ST

PARAGRAPH 13.11	DATE OF TEST 5/4/02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN M. Frazier

NOTES: Noisy Bus -A , Plus Lead to Return Lead
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
3.2M	3.0		✓		
4.0M	3.0		✓		
5.0M	3.0		✓		
6.0M	3.0		✓		
8.0M	3.0		✓		
10.0M	3.0		✓		
12.0M	3.0		✓		
16.0M	3.0		✓		
20.0M	3.0		✓		
24.0M	3.0		✓		
32.0M	3.0		✓		
40.0M	3.0		✓		
50.0M	3.0		✓		
60.0M	3.0		✓		
80.0M	3.0		✓		
100.0M	3.0		✓		
120.0M	3.0		✓		
160.0M	3.0		✓		
200.0M	3.0		✓		Current limit @ 206 mA
240.0M	3.0		✓		Back to voltage @ 213 mA
320.0M	3.0		✓		Current limit @ 237 mA Back to voltage @ 251 mA
400.0M	3.0		✓		Current limit @ 292 mA Back to voltage @ 300 mA

PQC 586047 5-5-02

A 616071A 5/5/02

A 61607A 5/5/02 R/C

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility 15KHz to 400MHz

MAY 08 2002 786 50

PARAGRAPH 13.11	DATE OF TEST 5-4-02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN M. Frazier

NOTES: Noisy Bus ~~B Plus Lead~~ A Rtn to Chassis

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
~~15.0K~~	~~3.0~~				
~~20.0K~~	~~3.0~~				
~~24.0K~~	~~3.0~~				
~~32.0K~~	~~3.0~~				
~~40.0K~~	~~3.0~~				
50.0K	3.0		✓		
60.0K	3.0		✓		
80.0K	3.0		✓		
100.0K	3.0		✓		
120.0K	3.0		✓		
160.0K	3.0		✓		
200.0K	3.0		✓		
240.0K	3.0		✓		
320.0K	3.0		✓		
400.0K	3.0		✓		
500.0K	3.0		✓		
600.0K	3.0		✓		
800.0K	3.0		✓		
1.0M	3.0		✓		
1.2M	3.0		✓		
1.6M	3.0		✓		
2.0M	3.0		✓		
2.4M	3.0		✓		

CE J16796

PQO 686047 5-5-02

A 61607A 5/5/02

A 616071A R/L 5/5/02

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility 15KHz to 400MHz

A 616786 5-0

PARAGRAPH	DATE OF TEST
	5/4/02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN M. Frazier

NOTES: Noisy Bus -~~B Plus Lead~~ C RTN TO Chassis

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
3.2M	3.0		✓		
4.0M	3.0		✓		
5.0M	3.0		✓		
6.0M	3.0		✓		
8.0M	3.0		✓		
10.0M	3.0		✓		
12.0M	3.0		✓		
16.0M	3.0		✓		
20.0M	3.0		✓		
24.0M	3.0		✓		
32.0M	3.0		✓		CURRENT LIMIT @ 33 MHz
40.0M	3.0		✓		
50.0M	3.0		✓		
60.0M	3.0		✓		
80.0M	3.0		✓		
100.0M	3.0		✓		
120.0M	3.0		✓		
160.0M	3.0		✓		
200.0M	3.0		✓		
240.0M	3.0		✓		
320.0M	3.0		✓		
400.0M	3.0		✓		

PQO 686047 5-5-02

A 616071A 5/5/02

TEST DATA SHEET

CS06 Power Lead Spike Susceptibility Test

PARAGRAPH 13.12	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Primary power return lead Quiet Bus -A
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Amplitude	Pulse Width	Pulse Repetition Rate	Test Complete	Pass	Fail
+29 V pk	10 usec	60pps For 5 Minutes Minimum		GIF (2V)	✓
-29 V pk	10 usec	60pps For 5 Minutes Minimum			✓

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DR# AD6496

TEST DATA SHEET

CS06 Power Lead Spike Susceptibility Test

PARAGRAPH 13.12	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Primary power input lead Quiet Bus B
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Amplitude	Pulse Width	Pulse Repetition Rate	Test Complete	Pass	Fail
+29 V pk	10 usec	60pps For 5 Minutes Minimum			
-29 V pk	10 usec	60pps For 5 Minutes Minimum			

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TEST DATA SHEET

CS06 Power Lead Spike Susceptibility Test

PARAGRAPH 13.12	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Primary power input lead Survival Bus-A
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Amplitude	Pulse Width	Pulse Repetition Rate	Test Complete	Pass	Fail
+29 V pk	10 usec	60pps For 5 Minutes Minimum			✓
-29 V pk	10 usec	60pps For 5 Minutes Minimum			✓

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MAY 05 2002
PK AD6496

TEST DATA SHEET

CS06 Power Lead Spike Susceptibility Test

PARAGRAPH 13.12	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Primary power input lead Survival Bus-B
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Amplitude	Pulse Width	Pulse Repetition Rate	Test Complete	Pass	Fail
+29 V pk	10 usec	60pps For 5 Minutes Minimum			
-29 V pk	10 usec	60pps For 5 Minutes Minimum			

N/A

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TEST DATA SHEET

CS06 Power Lead Spike Susceptibility Test

PART NO. . 1A27800	PARAGRAPH 13.12	DATE OF TEST
	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Primary power return lead Noisy Bus-A
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Amplitude	Pulse Width	Pulse Repetition Rate	Test Complete	Pass	Fail
+29 V pk	10 usec	60pps For 5 Minutes Minimum			✓
-29 V pk	10 usec	60pps For 5 Minutes Minimum			✓

D 686894
MAY 05 2002
DR AD 6495

TEST DATA SHEET

CS06 Power Lead Spike Susceptibility Test

PART NO. . 1A27800	PARAGRAPH 13.12	DATE OF TEST
	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Primary power input lead Noisy Bus-B
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Amplitude	Pulse Width	Pulse Repetition Rate	Test Complete	Pass	Fail
+29 V pk	10 usec	60pps For 5 Minutes Minimum			
-29 V pk	10 usec	60pps For 5 Minutes Minimum			

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MAY 05 2002

Common Test Equipment

Page _____ of _____

Nomenclature	Manufacturer	Model	Serial	Tag No.	Calib. Due Date	TE
Power line Iso. Transformer	(Lab type)	N/A				
Signal Generator	Solar	6550-1				
Audio Iso. Transformer	Solar	6220-1A				
Transient Pulse Generator	Solar	8282-1				
Synthesizer	H. P.	3325A		M137238	5-10-02	ALL
Signal Generator	Fluke	6071A				
Signal Generator	H. P.	8672A				
Amplifier	Amp. Research	100L		CMSC 78996	CNR	ALL
Amplifier	Amp. Research	10W1000				
Amplifier	Logimetrics	A600L				
Amplifier	Logimetrics	A600S				
Amplifier	Logimetrics	A600C				
Amplifier	Logimetrics	A600X				
Amplifier	Logimetrics	A600U				
Field Strength Monitor	Aeritalia	TE3107B				
Field Strength Monitor	Holday	HI-3004				
Field Strength Monitor	Raham	484				
Antenna	EMCO	3301B				
Antenna	EMCO	3104P				
Antenna	EMCO	3146B				
Antenna	Stoddart	93490-1				
Antenna	Stoddart	94612-1				
Antenna	ElectroMetric	LCA-25				
Spectrum Analyzer	H. P.	8566B		M21770	8/30/02	ALL
Printer	H. P.	Thinkjet				
Close Field Probe Set	EMCO	7405				
CURRENT PROBE	FAIRCHILD	PCL-10	MS OL	—	CNR	ALL

Attach additional sheets as needed.

Common Test Equipment

Page _____ of _____

Nomenclature	Manufacturer	Model	Serial	Tag No.	Calib.Due Date	TE
CURRENT PROBE	EMPIRE	CP105	GH-1	—	CNR	WP
OSCILLOSCOPE	TEKTRONIX	TDS 520C	—	LP 015823	6-13-03	WP
Amplifier	McIntosh	MC2500	—	M 202617	CNR	WP
Amplifier	AILTECH	15100	—	LMSC 113892	CNR	WP
OSCILLOSCOPE	TEKTRONIX	5400	—	LP 016264	8-16-02	WP
Current Probe AMP	TEKTRONIX	AM503	—	MSL 097053	9-6-02	WP
SCOPE PROBE	TEKTRONIX	P6137	—	—	—	
CURRENT PROBE AMP	TEKTRONIX	AM503	—		9-6-02	
CURRENT PROBE AMP POWER MODULE	TEKTRONIX	TM501	—	MSL 097053	—	
RFI TRANSIENT GENERATOR	SOLAR ELECTRONICS	6254-55	—	H122244	—	
TRIAXIAL MAGNETOMETER	WALICER SCIENTIFIC	FGM-5DTAA		NASA C906057	12-27-02	DSK

Attach additional sheets as needed.

APPENDIX C
Bonding, Grounding, and Isolation Measurement Test Data

HIRDLS

HIGH RESOLUTION DYNAMICS LIMB SOUNDER

HIRDLS INSTRUMENT TEST OPERATIONS ORDER

FOR

PFM Power Isolation

Prepared by:

Steve Cabral 1/23/02
Steve Cabral
Integration & Test Engineer
HIRDLS Program

Approved by:

1/23/02
Talin Kaloustian
Integration and Test Lead
HIRDLS Program

Approved by:

Timothy Crews 1-23-02
Timothy Crews
Chief Systems Engineer
HIRDLS Program

Approved by:

01/24/02
Althea McField
Quality Assurance, QE
HIRDLS Program

O/O number: OO-LOC-0858

O/O Index number: 191

Test Type (check one):

Verification Test	Integration Test	Engineering Confidence
[X]	[ ]	[ ]

Type of Hardware (check one):

Any Flight Hardware	No Flight Hardware
[X]	[ ]

Information included herein is controlled under the International Traffic in Arm Regulations (ITAR) of the U.S. Department of State. Transfer of this information to a foreign person or foreign entity requires an export license issued by the U.S. State Department or an ITAR exemption to the license requirements prior to the export or transfer.

Purpose of this Operation

- The Power Isolation is being performed in response to the flowed down requirements outlined in the HIRDLS Proto-Flight Model Instrument Test Plan (TP-LOC-204, LMMS # 1A25998), paragraphs 5.11.6 and 5.11.7
- This test will be used to verify the following requirements:

ITS 3.7.3.2	Primary Power Isolation
GIRD 5.3.2.1.3	Primary Power Isolation
ITS 3.7.3.3	Secondary Power Grounding and Isolation

Requirements ITS 3.7.3.2 and GIRD 5.3.2.1.3 will not be verified until the results of this operation order are assessed with the results of OO-LOC-0512 "PFM PCU Primary Power Isolation Test". This analysis will be included in the final test report.

Verification of requirement ITS 3.7.3.3 will be complete with this operation order.

Related Documents

- HIRDLS Instrument Technical Specification , ITS, (GSFC 424-28-21-13)
- HIRDLS Proto-Flight Model Instrument Test Plan, (TP-LOC-204, LMMS # 1A25998)
- HIRDLS Instrument Test Operations Order for Electrical Housing Integration to the STH Base Plate, (OO-LOC-1007)

Unit Under Test: The complete assembled HIRDLS Instrument minus the slant panel to provide access to the PCU. The CCU is installed temporarily and will be removed at completion of test so the slant panel can be installed.

Facility: *HIRDLS Integration Facility (B/202)*

Effectivity: *This document is applicable for testing at HIRDLS Integration Facility (B/202).*

Test Personnel: *Only qualified and certified personnel shall be assigned to perform these procedural instructions. All tasks contained in this procedure shall be accomplished by the minimum number of persons required to perform the tasks safely and efficiently*

Test Equipment List:

Item	Model	Serial #	MSL Tag #	Cal. Due Date
BOB	LJT	--------	----------	---------
Test Cable	LJT-F	--------	----------	---------
Test Cable	LJT-H	--------	----------	---------
Test Cable	LJT-K	--------	----------	---------
Test Cable	LJT-M	--------	----------	---------
Test Cable	LJT-O	--------	----------	---------
Test Cable	LJT-Q	--------	----------	---------
Milliohmeter	NA			
Torque Wrench	NA			
DVM	Fluke 87 III		113360	9/17/04

Table 1.0 – Needed test equipment

Other Calibration & Facility Certs

The unit under test will be integrated and tested in the Lockheed Martin, Advanced Technology Center, HIRDLS Integration Facility (B/202). All appropriate cleanroom practices must be observed for the Class 10,000 and Class 100 areas of the Cleanroom. Protect and handle per PA-HIR-006B.

The thermal environment will be ambient temperature.

ESD workstation 8/15/02 (Certified)

Certified ground straps and test log.

Cables will be labeled and verified to be acceptable for use on flight hardware before being attached to the unit under test. Cable numbers and verification will be recorded via TP-LOC-796.

Cables shall be sheathed in cleanroom packaging material prior to use in any cleanroom. This protects the cable from contamination and protects the cleanroom from the cable that is a source of contamination.

ESD sensitive hardware: protect and handle per MPS 608-010 and LAC 3250.

Safety, Hazards, Cautions and Notes

HIRDLS Integration Facility (B/202) Class 100 Cleanroom operations require full bunnysuit, hood, booties, gloves and facemasks for all personnel.

Electronics boards and other associated flight hardware shall be kept clean and free of visual particle contamination, grease, and fingerprints.

Clean all tools, GSE and hardware by solvent wiping with Reagent Grade Isopropyl Alcohol (IPA) and cleanroom swabs or wipes before entering into any cleanroom.

Cover all flight hardware with cleanroom compatible nylon or ESD bagging material when not in use.

ESD approved Nytryle gloves or fingercots (no pink poly or latex)

Measured voltages must all be within +/- 10% of specified value

Failures and unexpected responses from the unit under test shall halt the Test/Shop Order. All test failures shall be reported to the material review board (MRB). Only the FRB has the authority to disposition test failures.

QA OK to Proceed: 2/20/02

Spec 2/8/02
1.3.1.1 Demate U9 P725 from J725 on the IPU. Enter in mate/demate Log
1.3.1.2 Demate U10 P726 from J726 on the IPU. Enter in mate/demate log.

QA Spec 2/8/02
QA 16071A 2/11/02 Spec 2/8/02

1.0 Pre-Test Verifications:

1.1. Record test equipment identification and calibration data in Table 1.0 (above), as applicable. _____

1.2. Verify that wrist straps are being used prior to setting up configuration. 16071A 2/11/02 _____

1.3 Workmanship isolation check out

1.3.1 Remove shorting bar from PCU Spec 2/8/02
1.3.2 Take resistance measurements per attached table Spec 2/8/02
1.3.3 Install shorting bar on PCU Spec 2/8/02
1.3.4 Mate U9 P725 to J725 on the IPU. Enter in mate/demate Log Spec 2/8/02
1.3.5 mate U10 P726 to J726 on the IPU. Enter in mate/demate log. Spec 2/8/02

Spec 2/8/02 16071A

2.0 Previous Operation Order Execution Verification and Operation Order Set-Up:

2.1. Verify that OO-LOC-1007 has completed through step 6.6.25 QA 16071A Spec 2/8/02 2/11/02 2/11/02 2/20/02

2.2. Temporary Installation of the Cryo Control Unit

2.2.1. Verify that CCU is certified clean. PQC_____ Lab Report # _____

2.2.2. Inspect all CCU connectors prior to mating. PQC _____ QA_____

2.2.3. Install CCU to –X wall with non flight M4 screws per DWG: 1A27800 PQC _____ QA_____

2.2.4. Torque mounting screws to 1.4-1.7 Nm (12-15 in. lb).: PQC _____ QA _____

Wrench ID# _____ Final Torque Setting: _____ Cal Date: _____

2.2.5. Measure CCU Box to ground plane resistance using milliohmeter: PQC _____ QA _____

Resistance: _____

2.2.6. Connect U19 PP831S to J30P and record in mate/demate logbook: PQC _____ QA _____ 2/20/02

2.2.7. Connect U19 P833S to J13P and record in mate/demate logbook: PQC _____ QA _____ QE J16786

N/A SR 2/20/02
CCU Installed
PR1 OO-LOC-1007

2.2.8. Connect U19 P834S to J22P and record in mate/demate logbook: PQC _____ QA _____

2.2.9. Connect U19 P835S to J43P and record in mate/demate logbook: PQC _____ QA _____

2.2.10. Connect U21 P832S to J10P and record in mate/demate logbook: PQC _____ QA _____

2.2.11. Connect U50 P837P to J40S and record in mate/demate logbook: PQC _____ QA _____

2.2.12. Connect U51 P836P to J20S and record in mate/demate logbook: PQC _____ QA _____

QE J16786 2.3.1 Disconnect W1 P101 from J101 on the S/C Interface Panel - Log in mate/Demate Log QA J16786 2/26/02 N/A SPK 2/26/02

SPK 2/26/02 2.3.2 Disconnect W2 P102 from J102 on the S/C Interface Panel Log in mate/Demate Log QA J16786 2/26/02 CCU installed QE J16786

QM 2/26/02 2.3.3 Disconnect W7 P107 from J107 on the S/C Interface Panel. Log in mate/Demate Log. QE J16786 QA J16786 2/26/02 OO-LOC-1007

2.3.4 Disconnect W11 P110 from J110 on the S/C Interface Panel. Log in mate/Demate Log QE J16786 QA J16786 2/26/02 2/26/02

3.0 Test Operations

3.1. Remove the four grounding links from the following ground studs on the PCU

1. (28REG Return Star-Point)
2. ("SYS" Return Star-Point)
3. (PCU Chassis)
4. (IPU Common Ground)

3.2. **Quiet Bus A Power Isolation Measurements**

QE J16786 QA J16786 2/26/02

3.2.1. Connect test cable LJT-F to J101 on the S/C Interface Panel. Enter in Mate/Demate log.

3.2.2. Connect test cable LJT-F to BOB LJT.

3.2.3. Measure resistance and capacitance across the locations listed in the following table

PCU "Star Point"	BOB Location (QB Return)	Resistance (Mohms) > 1 Mohm	Capacitance (υF) < 1 υF
1 (28REG Return Star-Point)	BOB LJT Pin 4	OPEN	0.127 μF
2 ("SYS" Return Star-Point)	BOB LJT Pin 4	OPEN	0.127 μF
3 (PCU Chassis)	BOB LJT Pin 4	OPEN	0.127 μF
4 (IPU Common Ground)	BOB LJT Pin 4	OPEN	0.127 μF
1 (28REG Return Star-Point)	BOB LJT Pin 5	OPEN	0.127 μF
2 ("SYS" Return Star-Point)	BOB LJT Pin 5	OPEN	0.127 μF
3 (PCU Chassis)	BOB LJT Pin 5	OPEN	0.128 μF
4 (IPU Common Ground)	BOB LJT Pin 5	OPEN	0.127 μF
1 (28REG Return Star-Point)	BOB LJT Pin 6	OPEN	0.127 μF
2 ("SYS" Return Star-Point)	BOB LJT Pin 6	OPEN	0.127 μF
3 (PCU Chassis)	BOB LJT Pin 6	OPEN	0.127 μF
4 (IPU Common Ground)	BOB LJT Pin 6	OPEN	0.127 μF

3.2.4. Disconnect test cable LJT-F to J101 on the S/C Interface Panel. Enter in Mate/Demate log.

QE QA J16786 2/20/02

3.2.5. Disconnect test cable LJT-F to BOB LJT.

3.3. Quiet Bus B Power Isolation Measurements

3.3.1. Connect test cable LJT-H to J102 on the S/C Interface Panel. Enter in Mate/Demate log.

3.3.2. Connect test cable LJT-H to BOB LJT.

3.3.3. Measure resistance and capacitance across the locations listed in the following table

QE J16786
QA 2/20/02

PCU "Star Point"	BOB Location (QB Return)	Resistance (Mohms) > 1 Mohm	Capacitance (υF) < 1 υF
1 (28REG Return Star-Point)	BOB LJT Pin 4	OPEN	0.126μF
2 ("SYS" Return Star-Point)	BOB LJT Pin 4	OPEN	0.126μF
3 (PCU Chassis)	BOB LJT Pin 4	OPEN	0.127μF
4 (IPU Common Ground)	BOB LJT Pin 4	OPEN	0.126μF
1 (28REG Return Star-Point)	BOB LJT Pin 5	OPEN	0.126μF
2 ("SYS" Return Star-Point)	BOB LJT Pin 5	OPEN	0.126μF

3 (PCU Chassis)	BOB LJT Pin 5	OPEN	0.127 µF
4 (IPU Common Ground)	BOB LJT Pin 5	OPEN	0.126 µF
1 (28REG Return Star-Point)	BOB LJT Pin 6	OPEN	0.126 µF
2 ("SYS" Return Star-Point)	BOB LJT Pin 6	OPEN	0.126 µF
3 (PCU Chassis)	BOB LJT Pin 6	OPEN	0.127 µF
4 (IPU Common Ground)	BOB LJT Pin 6	OPEN	0.126 µF

3.3.4. Disconnect test cable LJT-H to J102 on the S/C Interface Panel. Enter in Mate/Demate log.

QE J16786 QA 2/20/02

3.3.5. Disconnect test cable LJT-H to BOB LJT.

3.4. Noisy Bus A Power Isolation Measurements

3.4.1. Connect test cable LJT-K to J107 on the S/C Interface Panel. Enter in Mate/Demate log.

QE J16786 QA 2/20/02

3.4.2. Connect test cable LJT-K to BOB LJT.

3.4.3. Measure resistance and capacitance across the locations listed in the following table

PCU "Star Point"	BOB Location (QB Return)	Resistance (Mohms) > 1 Mohm	Capacitance (uF) < 1 uF
1 (28REG Return Star-Point)	BOB LJT Pin 4	OPEN	0.83 nf
2 ("SYS" Return Star-Point)	BOB LJT Pin 4	OPEN	0.83 nf
3 (PCU Chassis)	BOB LJT Pin 4	OPEN	0.83 nf
4 (IPU Common Ground)	BOB LJT Pin 4	OPEN	0.83 nF
1 (28REG Return Star-Point)	BOB LJT Pin 5	OPEN	0.83 nf
2 ("SYS" Return Star-Point)	BOB LJT Pin 5	OPEN	0.83 nf
3 (PCU Chassis)	BOB LJT Pin 5	OPEN	0.83 nF
4 (IPU Common Ground)	BOB LJT Pin 5	OPEN	0.83 nF
1 (28REG Return Star-Point)	BOB LJT Pin 6	OPEN	0.83 nF
2 ("SYS" Return Star-Point)	BOB LJT Pin 6	OPEN	0.84 nF
3 (PCU Chassis)	BOB LJT Pin 6	OPEN	0.83 nF
4 (IPU Common Ground)	BOB LJT Pin 6	OPEN	0.83 nF

3.4.4. Disconnect test cable LJT-K to J107 on the S/C Interface Panel. Enter in Mate/Demate log.

QE J16786 QA 2/20/02

3.4.5. Disconnect test cable LJT-K to BOB LJT.

3.5. Noisy Bus B Power Isolation Measurements

QE→ QA J16786 2/20/02

3.5.1. Connect test cable LJT-M to J110 on the S/C Interface Panel. Enter in Mate/Demate log.

3.5.2. Connect test cable LJT-M to BOB LJT.

3.5.3. Measure resistance and capacitance across the locations listed in the following table

PCU "Star Point"	BOB Location (QB Return)	Resistance (Mohms) > 1 Mohm	Capacitance (υF) < 1 υF
1 (28REG Return Star-Point)	BOB LJT Pin 4	OPEN	0.86 nF
2 ("SYS" Return Star-Point)	BOB LJT Pin 4	OPEN	0.86 nF
3 (PCU Chassis)	BOB LJT Pin 4	OPEN	0.86 nF
4 (IPU Common Ground)	BOB LJT Pin 4	OPEN	0.86 nF
1 (28REG Return Star-Point)	BOB LJT Pin 5	OPEN	0.86 nF
2 ("SYS" Return Star-Point)	BOB LJT Pin 5	OPEN	0.86 nF
3 (PCU Chassis)	BOB LJT Pin 5	OPEN	0.86 nF

QE# J16786

3.6.9 Repeat Step 3.2.1 for 3.3.3

QE# J16786 2/20/02 QA

Start pt 1 & BOB pin 4 Result OPEN + cap 0.127pF

3.6.10 Repeat Step 3.2.4 & 3.2.5 QE# J16786 2/20/02 QA

3.6.11 Repeat Step 3.3.1 to 3.3.3

Start pt 1 to BOB Res OPEN & cap 0.126pF

3.6.12 Repeat Step 3.3.4 & 3.3.5 QE# J16786 2/20/02 QA

3.6.13 Repeat Step 3.4.1 to 3.4.3 QE# J16786 2/20/02 QA

Start pt 1 & BOB pin 4 Result OPEN - cap 0.83pF

3.6.14 Repeat Step 3.4.4 & 3.4.5 QE# J16786 2/20/02 QA

3.6.15 Repeat Step 3.5.1 to 3.5.3 QE# J16786 2/20/02 QA

3.6.16 Repeat Step 3.5.4 & 3.5.5 QE# J16786 2/20/02 QA OPEN - cap 0.83pF

4 (IPU Common Ground)	BOB LJT Pin 5	OPEN	0.86 nF
1 (28REG Return Star-Point)	BOB LJT Pin 6	OPEN	0.86 nF
2 ("SYS" Return Star-Point)	BOB LJT Pin 6	OPEN	0.86 nF
3 (PCU Chassis)	BOB LJT Pin 6	OPEN	0.86 nF
4 (IPU Common Ground)	BOB LJT Pin 6	OPEN	0.86 nF

3.5.4. Disconnect test cable LJT-M to J110 on the S/C Interface Panel. Enter in Mate/Demate log.

QE→ QA J16786 2/29/02

3.5.5. Disconnect test cable LJT-M to BOB LJT.

3.6. Secondary Power Grounding and Isolation

3.6.1. Measure Resistance and Capacitance in the Following table

PCU "Star Point"	Structure	Resistance (Mohms) > 1 Mohm	Capacitance (υF) < 1 υF
1 (28REG Return Star-Point)	Structure	5.80 MΩ/4.12 KΩ	OPEN
2 ("SYS" Return Star-Point)	Structure	5.80 MΩ	OPEN
3 (PCU Chassis)	Structure	0.2 Ω	OPEN
4 (IPU Common Ground)	Structure	5.12 MΩ	OPEN

3.6.2 See Back

Dec 2/10/02 QE → J16786

3.6.2 Measure AC Voltage Star pt 4 to Structure 3.8 mVAC
1 to Structure 3.7 mVAC
2 to Structure 3.7 mVAC
3 to Structure 3.5 mVAC

3.6.3 Measures DC Voltage Star Pt 1 to Structure 0.[illegible] VDC
2 to Structure
3 to Structure
4 to Structure

3.6.4 Turn off Power To IPU UART
3.6.5 Turn off Power to TEU UART
3.6.6 ~~Turn off~~ Remove TEU UART FROM TEU J478
3.6.7 Remove IPU UART FRM IPU J734
3.6.8 Redo ~~Step~~ Step 3.6.1

	28.7 KΩ Resistor	CAP
~~Star Pt~~ 1 to Structure	41.2 KΩ	~~Cap~~ OPEN
Star Pt 2 to Structure	28.4 KΩ	OPEN
Star Pt 3 to Structure	0.3 Ω	—
Star P3 4 to Structure	28.28 KΩ	OPEN

See Back Pg 1

3.7. CMU Disconnection

3.7.1. Disconnect U51 P836 from J20S on the CCU. Enter in the Mate/Demate log. QE J16786 2b0b2 QA

3.7.2. Disconnect U50 P837 from J40S on the CCU. Enter in the Mate/Demate log. QE J16786 2b0b2 QA

3.8. Quiet Bus A Power Isolation Measurements w/o the CMU

3.8.1. Connect test cable LJT-F to J101 on the S/C Interface Panel. Enter in Mate/Demate log. QA

3.8.2. Connect test cable LJT-F to BOB LJT.

3.8.3. Measure resistance and capacitance across the locations listed in the following table

PCU "Star Point"	BOB Location (QB Return)	Resistance (Mohms) > 1 Mohm	Capacitance (uF) < 1 uF
1 (28REG Return Star-Point)	BOB LJT Pin 4		
2 ("SYS" Return Star-Point)	BOB LJT Pin 4		
3 (PCU Chassis)	BOB LJT Pin 4		
4 (IPU Common Ground)	BOB LJT Pin 4		
1 (28REG Return Star-Point)	BOB LJT Pin 5		
2 ("SYS" Return Star-Point)	BOB LJT Pin 5		

3 (PCU Chassis)	BOB LJT Pin 5		
4 (IPU Common Ground)	BOB LJT Pin 5		
1 (28REG Return Star-Point)	BOB LJT Pin 6		
2 ("SYS" Return Star-Point)	BOB LJT Pin 6		
3 (PCU Chassis)	BOB LJT Pin 6		
4 (IPU Common Ground)	BOB LJT Pin 6		

3.8.4. Disconnect test cable LJT-F to J101 on the S/C Interface Panel. Enter in Mate/Demate log. QA_____ _____

3.8.5. Disconnect test cable LJT-F to BOB LJT. _____

3.9. Quiet Bus B Power Isolation Measurements w/o the CMU

3.9.1. Connect test cable LJT-H to J102 on the S/C Interface Panel. Enter in Mate/Demate log QA_____ _____

3.9.2. Connect test cable LJT-H to BOB LJT. _____

3.9.3. Measure resistance and capacitance across the locations listed in the following table _____

PCU "Star Point"	BOB Location (QB Return)	Resistance (Mohms) > 1 Mohm	Capacitance (υF) < 1 υF
1 (28REG Return Star-Point)	BOB LJT Pin 4		
2 ("SYS" Return Star-Point)	BOB LJT Pin 4		
3 (PCU Chassis)	BOB LJT Pin 4		
4 (IPU Common Ground)	BOB LJT Pin 4		
1 (28REG Return Star-Point)	BOB LJT Pin 5		
2 ("SYS" Return Star-Point)	BOB LJT Pin 5		
3 (PCU Chassis)	BOB LJT Pin 5		
4 (IPU Common Ground)	BOB LJT Pin 5		
1 (28REG Return Star-Point)	BOB LJT Pin 6		
2 ("SYS" Return Star-Point)	BOB LJT Pin 6		
3 (PCU Chassis)	BOB LJT Pin 6		
4 (IPU Common Ground)	BOB LJT Pin 6		

3.9.4. Disconnect test cable LJT-H to J102 on the S/C Interface Panel. Enter in Mate/Demate log. QA

3.9.5. Disconnect test cable LJT-H to BOB LJT.

3.10. **Noisy Bus A Power Isolation Measurements w/o the CMU**

3.10.1. Connect test cable LJT-K to J107 on the S/C Interface Panel. Enter in Mate/Demate log. QA_____ _____

3.10.2. Connect test cable LJT-K to BOB LJT. _____

3.10.3. Measure resistance and capacitance across the locations listed in the following table _____

PCU "Star Point"	BOB Location (QB Return)	Resistance (Mohms) > 1 Mohm	Capacitance (υF) < 1 υF
1 (28REG Return Star-Point)	BOB LJT Pin 4		
2 ("SYS" Return Star-Point)	BOB LJT Pin 4		
3 (PCU Chassis)	BOB LJT Pin 4		
4 (IPU Common Ground)	BOB LJT Pin 4		
1 (28REG Return Star-Point)	BOB LJT Pin 5		
2 ("SYS" Return Star-Point)	BOB LJT Pin 5		
3 (PCU Chassis)	BOB LJT Pin 5		
4 (IPU Common Ground)	BOB LJT Pin 5		
1 (28REG Return Star-Point)	BOB LJT Pin 6		

NA

2 ("SYS" Return Star-Point)	BOB LJT Pin 6		
3 (PCU Chassis)	BOB LJT Pin 6		
4 (IPU Common Ground)	BOB LJT Pin 6		

3.10.4. Disconnect test cable LJT-K to J107 on the S/C Interface Panel. Enter in Mate/Demate log. QA_____ _____

3.10.5. Disconnect test cable LJT-K to BOB LJT. _____

3.11. Noisy Bus B Power Isolation Measurements w/o the CMU

3.11.1. Connect test cable LJT-M to J110 on the S/C Interface Panel. Enter in Mate/Demate log. QA_____ _____

3.11.2. Connect test cable LJT-M to BOB LJT. _____

3.11.3. Measure resistance and capacitance across the locations listed in the following table _____

N/A
RNC

PCU "Star Point"	BOB Location (QB Return)	Resistance (Mohms) > 1 Mohm	Capacitance (υF) < 1 υF
1 (28REG Return Star-Point)	BOB LJT Pin 4		
2 ("SYS" Return Star-Point)	BOB LJT Pin 4		
3 (PCU Chassis)	BOB LJT Pin 4		
4 (IPU Common Ground)	BOB LJT Pin 4		
1 (28REG Return Star-Point)	BOB LJT Pin 5		
2 ("SYS" Return Star-Point)	BOB LJT Pin 5		
3 (PCU Chassis)	BOB LJT Pin 5		
4 (IPU Common Ground)	BOB LJT Pin 5		
1 (28REG Return Star-Point)	BOB LJT Pin 6		
2 ("SYS" Return Star-Point)	BOB LJT Pin 6		
3 (PCU Chassis)	BOB LJT Pin 6		
4 (IPU Common Ground)	BOB LJT Pin 6		

3.11.4. Disconnect test cable LJT-M to J110 on the S/C Interface Panel. Enter in Mate/Demate log. QA_____ _____

3.11.5. Disconnect test cable LJT-M to BOB LJT. _____

NA

OK AD60085

3.12. Secondary Power Grounding and Isolation w/o the CMU

3.12.1. Measure Resistance and Capacitance in the Following table

PCU "Star Point"	Structure	Resistance (Mohms) > 1 Mohm	Capacitance (υF) < 1 υF
1 (28REG Return Star-Point)	Structure	42.1 KΩ	OPEN
2 ("SYS" Return Star-Point)	Structure	28.43 KΩ	OPEN
3 (PCU Chassis)	Structure	0.3 Ω	OPEN
4 (IPU Common Ground)	Structure	28.78 KΩ	OPEN

3.13. Reconnect the four grounding links onto the ground studs on the PCU.

3.14. **Survival Bus Power Isolation**

3.14.1. Connect BOB Cable LJT O to J111 on the S/C Interface Panel. Enter in Mate/Demate log.

3.14.2. Connect Cable LJT O to BOB LJT.

3.14.3. Connect BOB Cable LJT Q to J112 on the S/C Interface Panel. Enter in Mate/Demate log.

3.14.4. Connect Cable LJT Q to the ~~Universa~~l BOB.

3.14.5. Measure resistance between Survival Bus Returns per the following table

BOB LJT Pin O	~~Universal~~ BOB Pin Q	Resistance (Mohm) >1 Mohm
4	4	OPEN
4	5	OPEN
4	6	OPEN
5	4	OPEN
5	5	OPEN
5	6	OPEN
6	4	OPEN
6	5	OPEN
6	6	OPEN

3.14.6. Measure resistance between Survival Bus Returns and Structure per the following table

	BOB Pin	Structure	Resistance (Mohm) >1 Mohm
O	LJT 4	Structure	OPEN
O	LJT 5	Structure	OPEN
O	LJT 6	Structure	OPEN
Q	~~Universal~~ 4	Structure	OPEN

QE J16786 QA 2/20/02

~~Universal 5~~ Q	Structure	OPEN
~~Universal 6~~ Q	Structure	OPEN

LJT QA 2/20/02 QE J16786

3.14.7. Disconnect Cable LJT O from J111 on the S/C interface panel. Enter in the Mate/Demate log. QA QE J16786

3.14.8. Disconnect Cable LJT Q from J112 on the S/C interface pane. Enter in the Mate/Demate log. QA QE J16786

~~3.15.~~ CCU Disconnection

3.15.1. ~~Disconnect~~ U19 PP831S to J30P and record in mate/demate logbook: PQC _____ QA _____

3.15.2. Disconnect U19 ~~P833S~~ to J13P and record in mate/demate logbook: PQC _____ QA _____

3.15.3. Disconnect U19 P834S to J22P and record ~~in mate~~/demate logbook: PQC _____ QA _____

3.15.4. Disconnect U19 P835Sto J43P and record in mate/demate logbook: PQC _____ QA _____

3.15.5. Disconnect U21 P832S to J10P and record in mate/demate logbook: PQC _____ QA _____

3.15.6. Remove the CCU from the –X wall PQC _____ QA _____

N/A Spec 2/20/02 CCU permanently installed per OO-LOC-1015 QA 2/20/02

3.16.1 Connect U50 P837 to J40 on the ccu. Enter in mate/Demate log. QA QE J16786 2/20/02

3.16.2 Connect U51 P836 to J20 on the ccu. Enter in mate/Demate log. QA 2/20/02

Spec QE J16786 2/20/02 3.16.3 Connect W1 P101 to J101 on the S/C Interface Panel. Enter in mate/Demate log. QA QE J16786 2/20/02

3.16.4 Connect W2 P102 to J102 on the S/C Interface Panel. Enter in mate/Demate log. QA QE J16786 2/20/02

QA 2/20/02 3.16.5 Connect W7 P107 to J107 on the S/C Interface Panel. Enter in mate/demate log. QA QE J16786 2/20/02

3.16.6 Connect W11 P110 to J110 on the S/C Interface Panel. Enter in mate/Demate log. QA QE J16786 2/20/02

QE J16786 3.16.7. Connect IPU UART to IPU J734

3.16.8 Connect TEU UART to TEU J478

2/20/02

Operation Order Complete Date: 5/15/02

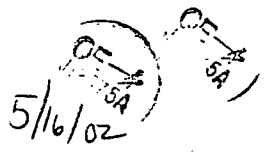
Test Engineer: [signature]

Quality Engineer: [signature] 5/16/02

Meter: MSL 100457 Cal Due 8/30/02

Point 1	Point 2	Resistance
PCU "Star Point" 1	Structure Ground	12.05 K Ω
PCU "Star Point" 2	Structure Ground	0.9 Ω
PCU "Star Point" 3	Structure Ground	0.7 Ω
PCU "Star Point" 4	Structure Ground	563 Ω
PCU "Star Point" 1	PCU "Star Point" 2	12.05 K Ω
PCU "Star Point" 1	PCU "Star Point" 3	12.05 K Ω
PCU "Star Point" 1	PCU "Star Point" 4	12.62 K Ω
PCU "Star Point" 2	PCU "Star Point" 3	0.9 Ω
PCU "Star Point" 2	PCU "Star Point" 4	563 Ω
PCU "Star Point" 3	PCU "Star Point" 4	563 Ω

Attached Table for Step 1.3



Lockheed-Martin Missiles & Space Company

Advanced Technology Center
3251 Hanover Street
0/L9-24 Bldg. 202
Palo Alto, California 94304

PRECISION POINTING AND CONTROLS TECHNOLOGY
Organization L9-24

DATE: 6-17-02 FAX NUMBER: 4-2854

TO: Bob Woodhouse PHONE: 4-2825

FROM: Don Wilson PHONE: _____

FAX NUMBER: (650) 424-2854

SUBJECT: chassis to connector resistance

THIS IS PAGE 1 OF 4 PAGES.

PAGE 02
B202 2B07
06/17/2002 13:49 6504242854

HIRDLS

HIGH RESOLUTION DYNAMICS LIMB SOUNDER

HIRDLS INSTRUMENT TEST OPERATIONS ORDER

FOR

Electrical Housing Integration to the STH Base Plate

Prepared by:

Christopher David Bastyr
Optical Engineer
HIRDLS Program

Approved by:

Timothy Crews 1-30-02
Chief Systems Engineer
HIRDLS Program

Approved by:

As required
Syndie Meyer
Contamination Control, Lead
HIRDLS Program

Approved by:

Stephen Headrick
Integration and Test Manager
HIRDLS Program

Approved by:

QE J16786
For Althea McField 1/30/02
Quality Assurance, QE
HIRDLS Program

O/O number: OO-LOC-1007

O/O Index number: XXX

Test Type (check one):

Verification Test	Integration & Assembly	Engineering Confidence
[X]	[ ]	[ ]

Type of Hardware (check one):

Any Flight Hardware	No Flight Hardware
[x]	[ ]

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PAGE 03
B2D2 2B07
6504242854
06/17/2002 13:49

10.1.5. U5 PQC _____

10.1.6. U6 PQC _____

10.1.7. U36A PQC _____

10.1.8. U36B PQC _____

10.1.9. U40 PQC _____

10.1.10. U41 PQC _____

10.1.11. U43 PQC _____

10.1.12. U44 PQC _____

10.2. Measure the chassis and connector resistance using milliohmeter. PQC ~~[illegible]~~ 2/4/02 QA _____

Cable	Resistance
U1	~~[illegible]~~ 0.16mΩ
U2	~~[illegible]~~ 0.09mΩ
U3	~~[illegible]~~ 0.05mΩ
U4	~~[illegible]~~ 0.05mΩ
U5	0.19mΩ
U6	0.07mΩ
U36A	0.23mΩ
U36B	0.21mΩ

NOT WRITTEN AS OF 2/4/02 COMPLETED 17 JUNE 2002

PAGE 04

B2D2 2B07

6504242854

06/17/2002 13:49

U40	0.06mΩ -0.74mΩ
U41	0.06mΩ 0.64mΩ
U43	0.07mΩ 0.74mΩ
U44	0.07mΩ 1.58mΩ

10.3. Verify cable back shell to spacecraft interface panelresistance is less than 2.5 mΩ per ITS 3.7.3.6.2.

JJ8733

PQC RBB 0.0mΩ

10.4. Stake cables

PQC _____ QA _____

Cable	Left	Right
U1		
U2		
U3		
U4		
U5		
U6		
U36A		
U36B		
U40		
U41		
U43		
U44		

APPENDIX D

CE01, CE03 Emission Test Data

TEST DATA SHEET

CE01/CE03 Powerline Conducted Emissions

PARAGRAPH 13.4	DATE OF TEST
CCA/SERIAL NO. 01	TEST TECHNICIAN
PART NO. . 1A27800	

Notes:

Cable/Lead	CE01 Complete	Pass	Fail	~~CE03 Complete~~	~~Pass~~	~~Fail~~	Remarks
PI-SB-A	✓	✓		✓		✓	
PR-SB-A	✓	✓		✓		✓	
PI-SB-B	✓	✓		✓		✓	
PR-SB-B	✓	✓		✓		✓	
PI-NB-A	✓	~~N.G.~~ ✗	✓	✓		✓	(CE01 AMBIENT PASS)(CE03 AMBIENT FAIL)
PR-NB-A	✓		✓	✓		✓	(CE01 AMBIENT PASS)(CE03 AMBIENT FAIL)
PI-NB-B	✓		✓	✓		✓	(CE01 AMB PASS)
PR-NB-B	✓		✓	✓		✓	(CE01 AMB PASS)
PI-QB-A	✓		✓	✓ w/AMP		✓ w/AMP	4/29/02 (CE01 AMB PASS)(CE03 AMBIENT FAIL)
PR-QB-A	✓		✓	✓ w/AMP		✓ w/AMP	4/29/02 (CE01 AMB PASS)(CE03 AMBIENT FAIL)
PI-QB-B	✓		✓	✓		✓	(CE01 AMB PASS)
PR-QB-B	✓✓		✓✓	✓		✓	first run Gyro's were off (CE01 AMB PASS) Second run Gyro's ON
PI-NB-A	✓		✓				4/29/02 RERUN
PR-NB-A	✓		✓				4/29/02 RERUN
							RIPPLE VOLTAGE.
PI-NB-A TO PR-NB-A	✓						
PI-NB-A TO STRUCTURE	✗ ✓						
PI-QB-A	✗						
PR-QB-A TO	✗						
PI-QB-A TO STRUCTURE	✗						
PI-QB-A TO ~~PR-QB-A~~	✓						

4/28 CE0

4/28/ CE0

EMI-TEST [redacted]

Library File : NOISY 20K-50 MHz CE03

Display Title : CE03 20KHz-50MHz
Units Label : dBuA
Disp Ref Lvl (dB): 60
Test Type : PEAK
Freq Uncert. (%): .5
Min Swp Time/Oct : 3

Range 1 of 3
Start Freq(MHz): .02
Stop Freq (MHz): 2.5
Transducer : CP-105 S/N GH-1
Gain/Loss : NONE
SA Input : RIGHT
Presel/Input3 : BYPASS
Quasi-Peak Bw : BYPASS
SA Res Bw (Hz): 1000
Video Bw (Hz): 10000
Ref. Lvl (dBuV): 107
Int Atten (dB): 10
Presel Atten : 0
Ext Atten (dB): 0
Setups : 1
Sweeps/Setup : 1
Msg,Sub,Cont : MESSAGE
Line #1 : CONNECT CURRENT PROBE
Line #2 : TO ANALYZER

Range 2 of 3
Stop Freq (MHz): 12
Transducer : CP-105 S/N GH-1
Gain/Loss : NONE
SA Input : RIGHT
Presel/Input3 : BYPASS
Quasi-Peak Bw : BYPASS
SA Res Bw (Hz): 10000
Video Bw (Hz): 30000
Ref. Lvl (dBuV): 107
Int Atten (dB): 10
Presel Atten : 0
Ext Atten (dB): 0
Setups : 1
Sweeps/Setup : 1
Msg,Sub,Cont : CONTINUE

Range 3 of 3
Stop Freq (MHz): 50
Transducer : CP-105 S/N GH-1
Gain/Loss : NONE
SA Input : RIGHT
Presel/Input3 : BYPASS
Quasi-Peak Bw : BYPASS
SA Res Bw (Hz): 100000
Video Bw (Hz): 300000
Ref. Lvl (dBuV): 107
Int Atten (dB): 10
Presel Atten : 0

EMI-TEST [redacted]

Library File : hirdls CE03 20KHz-50MHz

Display Title : hirdls CE03 20KHz-50MHz
Units Label : dBuA
Disp Ref Lvl (dB): 60
Test Type : PEAK
Freq Uncert. (%): .5
Min Swp Time/Oct : 3

Range 1 of 3
Start Freq(MHz): .02
Stop Freq (MHz): 2.5
Transducer : CP-105 S/N GH-1
Gain/Loss : NONE
SA Input : RIGHT
Presel/Input3 : BYPASS
Quasi-Peak Bw : BYPASS
SA Res Bw (Hz): 1000
Video Bw (Hz): 10000
Ref. Lvl (dBuV): 107
Int Atten (dB): 10
Presel Atten : 0
Ext Atten (dB): 0
Setups : 1
Sweeps/Setup : 1
Msg,Sub,Cont : MESSAGE
Line #1 : CONNECT CURRENT PROBE
Line #2 : TO ANALYZER

Range 2 of 3
Stop Freq (MHz): 12
Transducer : CP-105 S/N GH-1
Gain/Loss : NONE
SA Input : RIGHT
Presel/Input3 : BYPASS
Quasi-Peak Bw : BYPASS
SA Res Bw (Hz): 10000
Video Bw (Hz): 30000
Ref. Lvl (dBuV): 107
Int Atten (dB): 10
Presel Atten : 0
Ext Atten (dB): 0
Setups : 1
Sweeps/Setup : 1
Msg,Sub,Cont : CONTINUE

Range 3 of 3
Stop Freq (MHz): 50
Transducer : CP-105 S/N GH-1
Gain/Loss : NONE
SA Input : RIGHT
Presel/Input3 : BYPASS
Quasi-Peak Bw : BYPASS
SA Res Bw (Hz): 100000
Video Bw (Hz): 300000
Ref. Lvl (dBuV): 107
Int Atten (dB): 10
Presel Atten : 0

```
   Ext Atten (dB): 0
   # Setups       : 1
   # Sweeps/Setup : 1
   Msg,Sub,Cont   : CONTINUE

Limit #1 Label    : hirdls ce03 nb
Limit #2 Label    : NONE
Limit #3 Limit    : NONE

------------- Test Setup Table Notes -------------
```

PQC
601335

APR 29 2002

A
606894

APR 29 2002

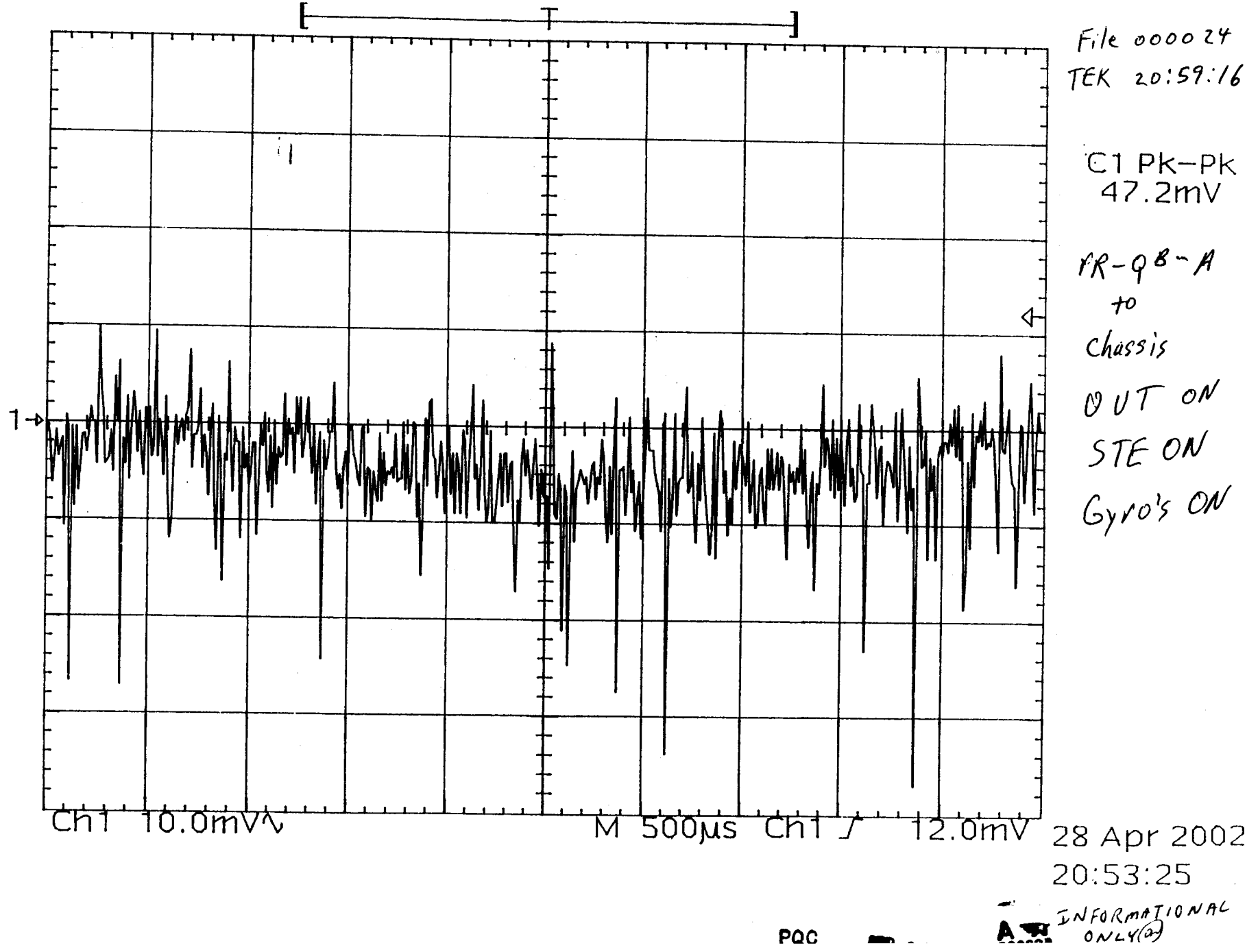
SET-UP

```
   Ext Atten  (dB): 0
   # Setups       : 1
   # Sweeps/Setup : 1
   Msg,Sub,Cont   : CONTINUE

Limit #1 Label    : hirdls noisy
Limit #2 Label    : NONE
Limit #3 Label    : NONE

------------- Test Setup Table Notes -------------
```

PQC
601335
APR 29 2008

A
686894
APR 29 2008

SET UP

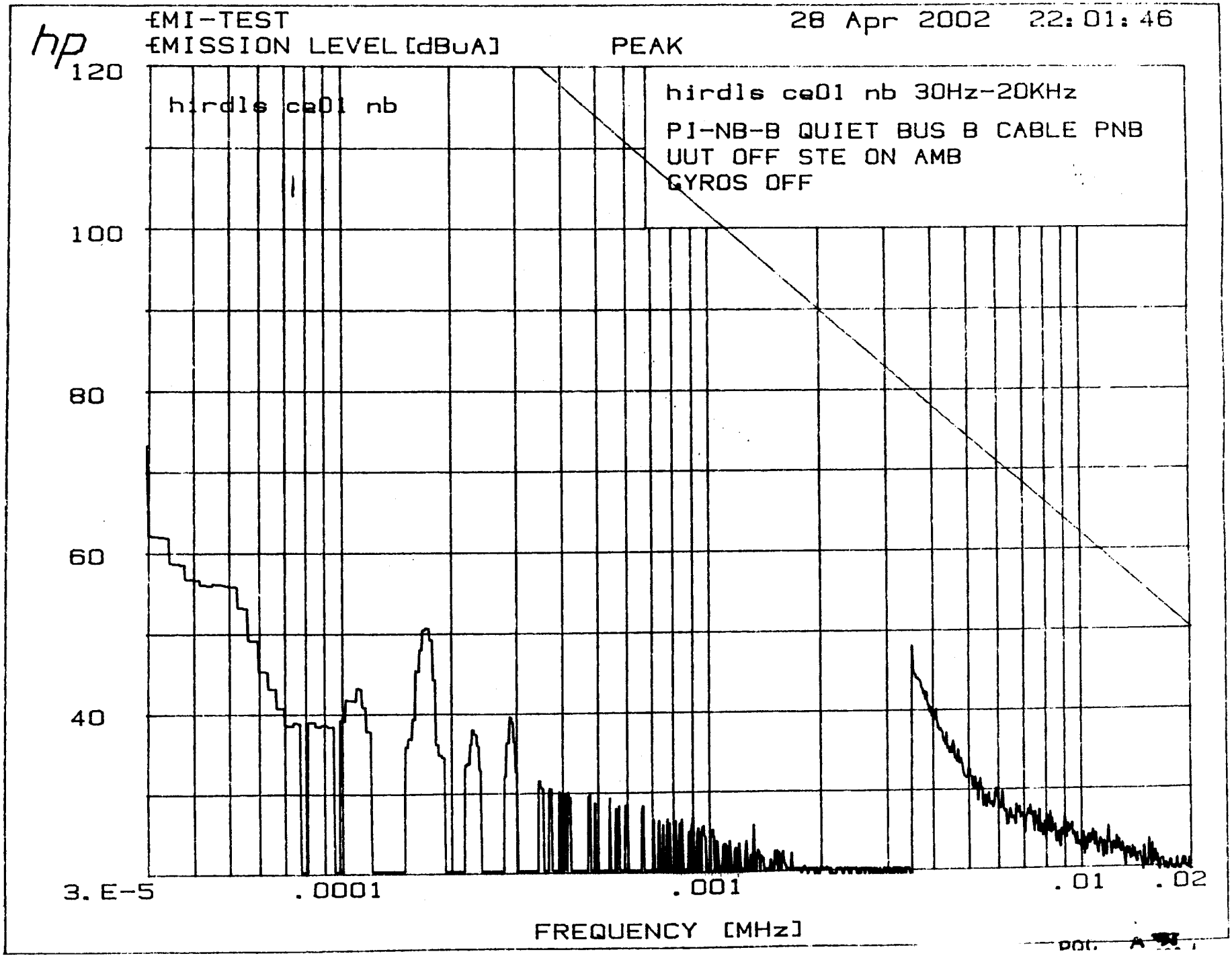

Tek Stop: Single Seq 100kS/s
File 000024
TEK 20:59:16
C1 Pk-Pk
47.2mV
PR-QB-A
to
Chassis
OUT ON
STE ON
Gyro's ON
Ch1 10.0mV
M 500µs Ch1 12.0mV
28 Apr 2002
20:53:25
INFORMATIONAL
ONLY
PQC

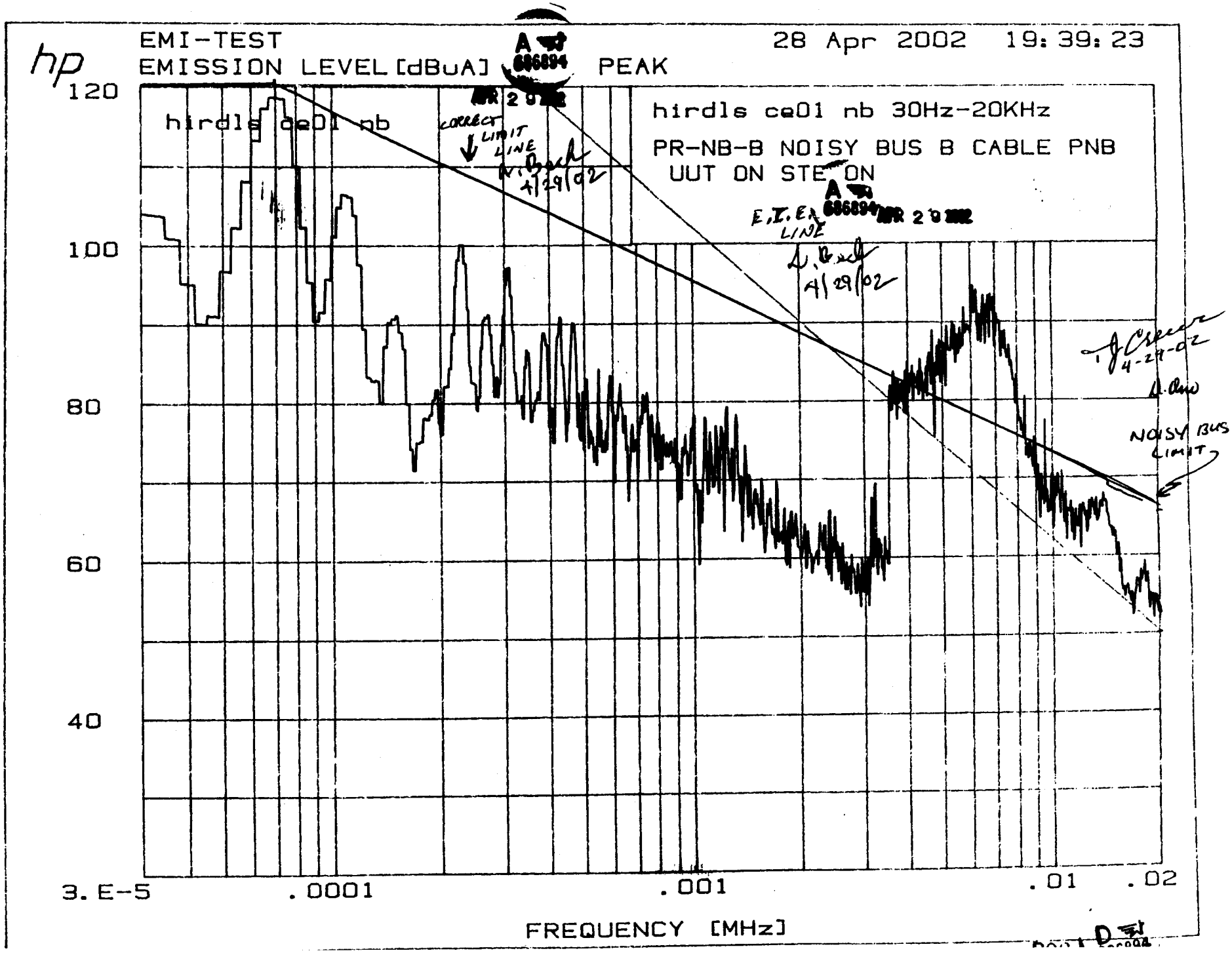
EMI-TEST 28 Apr 2002 19:39:23

1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz PR-NB-B OPER

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.00353	81.9	1.9
2	.0036	83.7	4.1
3	.003671	82.4	3.1
4	.003719	82.4	3.3
5	.003792	82	3.3
6	.003841	82.2	3.7
7	.003891	83.7	5.4
8	.003942	84.9	6.9
9	.00402	83.3	5.6
10	.004073	84.4	6.9
11	.004126	83.3	6.0
12	.004234	83.6	6.8
13	.00429	85.3	8.7
14	.004346	83.5	7.1
15	.00446	84.2	8.3
16	.004548	86	10.4
17	.004638	88.9	13.7
18	.004729	84.7	9.8
19	.004791	86.9	12.2
20	.004853	87.7	13.2
21	.004917	84.4	10.2
22	.004981	87.3	13.3
23	.005079	89.4	15.7
24	.005281	89.9	16.9
25	.00535	89.5	16.7
26	.00542	88.3	15.8
27	.005527	89.2	17.0
28	.005599	88.2	16.2
29	.005672	91.8	20.0
30	.006014	94.6	23.9
31	.006132	94	23.6
32	.006253	90.9	20.8
33	.006417	93.3	23.7
34	.006629	93.3	24.2
35	.006716	93.5	24.7
36	.006848	93	24.5
37	.006983	91	22.8
38	.007213	88.6	21.0
39	.007355	88.8	21.5
40	.007549	87	20.2
41	.0079	83.2	17.2
42	.008321	80.4	15.3
43	.008485	74.2	9.4
44	.008596	74.4	9.8
45	.008822	75.2	11.1
46	.008937	74	10.1
47	.009054	71.6	7.9
48	.009233	70.4	7.1
49	.009476	77.4	14.5
50	.009599	68.3	5.6
51	.009725	66.9	4.5


EMI-TEST
28 Apr 2002 22:01:46
EMISSION LEVEL [dBuA]
PEAK
hp
120
100
80
60
40
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PI-NB-B QUIET BUS B CABLE PNB
UUT OFF STE ON AMB
GYROS OFF
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]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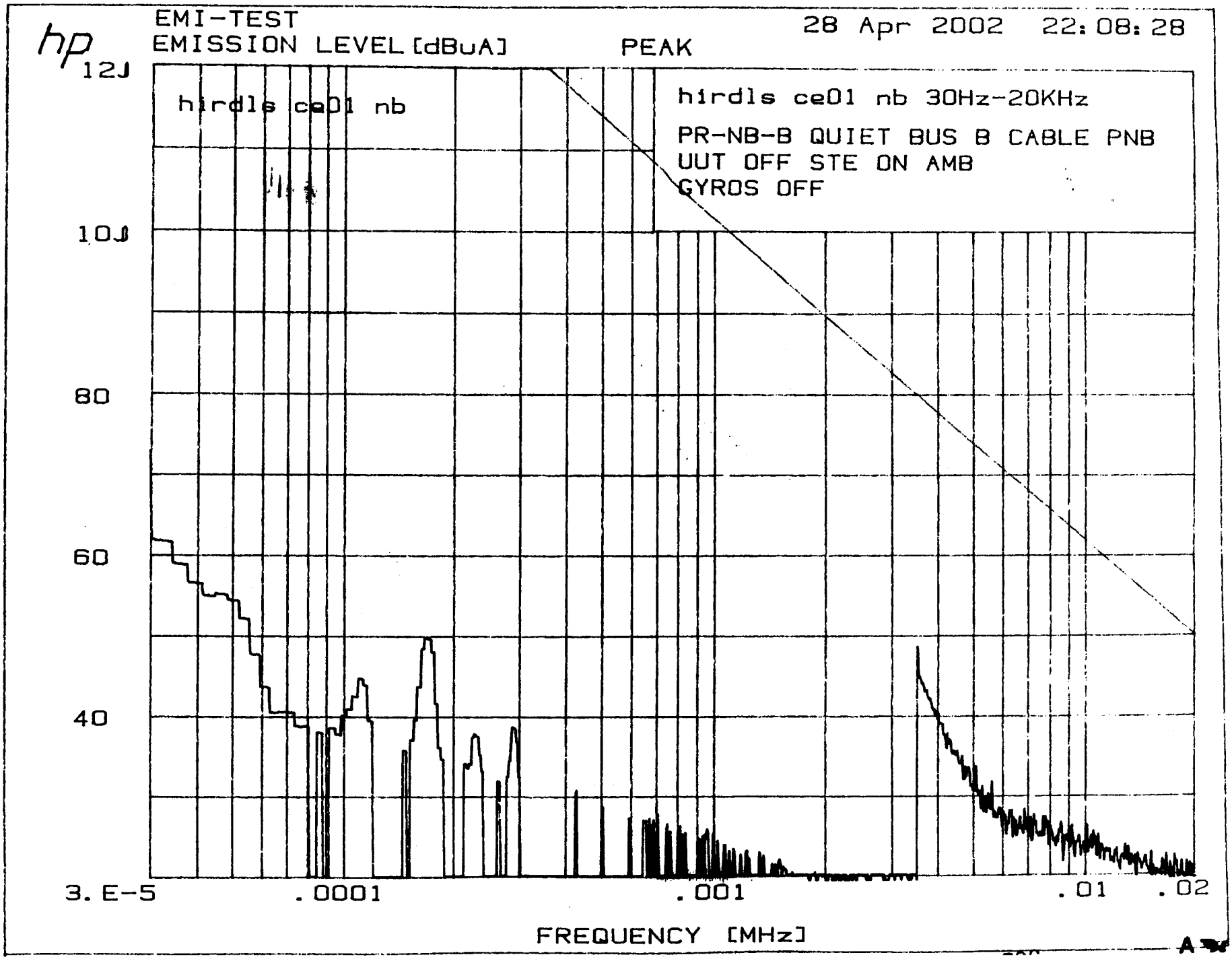
28 Apr 2002 19:39:23
EMISSION LEVEL [dBuA]
PEAK
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PR-NB-B NOISY BUS B CABLE PNB
UUT ON STE ON
CORRECT LIMIT LINE
E.I.E. LINE
NOISY BUS LIMIT
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]


EMI-TEST
28 Apr 2002 22:08:28
EMISSION LEVEL [dBuA]
PEAK
hp 12J
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PR-NB-B QUIET BUS B CABLE PNB
UUT OFF STE ON AMB
GYROS OFF
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]

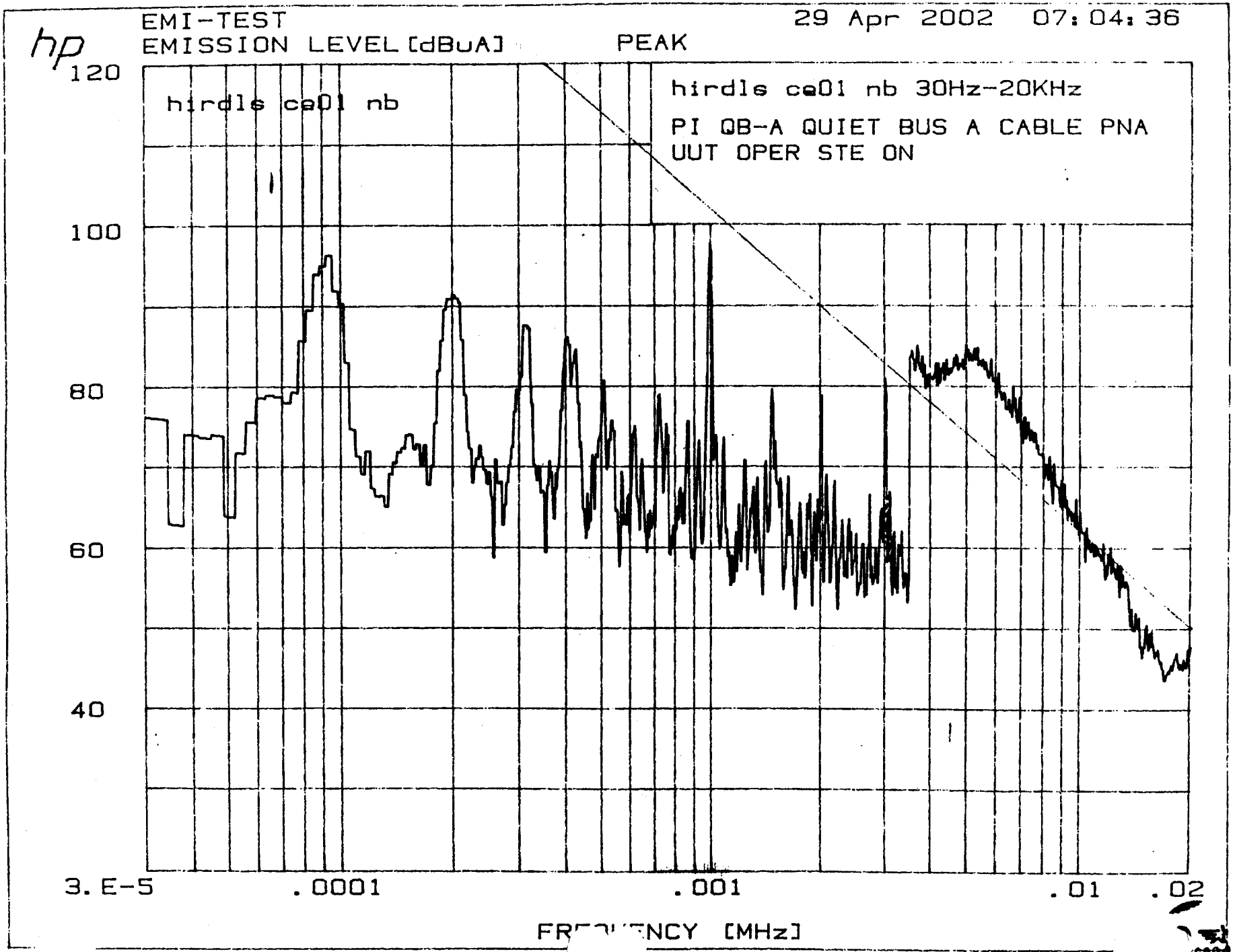
52	.009852	70.4	8.2
53	.01011	69.8	8.0
54	.01024	70.5	9.0
55	.01051	70.8	9.7
56	.01079	68.1	7.5
57	.01115	66.9	6.8
58	.01129	66	6.2
59	.01151	65.9	6.4
60	.01182	66.4	7.3
61	.01205	66.6	7.9
62	.01253	67	9.0
63	.01278	67.2	9.5
64	.01311	67.4	10.1
65	.01372	67.9	11.4
66	.01513	61.5	6.7
67	.01532	59.4	4.8
68	.01604	56.2	2.4
69	.01646	55.2	1.9
70	.017	57	4.2
71	.01745	58.1	5.8
72	.01791	59.2	7.3
73	.01826	57.7	6.2
74	.01862	55.1	3.9
75	.01911	54.9	4.2

EMI-TEST 28 Apr 2002 19:16:04

1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz PI-NB-B OPER.

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

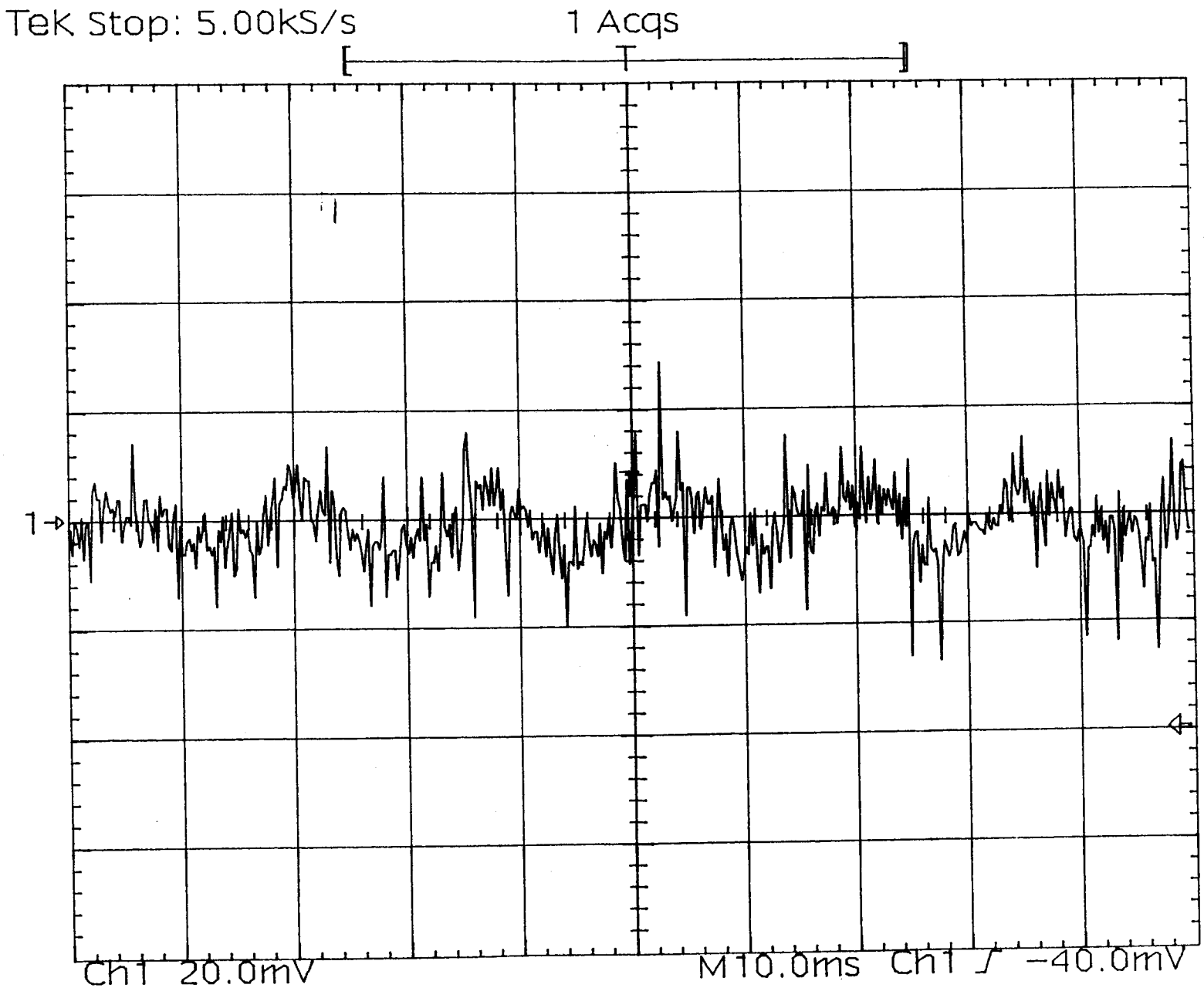
PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.003507	83.8	3.7
2	.003576	81.9	2.2
3	.003671	83.6	4.3
4	.003719	83.7	4.6
5	.003816	83	4.4
6	.003942	82.3	4.3
7	.00402	85.3	7.6
8	.004126	83.8	6.5
9	.004207	83.8	6.9
10	.004262	84	7.3
11	.004374	86.1	9.8
12	.004548	84.3	8.7
13	.004607	84.8	9.4
14	.004668	87.2	12.1
15	.004729	85.4	10.5
16	.004791	85.7	11.0
17	.004917	86.9	12.7
18	.005013	89.5	15.6
19	.005281	89.4	16.4
20	.005385	91.5	18.8
21	.005563	89.8	17.7
22	.005784	90.9	19.5
23	.005859	91.8	20.6
24	.005975	91.5	20.6
25	.006132	91.1	20.7
26	.006253	93	22.9
27	.006459	93.6	24.1
28	.006543	92.2	22.9
29	.006848	93.3	24.8
30	.006983	92	23.8
31	.007213	89.5	21.9
32	.007355	89	21.7
33	.008652	71.9	7.5
34	.00888	68.8	4.8
35	.009233	66.8	3.5
36	.009476	66.5	3.6
37	[illegible]	64.5	2.4
38	[illegible]	65.4	4.0
39	[illegible]	62.9	2.2
40	.011	62.1	1.8
41	.01174	59.6	.4
42	.01213	59.5	.9
43	.01346	64	7.2
44	.01363	64.9	8.3



Ref OR AD6419

60894

60133



File No. 000021

TEK 19:19:04

C1 Pk-Pk
56.0mV

FR-QB-A
TO
PI-QB-A

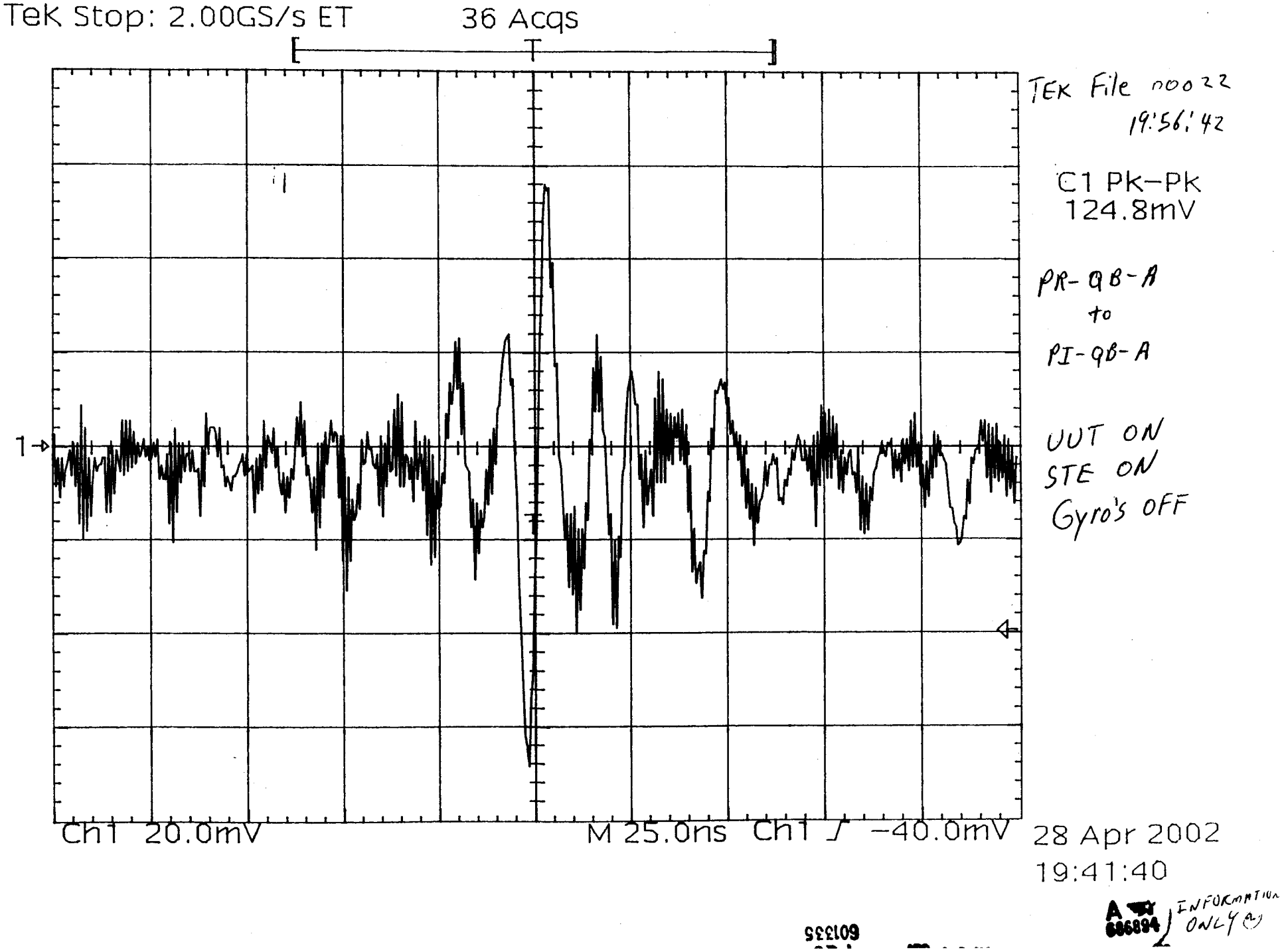
UUT ON
STE ON
Gyro's OFF

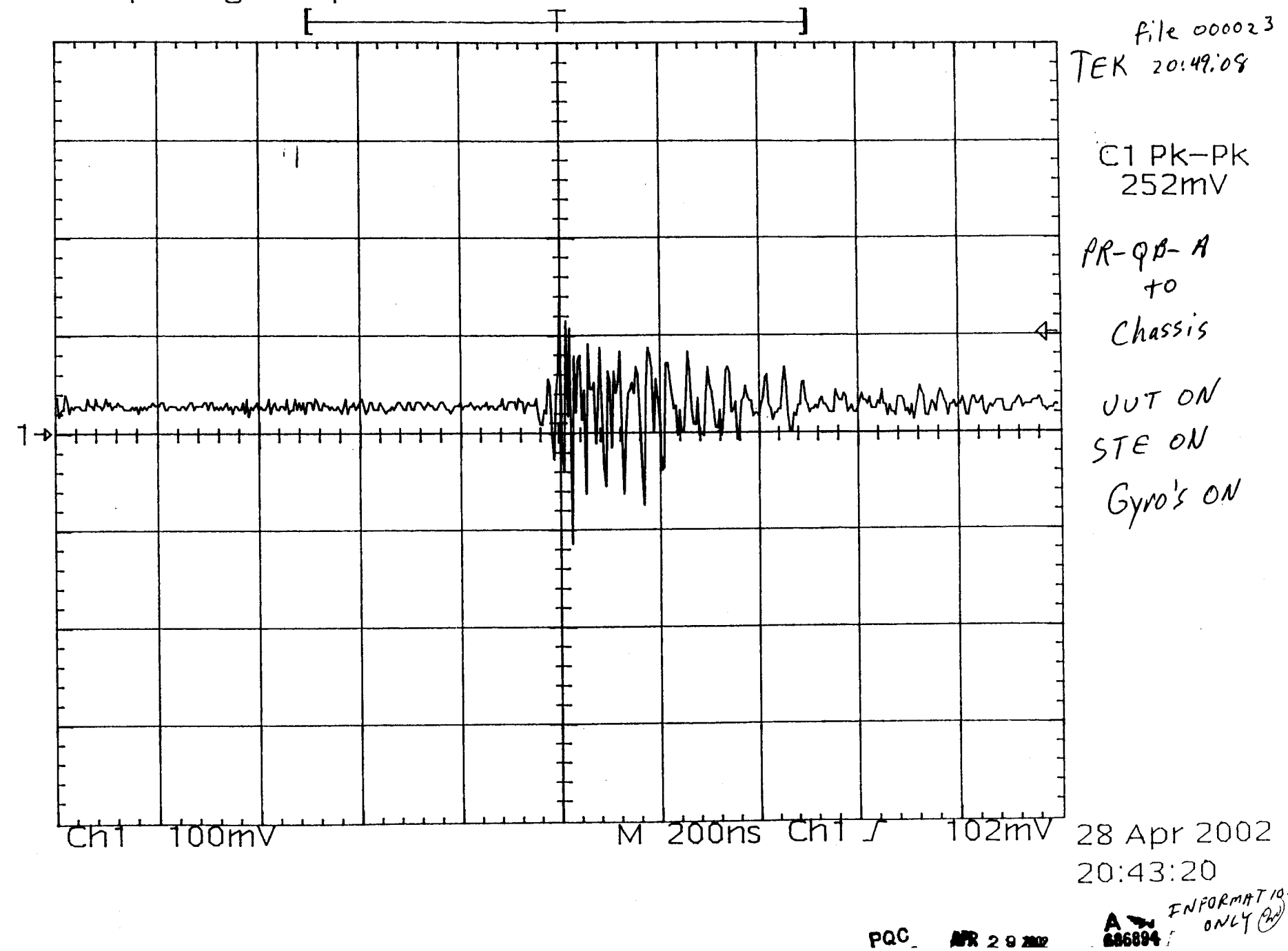
28 Apr 2002
19:11:58

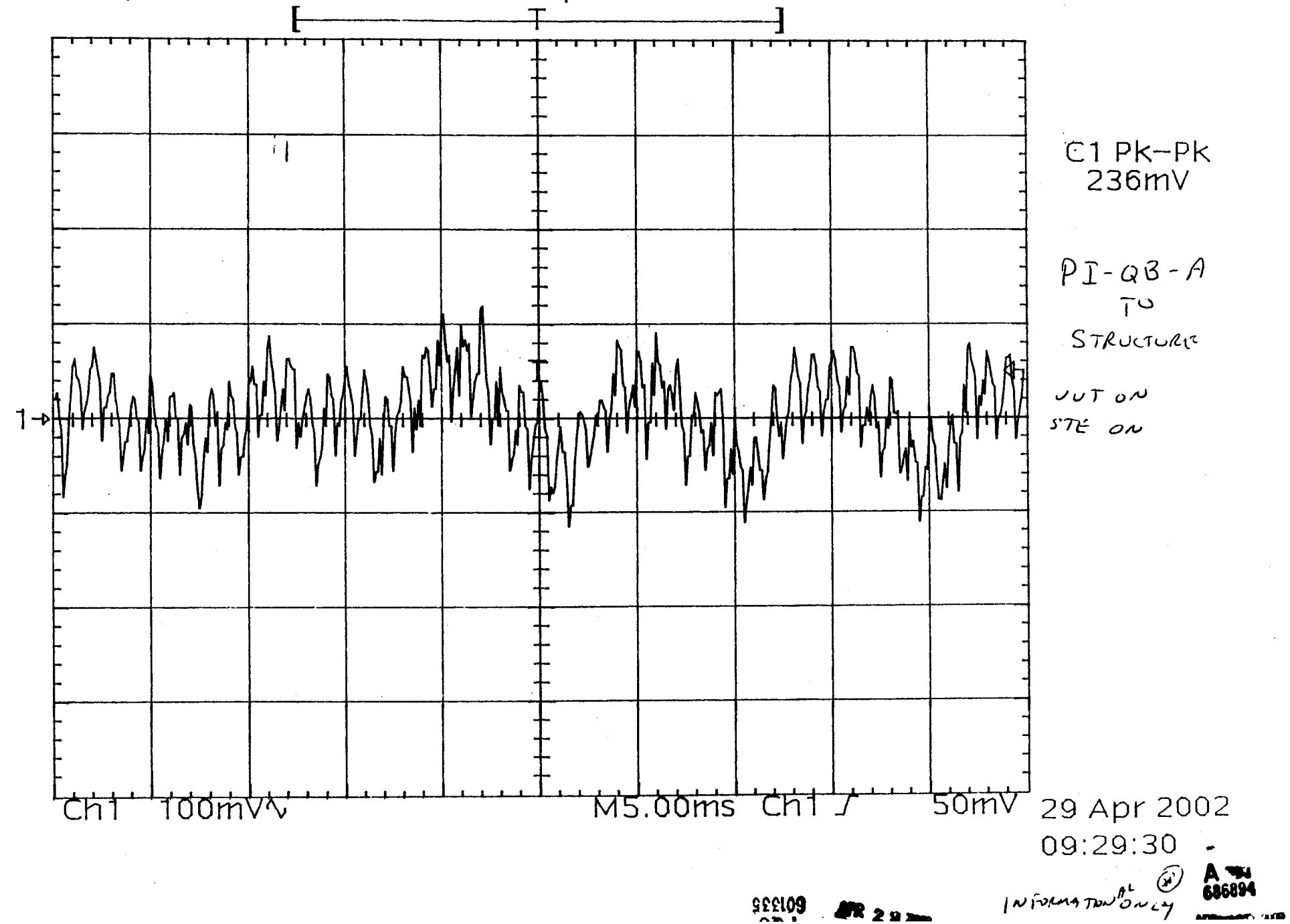
PQC
601335 APR 29 2002

686894

INFORMATION ONLY (NI)


Tek Stop: 2.00GS/s ET
36 Acqs
TEK File n0022
19:56:42
C1 Pk-Pk
124.8mV
PR-QB-A
to
PI-QB-A
UUT ON
STE ON
Gyro's OFF
1
Ch1 20.0mV
M 25.0ns Ch1 ƒ -40.0mV
28 Apr 2002
19:41:40
INFORMATION ONLY
A 606894
601335

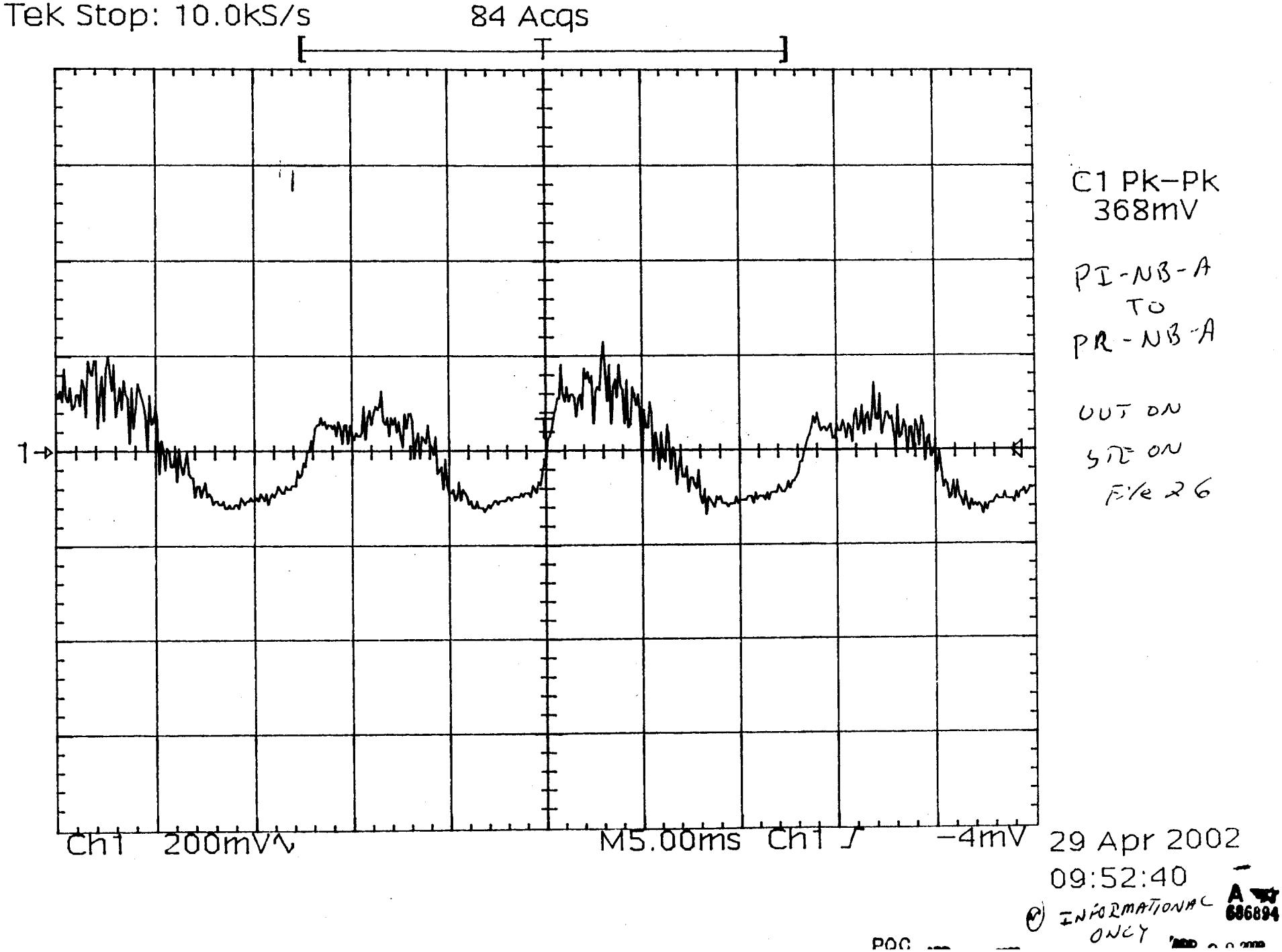

Tek Stop: Single Seq 250MS/s
file 000023
TEK 20:49:08
C1 Pk-Pk
252mV
PR-QB-A
to
Chassis
UUT ON
STE ON
Gyro's ON
Ch1 100mV
M 200ns Ch1 ∫ 102mV
28 Apr 2002
20:43:20
INFORMATIONAL
ONLY
PQC APR 29 2002
A
686894

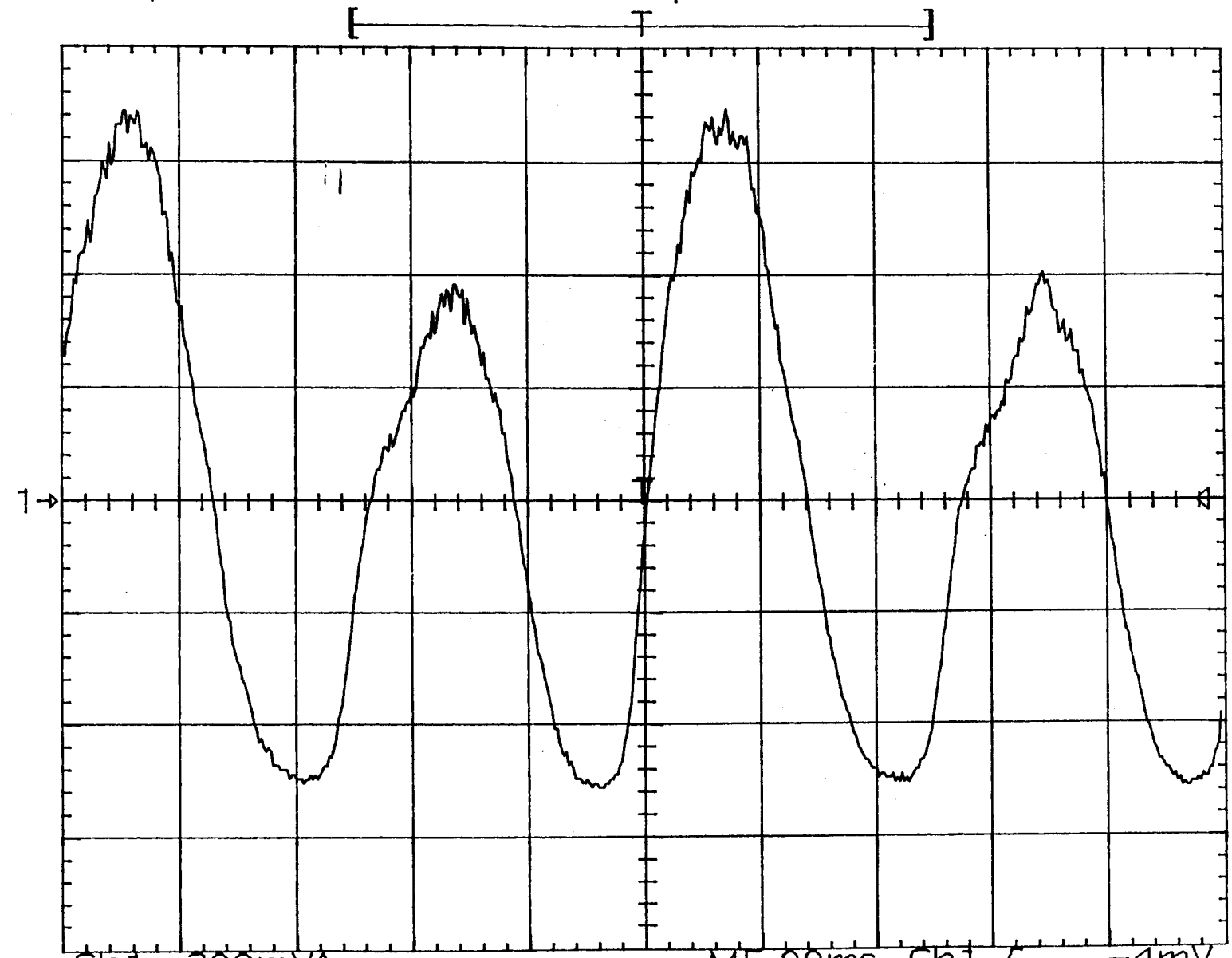


601335

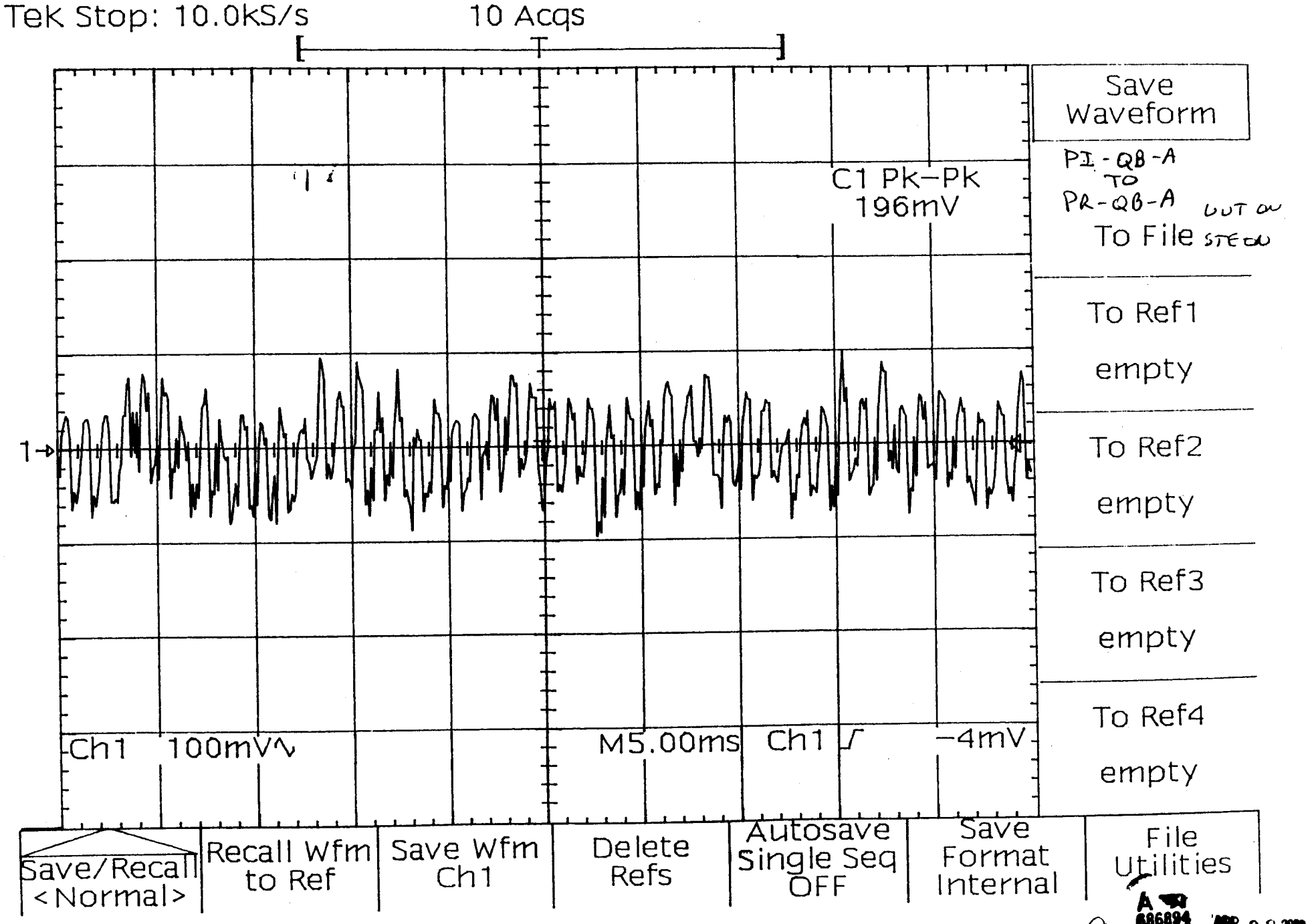
INFORMATION ONLY

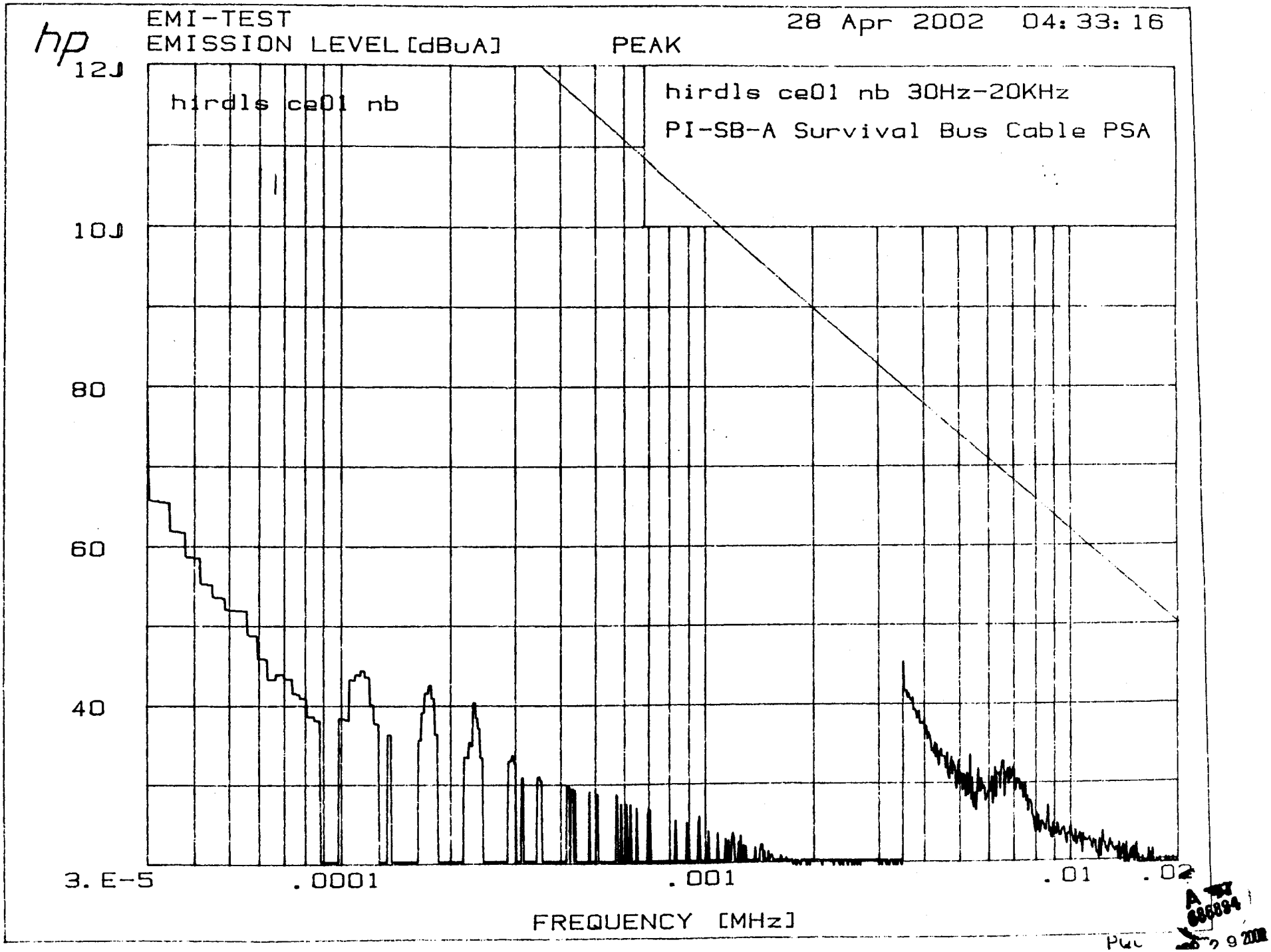
A 686894

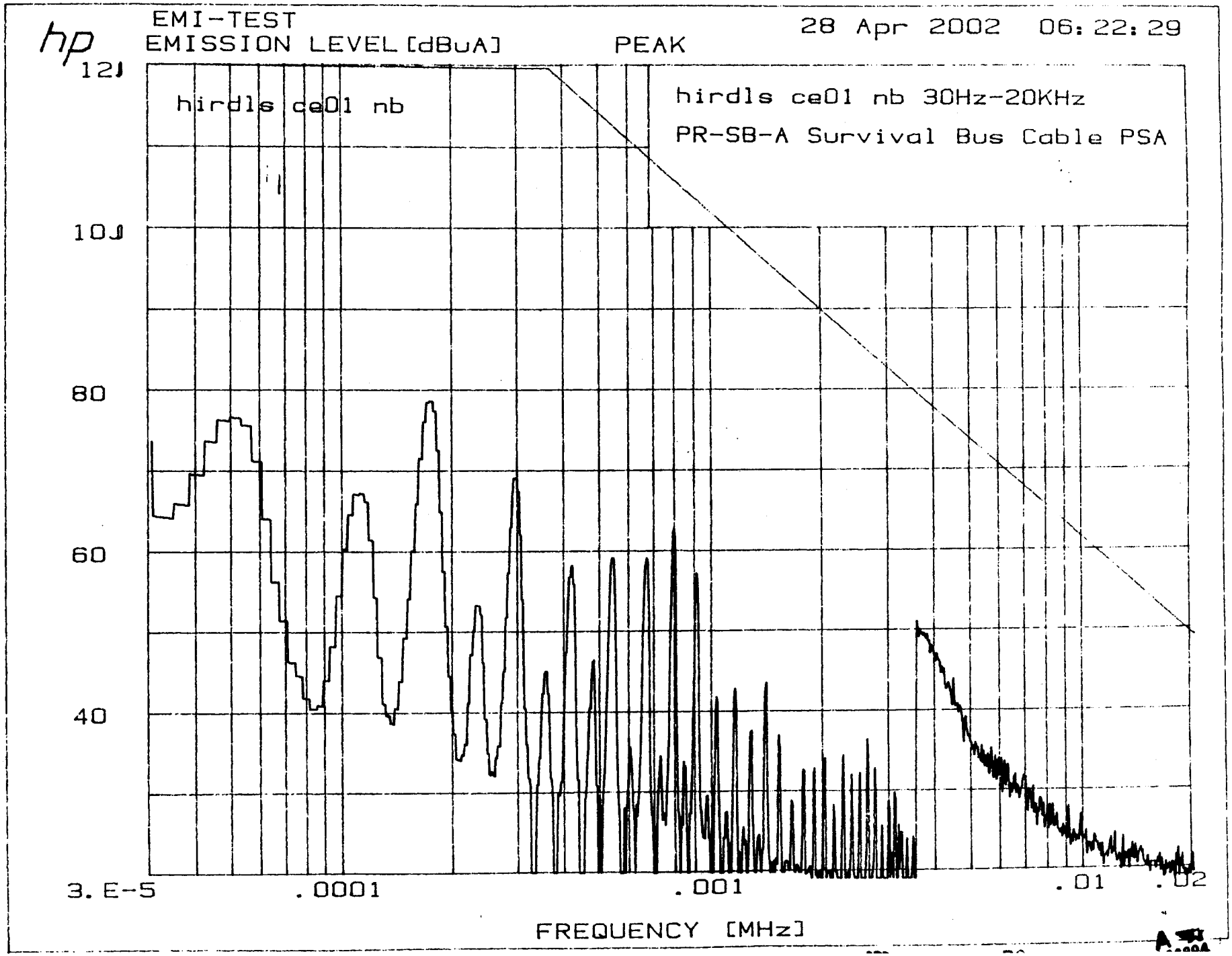

Tek Stop: 10.0kS/s
84 Acqs
C1 Pk-Pk
368mV
PI-NB-A
TO
PR-NB-A
OUT ON
SE ON
Fig 26
Ch1 200mV
M5.00ms Ch1 ƒ -4mV
29 Apr 2002
09:52:40
INFORMATIONAL ONLY
A
686894

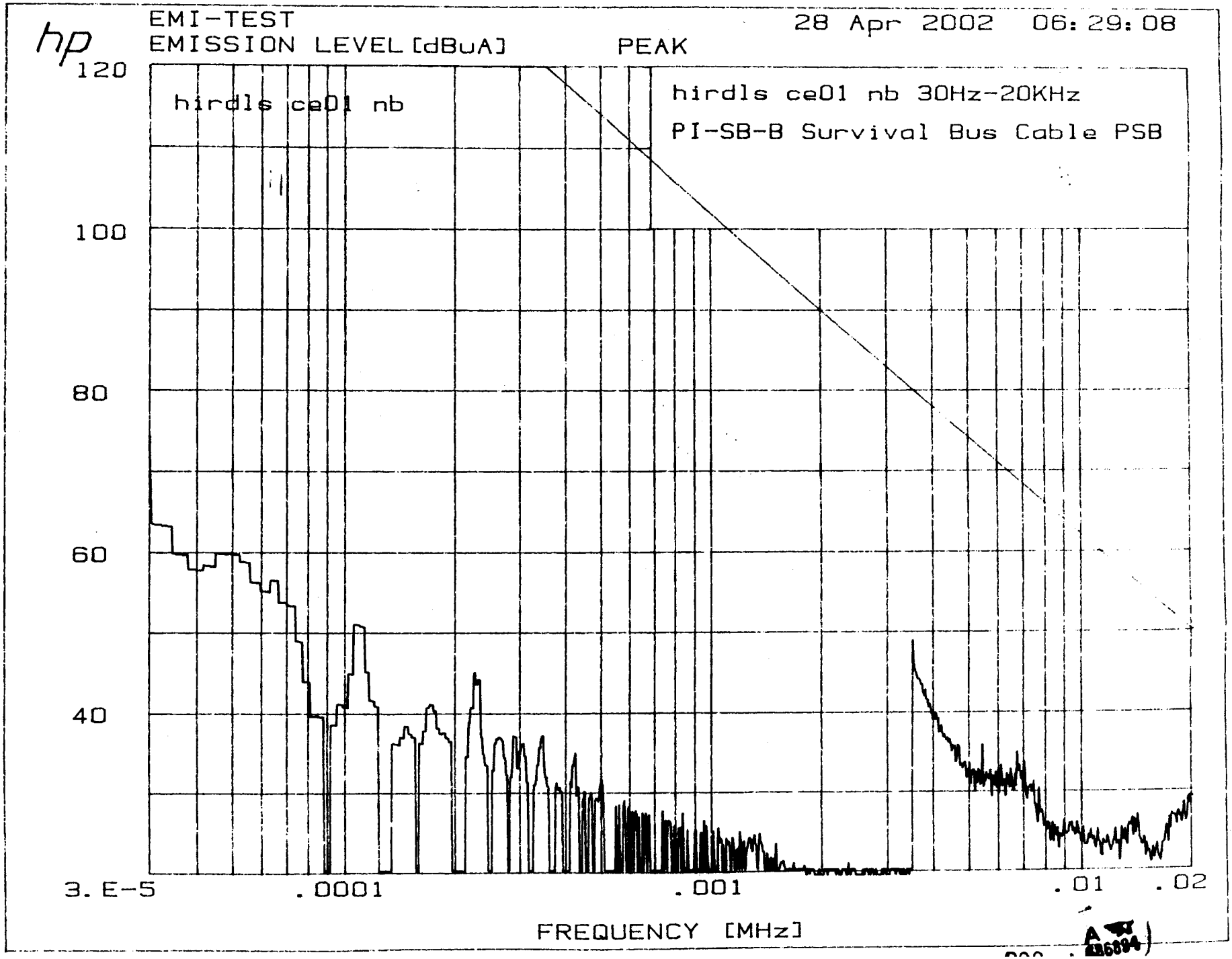


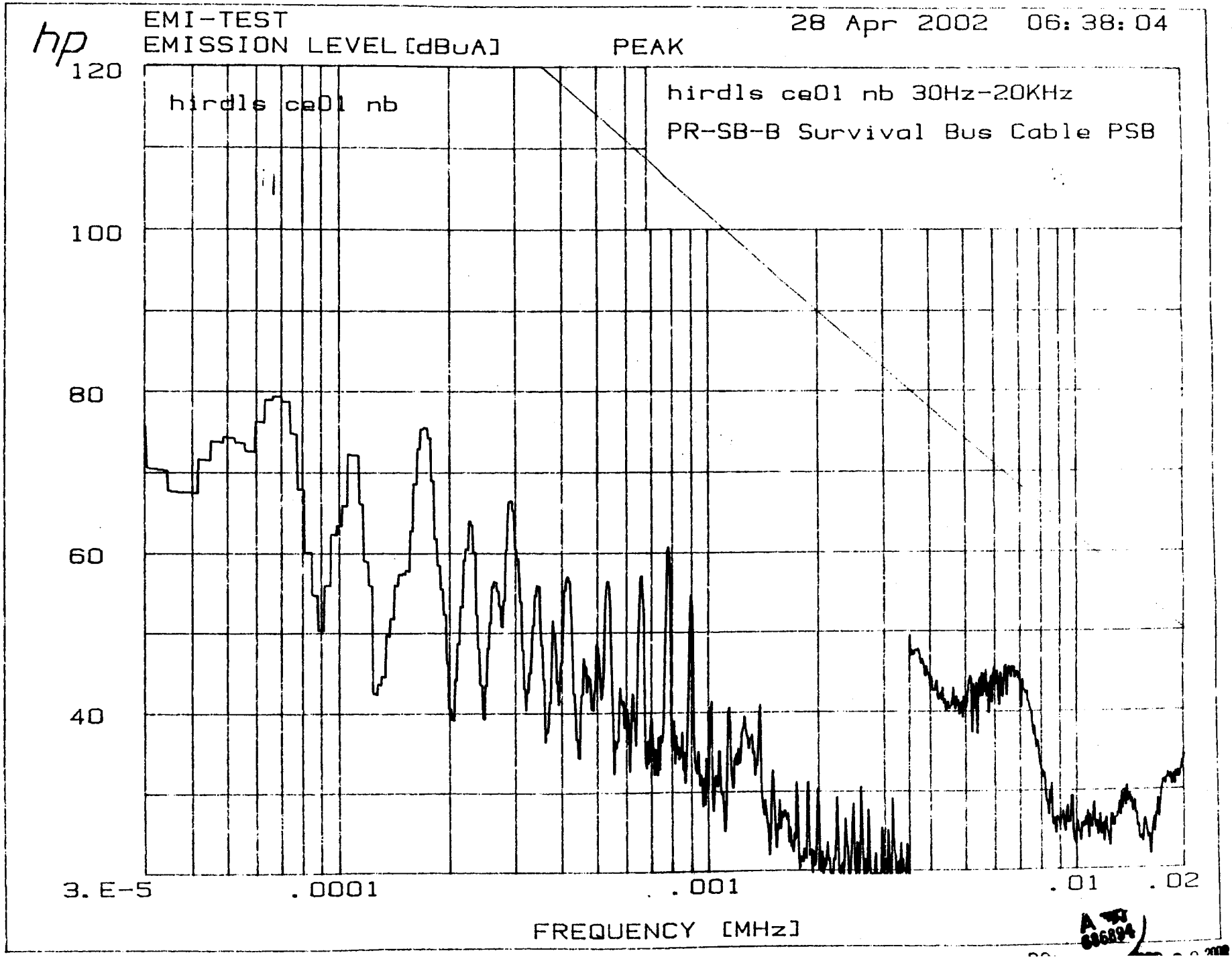
PQC APR 29 2002 INFORMATION ONLY A 68689

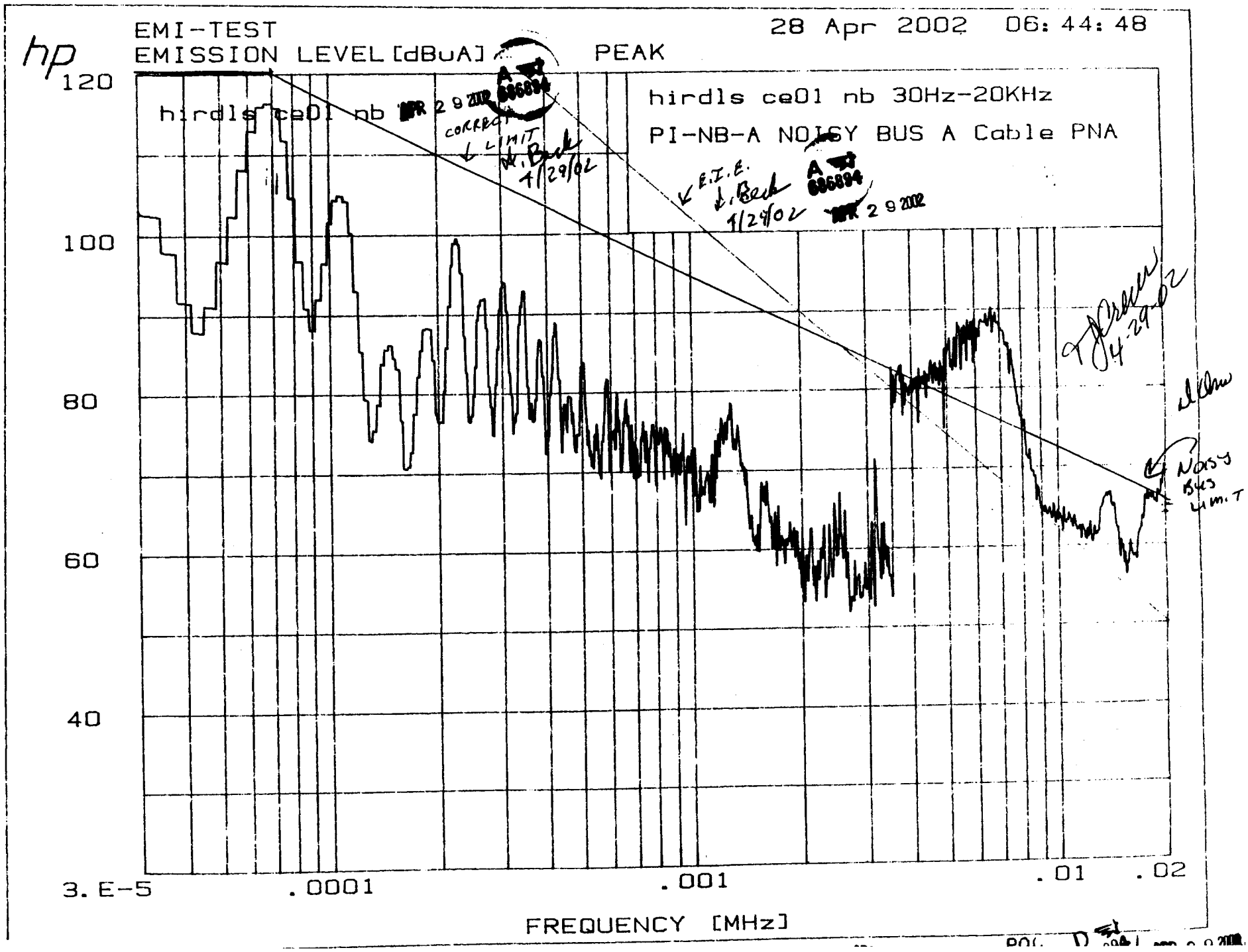

Tek Stop: 10.0kS/s
10 Acqs
C1 Pk-Pk
196mV
Save
Waveform
PI-QB-A
TO
PR-QB-A
To File
To Ref1
empty
To Ref2
empty
To Ref3
empty
To Ref4
empty
Ch1 100mV
M5.00ms Ch1 -4mV
Save/Recall
<Normal>
Recall Wfm
to Ref
Save Wfm
Ch1
Delete
Refs
Autosave
Single Seq
OFF
Save
Format
Internal
File
Utilities


EMI-TEST
28 Apr 2002 04:33:16
EMISSION LEVEL [dBuA]
PEAK
hp
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PI-SB-A Survival Bus Cable PSA
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]


EMI-TEST
EMISSION LEVEL [dBuA]
PEAK
28 Apr 2002 06:22:29
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PR-SB-A Survival Bus Cable PSA
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]


hp
EMI-TEST
28 Apr 2002 06:29:08
EMISSION LEVEL [dBuA]
PEAK
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PI-SB-B Survival Bus Cable PSB
120
100
80
60
40
3. E-5
.0001
.001
.01
.02
FREQUENCY [MHz]


EMI-TEST
28 Apr 2002 06:38:04
EMISSION LEVEL [dBuA]
PEAK
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PR-SB-B Survival Bus Cable PSB
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]


EMI-TEST
28 Apr 2002 06:44:48
EMISSION LEVEL [dBuA]
PEAK
hirdls ce01 nb 30Hz-20KHz
PI-NB-A NOISY BUS A Cable PNA
hirdls ce01 nb
CORRECT LIMIT
A 606894
E.I.E.
J. Beck 1/24/02
J. Beck 1/29/02
Noisy Bus Limit
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]

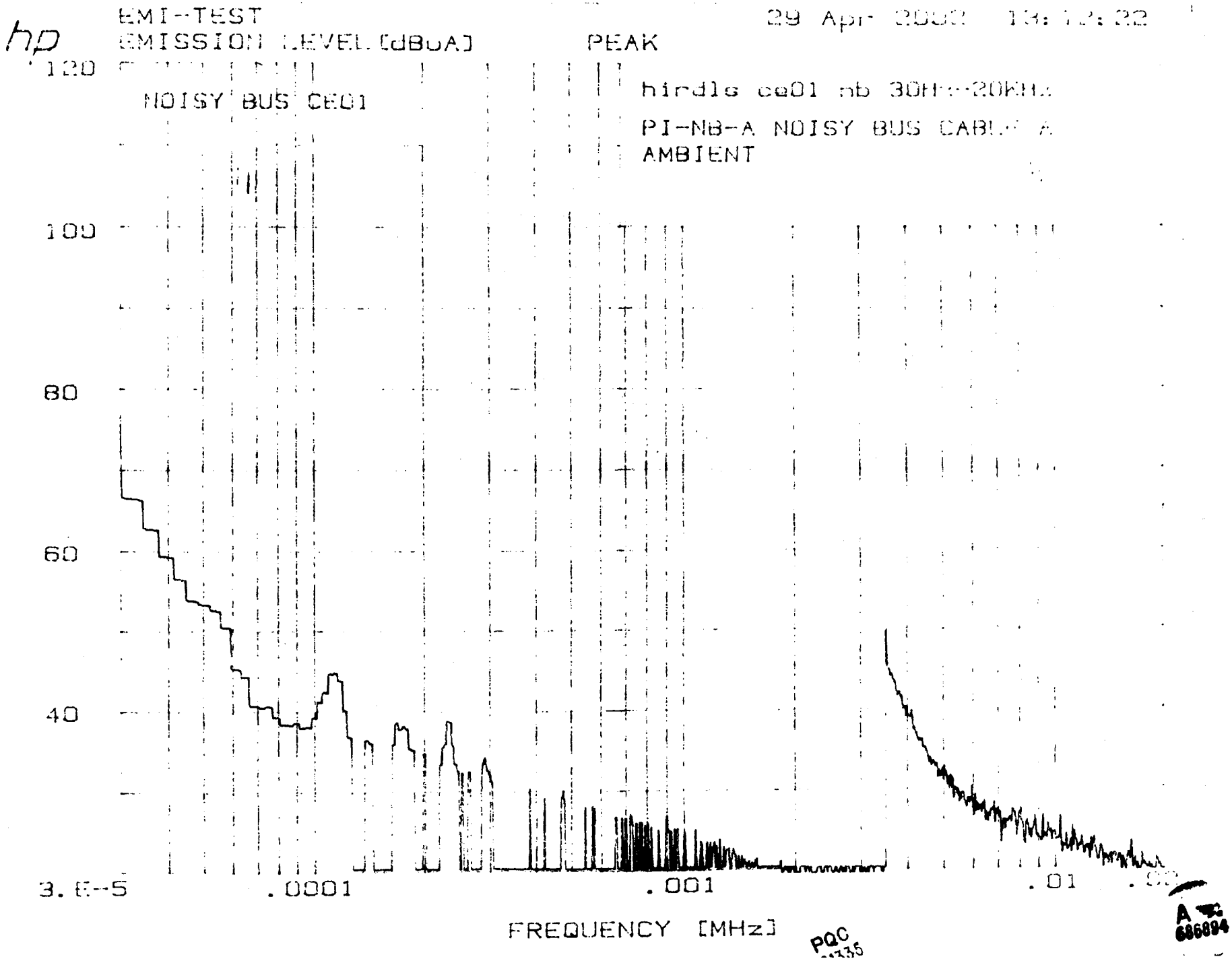
EMI-TEST 28 Apr 2002 06:44:48

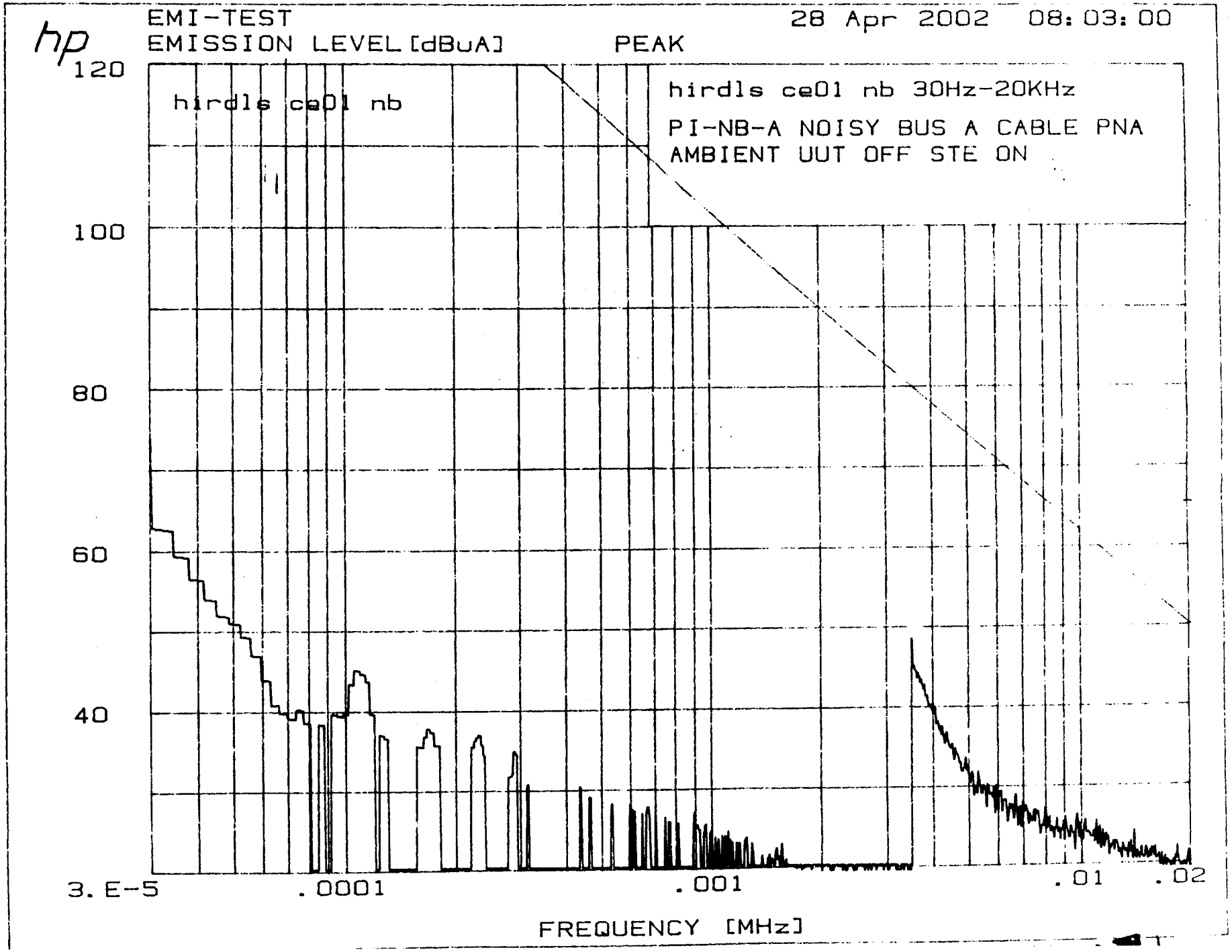
1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz

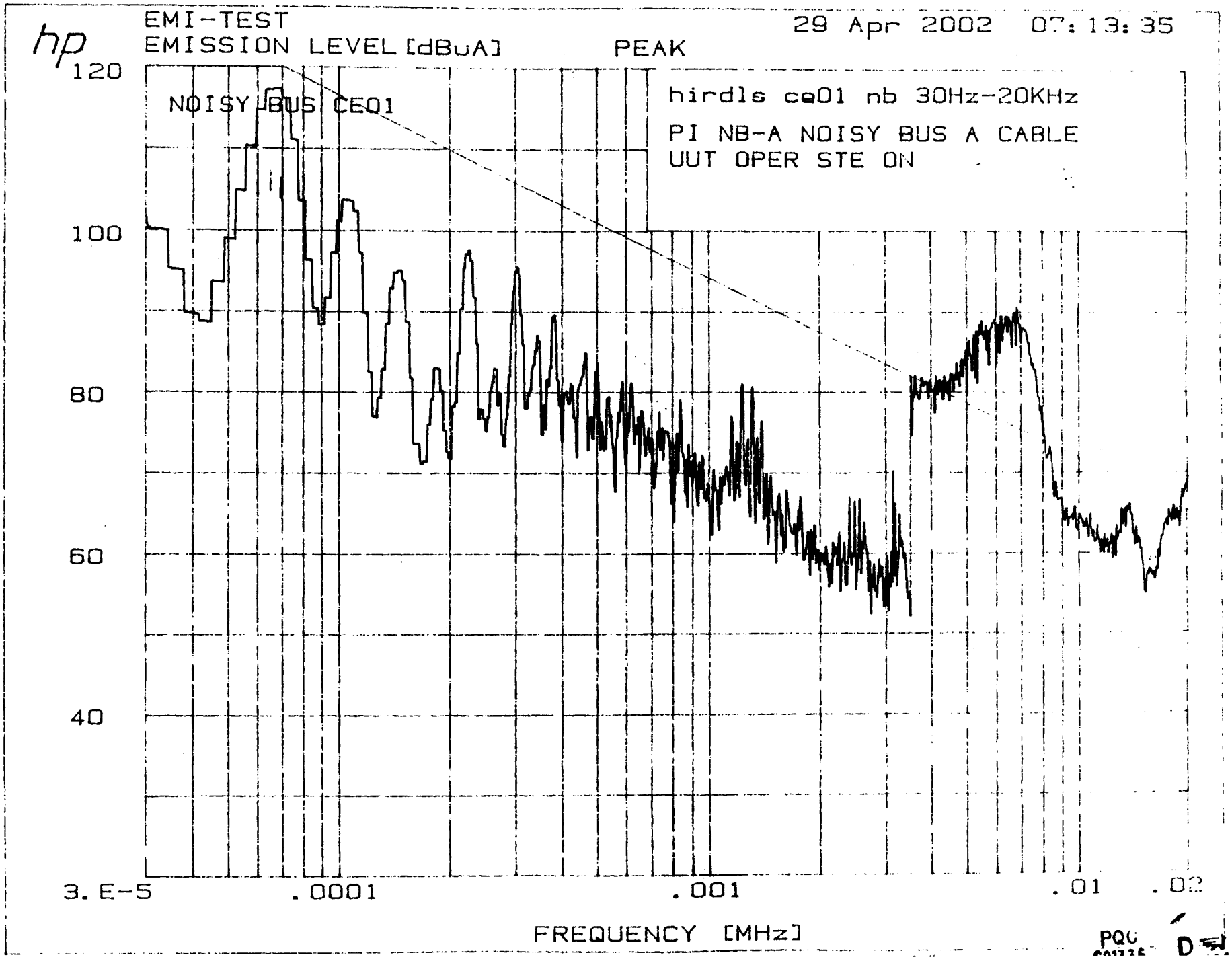
Peaks above 20 dBuA
peak criteria = 6 dB

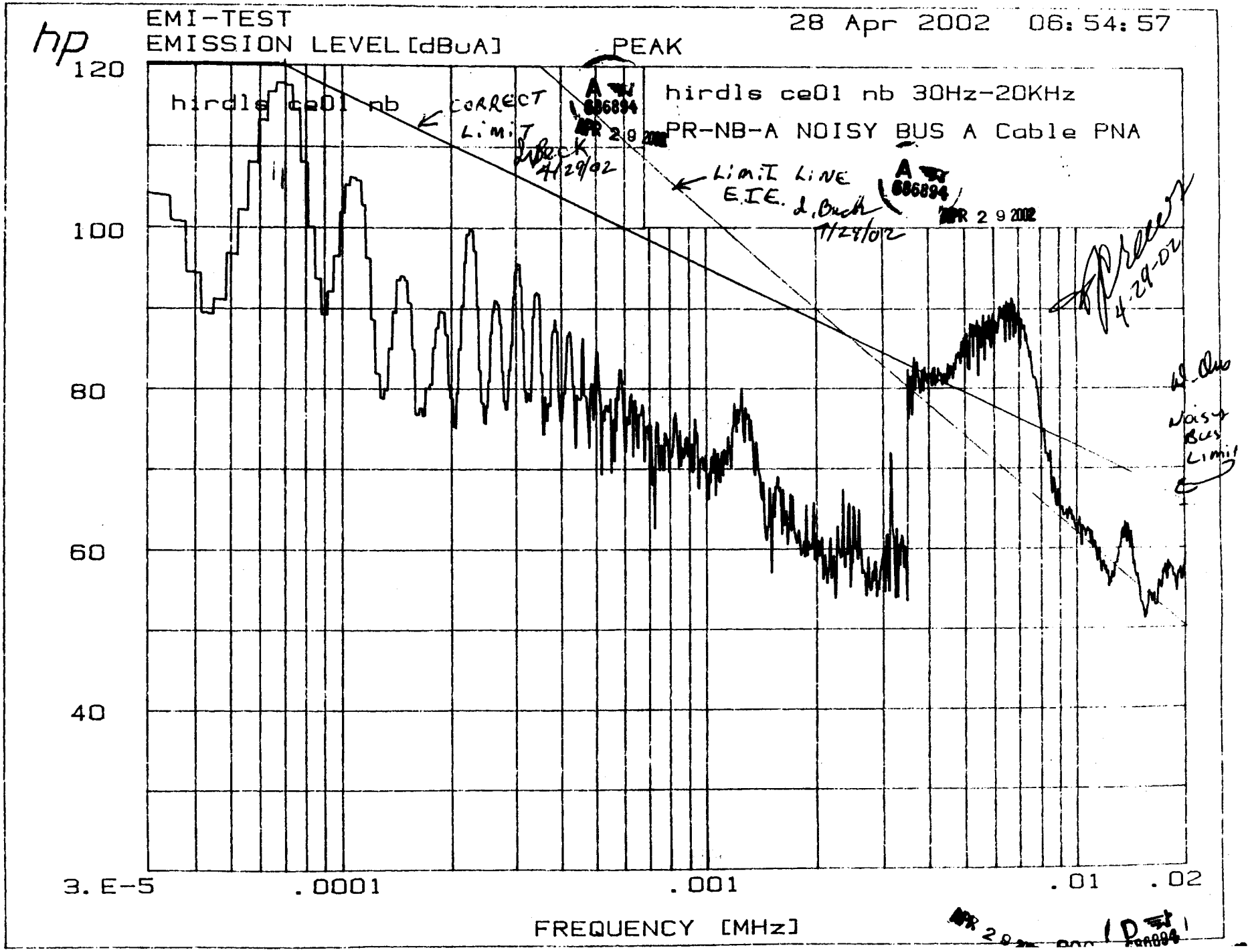
PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	6.7E-5	116.3	96.3
2	.000106	104.9	84.9
3	.000225	99.5	79.5
4	.000303	94.1	74.1
5	.000343	92.9	72.9
6	.000268	92	72.0
7	.006629	90.2	70.2
8	.000422	88.9	68.9
9	.00535	88.4	68.4
10	.000185	88.3	68.3
11	.00038	86.8	66.8
12	.000145	86.2	66.2
13	.000503	83.8	63.8
14	.004519	83.6	63.6
15	.003743	83.1	63.1
16	.000584	81.7	61.7
17	.000623	79.9	59.9
18	.000459	79.6	59.6
19	.000661	79.1	59.1
20	.001273	78.5	58.5
21	.000733	76.3	56.3
22	.000798	76.3	56.3
23	.000777	75.9	55.9
24	.00084	75.5	55.5
25	.000944	74.8	54.8
26	.001014	72.9	52.9
27	.001133	72.1	52.1
28	.003141	71.3	51.3
29	.001598	68.6	48.6
30	.002518	67.1	47.1
31	.0139	66.7	46.7
32	.002438	65.8	45.8
33	.001717	65.5	45.5
34	.002601	64.8	44.8
35	.00308	63.3	43.3
36	.003308	63.3	43.3
37	.00236	63.1	43.1
38	.003265	63.1	43.1
39	.002284	63	43.0
40	.002099	62.6	42.6
41	.001993	61.6	41.6

PQC 601335 D 686894 MAR 29 2002 MAR 29 2002


hp
EMI-TEST
EMISSION LEVEL [dBuA]
29 Apr 2002 13:12:22
PEAK
NOISY BUS CE01
hirdls ce01 nb 30Hz-20KHz
PI-NB-A NOISY BUS CABLE A
AMBIENT
120
100
80
60
40
3.E-5
.0001
.001
.01
FREQUENCY [MHz]
PQC
A
686894


hp
EMI-TEST
28 Apr 2002 08:03:00
EMISSION LEVEL [dBuA]
PEAK
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PI-NB-A NOISY BUS A CABLE PNA
AMBIENT UUT OFF STE ON
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]


hp
EMI-TEST
29 Apr 2002 07:13:35
EMISSION LEVEL [dBuA]
PEAK
NOISY BUS CE01
hirdls ce01 nb 30Hz-20KHz
PI NB-A NOISY BUS A CABLE
UUT OPER STE ON
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]
PQC
D


hp
EMI-TEST
28 Apr 2002 06:54:57
EMISSION LEVEL [dBuA]
PEAK
120
100
80
60
40
hirdls ce01 nb
CORRECT LIMIT
hirdls ce01 nb 30Hz-20KHz
PR-NB-A NOISY BUS A Cable PNA
LIMIT LINE
E.I.E.
3. E-5
.0001
.001
.01
.02
FREQUENCY [MHz]

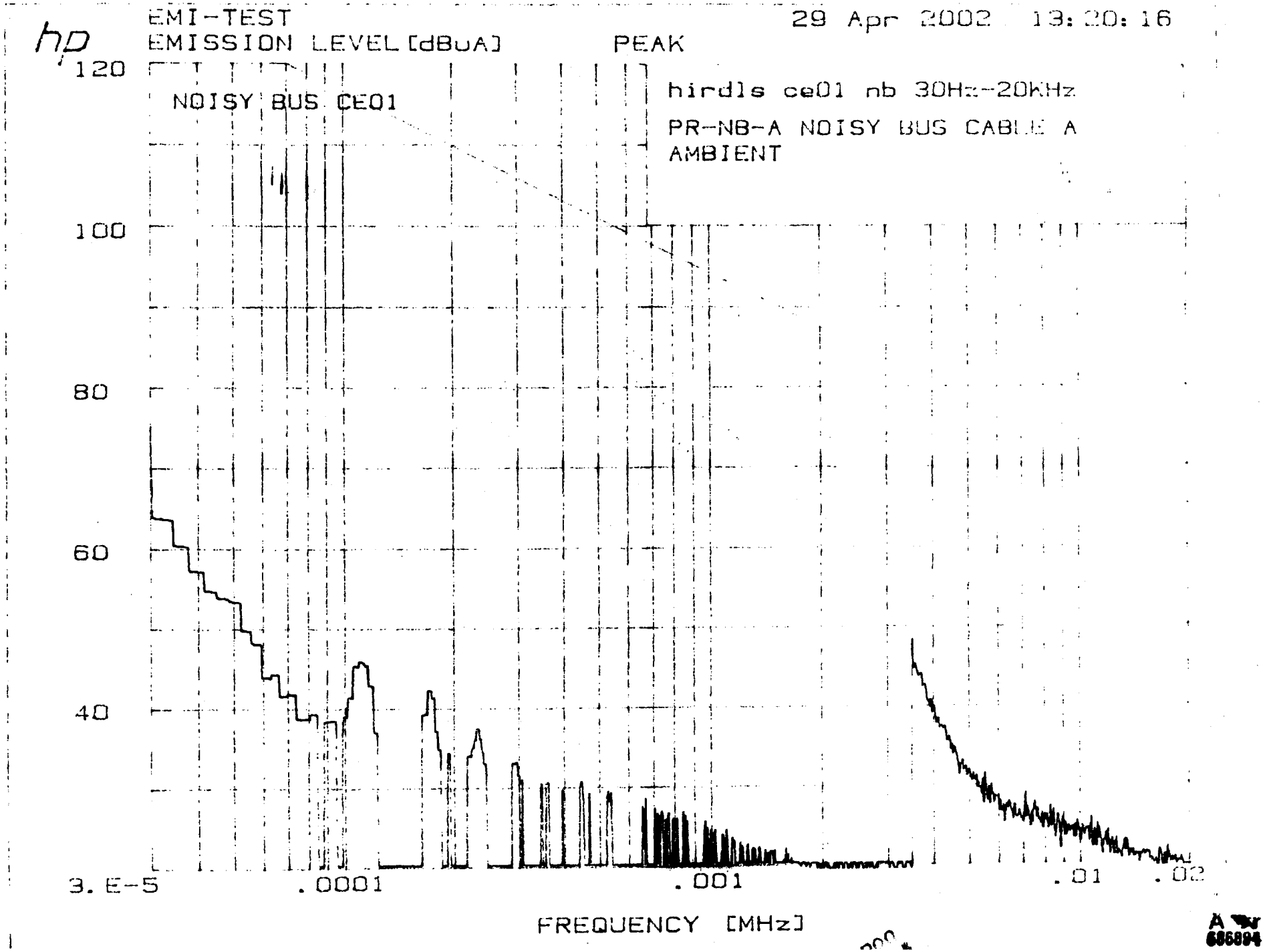
EMI-TEST 28 Apr 2002 06:54:57

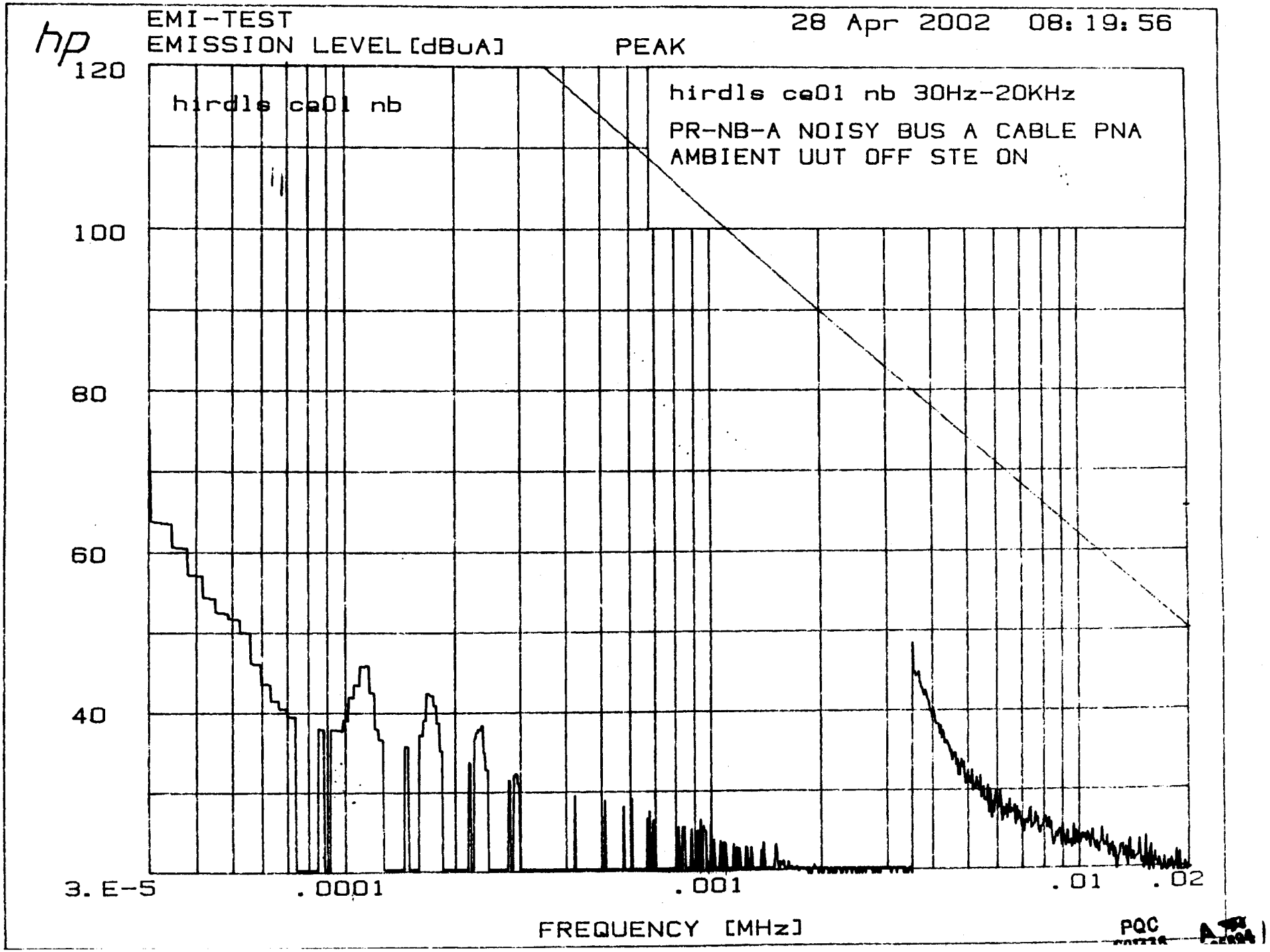
1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz

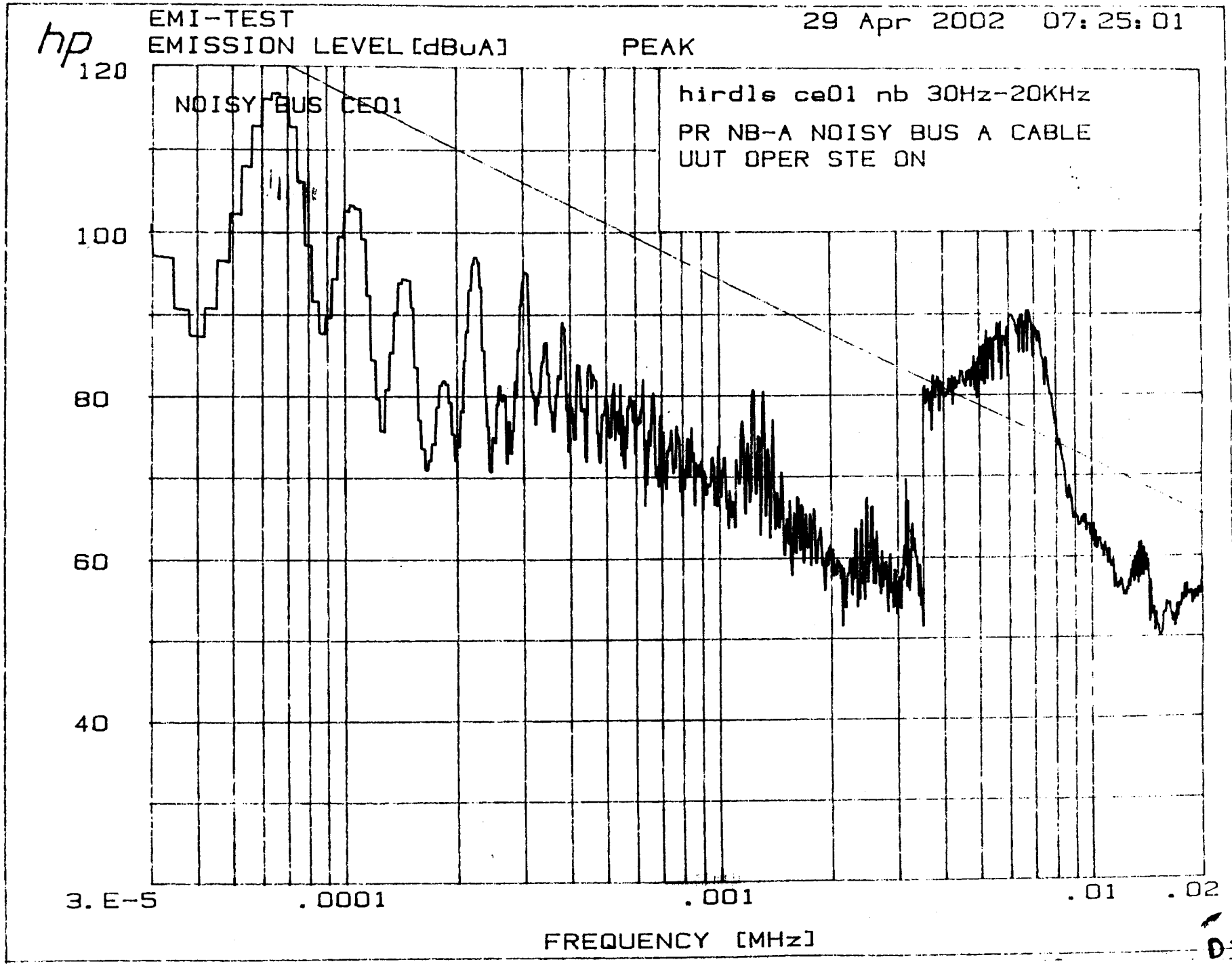
Peaks above 20 dBuA
peak criteria = 6 dB

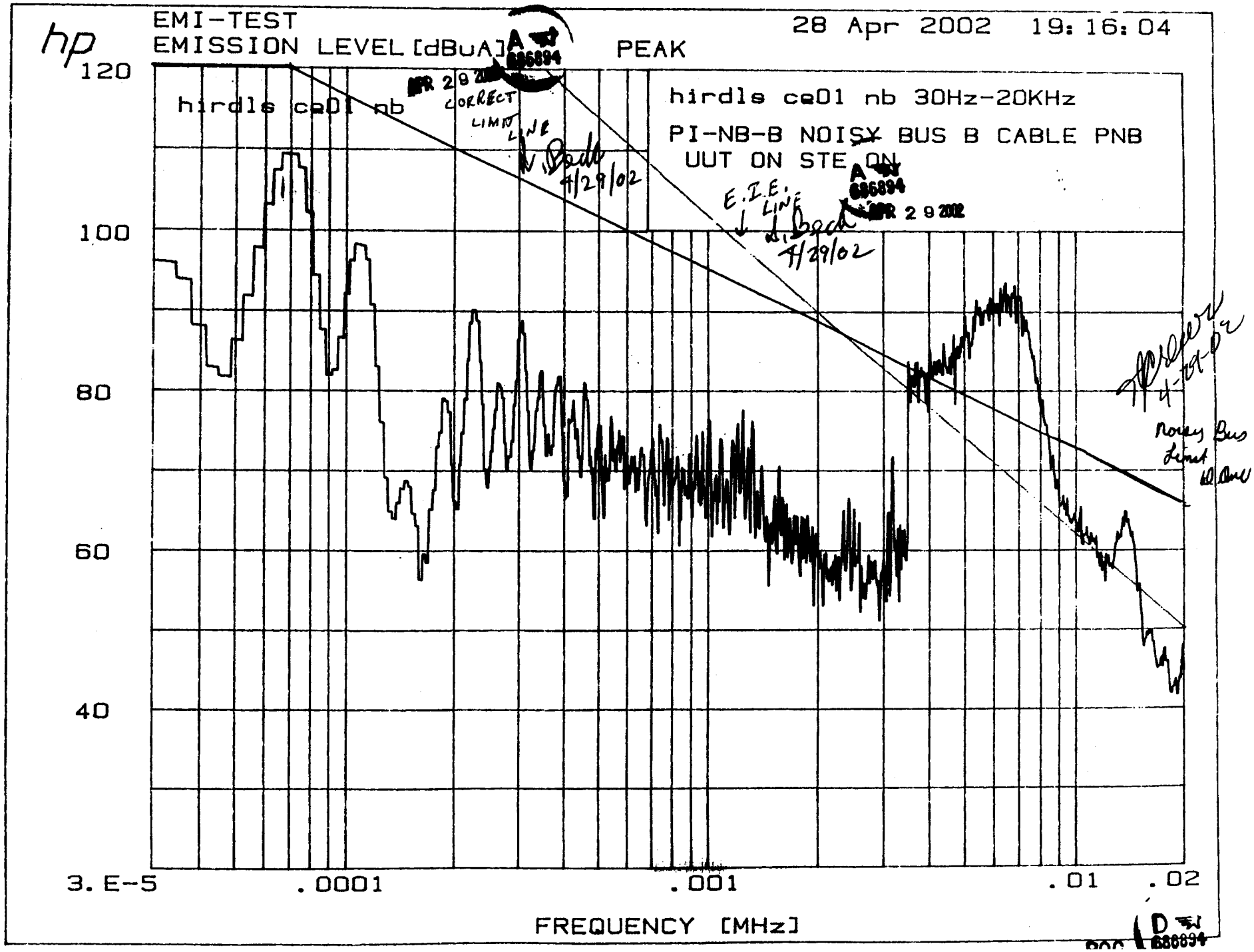
PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	6.7E-5	117.8	97.8
2	.000106	106.2	86.2
3	.000225	99.8	79.8
4	.000303	95.6	75.6
5	.000145	94	74.0
6	.000343	92	72.0
7	.006672	91.4	71.4
8	.000263	91	71.0
9	.000185	89.6	69.6
10	.000385	88.6	68.6
11	.005385	88.6	68.6
12	.000422	87.1	67.1
13	.000459	86.3	66.3
14	.000503	84.6	64.6
15	.00058	82.4	62.4
16	.003507	82.4	62.4
17	.001249	79.9	59.9
18	.000623	79.3	59.3
19	.000547	78.7	58.7
20	.00064	78.6	58.6
21	.000824	76.9	56.9
22	.000932	76.2	56.2
23	.000733	75.8	55.8
24	.003141	72	52.0
25	.001567	69	49.0
26	.001488	67.6	47.6
27	.002345	67.4	47.4
28	.001694	66.8	46.8
29	.001955	65.8	45.8
30	.002438	65.6	45.6
31	.001868	65.5	45.5
32	.002502	65.3	45.3
33	.002585	64.9	44.9
34	.01354	63.3	43.3
35	.003265	62.6	42.6
36	.00308	61.8	41.8
37	.003373	61.7	41.7

PCC 00335


EMI-TEST
29 Apr 2002 13:20:16
EMISSION LEVEL [dBuA]
PEAK
120
NOISY BUS CE01
hirdls ce01 nb 30Hz-20KHz
PR-NB-A NOISY BUS CABLE A
AMBIENT
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]


EMI-TEST
28 Apr 2002 08:19:56
EMISSION LEVEL [dBuA]
PEAK
hp
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PR-NB-A NOISY BUS A CABLE PNA
AMBIENT UUT OFF STE ON
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]
PQC


EMI-TEST
29 Apr 2002 07:25:01
EMISSION LEVEL [dBuA]
PEAK
hp
120
100
80
60
40
NOISY BUS CE01
hirdls ce01 nb 30Hz-20KHz
PR NB-A NOISY BUS A CABLE
UUT OPER STE ON
3. E-5
.0001
.001
.01
.02
FREQUENCY [MHz]

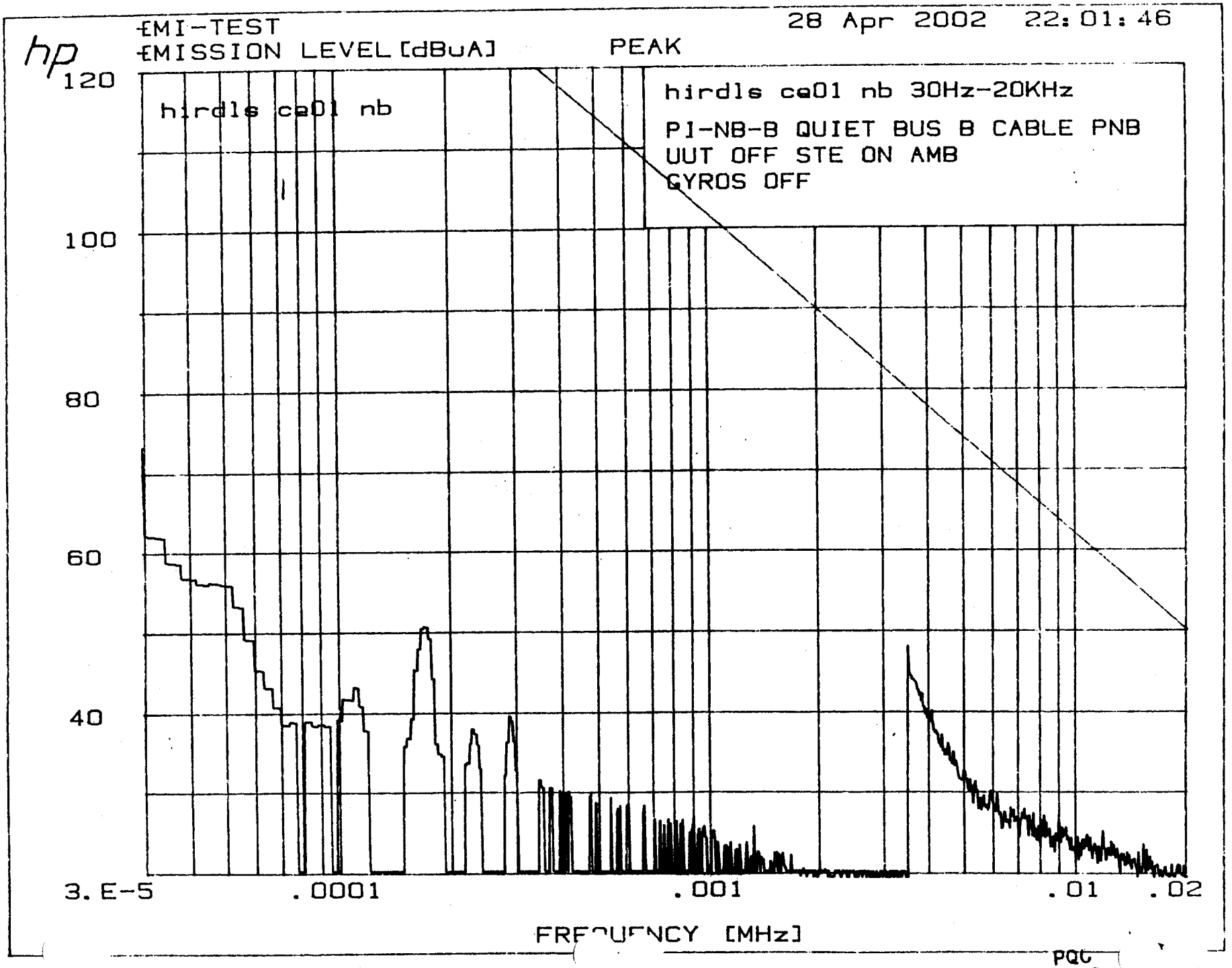

hp
EMI-TEST
EMISSION LEVEL [dBuA]
PEAK
28 Apr 2002 19:16:04
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PI-NB-B NOISY BUS B CABLE PNB
UUT ON STE ON
CORRECT LIMIT LINE
E.I.E. LINE
Noisy Bus Limit
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]

EMI-TEST 28 Apr 2002 19:16:04

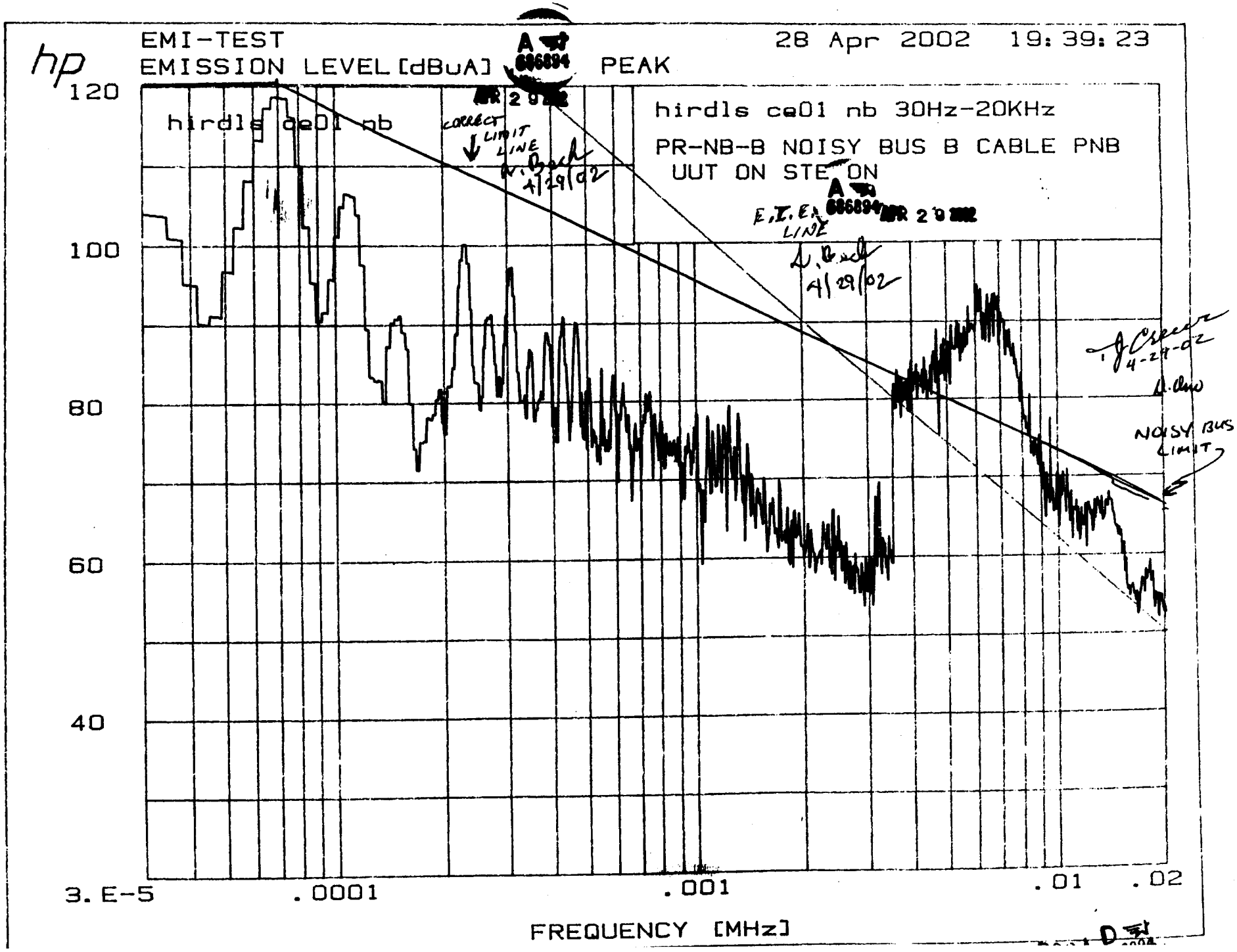
1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz PI-NB-B OPER.

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

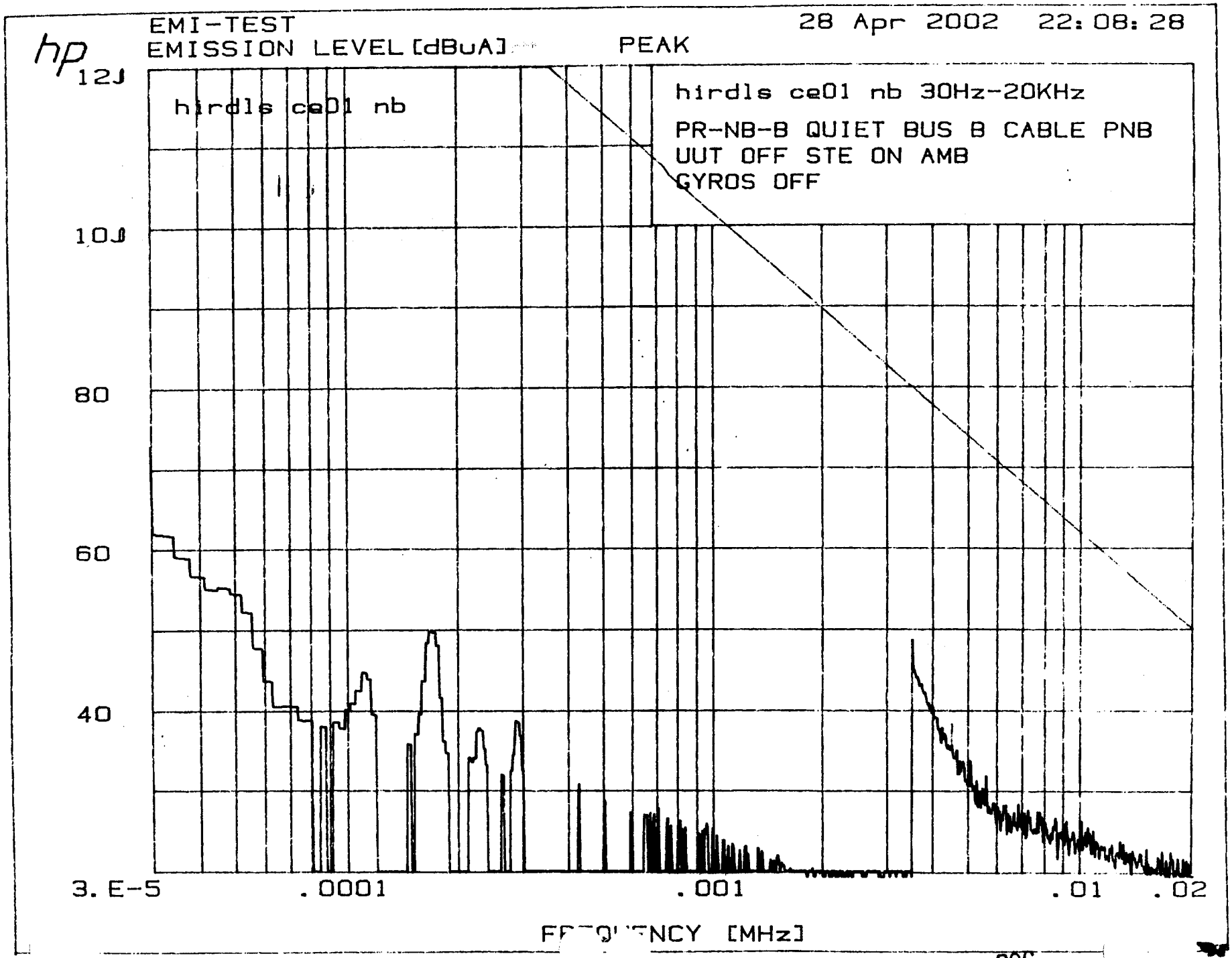
PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.003507	83.8	3.7
2	.003576	81.9	2.2
3	.003671	83.6	4.3
4	.003719	83.7	4.6
5	.003816	83	4.4
6	.003942	82.3	4.3
7	.00402	85.3	7.6
8	.004126	83.8	6.5
9	.004207	83.8	6.9
10	.004262	84	7.3
11	.004374	86.1	9.8
12	.004548	84.3	8.7
13	.004607	84.8	9.4
14	.004668	87.2	12.1
15	.004729	85.4	10.5
16	.004791	85.7	11.0
17	.004917	86.9	12.7
18	.005013	89.5	15.6
19	.005281	89.4	16.4
20	.005385	91.5	18.8
21	.005563	89.8	17.7
22	.005784	90.9	19.5
23	.005859	91.8	20.6
24	.005975	91.5	20.6
25	.006132	91.1	20.7
26	.006253	93	22.9
27	.006459	93.6	24.1
28	.006543	92.2	22.9
29	.006848	93.3	24.8
30	.006983	92	23.8
31	.007213	89.5	21.9
32	.007355	89	21.7
33	.008652	71.9	7.5
34	.00888	68.8	4.8
35	.009233	66.8	3.5
36	[illegible]	66.5	3.6
37	[illegible]	64.5	2.4
38	[illegible]	65.4	4.0
39	.01072	62.9	2.2
40	.011	62.1	1.8
41	.01174	59.6	.4
42	.01213	59.5	.9
43	.01346	64	7.2
44	.01363	64.9	8.3



PQC 601335
APR 29 2002
APR 29 200


EMI-TEST
28 Apr 2002 19:39:23
EMISSION LEVEL [dBuA]
PEAK
hp
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PR-NB-B NOISY BUS B CABLE PNB
UUT ON STE ON
CORRECT LIMIT LINE
E.I.E. LINE
NOISY BUS LIMIT

52	.009852	70.4	8.2
53	.01011	69.8	8.0
54	.01024	70.5	9.0
55	.01051	70.8	9.7
56	.01079	68.1	7.5
57	.01115	66.9	6.8
58	.01129	66	6.2
59	.01151	65.9	6.4
60	.01182	66.4	7.3
61	.01205	66.6	7.9
62	.01253	67	9.0
63	.01278	67.2	9.5
64	.01311	67.4	10.1
65	.01372	67.9	11.4
66	.01513	61.5	6.7
67	.01532	59.4	4.8
68	.01604	56.2	2.4
69	.01646	55.2	1.9
70	.017	57	4.2
71	.01745	58.1	5.8
72	.01791	59.2	7.3
73	.01826	57.7	6.2
74	.01862	55.1	3.9
75	.01911	54.9	4.2



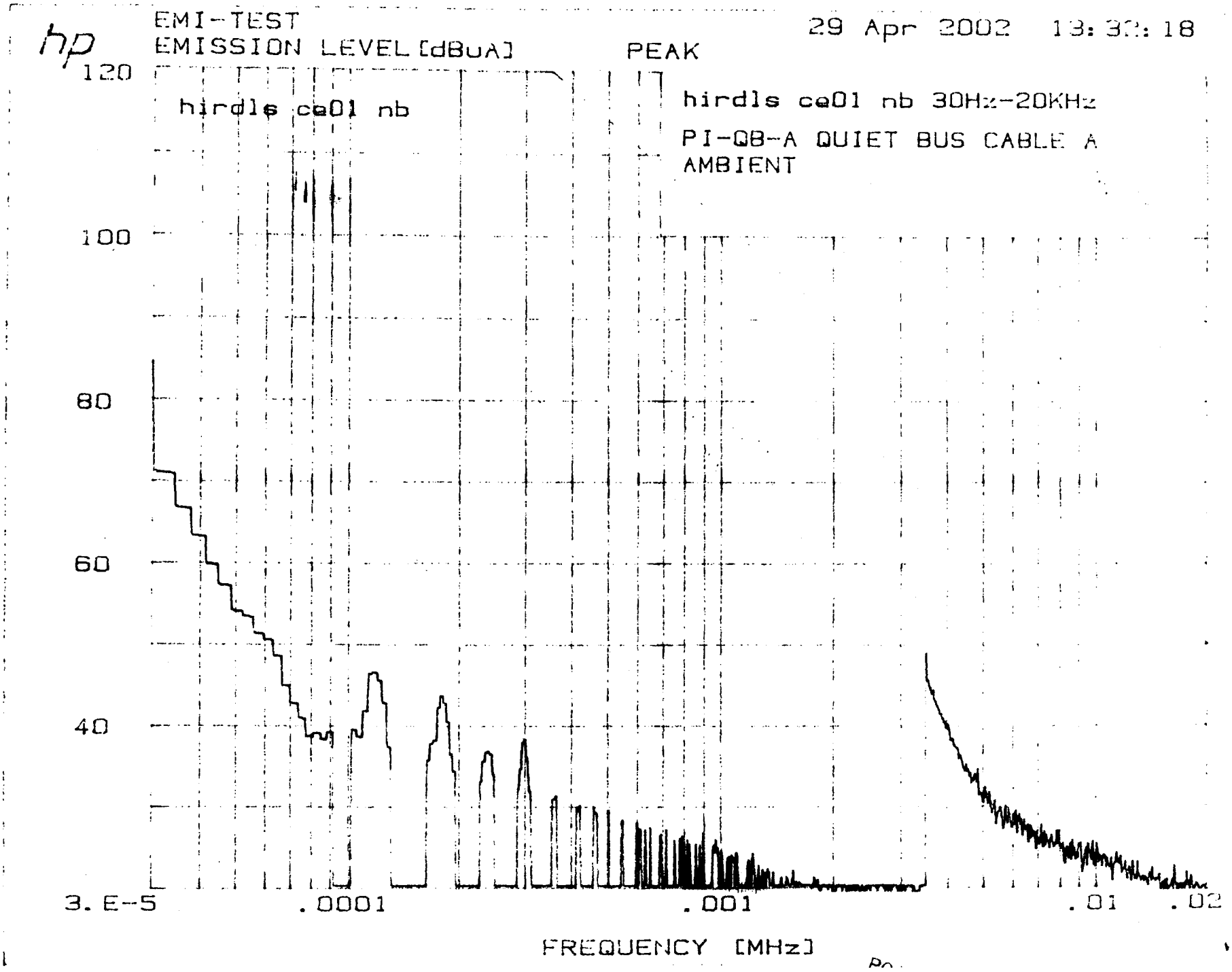
APR 2 9 2002 PQC 601336 APR 2 9 2002 6894

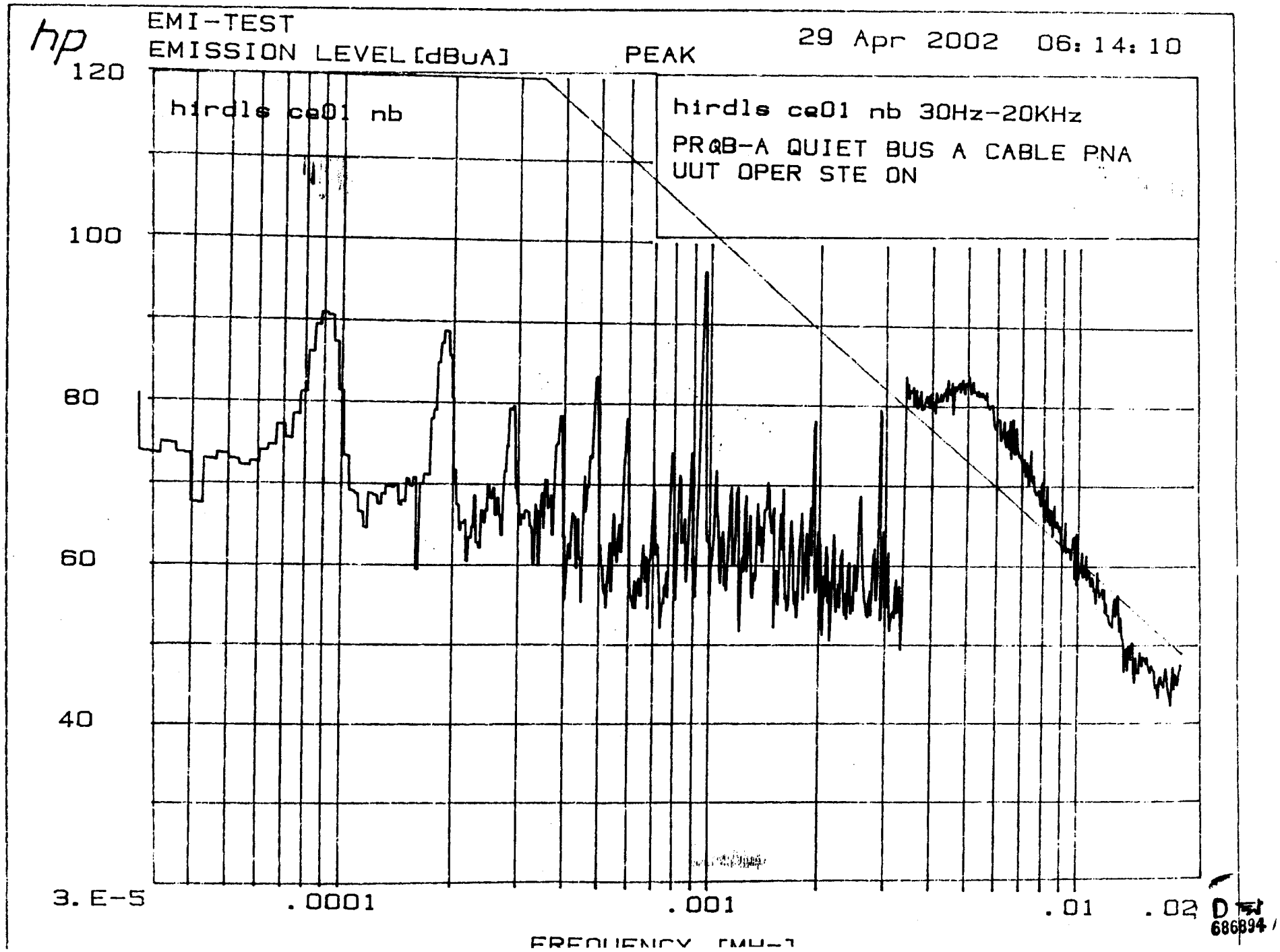
EMI-TEST 29 Apr 2002 07:04:36

1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz PI-QB-A OPER.

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.004949	85.1	11.0
2	.003671	85	5.7
3	.005315	84.8	11.9
4	.005213	84.7	11.5
5	.003553	84.4	4.6
6	.004668	83.9	8.8
7	.003792	83.7	5.0
8	.005784	83.4	12.0
9	.004403	83.3	7.2
10	.004853	83.3	8.8
11	.004126	82.9	5.6
12	.00418	82.9	5.9
13	.004318	82.9	6.4
14	.003841	82.6	4.1
15	.006053	81.6	11.0
16	.003891	81.3	3.0
17	.006629	80	10.9
18	.006892	78.7	10.3
19	.006716	78.5	9.7
20	.006459	78.4	8.9
21	.007074	76.1	8.2
22	.00726	75.5	8.0
23	.007403	74.5	7.4
24	.007549	74.2	7.4
25	.008267	71.3	6.1
26	.008485	70.4	5.6
27	.008108	70.3	4.7
28	.00888	68.4	4.4
29	.009054	67.9	4.2
30	.009725	66.1	3.7
31	.009293	64.9	1.7
32	.009981	64.4	2.4
33	.01038	62.6	1.3
34	.01151	60.6	1.1
35	.01205	60.1	1.4
36	.01189	59.3	.4
37	[redacted]	58.7	.2
38	[redacted]	57.9	.3


EMI-TEST
29 Apr 2002 13:30:18
EMISSION LEVEL [dBuA]
PEAK
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PI-QB-A QUIET BUS CABLE A
AMBIENT
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]

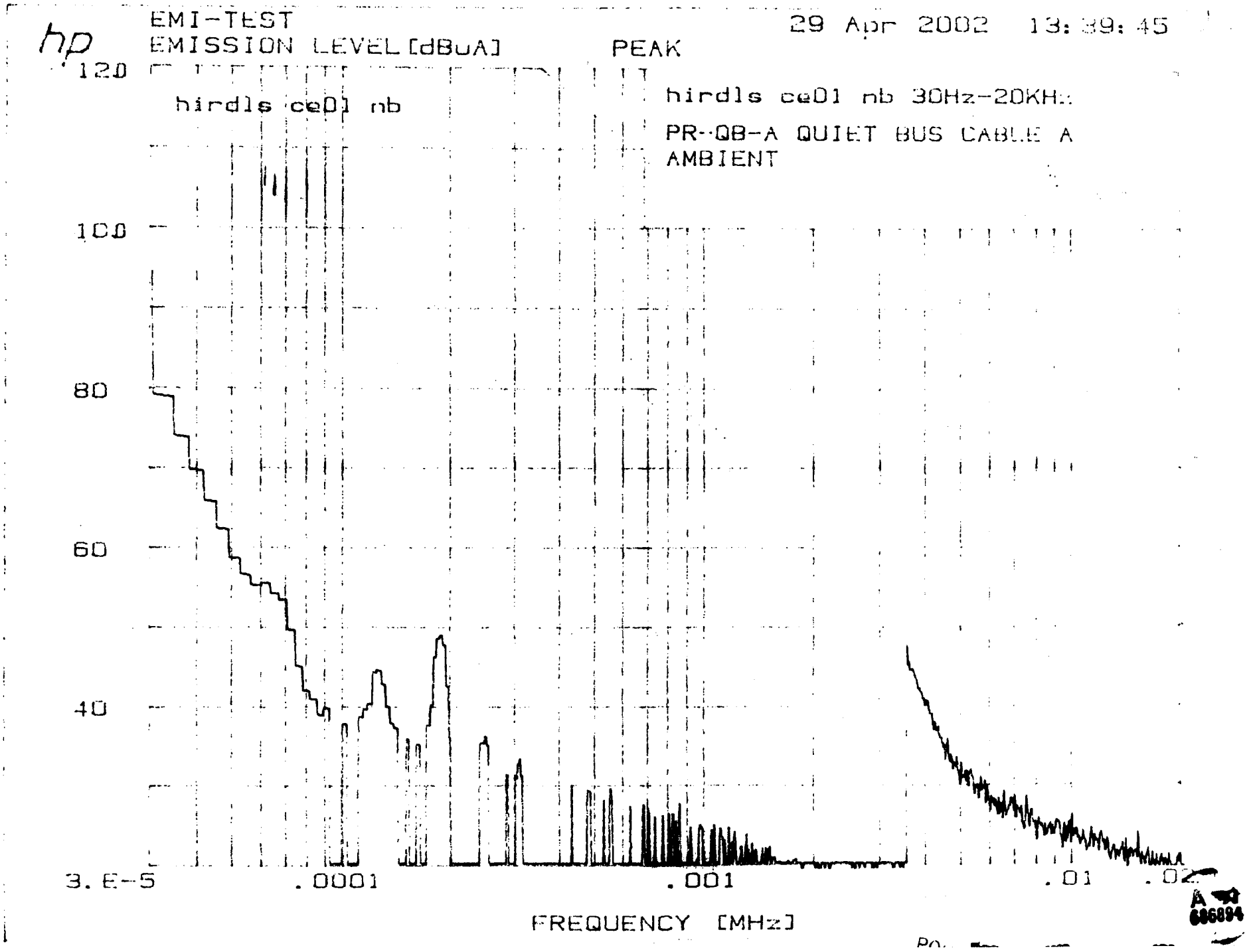

hp
EMI-TEST
EMISSION LEVEL [dBuA]
PEAK
29 Apr 2002 06:14:10
hirdls cq01 nb
hirdls cq01 nb 30Hz-20KHz
PRQB-A QUIET BUS A CABLE PNA
UUT OPER STE ON
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
D
686894

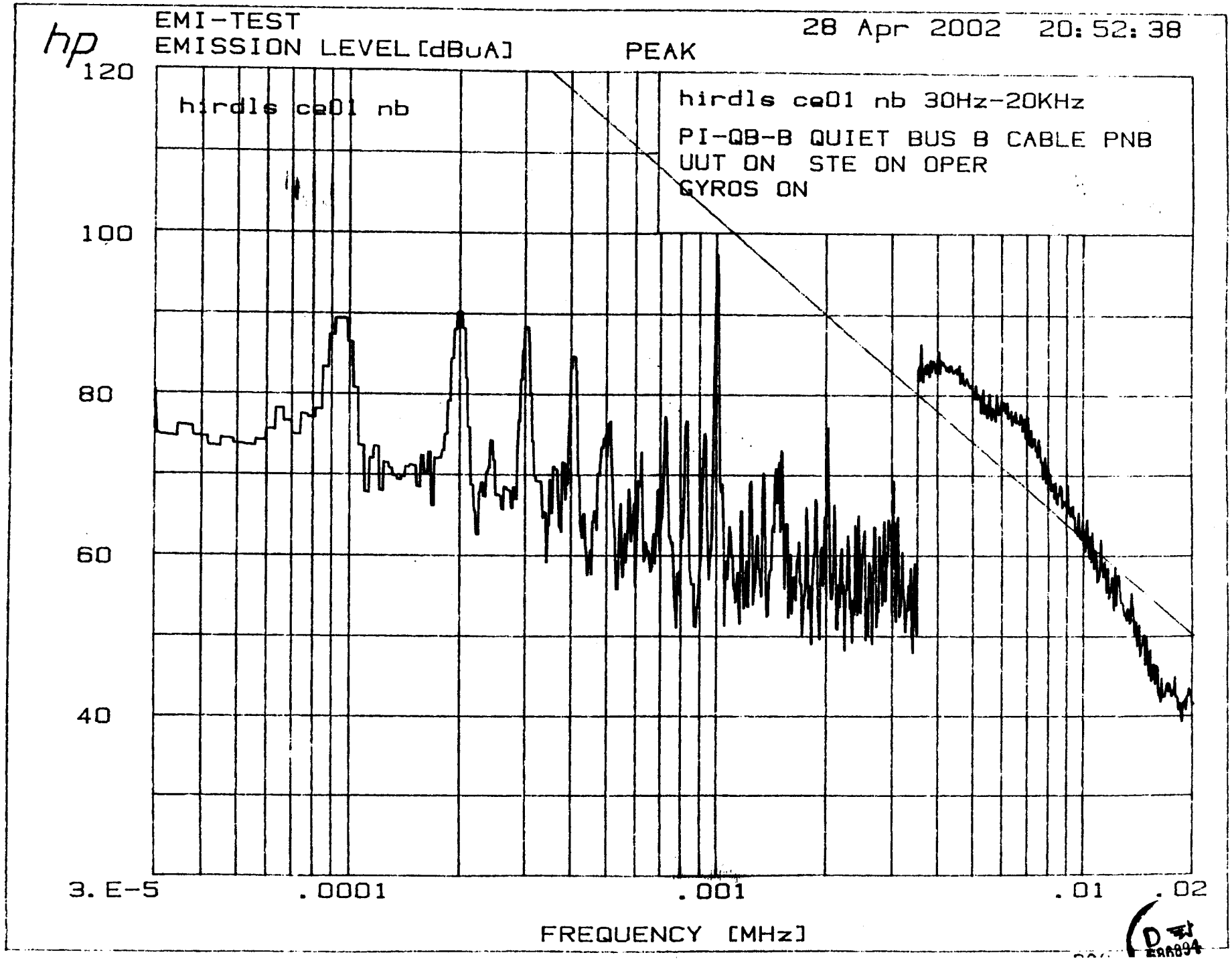
EMI-TEST 29 Apr 2002 06:14:10

1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz PR-QB-A OPER.

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.003507	84	3.9
2	.003553	83.1	3.3
3	.003671	82.7	3.4
4	.003743	82.3	3.4
5	.003841	82.2	3.7
6	.003994	81.6	3.8
7	.004099	81.9	4.5
8	.004234	82.1	5.3
9	.004489	82.6	6.8
10	.004548	83.7	8.1
11	.004668	83.3	8.2
12	.004885	83.3	9.0
13	.004981	83.7	9.7
14	.005179	84.1	10.8
15	.005315	83.5	10.6
16	.006212	78.9	8.7
17	.006459	78.6	9.1
18	.006629	77.4	8.3
19	.006716	78.7	9.9
20	.006848	78.9	10.4
21	.006983	77.8	9.6
22	.007355	73.9	6.6
23	.007451	73.5	6.5
24	.007647	75	8.4
25	.008214	71	5.7
26	.008485	70.6	5.8
27	.008596	67.8	3.2
28	.008708	67.6	3.3
29	.00888	68.2	4.2
30	.009537	66.2	3.4
31	.01011	64.3	2.5
32	.01024	64.8	3.3
33	.01038	63.1	1.8
34	.01065	62.5	1.6
35	.01093	62.1	1.7
36	.01174	60	.8
37	[redacted]	57.2	.3


hp
EMI-TEST
29 Apr 2002 13:39:45
EMISSION LEVEL [dBuA]
PEAK
120
100
80
60
40
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PR-QB-A QUIET BUS CABLE A
AMBIENT
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]
A
686894


EMI-TEST
28 Apr 2002 20:52:38
EMISSION LEVEL [dBuA]
PEAK
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PI-QB-B QUIET BUS B CABLE PNB
UUT ON STE ON OPER
GYROS ON
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]

EMI-TEST 28 Apr 2002 20:52:38

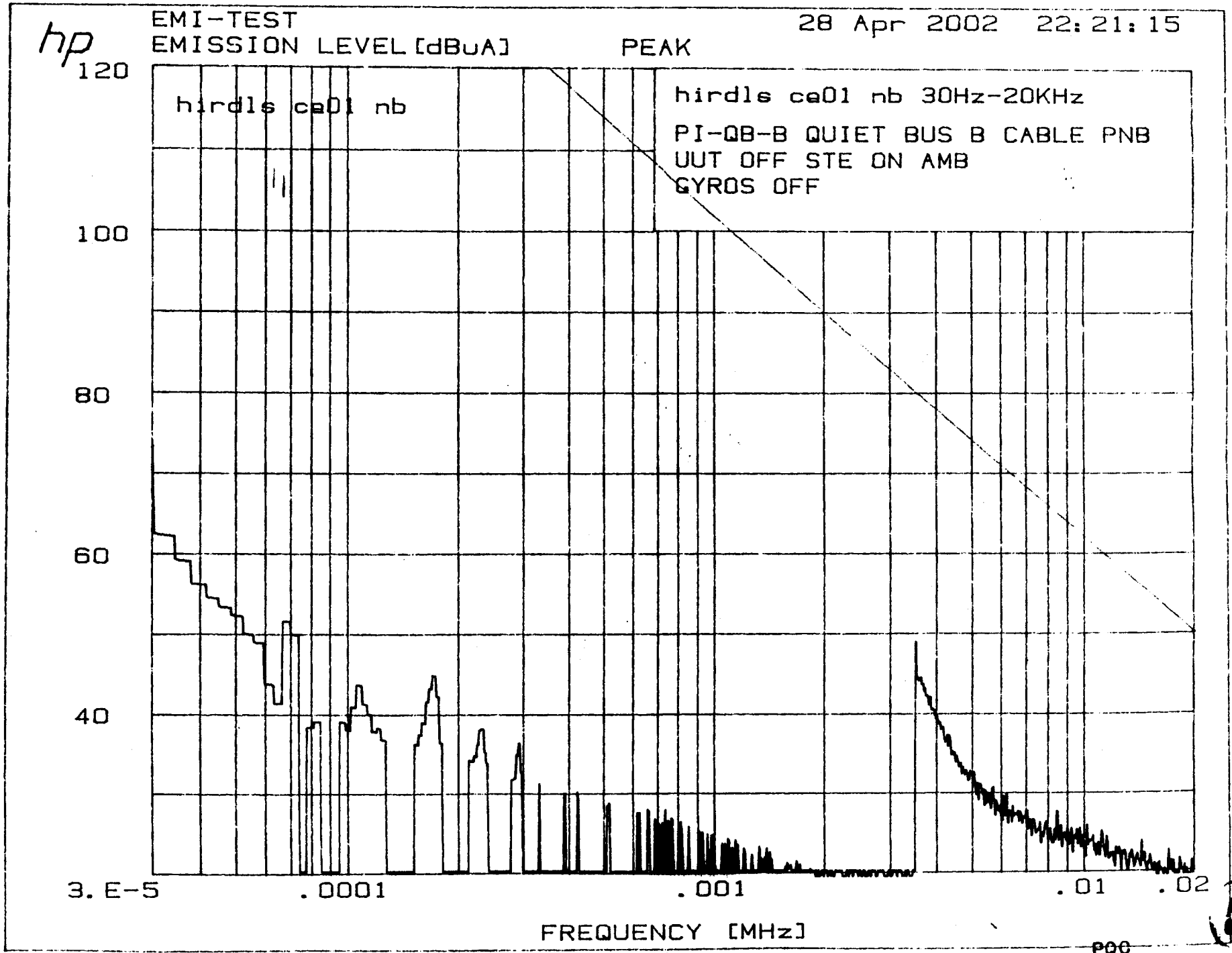
1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz

PI-QB-B Gyro's ON OPER.

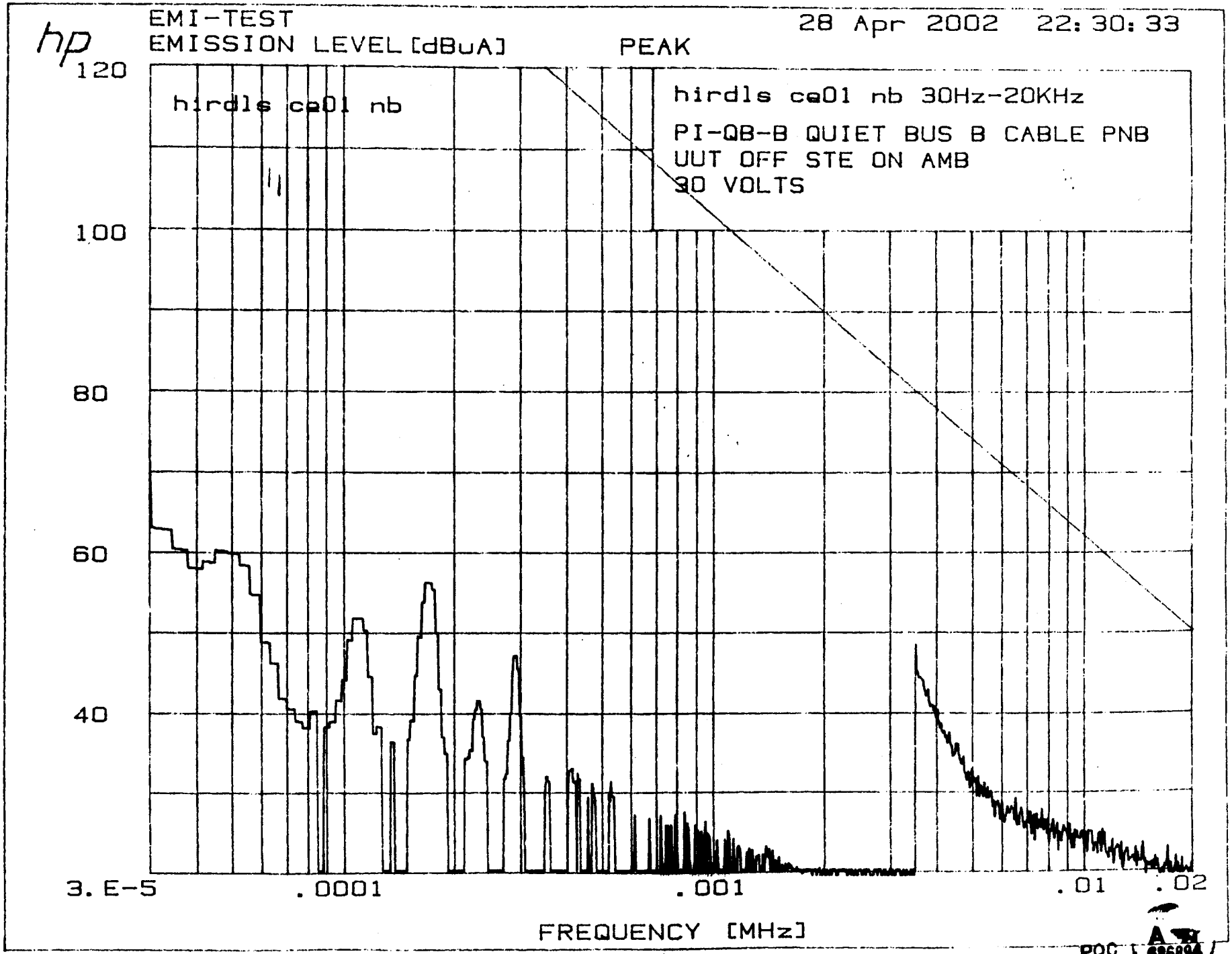
Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.00353	83.6	3.6
2	.003576	86.5	6.8
3	.003671	83.8	4.5
4	.003719	84	4.9
5	.003792	84.5	5.8
6	.003841	84.3	5.8
7	.003994	85.6	7.8
8	.004046	84.4	6.8
9	.004548	83.8	8.2
10	.004638	82.9	7.7
11	.005046	81.3	7.5
12	.005281	80.8	7.8
13	.005385	78.9	6.2
14	.005491	80.3	8.0
15	.005599	78.5	6.5
16	.005746	80.2	8.7
17	.005936	79.4	8.4
18	.006014	79.2	8.5
19	.006132	79.2	8.8
20	.006459	78	8.5
21	.006672	77.7	8.8
22	.006848	77.1	8.6
23	.006983	77.3	9.1
24	.00712	75.7	7.9
25	.00726	74.7	7.2
26	.0075	74.6	7.7
27	.007798	72.3	6.1
28	.007951	71.1	5.2
29	.008321	69.2	4.1
30	.008596	68.8	4.2
31	.008996	68.9	5.1
32	.009293	66.2	3.0
33	.009662	65.4	2.9
34	.009916	64.2	2.1
35	.01018	64.6	3.0
36	.01038	62.5	1.2
37	.01051	63	1.9
38	.[illegible]07	62.1	1.9

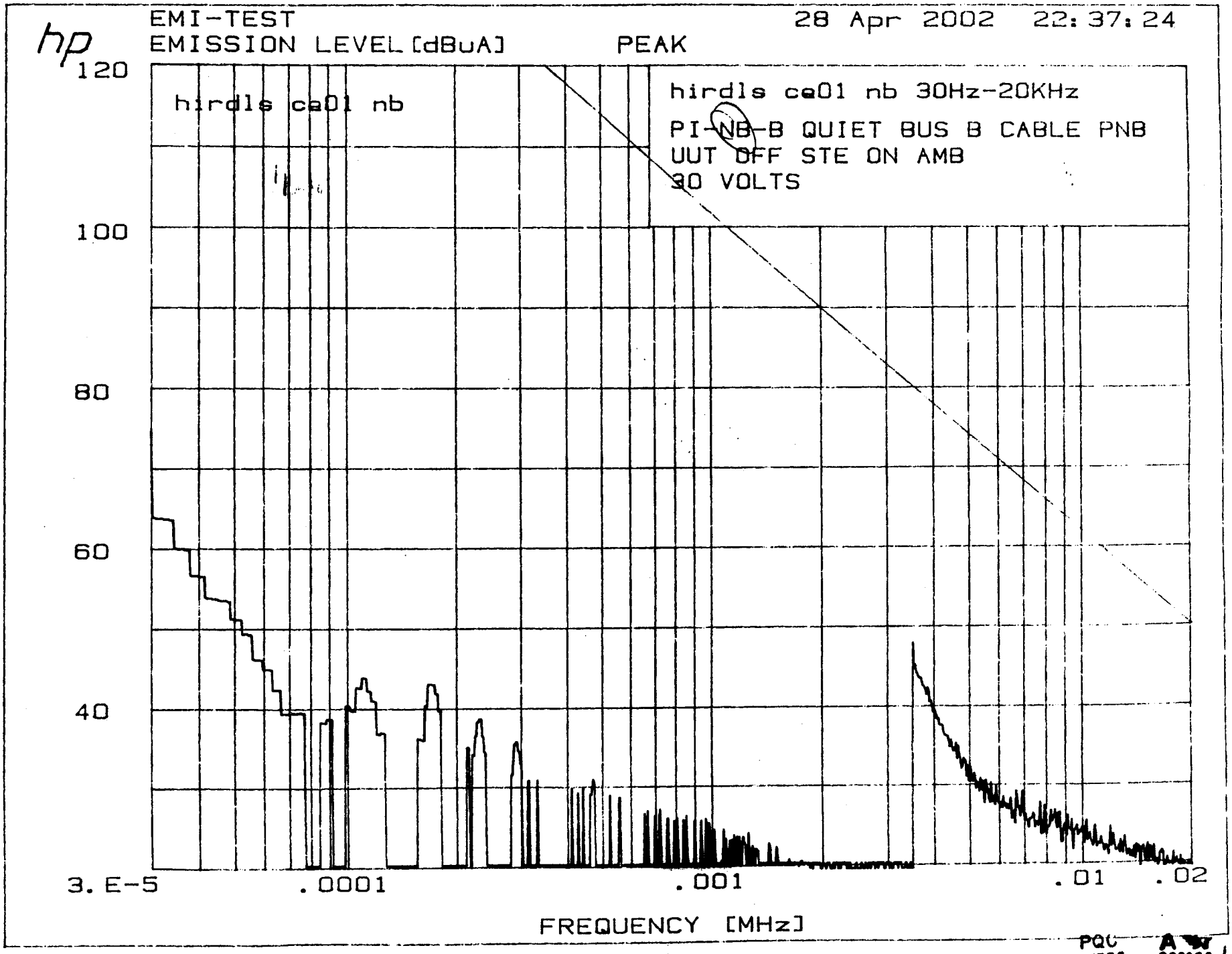
D 616074
04/30/02



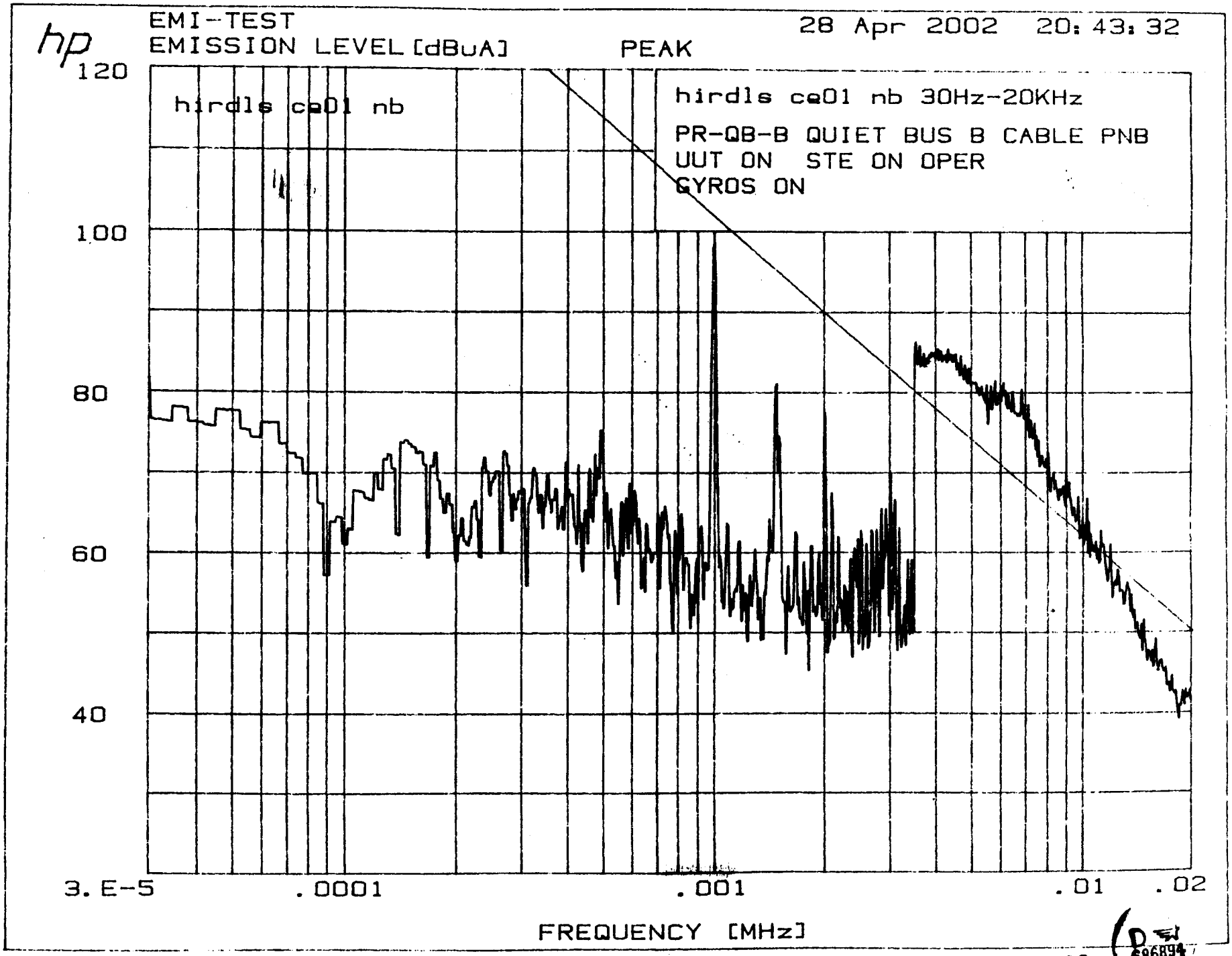
A 686894
PQC 601335
APR 29 2002
APR 29 2002



PQC 601335
686894
APR 29 2002



PQC A
601336 686894



Ref AD Vol 19

APR 29 2002

PQC

APR 29 2002

EMI-TEST 28 Apr 2002 20:43:32

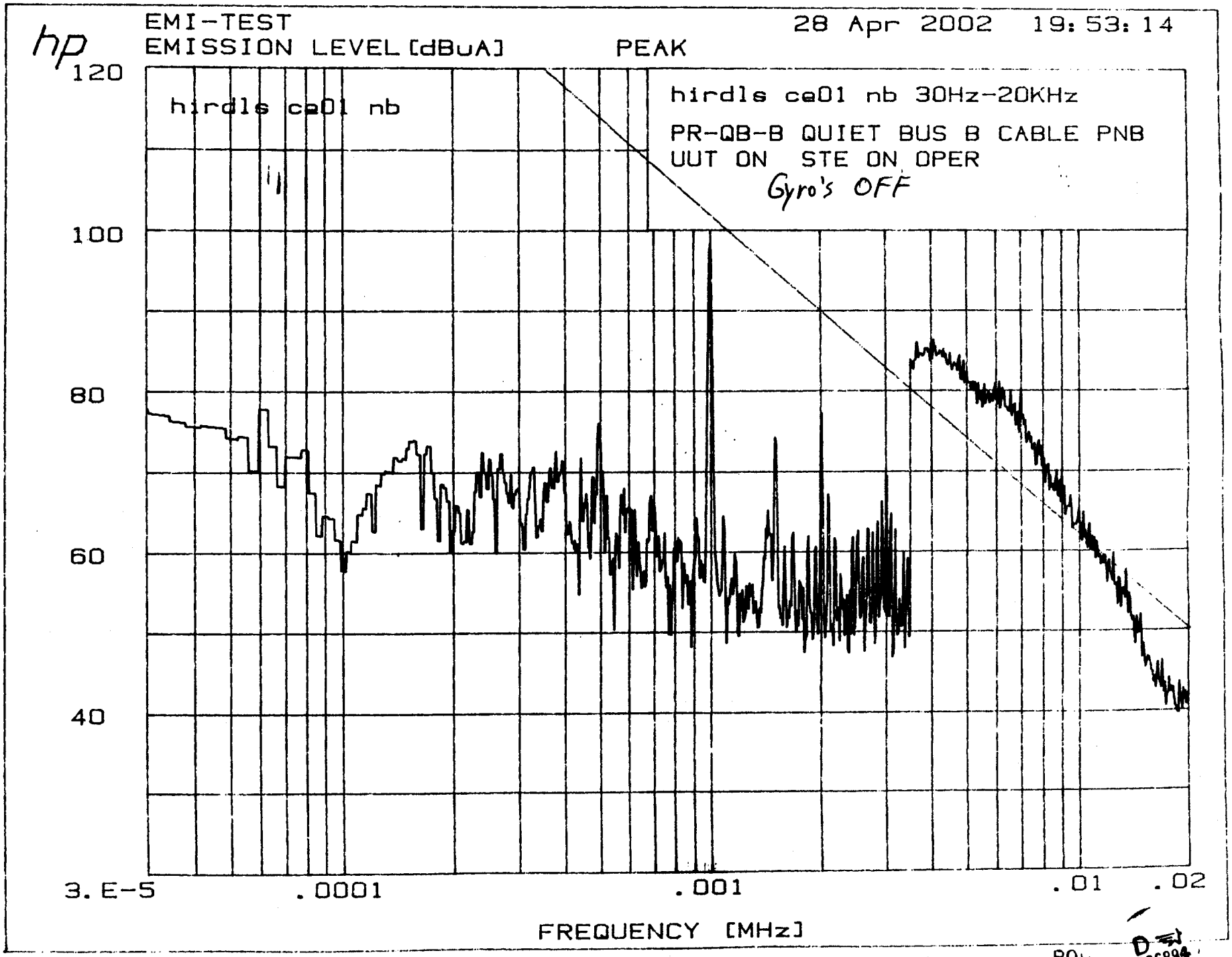
1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz PR-QB-B Gyro's ON

OPER.

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.00353	86.3	6.3
2	.003623	85.8	6.3
3	.003719	84.8	5.7
4	.004046	85.4	7.8
5	.004126	85.2	7.9
6	.004318	85.4	8.9
7	.004668	84.6	9.5
8	.004791	83.4	8.7
9	.004917	83	8.8
10	.005315	80.7	7.8
11	.005491	80.9	8.6
12	.005635	80.8	8.9
13	.005784	81.5	10.1
14	.005936	79.9	8.9
15	.006092	81.2	10.7
16	.006293	79.7	9.7
17	.006459	80.2	10.7
18	.006848	80.4	11.9
19	.00712	78.5	10.7
20	.007213	76.6	9.0
21	.007403	76.1	9.0
22	.0075	74.6	7.7
23	.007598	74	7.3
24	.007747	72.1	5.7
25	.007951	71.7	5.8
26	.008055	72.5	6.8
27	.008321	70	4.9
28	.00843	69	4.1
29	.008822	68.3	4.2
30	.008996	69.9	6.1
31	.009173	68.8	5.4
32	.009725	67	4.6
33	.009981	64.3	2.3
34	.01011	63.3	1.5
35	.01024	66.8	5.3
36	.01038	63.8	2.5
37	[redacted]	62.3	1.2
38	[redacted]	61.3	.8
39	[redacted]	62.8	2.8
40	.01189	61	2.1

D 616071A 4/30/02



APR 29 2002 PQC 686894 APR 29 20

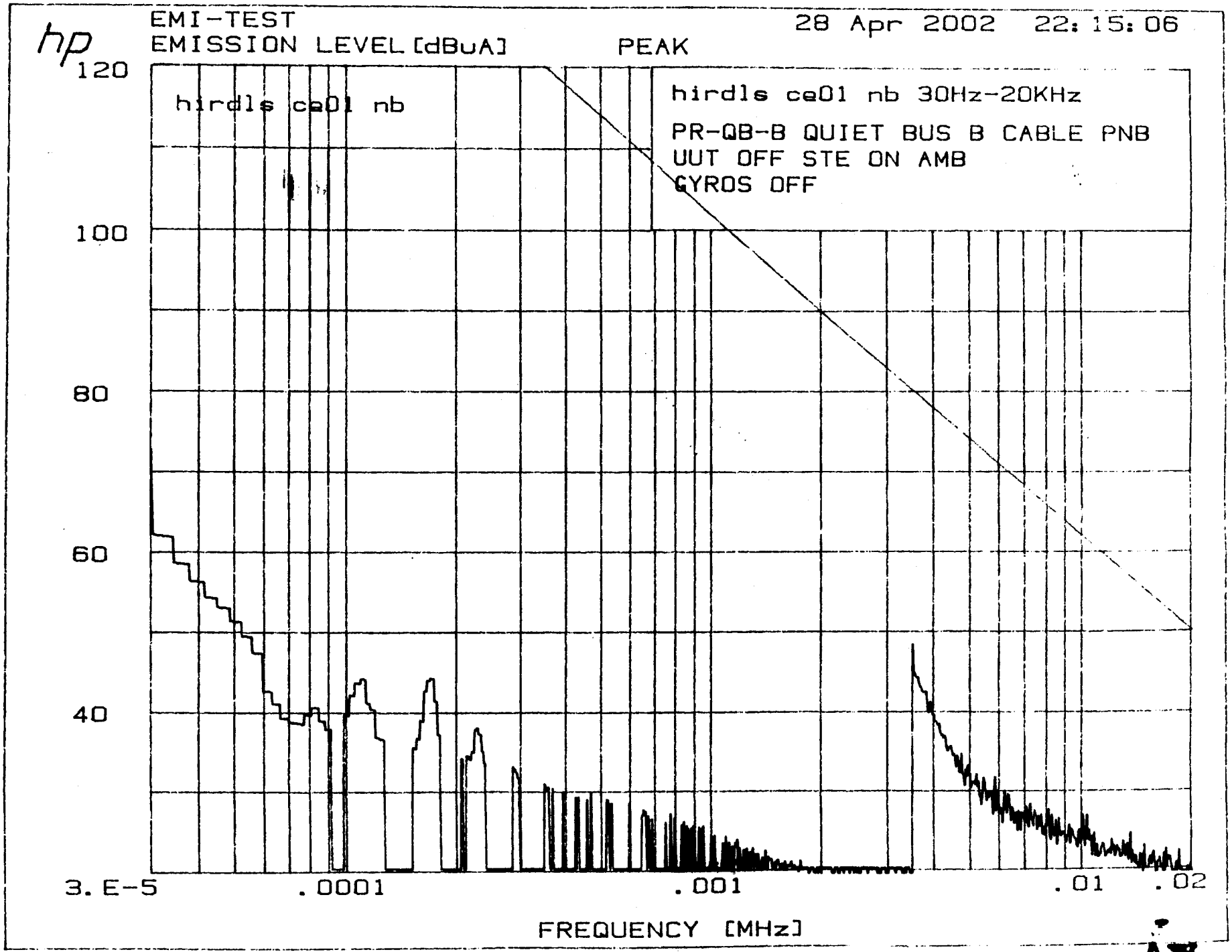
EMI-TEST 28 Apr 2002 19:53:14

1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz PR-QB-B Gyro's OFF

Peaks above 0 dB of Limit Line #1 OPER.
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.003507	83.9	3.8
2	.003647	86.1	6.7
3	.003841	85.3	6.8
4	.003994	86	8.2
5	.004046	86.4	8.8
6	.004489	84.7	8.9
7	.00476	84.4	9.6
8	.004885	83.8	9.5
9	.004981	82.2	8.2
10	.00535	80.9	8.1
11	.005563	80.8	8.7
12	.005709	79.8	8.2
13	.005936	80.9	9.9
14	.006092	81.1	10.6
15	.006212	80.3	10.1
16	.006543	80	10.7
17	.006716	78.3	9.5
18	.006848	77.3	8.8
19	.006983	80.1	11.9
20	.007307	74.8	7.4
21	.007798	73.8	7.6
22	.0079	73.1	7.1
23	.008267	70.8	5.6
24	.008375	69.4	4.4
25	.008708	70	5.7
26	.00888	68.8	4.8
27	.008996	69.5	5.7
28	.009113	68.1	4.6
29	.009476	66.9	4.0
30	.009981	65.2	3.2
31	.01024	64.9	3.4
32	.01065	63.4	2.5
33	.01086	61.8	1.3
34	.011	61.6	1.3
35	.01115	61.2	1.1
36	.01174	59.4	.2
37	.01205	58.8	.1
38	.01237	59.7	1.4
39	.01237	57.7	.8

4/30/02


EMI-TEST
28 Apr 2002 22:15:06
EMISSION LEVEL [dBuA]
PEAK
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PR-QB-B QUIET BUS B CABLE PNB
UUT OFF STE ON AMB
GYROS OFF
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]

EMI-TEST 29 Apr 2002 12:57:50

1. hirdls emi test
   1.10 hirdls CE03 20KHz-50MHz VER3

Peaks above 0 dBuA
peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	5.873	36.6	36.6
2	2.143	18.4	18.4
3	3.192	12.7	12.7

PR-NB-A NOISY BUS
AMBIENT
WITH HP8447D PREAMP

D
686894
APR 2 9 2002
PQC
601335
APR 2 9 2002

Int Atten (dB): 10
Presel Atten : 0
Ext Atten (dB): 0
Setups : 1
Sweeps/Setup : 1
Msg,Sub,Cont : CONTINUE

Limit #1 Label : hirdls CE03 QB
Limit #2 Label : NONE
Limit #3 Label : NONE

---------- Test Setup Table Notes ----------

SET-UP

PQC
601335
APR 2 9 2002

A
686894
APR 2 9 2002

[redacted]

Library File : hirdls CE03 20KHz-50MHz VER3

```
Display Title     : hirdls CE03 20KHz-50MHz QB
Units Label       : dBuA
Disp Ref Lvl (dB): 60
Test Type         : PEAK
Freq Uncert.  (%): .5
Min Swp Time/Oct  : 3

Range 1 of 3
  Start Freq(MHz): .02
  Stop Freq (MHz): 1
  Transducer      : CP-105 S/N GH-1
  Gain/Loss       : 8447D
  SA Input        : RIGHT
  Presel/Input3   : BYPASS
  Quasi-Peak Bw   : BYPASS
  SA Res Bw  (Hz): 1000
  Video Bw   (Hz): 10000
  Ref. Lvl (dBuV): 107
  Int Atten  (dB): 10
  Presel Atten    : 0
  Ext Atten  (dB): 0
  # Setups        : 1
  # Sweeps/Setup  : 1
  Msg,Sub,Cont    : MESSAGE
        Line #1   : CONNECT CURRENT PROBE
        Line #2   : TO ANALYZER

Range 2 of 3
  Stop Freq (MHz): 15
  Transducer      : CP-105 S/N GH-1
  Gain/Loss       : 8447d
  SA Input        : RIGHT
  Presel/Input3   : BYPASS
  Quasi-Peak Bw   : BYPASS
  SA Res Bw  (Hz): 30000
  Video Bw   (Hz): 30000
  Ref. Lvl (dBuV): 107
  Int Atten  (dB): 10
  Presel Atten    : 0
  Ext Atten  (dB): 0
  # Setups        : 1
  # Sweeps/Setup  : 1
  Msg,Sub,Cont    : MESSAGE
        Line #1   : CONNECT 8447D,TURN ON
        Line #2   :

Range 3 of 3
  Stop Freq (MHz): 50
  Transducer      : CP-105 S/N GH-1
  Gain/Loss       : 8447d
  SA Input        : RIGHT
  Presel/Input3   : BYPASS
  Quasi-Peak Bw   : BYPASS
  SA Res Bw  (Hz): 100000
  Video Bw   (Hz): 300000
  Ref. Lvl (dBuV): 107
```

P&O 60[illegible]35
A[illegible] 606894
APR 29 2002
APR 29 2002

LIMIT TABLE
Limit Title : hirdls noisy
Number of Points : 3

Point	Frequency (MHz)	Amplitude
1	.02	65
2	2	20
3	50	20

PQC
601335
APR 2 9 2002

D
686894
APR 2 9 2002

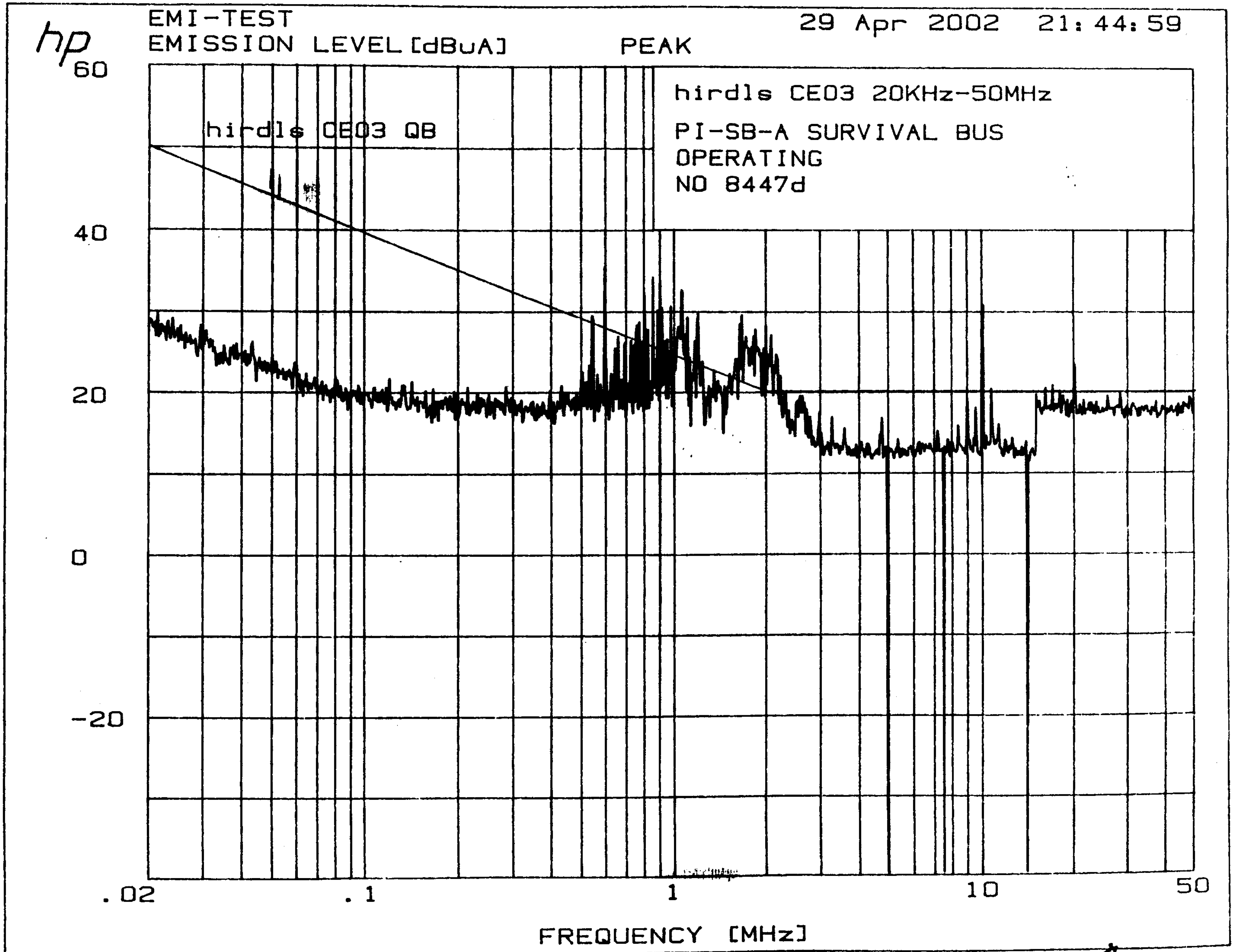
LIMIT TABLE
Limit Title : hirdls ce03 nb
Number of Points : 3

Point	Frequency (MHz)	Amplitude
1	.02	50
2	2	20
3	50	20

D
686894

APR 2 9 2008

APR 2 9 2008



hp
EMI-TEST
EMISSION LEVEL [dBuA]
PEAK
29 Apr 2002
21:44:59
hirdls CE03 20KHz-50MHz
PI-SB-A SURVIVAL BUS
OPERATING
NO 8447d
hirdls CE03 QB
60
40
20
0
-20
.02
.1
1
10
50
FREQUENCY [MHz]

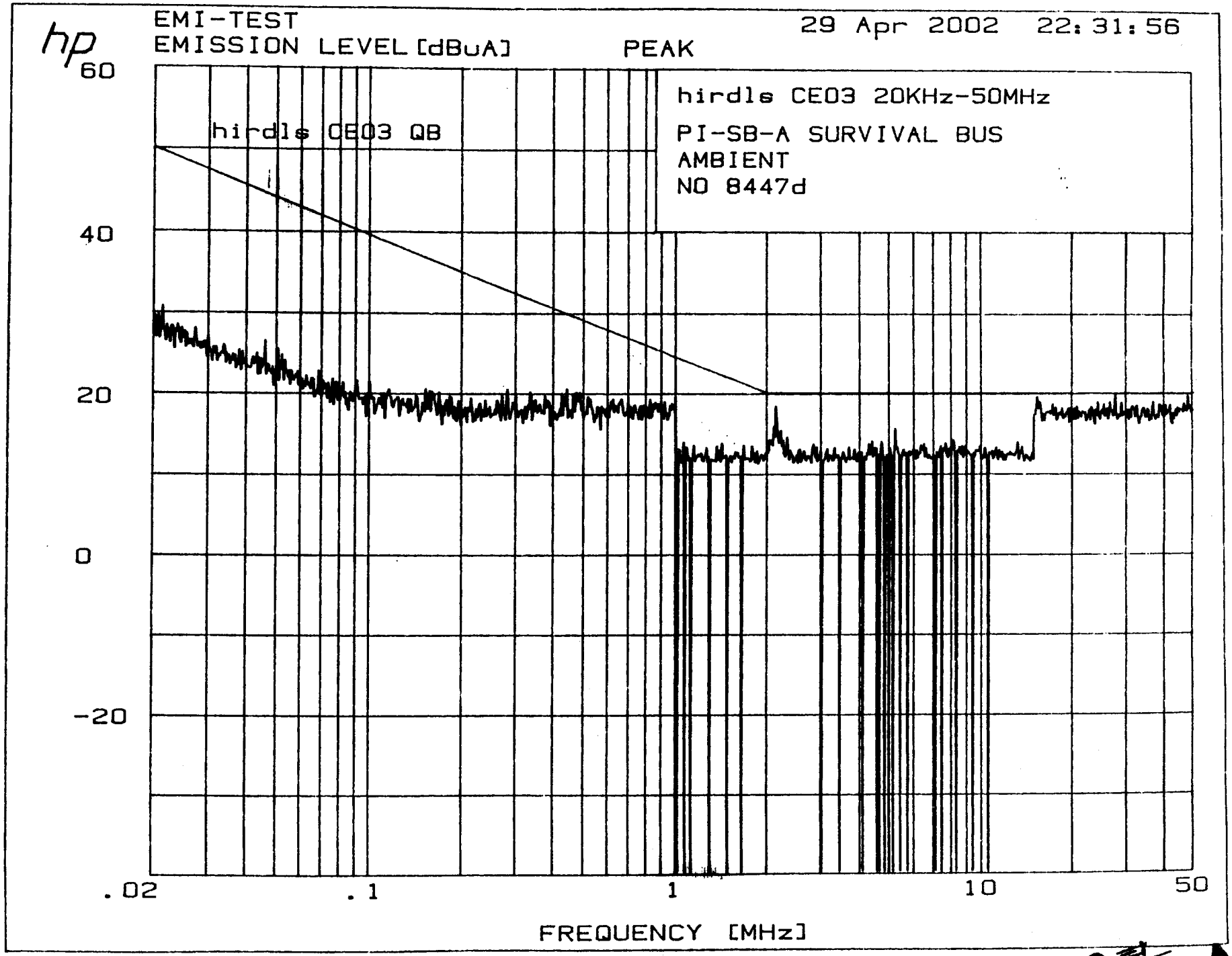
EMI-TEST 29 Apr 2002 21:44:59

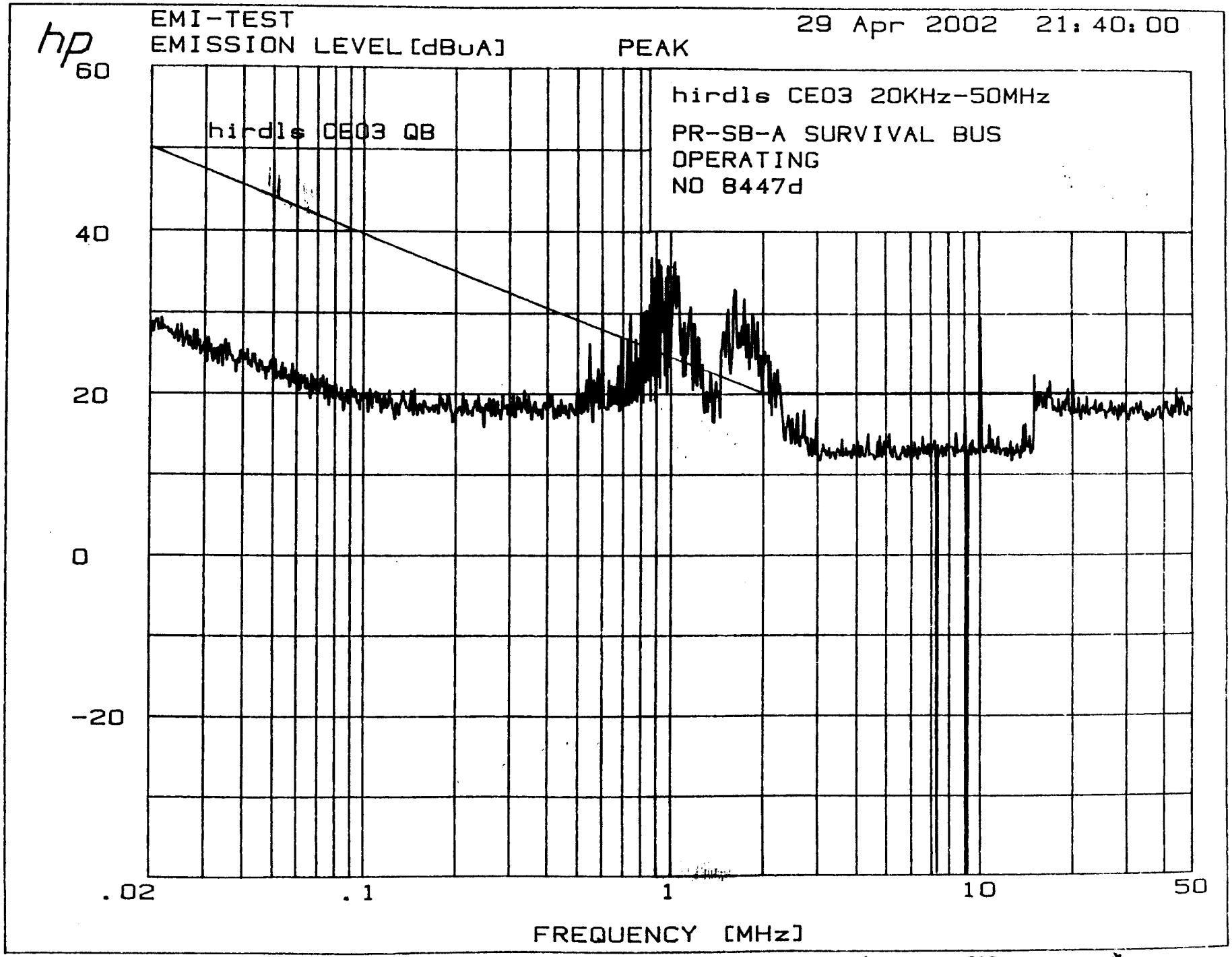
1. hirdls emi test
   1.13 hirdls CE03 20KHz-50MHz QB VER5

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PI-SB-A
OPERATING
W/ 8447D

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.5414	29.5	1.0
2	.5947	35.5	7.6
3	.7577	28.3	2.0
4	.7696	28.7	2.5
5	.7879	26.3	.3
6	.8003	32.1	6.2
7	.8193	27.8	2.0
8	.8519	34.3	8.8
9	.8859	30.2	4.9
10	.8999	33.8	8.6
11	.914	30.5	5.4
12	.9357	26.4	1.5
13	.9505	26.6	1.8
14	.9806	30.7	6.1
15	.9961	24.8	.3
16	1.036	28.1	3.9
17	1.06	32.7	8.6
18	1.094	27.2	3.3
19	1.111	29.3	5.5
20	1.129	24.3	.6
21	1.174	26.4	3.0
22	1.202	29.7	6.4
23	1.24	23.8	.7
24	1.351	22.7	.2
25	1.519	22.3	.6
26	1.592	24.1	2.7
27	1.643	28.5	7.3
28	1.669	29.6	8.5
29	1.722	26.9	6.0
30	1.79	25.6	4.9
31	1.818	27	6.4
32	1.847	27.9	7.4
33	1.966	25.5	5.4
34	1.997	28.3	8.3
35	2.029	24.7	4.7
36	2.077	27.1	7.1
37	2.16	24.7	4.7
38	2.	22	2.0
39	10.	30.9	10.9
40	10.	20.4	.4
41	16.1	20.5	.5
42	17	20.9	.9
43	17.96	20.2	.2
44	20.04	23.4	3.4


hp
EMI-TEST
EMISSION LEVEL [dBuA]
PEAK
29 Apr 2002 22:31:56
hirdls CE03 20KHz-50MHz
PI-SB-A SURVIVAL BUS
AMBIENT
NO 8447d
hirdls CE03 QB
60
40
20
0
-20
.02
.1
1
10
50
FREQUENCY [MHz]


EMI-TEST
29 Apr 2002 21:40:00
EMISSION LEVEL [dBuA]
PEAK
hp
60
40
20
0
-20
hirdls CE03 QB
hirdls CE03 20KHz-50MHz
PR-SB-A SURVIVAL BUS
OPERATING
NO 8447d
.02
.1
1
10
50
FREQUENCY [MHz]

EMI-TEST 29 Apr 2002 21:40:00

1. hirdls emi test
   1.13 hirdls CE03 20KHz-50MHz QB VER5

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

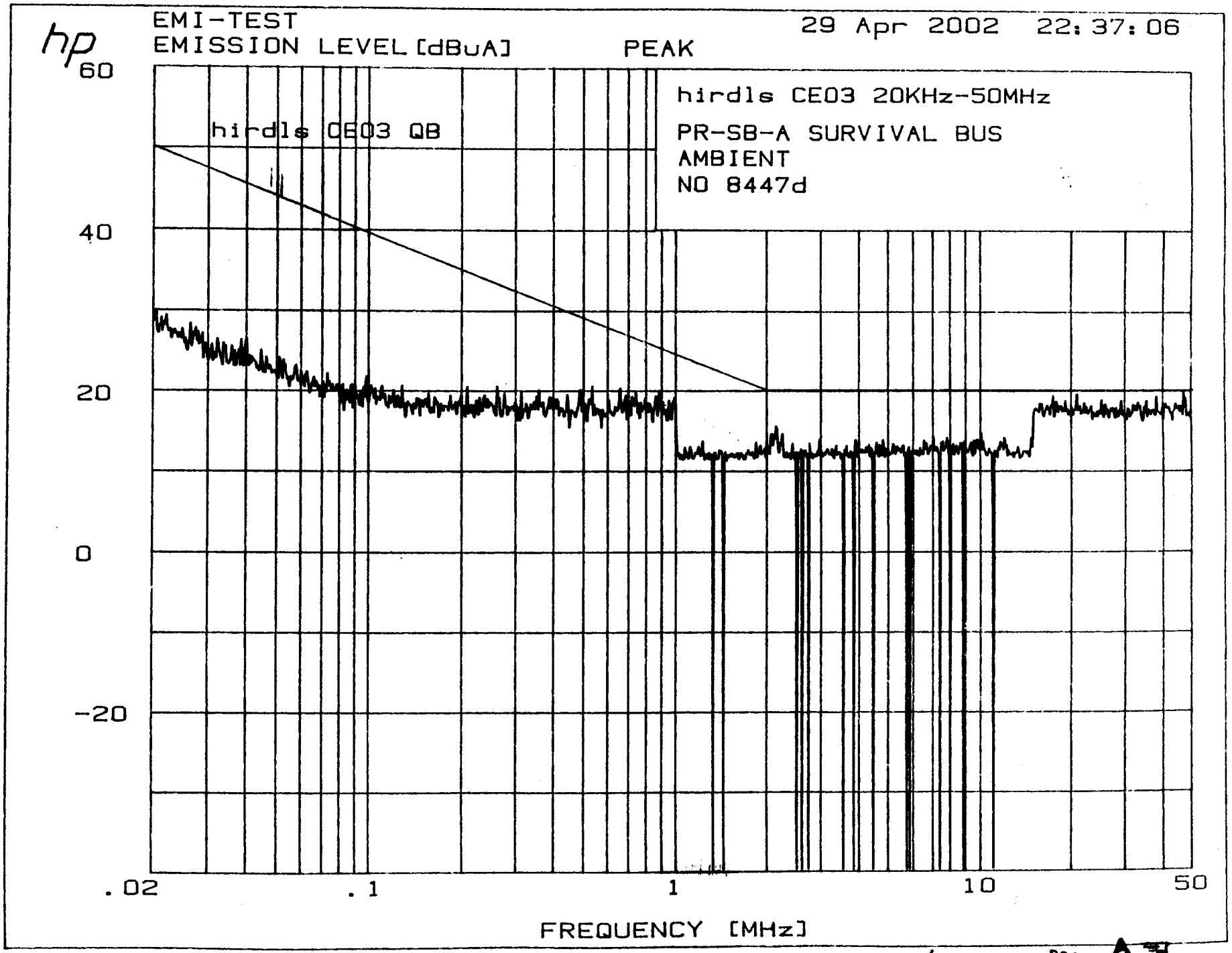
PR-SB-A
OPERATING
NO 9447D

D616071A 4/4/12

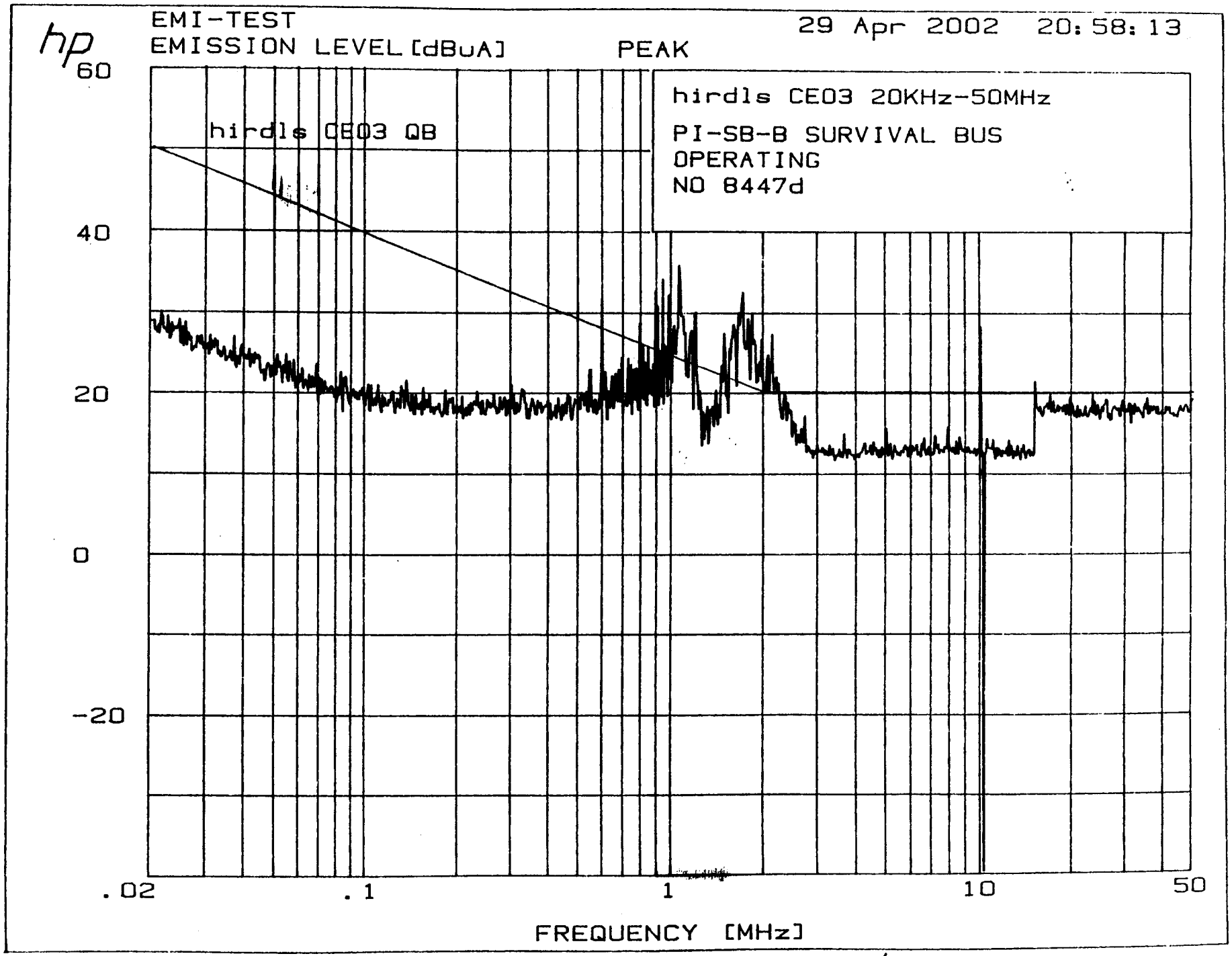
PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.5993	33.9	6.1
2	.6899	27.1	.2
3	.723	26.8	.2
4	.7401	29.8	3.4
5	.7696	26.8	.6
6	.8003	30	4.1
7	.8193	30.2	4.4
8	.8322	30.4	4.7
9	.8519	31.1	5.6
10	.8654	36.9	11.5
11	.8859	34.3	9.0
12	.8999	25.3	.1
13	.914	36.6	11.5
14	.9284	35.9	11.0
15	.9505	31.4	6.6
16	.9654	34.4	9.7
17	.9806	35.8	11.2
18	.9961	28.7	4.2
19	1.036	36.3	12.1
20	1.06	34.6	10.5
21	1.094	28.1	4.2
22	1.111	28.9	5.1
23	1.129	27.5	3.8
24	1.165	30.8	7.3
25	1.192	28.8	5.5
26	1.23	27.1	4.0
27	1.269	23.7	.8
28	1.351	22.6	.1
29	1.484	27.8	5.9
30	1.543	30.5	8.9
31	1.617	32.9	11.6
32	1.669	27.6	6.5
33	1.708	28.5	7.5
34	1.7[redacted]	31.8	10.9
35	1.[redacted]	28.7	8.0
36	1.[redacted]	26.1	5.5
37	1.[redacted]	30	9.5
38	1.921	29	8.8
39	1.951	24.8	4.7
40	2.029	25.3	5.3
41	2.109	24	4.0
42	2.176	22.6	2.6
43	2.228	23	3.0
44	2.263	21.2	1.2
45	10.07	29.5	9.5
46	15	22.4	2.4
47	15.36	20.2	.2
48	15.6	20.2	.2
49	16.61	20.7	.7
50	16.87	21.6	1.6
51	19.27	20.6	.6

52	20.04	21.8	1.8
53	44.12	20.7	.7

52	20.04	21.8	1.8
53	44.12	20.7	.7



4/29/02 PQC 686841 A 616071A



4/29/01 686MHz 11/20/02

EMI-TEST 29 Apr 2002 20:58:13

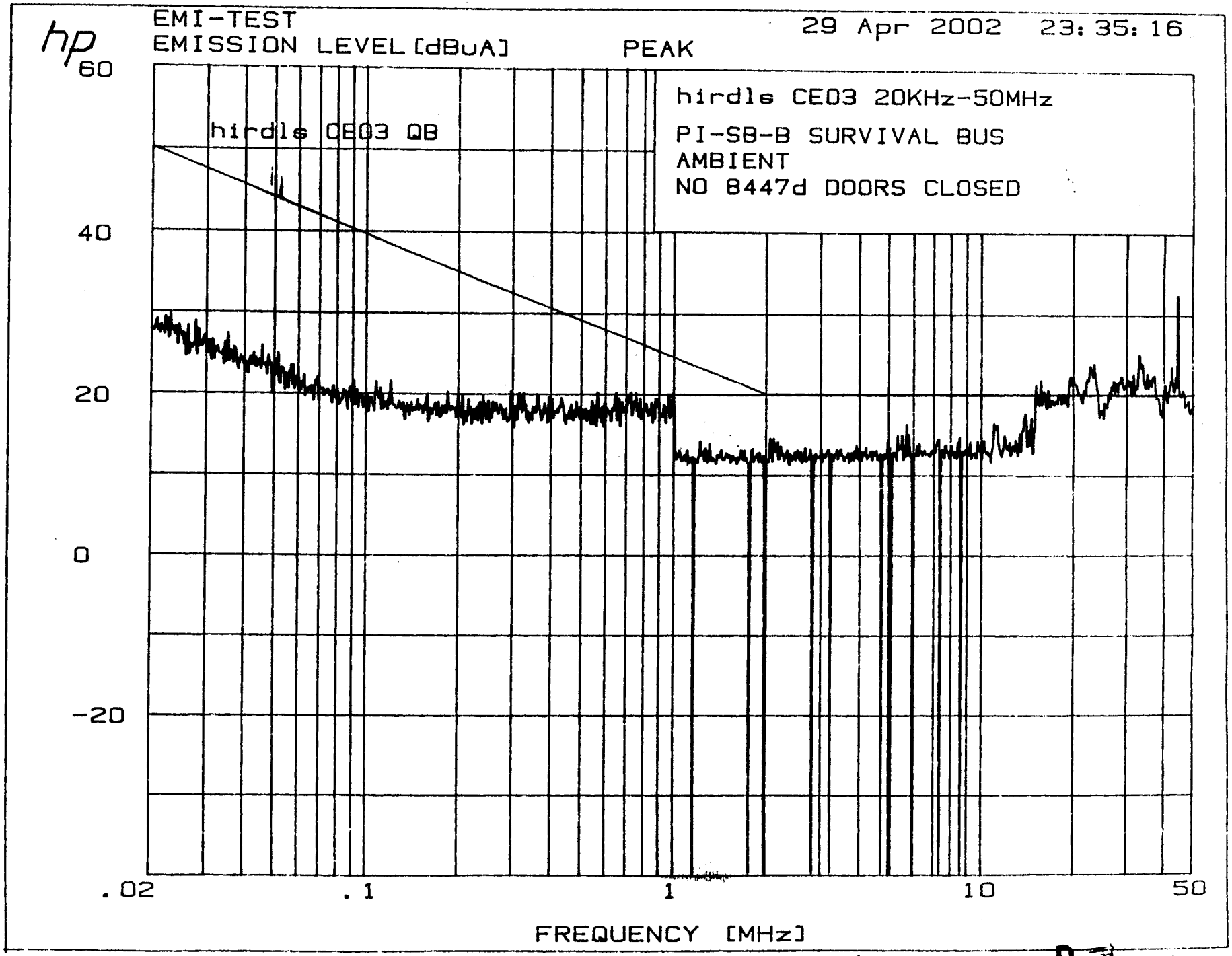
1. hirdls emi test
   1.13 hirdls CE03 20KHz-50MHz QB VER5

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PI-SB-B
OPERATING
NU 8447D

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.5947	31.5	3.6
2	.7879	28.7	2.7
3	.8859	32.7	7.4
4	.8999	30.8	5.6
5	.9357	34.1	9.2
6	.9505	26	1.2
7	.9654	25.8	1.1
8	.9806	32.2	7.6
9	.9961	25.6	1.1
10	1.02	28.3	4.0
11	1.06	35.8	11.7 ←
12	1.165	27.7	4.2
13	1.202	30	6.7
14	1.461	23.4	1.4
15	1.484	27.4	5.5
16	1.543	25.5	3.9
17	1.592	28.5	7.1
18	1.656	30	8.8
19	1.708	32.5	11.5
20	1.776	29.2	8.5
21	1.833	30	9.5
22	1.936	23.8	3.6
23	1.966	26.6	6.5
24	2.061	24.7	4.7
25	2.126	27.3	7.3
26	2.194	21.9	1.9
27	9.993	28.3	8.3
28	15	21.5	1.5

D 6/30/04 4/30/02



4/29/02 PQO D 616071A 4/3/02

EMI-TEST 29 Apr 2002 23:35:16

1. hirdls emi test
   1.13 hirdls CE03 20KHz-50MHz QB VER5

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

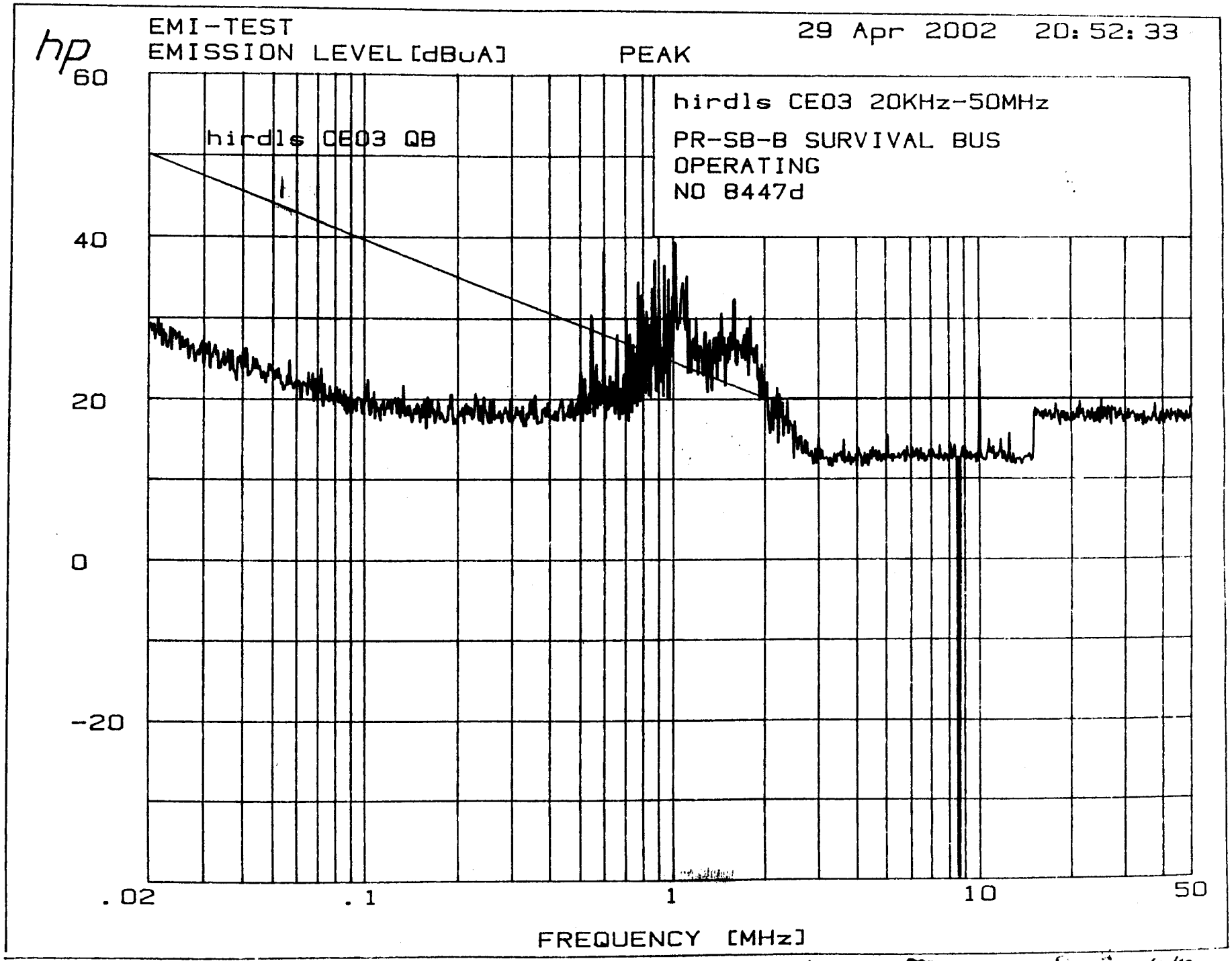
PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	15	21.4	1.4
2	15.6	21.9	1.9
3	15.97	20.5	.5
4	16.48	20.7	.7
5	17.82	20.1	.1
6	18.53	20.2	.2
7	19.42	22.4	2.4
8	22.53	23.7	3.7
9	23.24	24	4.0
10	26.97	21.8	1.8
11	27.39	21.6	1.6
12	28.48	22.4	2.4
13	29.85	22	2.0
14	31.28	22.7	2.7
15	32.78	25.2	5.2
16	34.9	22.7	2.7
17	36.86	22.5	2.5
18	40.17	21.3	1.3
19	42.1	23.6	3.6
20	43.44	22.3	2.3
21	44.12	32.5	12.5

PJ-SB-B
AMBIENT
WO 84470
DOORS CLOSED

D 616077A 4/30/02

[redacted]

[redacted]



4/29/02 PDC PDC 616071A 4/30/02

EMI-TEST 29 Apr 2002 20:52:33

1. hirdls emi test
   1.13 hirdls CE03 20KHz-50MHz QB VER5

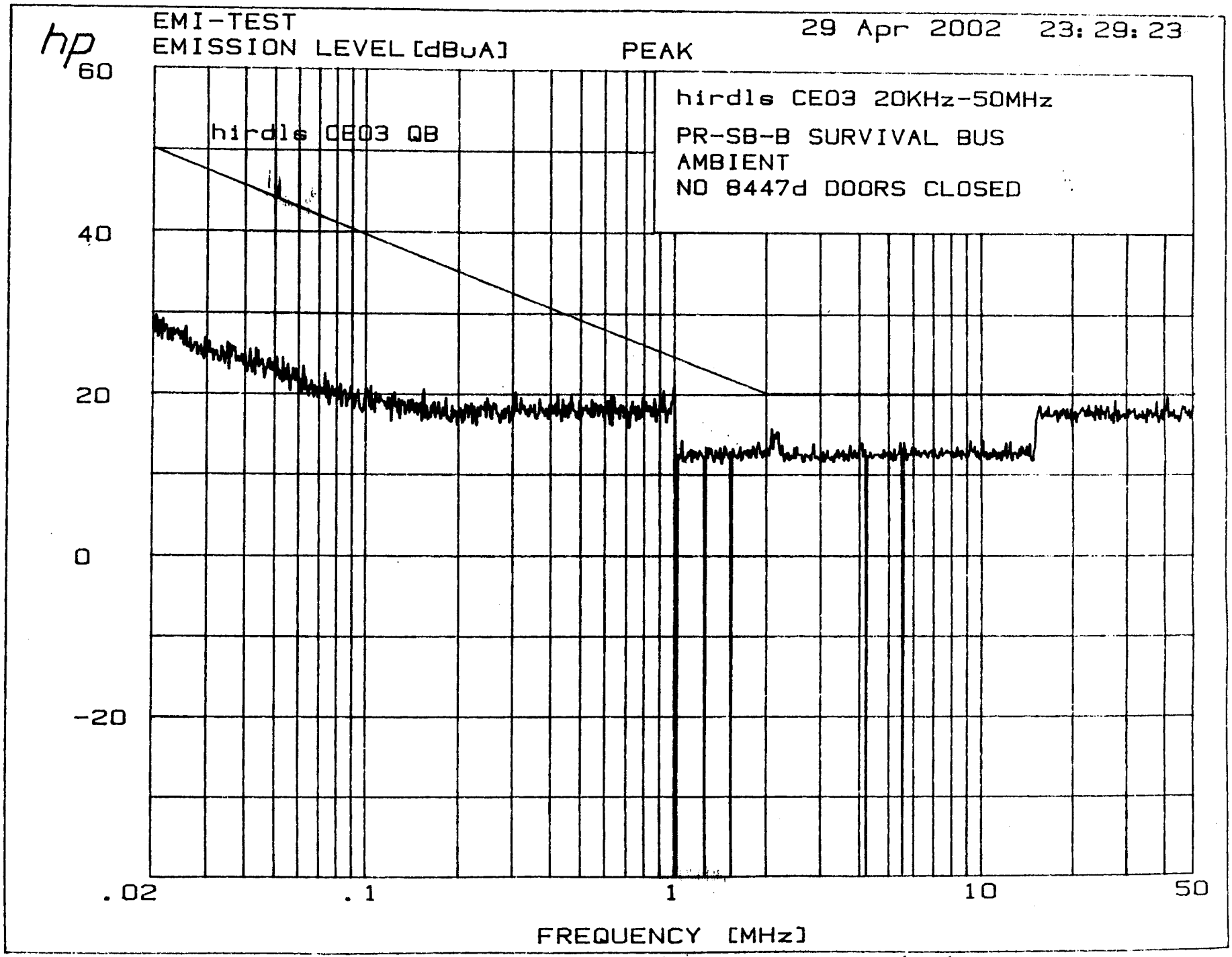
Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

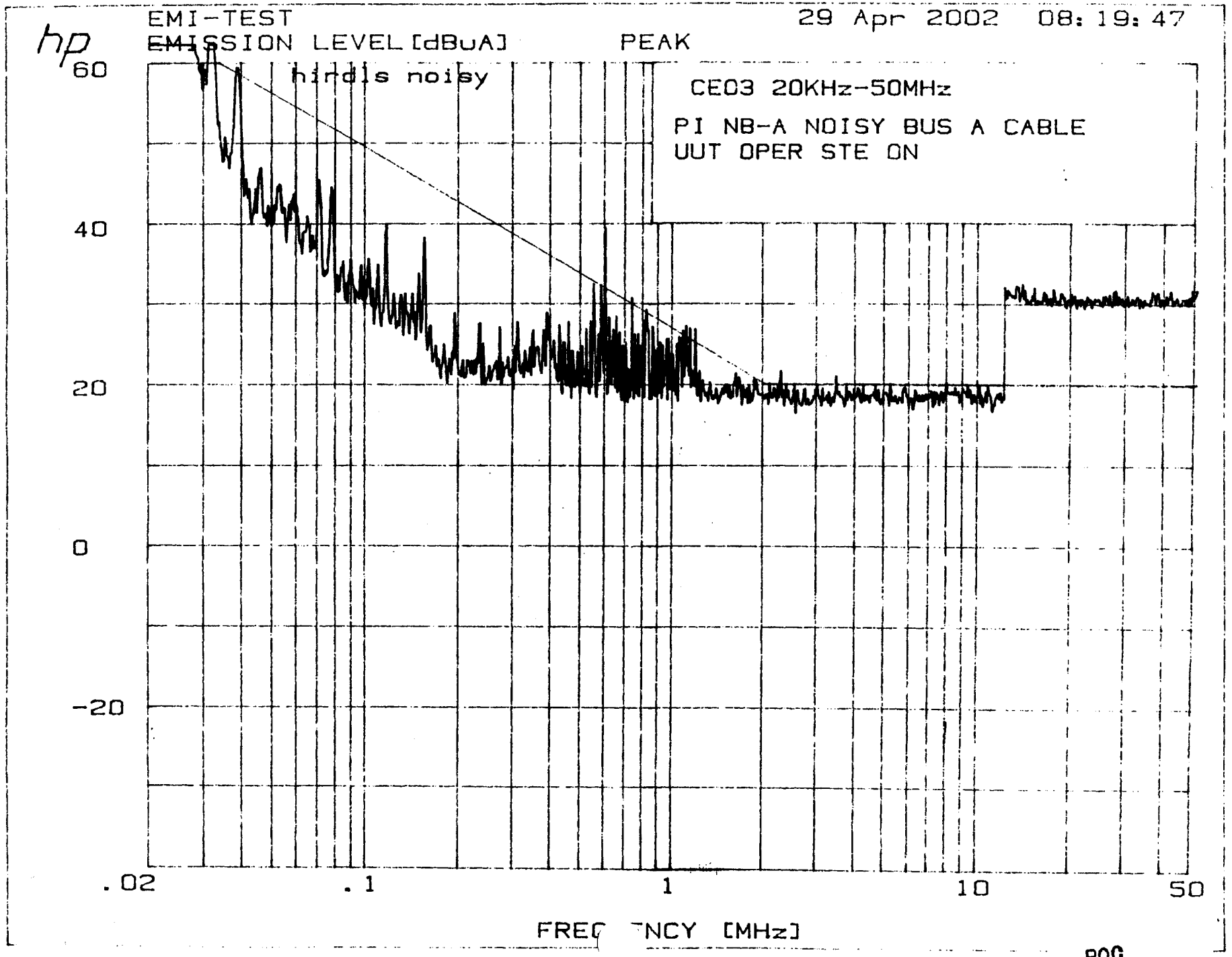
PR-SB-B
OPERATING
NO 9447D

D616071A
4/30/02

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.5414	30.5	2.0
2	.5947	38.2	10.3
3	.6583	28	.8
4	.7062	29.9	3.2
5	.723	28.1	1.5
6	.7401	26.8	.4
7	.7696	34.5	8.3
8	.7879	32.9	6.9
9	.8003	29.6	3.7
10	.8193	30.9	5.1
11	.8387	29.2	3.6
12	.8519	33.7	8.2
13	.8722	37.2	11.8
14	.8859	30.2	4.9
15	.8999	33.8	8.6
16	.9212	26.4	1.4
17	.9357	36.6	11.7
18	.9505	30.5	5.7
19	.9654	34.9	10.2
20	.9806	30.9	6.3
21	.9961	32.7	8.2
22	1.012	39.4	15.0
23	1.077	34.4	10.4
24	1.111	35.2	11.4
25	1.129	29.8	6.1
26	1.165	27.5	4.0
27	1.192	30.1	6.8
28	1.221	26.6	3.4
29	1.269	28.3	5.4
30	1.32	27.3	4.6
31	1.362	27.6	5.1
32	1.383	27.7	5.3
33	1.416	28.3	6.1
34	1.438	30.7	8.6
35	1.472	27.6	5.7
36	1.496	26.7	4.9
37	1.5[illegible]	27.7	6.0
38	1.[illegible]	28.3	6.7
39	1.[illegible]	32.4	11.0
40	1.63	27.3	6.0
41	1.708	28	7.0
42	1.749	28.8	8.0
43	1.79	30.3	9.6
44	1.876	26.7	6.3
45	1.906	23.8	3.5
46	1.951	24.3	4.2
47	2.029	22.1	2.1
48	2.109	20.1	.1
49	2.143	20.2	.2
50	2.194	21.4	1.4
51	2.228	20.6	.6

52	9.993	23.9	3.9

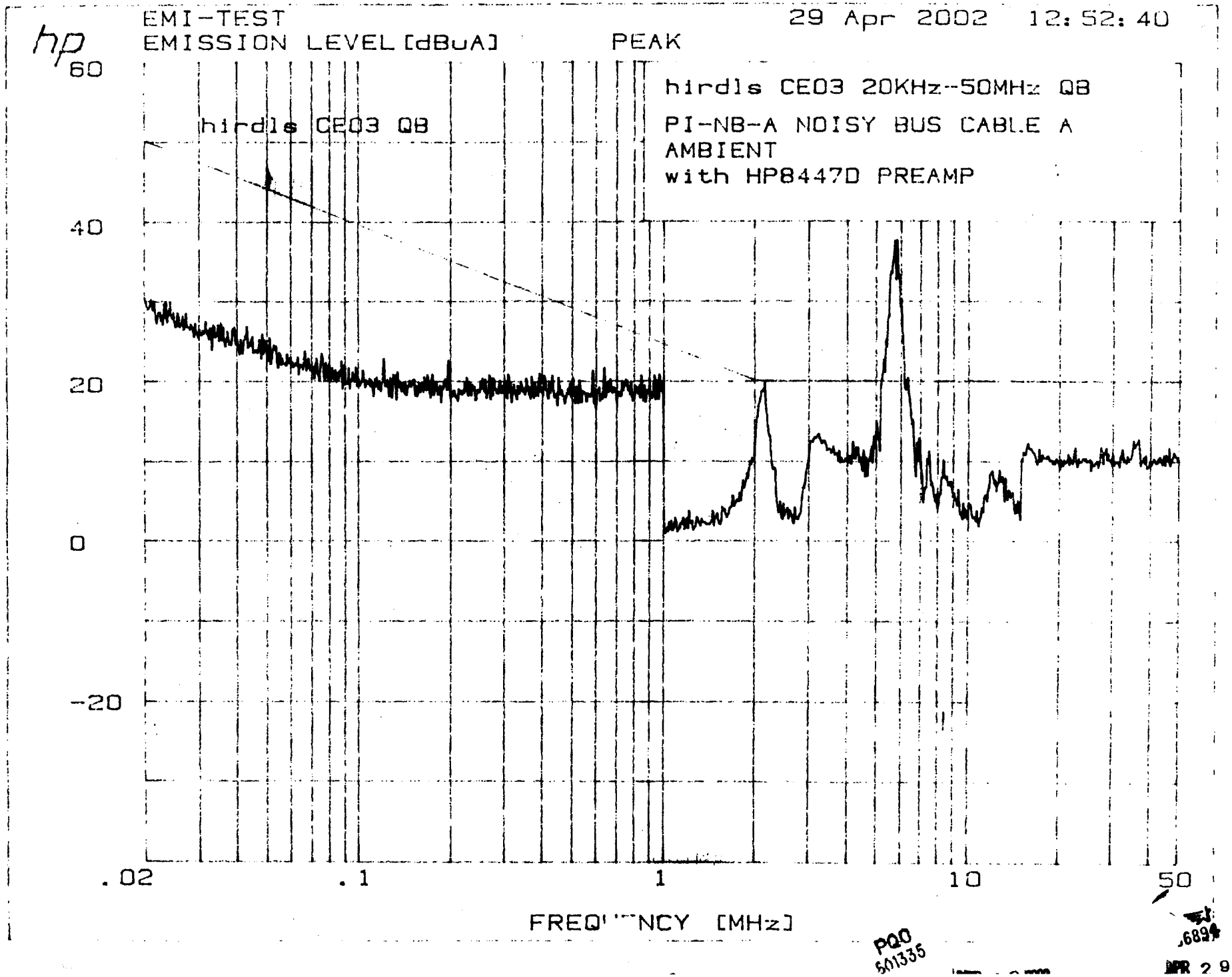

hp
EMI-TEST
EMISSION LEVEL [dBuA]
PEAK
29 Apr 2002 23:29:23
hirdls CE03 QB
hirdls CE03 20KHz-50MHz
PR-SB-B SURVIVAL BUS
AMBIENT
NO 8447d DOORS CLOSED
60
40
20
0
-20
.02
.1
1
10
50
FREQUENCY [MHz]



D 686894

PQC 616723

APR 2 9 2002



PQO
5013335

.6894

APR 2 9 2002

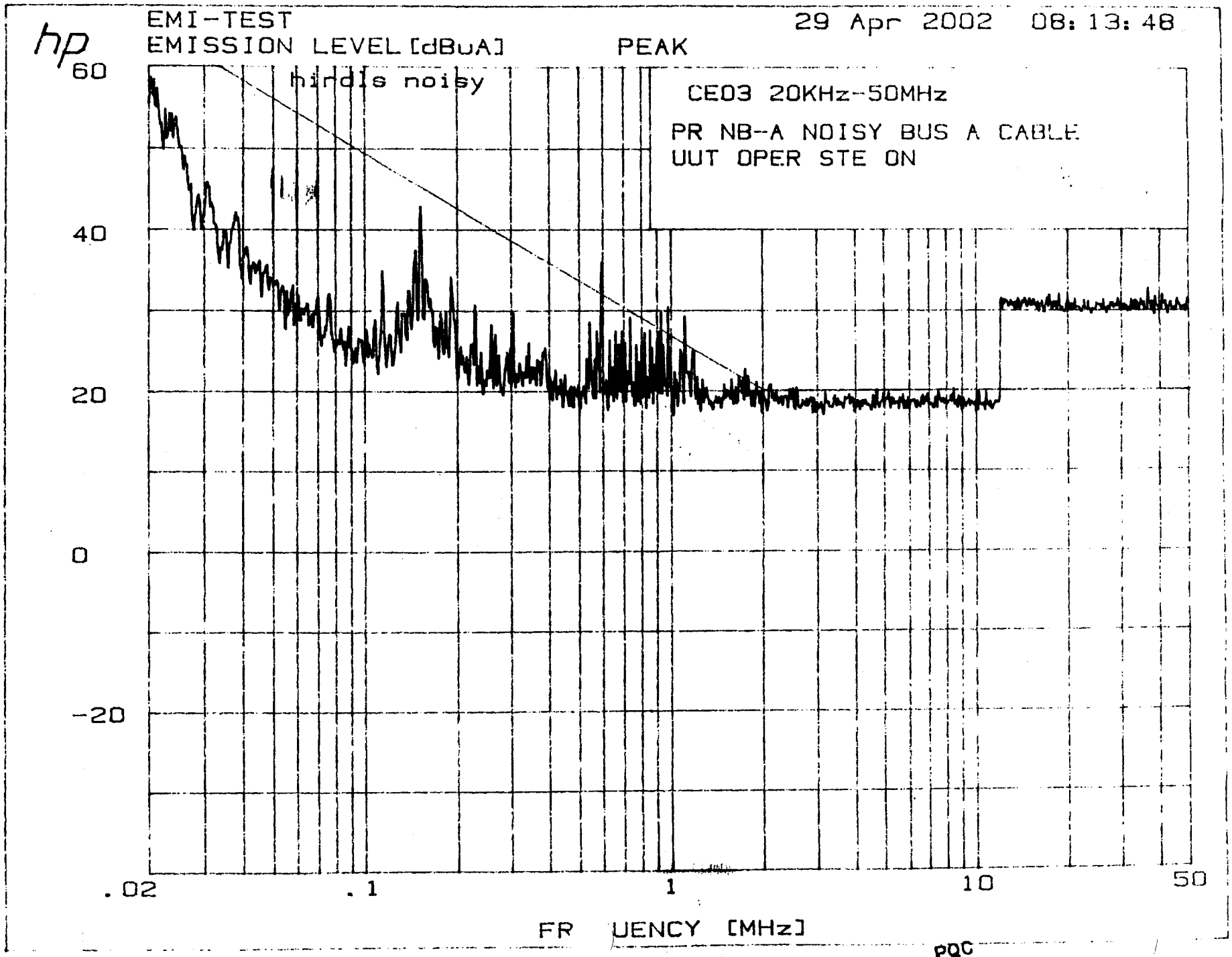
EMI-TEST 29 Apr 2002 12:52:40

1. hirdls emi test
   1.10 hirdls CE03 20KHz-50MHz VER3

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PI-NB-A
AMBIENT
WITH HP8447A

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	5.306	22.7	2.7
2	5.389	25.3	5.3
3	5.782	37.6	17.6
4	5.873	37.7	17.7
5	6.06	30.3	10.3
6	6.351	20.4	.4



PQC 601336 APR 29 2002

APR 29 2002

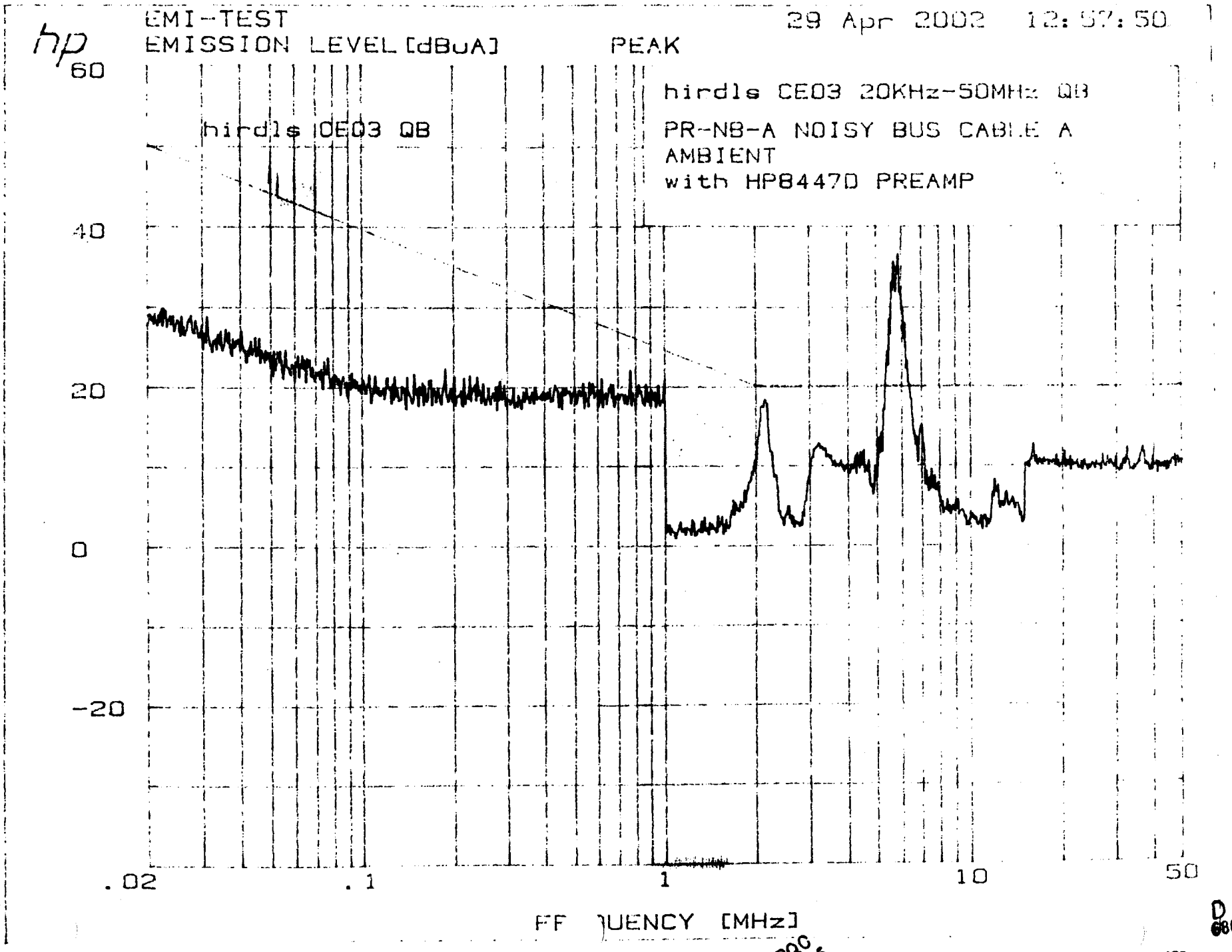
1. hirdls emi test
1.8 NOISY 20K-50 MHz CE03

PR-NB A

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.5947	36	4.2
2	.9284	29.8	2.4
3	.9806	30.5	3.6
4	1.111	29.3	3.6
5	1.669	21.8	.1
6	1.749	22.8	1.5
7	1.79	21.9	.9
8	1.906	21.2	.8
9	1.997	20.3	.3
10	2.093	20.8	.8
11	2.447	20.2	.2
12	2.505	20.3	.3
13	2.565	20.5	.5
14	4.719	20.1	.1
15	8.414	20.3	.3
16	12.15	31.6	11.6
17	12.34	31.4	11.4
18	13.77	31.6	11.6
19	14.43	31.6	11.6
20	16.48	31.2	11.2
21	17.14	31.6	11.6
22	17.41	32	12.0
23	18.67	32.1	12.1
24	19.88	31.4	11.4
25	21	31.5	11.5
26	22.53	31.3	11.3
27	23.24	31.2	11.2
28	26.14	31.4	11.4
29	29.16	31.5	11.5
30	32.28	31.4	11.4
31	33.04	31.3	11.3
32	34.63	31.4	11.4
33	36.58	32.8	12.8
34	37.74	31.2	11.2
35	38.63	31.8	11.8
36	40.8	32.1	12.1
37	43.44	31.1	11.1
38	45.5[redacted]	31.5	11.5

D6160/A 2/9/94



D 086894
PQC 21336
APR 29 2002

EMI-TEST 29 Apr 2002 12:57:50

1. hirdls emi test
   1.10 hirdls CE03 20KHz-50MHz VER3

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

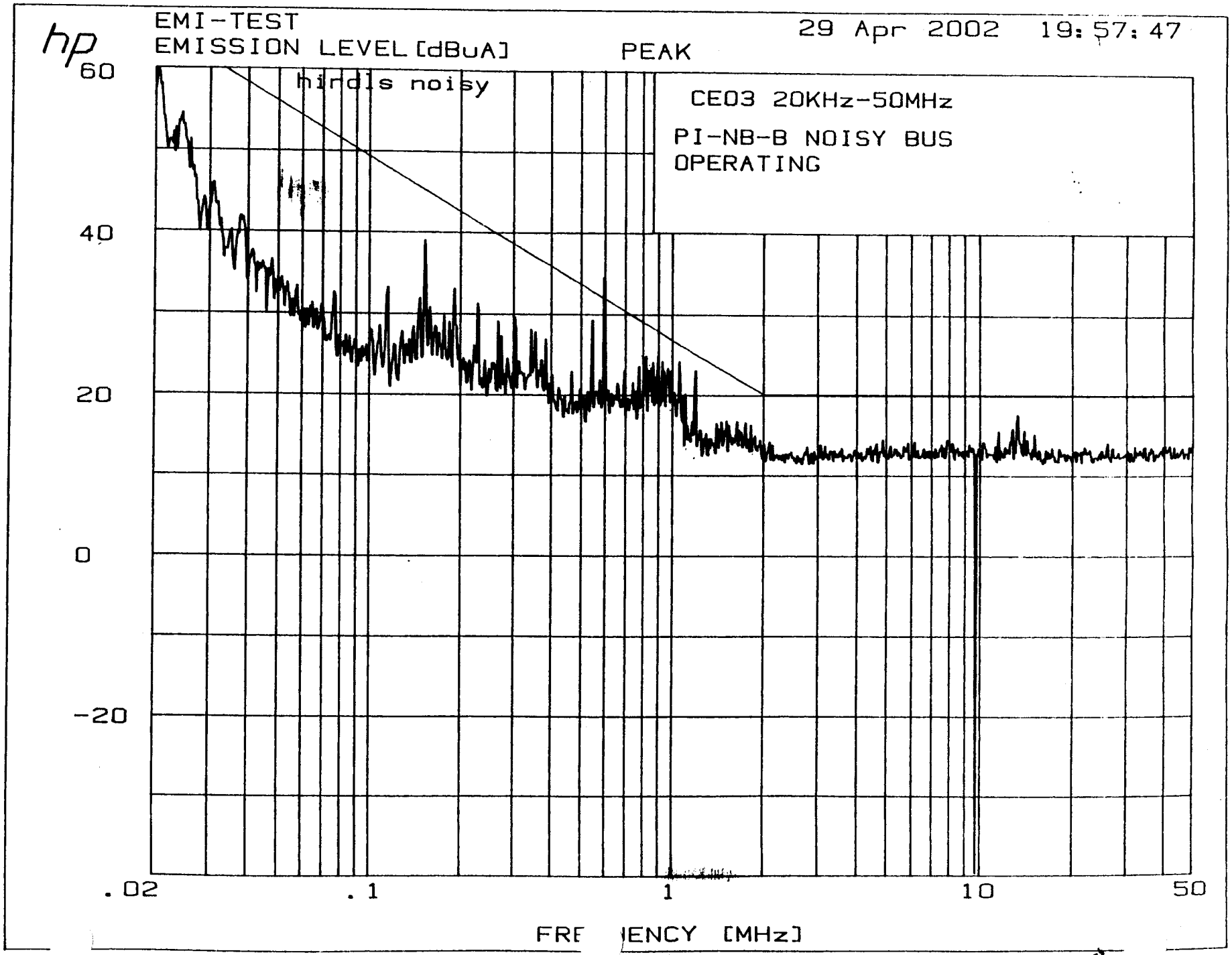
PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	5.389	24.5	4.5
2	5.474	28.5	8.5
3	5.648	35.7	15.7
4	5.873	36.6	16.6
5	6.155	28	8.0

PR-NB-A
AMBIENT
w/ HP8447A

Pass 4/30/02

[redacted]

[redacted]


hp
EMI-TEST
EMISSION LEVEL [dBuA]
PEAK
29 Apr 2002 19:57:47
hirdis noisy
CE03 20KHz-50MHz
PI-NB-B NOISY BUS
OPERATING
60
40
20
0
-20
.02
.1
1
10
50
FRE ENCY [MHz]

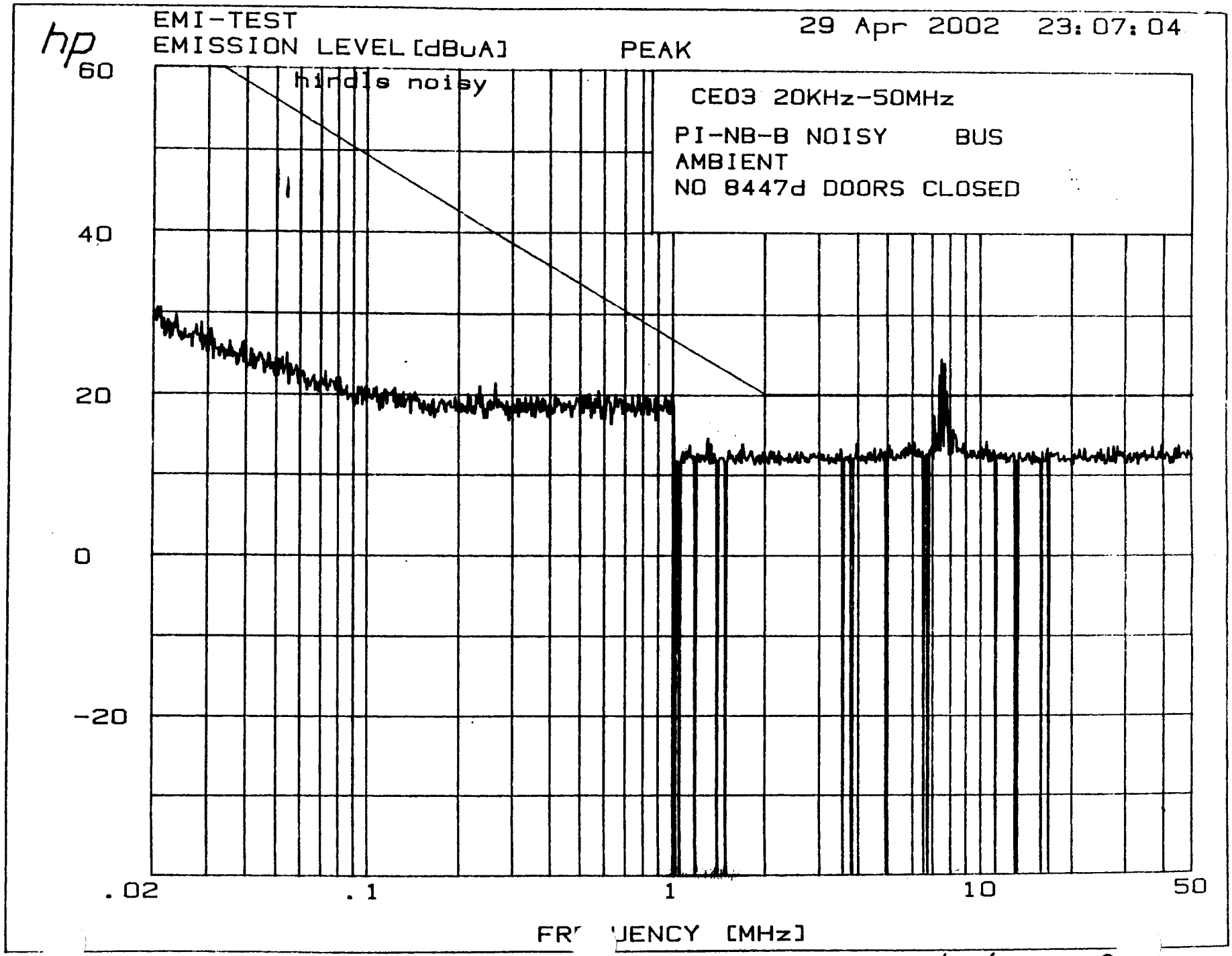
EMI-TEST 29 Apr 2002 19:57:47

1. hirdls emi test
1.12 CE03 20KHz-50MHz NOISY VERSION 2 PI-NB-B

Peaks above 0 dB of Limit Line #1 OPER
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.5947	34.5	2.7

4/30/02


EMI-TEST
29 Apr 2002 23:07:04
EMISSION LEVEL [dBuA]
PEAK
hirdls noisy
CE03 20KHz-50MHz
PI-NB-B NOISY BUS
AMBIENT
NO 8447d DOORS CLOSED
60
40
20
0
-20
.02
.1
1
10
50
FREQUENCY [MHz]

EMI-TEST 29 Apr 2002 23:07:04

1. hirdls emi test
   1.12 CE03 20KHz-50MHz NOISY VERSION 2

PI-NB-B
AMBIENT
NO 8447D
DOOR CLOSED

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	7.31	22.6	2.6
2	7.425	24.6	4.6
3	7.601	24.1	4.1
4	7.721	20.6	.6

Passed
4/30/02

EMI-TEST 29 Apr 2002 23:07:04

1. hirdls emi test
   1.12 CE03 20KHz-50MHz NOISY VERSION 2

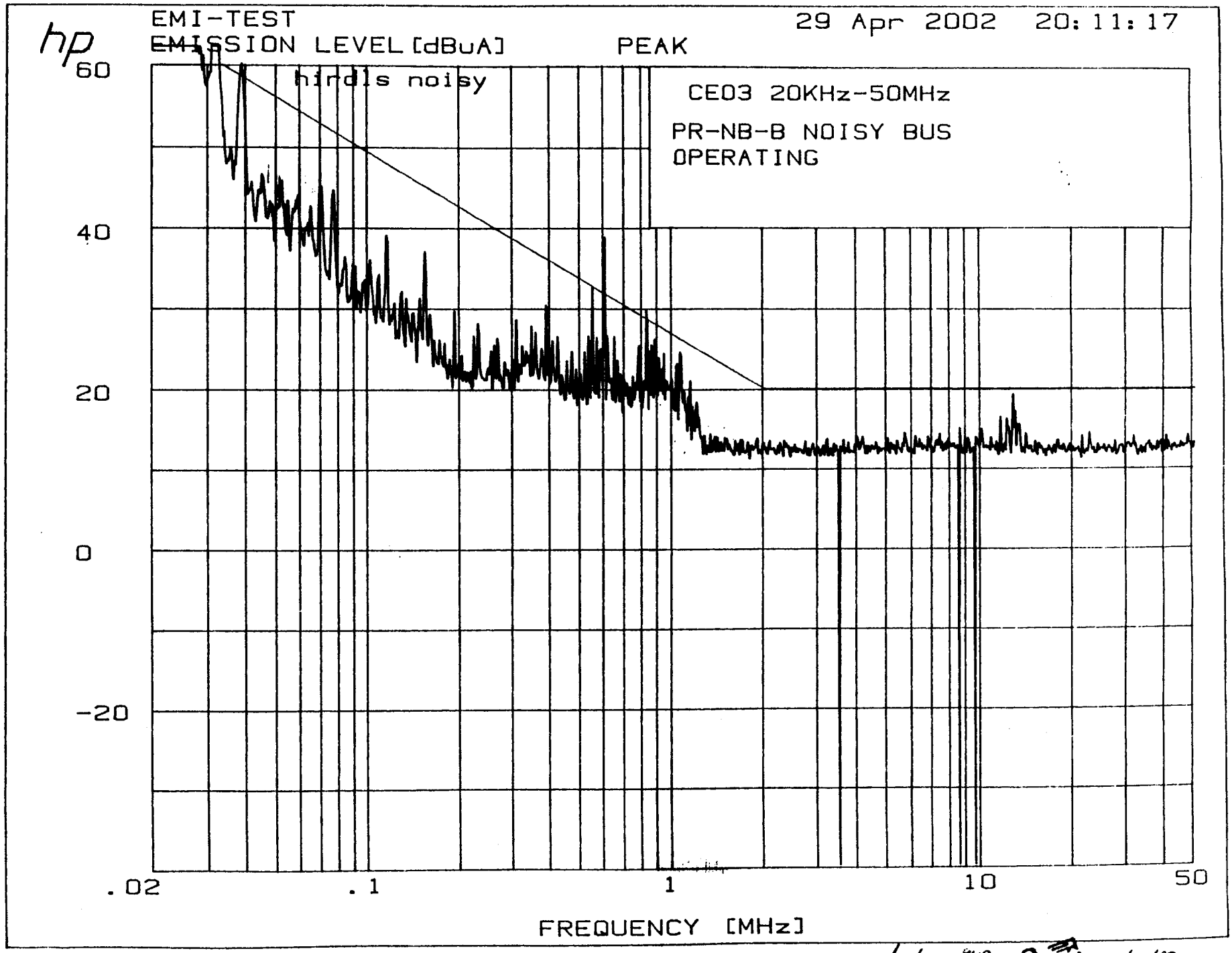
Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PI-NB-B
AMBIENT
NO 8447D
DOORS CLOSED

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	7.31	22.6	2.6
2	7.425	24.6	4.6
3	7.601	24.1	4.1
4	7.721	20.6	.6

P 160714 1/30/02

Duplicate copy



4/29/02 P40 886843 D 5960-7071A 4/24/02

EMI-TEST 29 Apr 2002 20:11:17

1. hirdls emi test
   1.12 CE03 20KHz-50MHz NOISY VERSION 2

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PR-NB-B
OPERATING

PEAK#	FREQ (MHz)	(dBuA)		DELTA
1	.03074	62.3	OVRRNG	1.6
2	.03856	60.2	OVRRNG	1.7
3	.5457	32.7		.1
4	.5993	38.9		7.2
5	.8193	29.8		1.1

D 616077A 4/30/02

EMI-TEST 29 Apr 2002 20:11:17

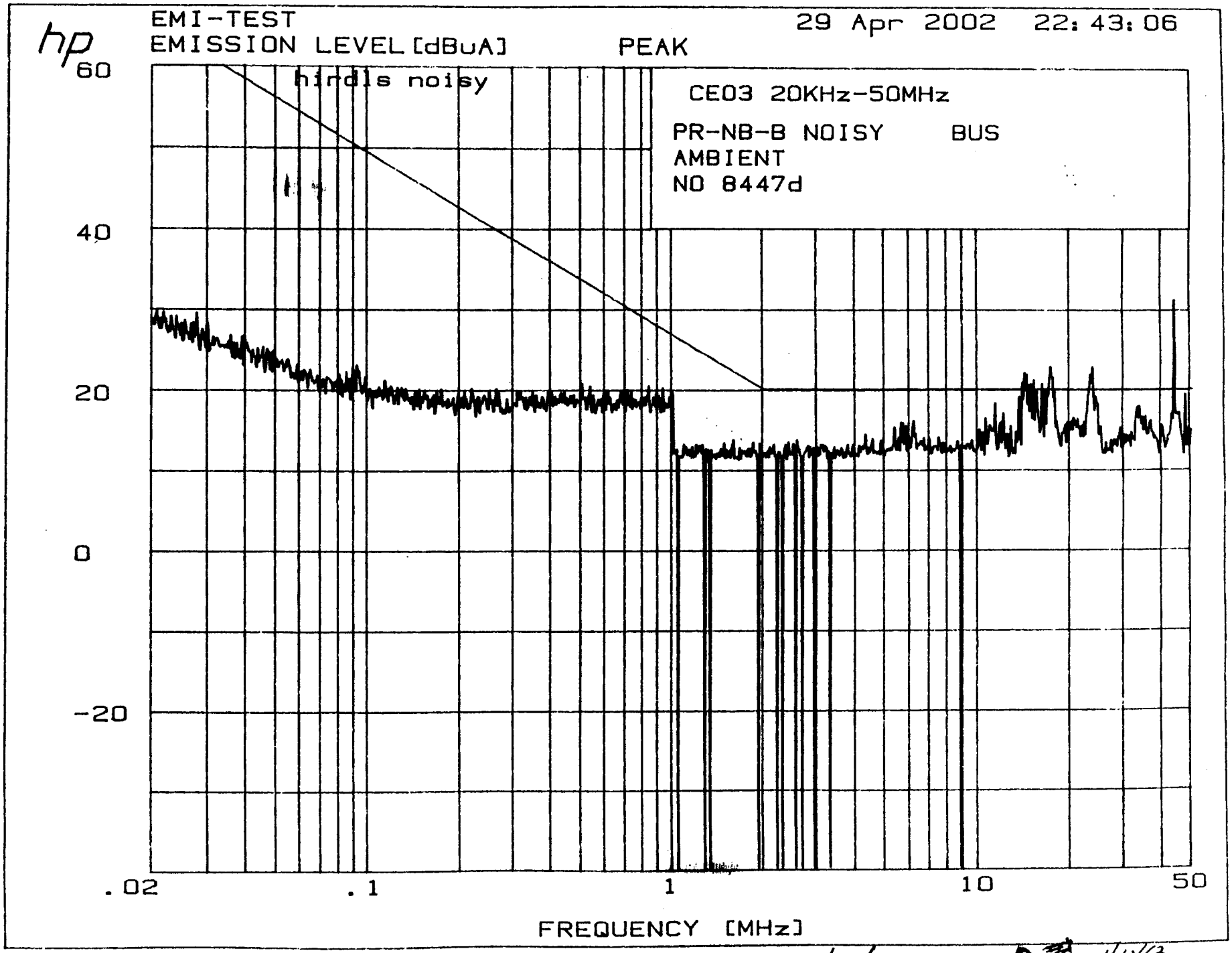
1. hirdls emi test
   1.12 CE03 20KHz-50MHz NOISY VERSION 2 PI-NB-B OPER.

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)		DELTA
1	.03074	62.3	OVRRNG	1.6
2	.03856	60.2	OVRRNG	1.7
3	.5457	32.7		.1
4	.5993	38.9		7.2
5	.8193	29.8		1.1

Duplicate printout FYI

D616071A 4/30/02



4/29/13 PQC

D 6160714 4/30/02

EMI-TEST 29 Apr 2002 22:43:06

1. hirdls emi test
   1.12 CE03 20KHz-50MHz NOISY VERSION 2

Peaks above 0 dB of Limit Line #1
peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	43.78	31.3	11.3
2	17.14	22.9	2.9
3	23.43	22.9	2.9
4	14.09	22.2	2.2
5	16.1	20.8	.8

PR-NB-B CE03 VER.5 AMB. 4/29/02

PQC
686843

D616071A 4/30/02

[redacted]

[redacted]

EMI-TEST 29 Apr 2002 22:43:06

1. hirdls emi test
   1.12 CE03 20KHz-50MHz NOISY VERSION 2

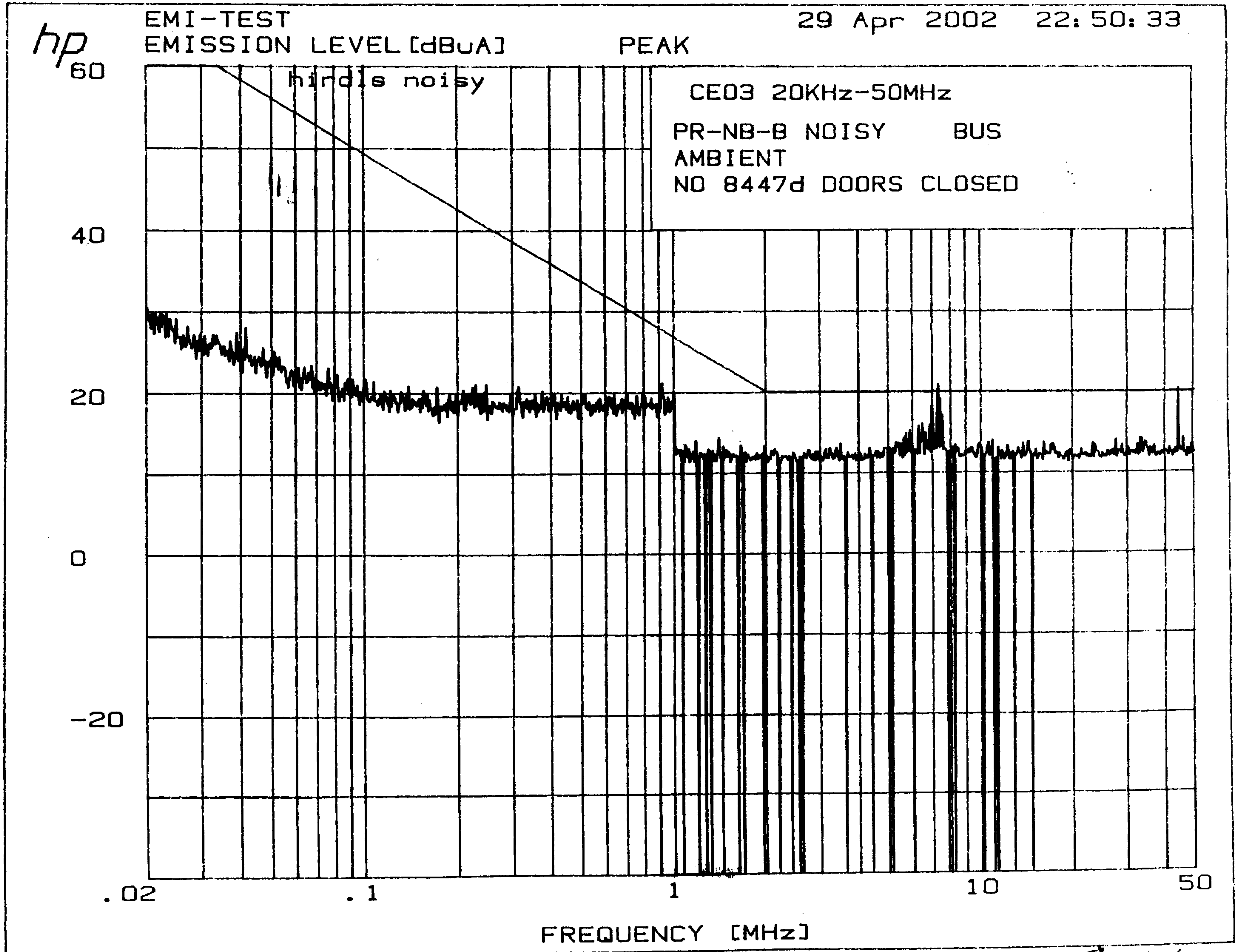
Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PR-WR-B
AMBIENT
WO 84470

B 6160 7a
4/4/02

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	13.88	21	1.0
2	14.09	22.2	2.2
3	14.54	20.6	.6
4	14.77	20.8	.8
5	15.12	21.3	1.3
6	16.1	20.8	.8
7	17.14	22.9	2.9
8	23.06	21.9	1.9
9	23.43	22.9	2.9
10	43.78	31.3	11.3

Duplicate printout


hp
EMI-TEST
EMISSION LEVEL [dBuA]
PEAK
29 Apr 2002
22:50:33
hirdls noisy
CE03 20KHz-50MHz
PR-NB-B NOISY BUS
AMBIENT
NO 8447d DOORS CLOSED
60
40
20
0
-20
.02
.1
1
10
50
FREQUENCY [MHz]

EMI-TEST 29 Apr 2002 22:50:33

1. hirdls emi test
   1.12 CE03 20KHz-50MHz NOISY VERSION 2

Peaks above 0 dB of Limit Line #1
peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	7.253	21	1.0
2	44.12	20.5	.5

PQC 686843

PR-NB-B CE03 VER.5 AMB 4/29/02 D616071A 4/29/02

DOOR CLOSED.

EMI-TEST 29 Apr 2002 22:50:33

1. hirdls emi test
   1.12 CE03 20KHz-50MHz NOISY VERSION 2

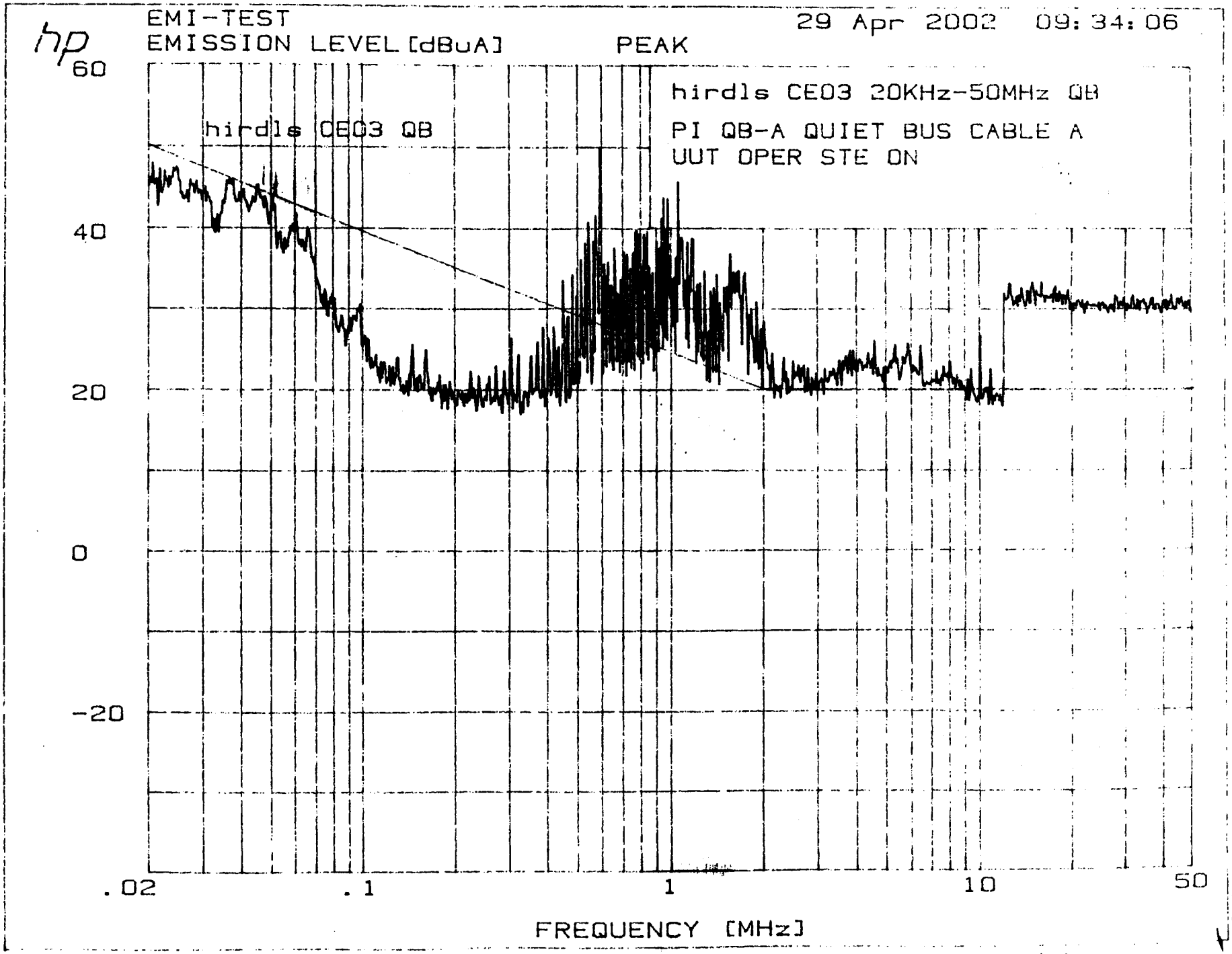
Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	7.253	21	1.0
2	44.12	20.5	.5

PR-NB-B
AMBIENT
WO 84470
DOOR CLOSED

Duplicate printout TC

D616 Ria 4/24/02


EMI-TEST
29 Apr 2002 09:34:06
EMISSION LEVEL [dBuA]
PEAK
hirdls CE03 QB
hirdls CE03 20KHz-50MHz QB
PI QB-A QUIET BUS CABLE A
UUT OPER STE ON
60
40
20
0
-20
.02
.1
1
10
50
FREQUENCY [MHz]

PQC
A01335

EMI-TEST 29 Apr 2002 09:34:06

1. hirdls emi test
   1.2 hirdls CE03 20KHz-50MHz QB

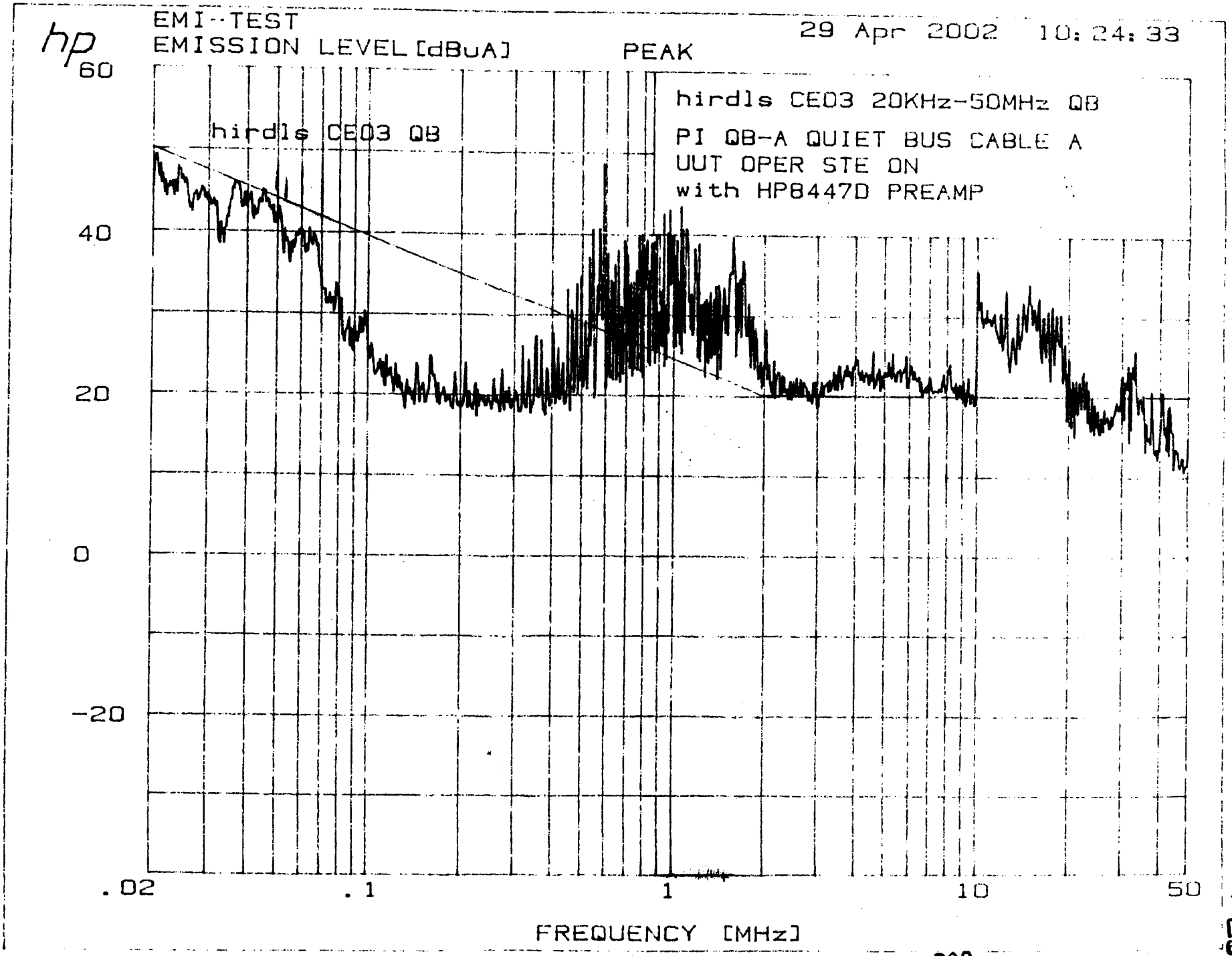
Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PI-QB-A
ULT OPER
STE ON

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.03767	46	.2
2	.04544	45.3	.7
3	.0507	44	.1
4	.4488	33.5	3.8
5	.4815	34.2	5.0
6	.4968	31.6	2.6
7	.5126	36.1	7.3
8	.5289	38.2	9.6
9	.5414	40.8	12.3
10	.563	38.4	10.2
11	.5719	41.6	13.5
12	.59	50	22.1
13	.6088	35.6	7.9
14	.6281	35.8	8.3
15	.643	33	5.7
16	.6583	37.6	10.4
17	.6739	31.9	4.9
18	.6899	33.7	6.8
19	.7062	37.1	10.4
20	.723	36.8	10.2
21	.7401	35	8.6
22	.7577	37	10.7
23	.7757	39.7	13.6
24	.7879	39.3	13.3
25	.8066	35.2	9.3
26	.8193	39.3	13.5
27	.8387	39.6	14.0
28	.8519	35.3	9.8
29	.8722	34.5	9.1
30	.8859	29.3	4.0
31	.8999	38.4	13.2
32	.9212	37.6	12.6
33	.9357	41.3	16.4
34	.9505	43.8	19.0
35	.9654	39.8	15.1
36	.9806	43.7	19.1
37	1.012	33.7	9.3
38	1.028	33.9	9.6
39	1.044	36.4	12.2
40	1.06	45.8	21.7
41	1.086	38.9	15.0
42	1.12	33.5	9.8
43	1.138	38.3	14.7
44	1.156	34	10.5
45	1.174	38.7	15.3
46	1.202	32	8.7
47	1.221	33.1	9.9
48	1.25	33.2	10.2
49	1.269	27	4.1
50	1.289	34.7	11.9
51	1.33	27.2	4.6

52	1.351	32.2	9.7
53	1.383	32.6	10.2
54	1.416	34.3	12.1
55	1.45	30.8	8.8
56	1.496	32.7	10.9
57	1.531	32.8	11.1
58	1.567	36.9	15.4
59	1.605	34.6	13.2
60	1.643	34.6	13.4
61	1.669	34.8	13.7
62	1.749	34.5	13.7
63	1.804	29.2	8.6
64	1.833	29.8	9.3
65	1.906	30.9	10.6
66	1.966	27.5	7.4
67	2.013	28.4	8.4
68	2.143	24.5	4.5
69	2.194	20.6	.6
70	2.335	24	4.0
71	2.372	22.2	2.2
72	2.409	21.4	1.4
73	2.505	23.6	3.6
74	2.605	23	3.0
75	2.709	23	3.0
76	2.752	21.3	1.3
77	2.795	22.7	2.7
78	2.884	21.5	1.5
79	2.975	22	2.0
80	3.094	21.4	1.4
81	3.167	22.6	2.6
82	3.372	22.6	2.6
83	3.534	23.6	3.6
84	3.617	23.6	3.6
85	3.703	24.2	4.2
86	3.821	24.8	4.8
87	3.912	24.9	4.9
88	4.004	23.5	3.5
89	4.099	23.8	3.8
90	4.364	24.5	4.5
91	4.502	23.8	3.8
92	4.573	26.1	6.1
93	4.719	22.7	2.7
94	4.9[illegible]	22.7	2.7
95	5.[illegible]	25.5	5.5
96	5.[illegible]	25.7	5.7
97	6.451	25.5	5.5
98	7.253	22.4	2.4
99	7.661	22.9	2.9
100	8.029	23.5	3.5
101	8.48	21.8	1.8
102	9.17	21.3	1.3
103	9.387	22.6	2.6
104	10.07	26.7	6.7
105	10.47	20.2	.2
106	10.89	22.6	2.6
107	12.54	33.2	13.2
108	13.24	31.5	11.5
109	13.77	32.6	12.6
110	14.32	32.3	12.3
111	14.89	33.3	13.3
112	15.97	33.4	13.4

113	17.68	32.8	12.8
114	18.24	32.2	12.2
115	18.82	31.7	11.7
116	19.42	32.4	12.4
117	21	31.1	11.1
118	22.53	30.9	10.9
119	25.33	30.8	10.8
120	27.82	31.8	11.8
121	29.62	31.3	11.3
122	31.78	31.7	11.7
123	33.04	31.2	11.2
124	34.63	31.2	11.2
125	37.15	31.4	11.4
126	40.49	31.1	11.1
127	42.76	31.8	11.8
128	46.24	31.5	11.5



D 686894
PQC 601335 APR 29 2002

EMI-TEST 29 Apr 2002 10:24:33

1. hirdls emi test
   1.9 hirdls CE03 20KHz-50MHz QB ver2

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PI-Q13-A
UUT OPER STE ON
WITH 8447D

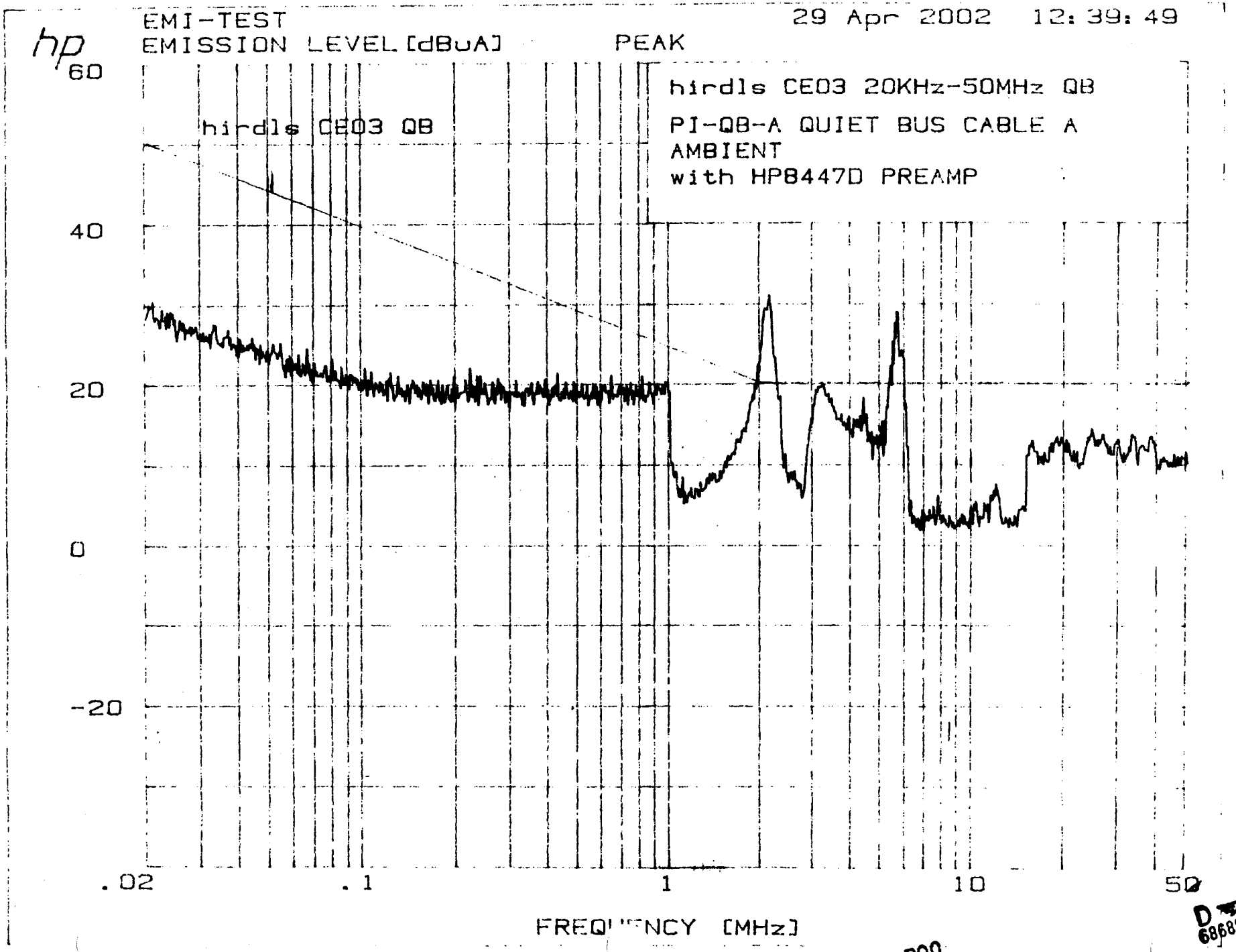
PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.04509	45.1	.4
2	.4488	33.2	3.5
3	.4631	30.6	1.1
4	.4815	33.9	4.7
5	.4968	34.8	5.8
6	.5126	29.2	.4
7	.5289	37.2	8.6
8	.5414	40.7	12.2
9	.563	33.7	5.5
10	.5719	40.8	12.7
11	.59	48.7	20.8
12	.6088	37.7	10.0
13	.6232	34.4	6.9
14	.643	36.4	9.1
15	.6583	38.1	10.9
16	.6739	31.1	4.1
17	.6899	39.3	12.4
18	.7062	37.5	10.8
19	.723	34.1	7.5
20	.7401	34.2	7.8
21	.7577	35.7	9.4
22	.7696	39.8	13.6
23	.7879	40.1	14.1
24	.8003	38.5	12.6
25	.8193	39.4	13.6
26	.8322	35.6	9.9
27	.8519	39	13.5
28	.8654	39.2	13.8
29	.879	39.9	14.6
30	.8929	30.4	5.2
31	.914	33	7.9
32	.9284	42.6	17.7
33	.9431	31.3	6.5
34	.9579	40.3	15.6
35	.973	43.1	18.5
36	.9961	40	15.5
37	1.0[redacted]	37.5	13.1
38	1.0[redacted]	39.4	15.1
39	1.0[redacted]	34.2	10.0
40	1.06	43.6	19.5
41	1.077	40.8	16.8
42	1.103	40.8	17.0
43	1.156	32.7	9.2
44	1.183	38.4	15.0
45	1.221	39	15.8
46	1.25	31.4	8.4
47	1.269	31.8	8.9
48	1.289	32.2	9.4
49	1.33	33	10.4
50	1.362	32.1	9.6
51	1.383	33.7	11.3

D 6160 A 4/30/02

[redacted]

	1.416	33.9	11.7
53	1.472	33.5	11.6
54	1.507	31.3	9.5
55	1.58	39.8	18.3
56	1.63	34.1	12.8
57	1.669	34.6	13.5
58	1.708	37	16.0
59	1.776	31.6	10.9
60	1.818	30	9.4
61	1.876	28.5	8.1
62	1.951	24.2	4.1
63	2.029	28.5	8.5
64	2.077	24	4.0
65	2.126	21.7	1.7
66	2.16	24.5	4.5
67	2.228	23	3.0
68	2.299	22.6	2.6
69	2.335	22.4	2.4
70	2.447	21.9	1.9
71	2.505	21.9	1.9
72	2.565	22.3	2.3
73	2.646	22.1	2.1
74	2.709	21.8	1.8
75	2.817	20.6	.6
76	2.906	21.8	1.8
77	2.952	21.8	1.8
78	3.094	21.8	1.8
79	3.242	21.7	1.7
80	3.294	22.1	2.1
81	3.398	23.1	3.1
82	3.452	22.7	2.7
83	3.534	23.9	3.9
84	3.762	23.9	3.9
85	4.067	24.7	4.7
86	4.197	23.3	3.3
87	4.33	23	3.0
88	4.573	25.7	5.7
89	4.793	23.5	3.5
90	4.907	22.6	2.6
91	5.142	24.3	4.3
92	5.306	25.5	5.5
93	5.[illegible]	23.4	3.4
94	5.[illegible]	25.1	5.1
95	6.[illegible]	23.9	3.9
96	6.604	21.9	1.9
97	7.03	22.4	2.4
98	7.782	22.8	2.8
99	8.155	24.1	4.1
100	8.547	21.8	1.8
101	8.681	21.2	1.2
102	8.818	21.6	1.6
103	9.027	22	2.0
104	9.387	22.4	2.4
105	9.685	20.4	.4
106	10.07	35.7	15.7
107	10.81	31	11.0
108	11.41	30.5	10.5
109	11.96	30.6	10.6
110	12.44	33.4	13.4
111	13.14	27.6	7.6
112	13.66	29.6	9.6

113	14.21	32	12.0
114	14.89	34.2	14.2
115	15.46	31.1	11.1
116	15.97	32.5	12.5
117	16.48	30	10.0
118	17.14	30.8	10.8
119	17.68	31.4	11.4
120	18.24	30.4	10.4
121	18.82	30.4	10.4
122	19.42	26.7	6.7
123	20.04	24.7	4.7
124	20.51	22.2	2.2
125	21.16	22.1	2.1
126	21.66	22	2.0
127	22.35	23.2	3.2
128	22.88	22.2	2.2
129	23.24	21.1	1.1
130	30.08	22.7	2.7
131	31.28	24.1	4.1
132	31.78	23.4	3.4
133	32.28	24	4.0
134	33.04	25.9	5.9
135	35.17	20.3	.3
136	37.44	20.8	.8
137	40.49	20.7	.7



PQO 601335

R 2 9

EMI-TEST 29 Apr 2002 12:39:49

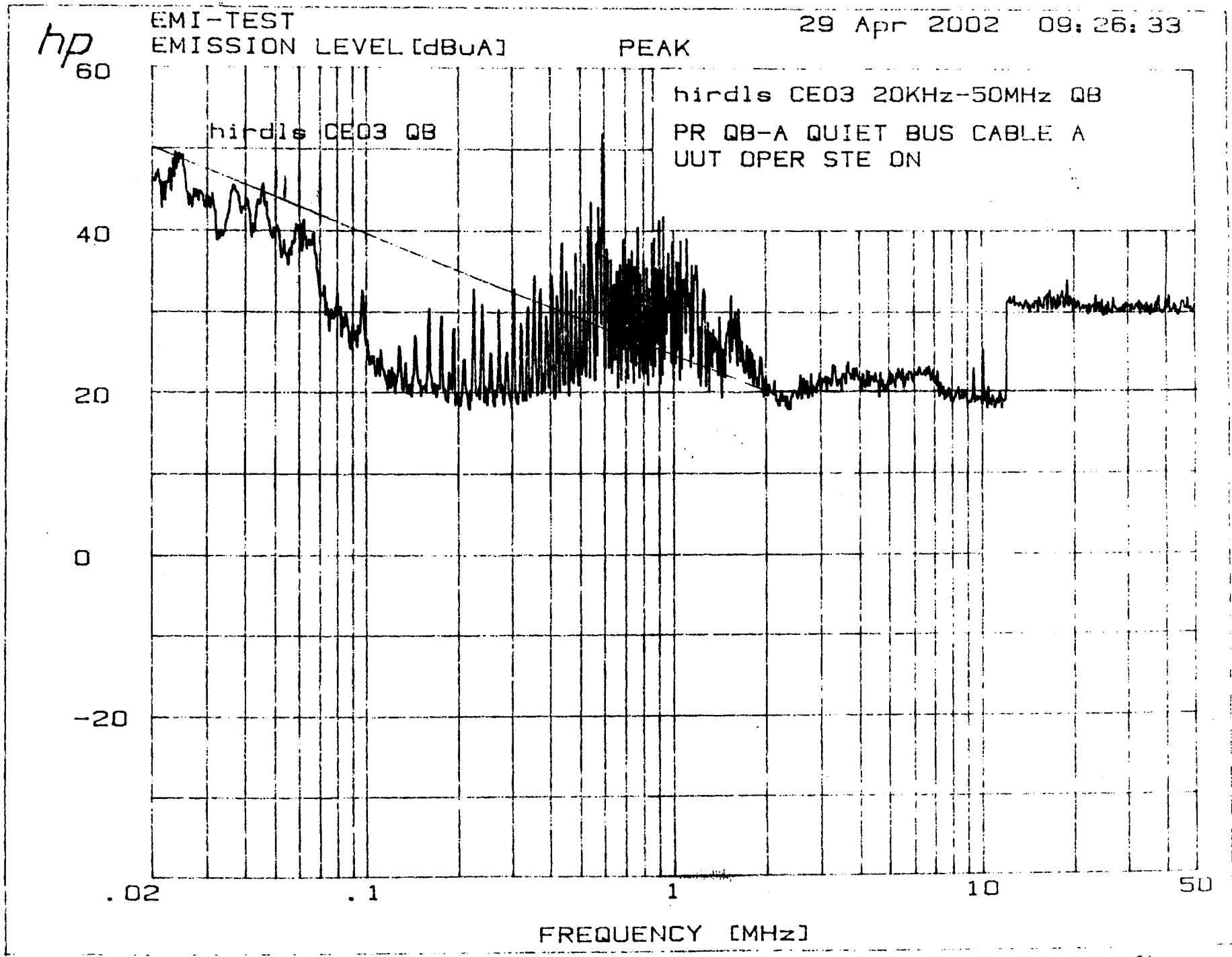
1. hirdls emi test
   1.10 hirdls CE03 20KHz-50MHz VER3

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PI-QB-A
AMBIENT
WITH HP8447D

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	2.143	31	11.0
2	5.389	22.2	2.2
3	5.474	25.3	5.3
4	5.56	27.6	7.6
5	5.648	29	9.0

4/30/02


EMI-TEST
29 Apr 2002 09:26:33
EMISSION LEVEL [dBuA]
PEAK
hp
60
40
20
0
-20
hirdls CE03 QB
hirdls CE03 20KHz-50MHz QB
PR QB-A QUIET BUS CABLE A
UUT OPER STE ON
.02
.1
1
10
50
FREQUENCY [MHz]

EMI-TEST 29 Apr 2002 09:26:33

1. hirdls emi test
   1.2 hirdls CE03 20KHz-50MHz QB

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

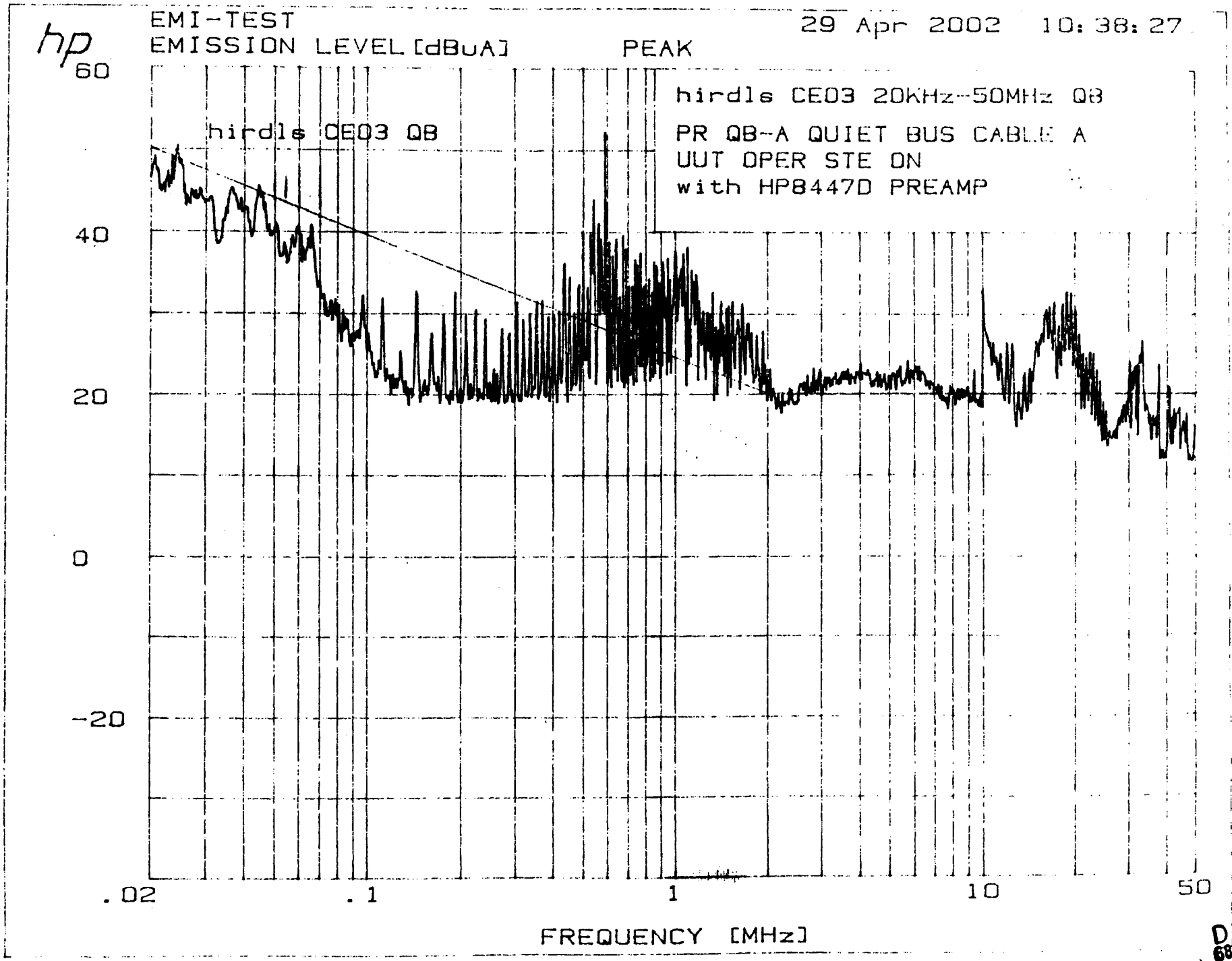
PR-QB-A
UUT OPER STE ON

D 6160714 4/30/02

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.02375	49.6	.8
2	.02413	49.3	.6
3	.02451	49.4	.8
4	.0458	45.7	1.1
5	.306	32.9	.7
6	.355	34.5	3.3
7	.372	32.9	2.0
8	.4023	34.5	4.1
9	.4183	32.1	2.0
10	.435	38.6	8.7
11	.4488	35.1	5.4
12	.4667	32.8	3.4
13	.4815	37.3	8.1
14	.4968	32	3.0
15	.5126	36	7.2
16	.5289	40.6	12.0
17	.5414	43.6	15.1
18	.563	38.5	10.3
19	.5719	42.9	14.8
20	.5809	40.4	12.4
21	.5947	52	24.1
22	.6088	37.8	10.1
23	.6281	36.5	9.0
24	.643	33.5	6.2
25	.6583	35.1	7.9
26	.6739	35.9	8.9
27	.6899	39	12.1
28	.7062	35.9	9.2
29	.7174	36.6	10.0
30	.7344	37.6	11.1
31	.7518	35.7	9.4
32	.7696	40.5	14.3
33	.7818	34.7	8.6
34	.8003	36.4	10.5
35	.8193	35.5	9.7
36	.8322	33	7.3
37	.8519	38.6	13.1
38	.8654	39.2	13.8
39	.879	35.5	10.2
40	.8999	41.3	16.1
41	.914	35.2	10.1
42	.9284	41.8	16.9
43	.9431	31.8	7.0
44	.9654	37.3	12.6
45	.9806	34.2	9.6
46	.9961	38.7	14.2
47	1.012	32.6	8.2
48	1.028	36.3	12.0
49	1.044	36.1	11.9
50	1.06	38.8	14.7
51	1.077	34	10.0

52	1.111	39.1	15.3
53	1.138	32.3	8.7
54	1.156	35.8	12.3
55	1.192	35.8	12.5
56	1.221	28.2	5.0
57	1.259	32.9	9.9
58	1.299	28.7	5.9
59	1.32	27.5	4.8
60	1.351	27.8	5.3
61	1.372	26.8	4.4
62	1.416	29.4	7.2
63	1.45	25.4	3.4
64	1.519	28.8	7.1
65	1.543	32.1	10.5
66	1.567	29	7.5
67	1.592	30.1	8.7
68	1.63	30.4	9.1
69	1.669	26.4	5.3
70	1.735	25.8	4.9
71	1.776	25.4	4.7
72	1.804	24.9	4.3
73	1.833	23.9	3.4
74	1.921	24.4	4.2
75	1.997	21.8	1.8
76	2.045	20.9	.9
77	2.126	21.4	1.4
78	2.246	20.1	.1
79	2.585	22.1	2.1
80	2.646	21.6	1.6
81	2.709	21.3	1.3
82	2.795	22.2	2.2
83	2.975	22.3	2.3
84	3.118	21.9	1.9
85	3.167	21.8	1.8
86	3.294	23.4	3.4
87	3.534	22.2	2.2
88	3.674	23.7	3.7
89	3.821	22.9	2.9
90	3.912	22.9	2.9
91	4.099	22.2	2.2
92	4.23	22.6	2.6
93	4.296	22.5	2.5
94	4.502	22.3	2.3
95	4.[illegible]	22.4	2.4
96	5.[illegible]	22.5	2.5
97	5.102	22.1	2.1
98	5.347	22.8	2.8
99	5.517	22.8	2.8
100	5.782	22.5	2.5
101	6.708	23.1	3.1
102	6.921	22.7	2.7
103	7.14	22.5	2.5
104	7.31	21.1	1.1
105	7.782	20.4	.4
106	8.349	20.5	.5
107	8.614	20.2	.2
108	9.387	23	3.0
109	10.07	25.3	5.3
110	10.47	20.6	.6
111	12.73	32	12.0
112	13.88	31.5	11.5

113	14.89	31.4	11.4
114	15.36	31.9	11.9
115	16.22	32.1	12.1
116	16.61	32.7	12.7
117	17.14	31.9	11.9
118	17.68	32.2	12.2
119	18.24	32.7	12.7
120	18.97	34	14.0
121	19.42	32	12.0
122	20.04	31.6	11.6
123	23.43	32.2	12.2
124	24.55	31.6	11.6
125	25.33	30.8	10.8
126	25.73	31.3	11.3
127	26.76	31.8	11.8
128	29.39	31.2	11.2
129	32.53	31.4	11.4
130	33.04	31.1	11.1
131	34.36	31.2	11.2
132	35.73	31	11.0
133	37.74	32	12.0
134	39.86	31.6	11.6
135	40.8	32.1	12.1
136	46.97	31.8	11.8



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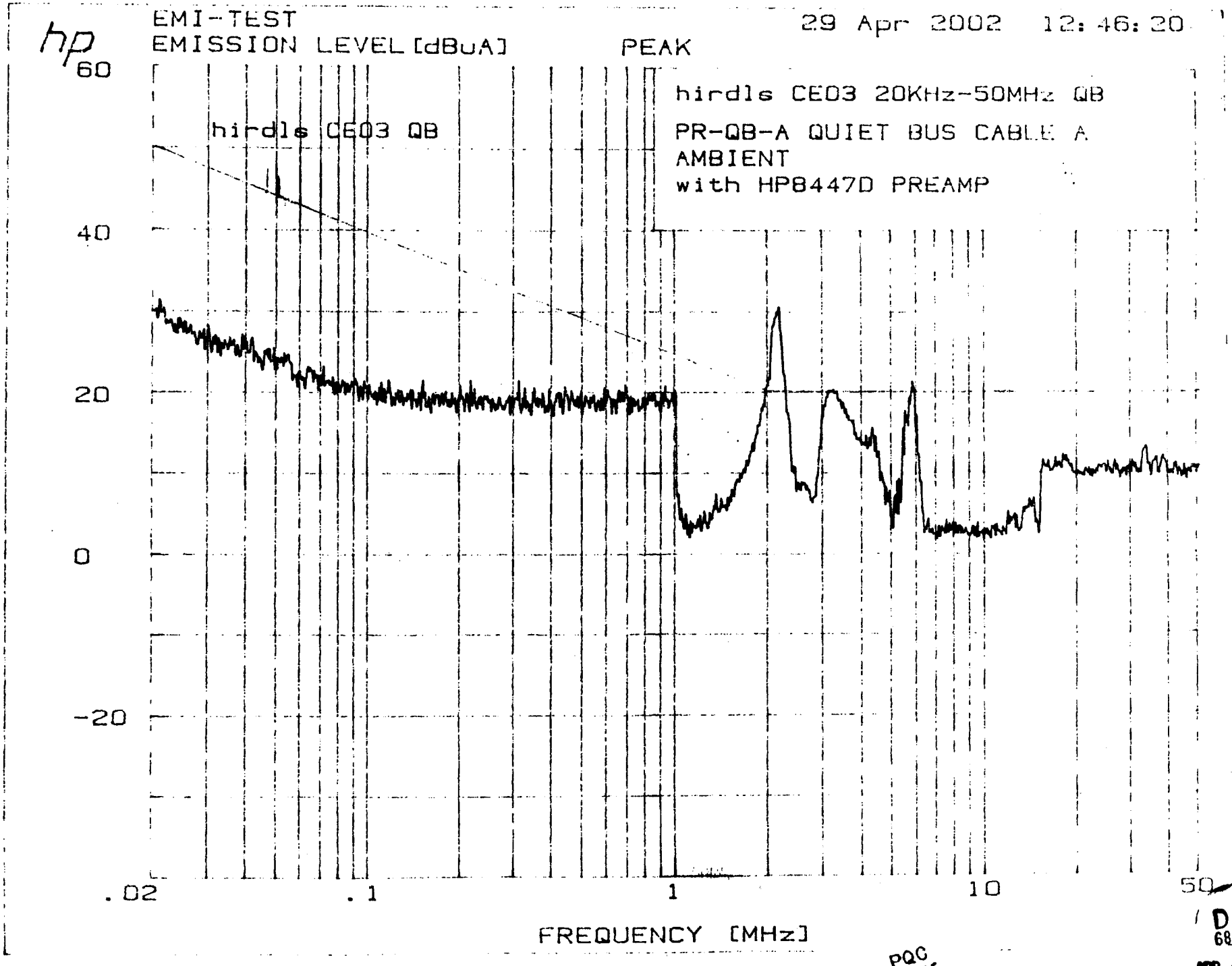
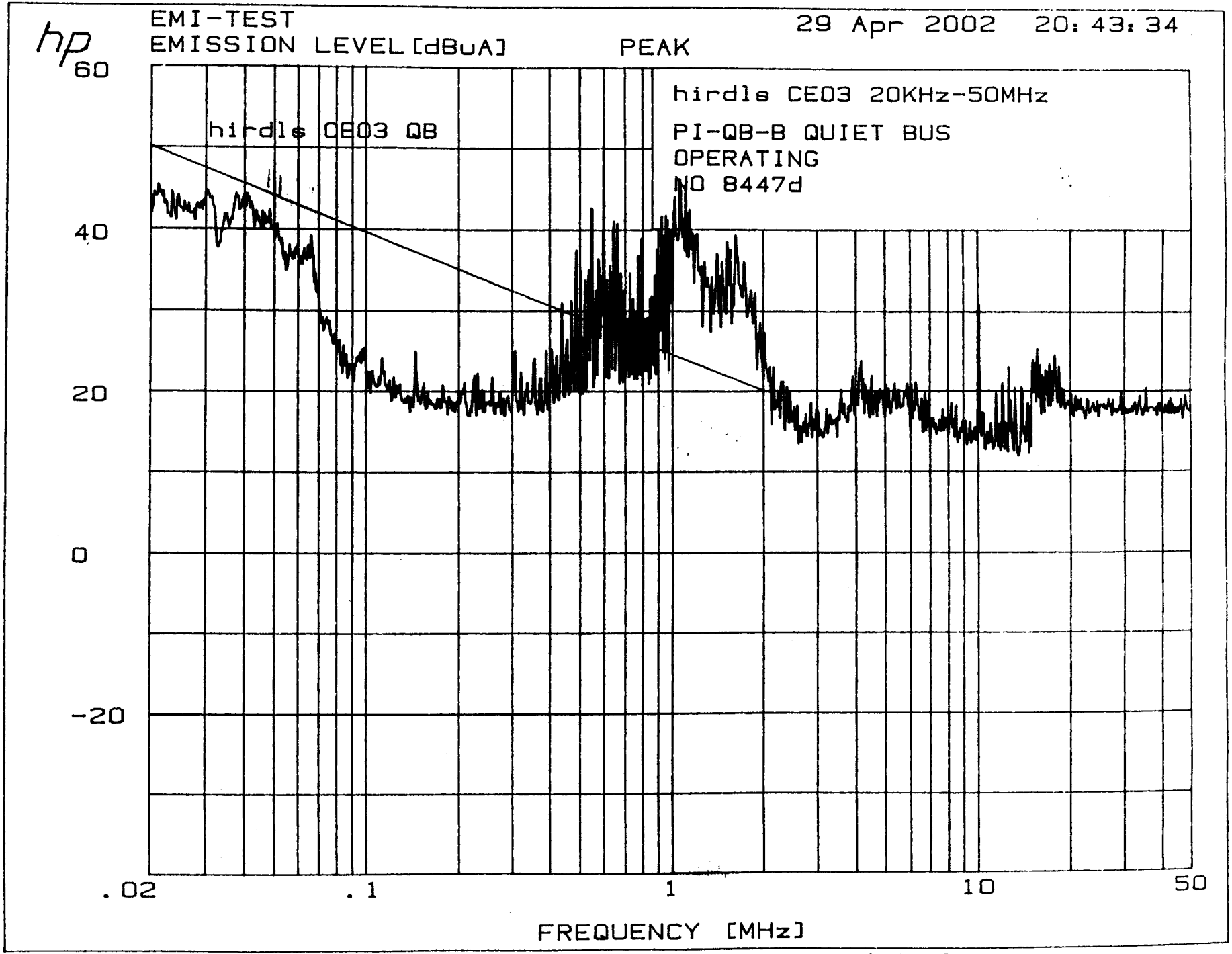
PQC APR 29 2002



D 686894
APR 2 9 2002
PQC 401335
APR 2 9 2002


EMI-TEST
29 Apr 2002 20:43:34
EMISSION LEVEL [dBuA]
PEAK
hirdls CE03 20KHz-50MHz
PI-QB-B QUIET BUS
OPERATING
NO 8447d
hirdls CE03 QB
60
40
20
0
-20
.02
.1
1
10
50
FREQUENCY [MHz]

4/29/02 PUC

EMI-TEST 29 Apr 2002 20:43:34

1. hirdls emi test
   1.13 hirdls CE03 20KHz-50MHz QB VER5

PI-QB-B QUIET

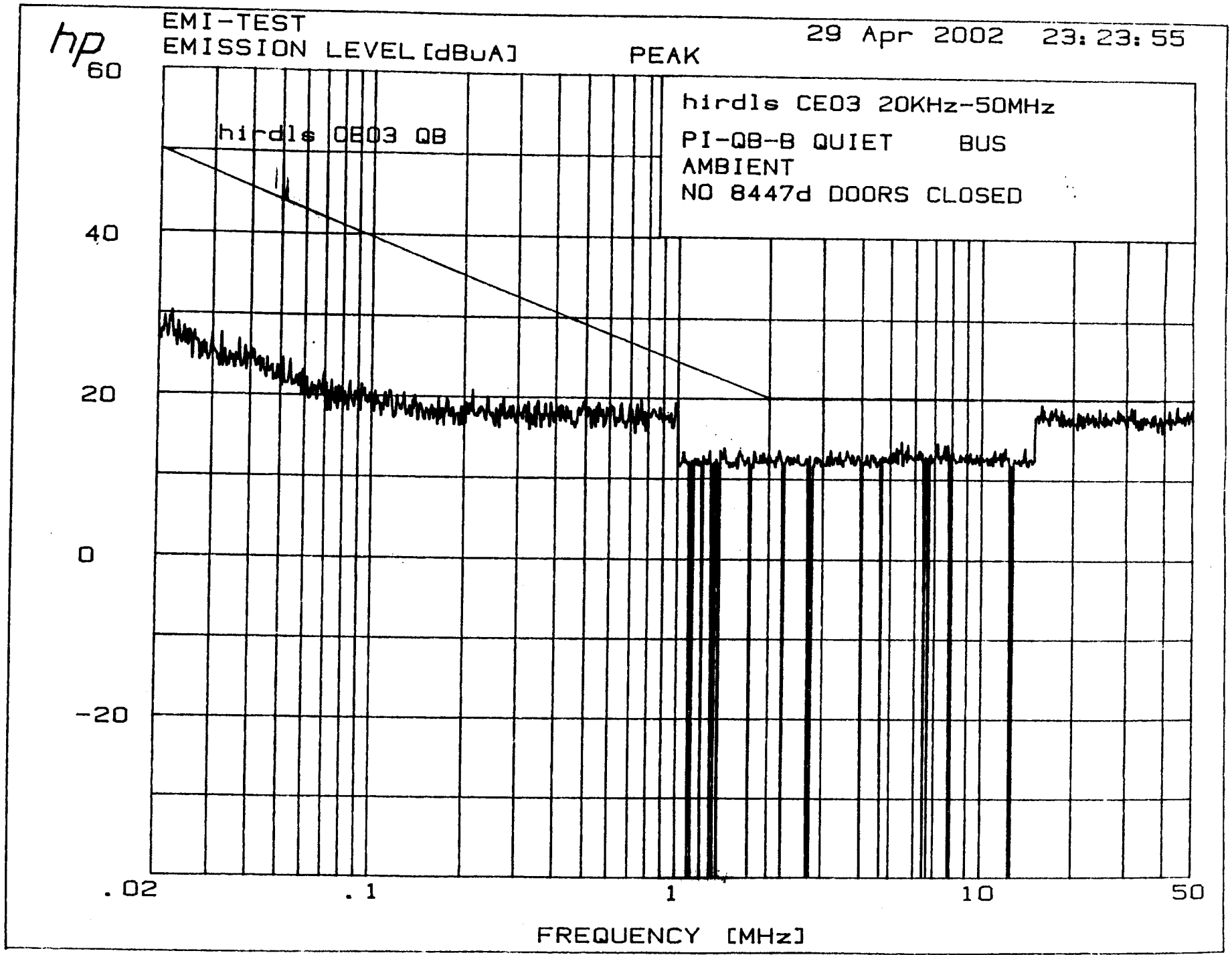
NO 8447D

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

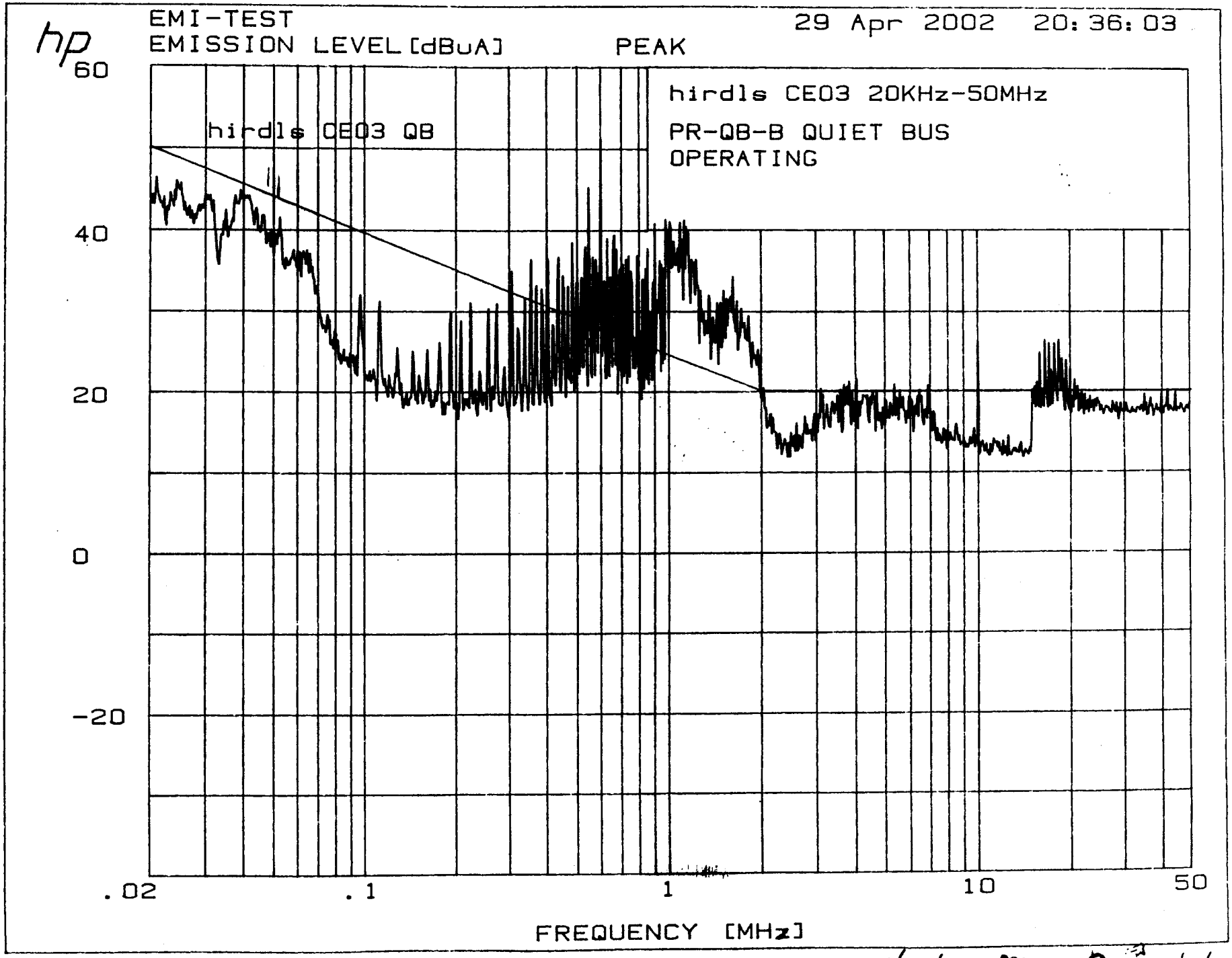
PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.435	31	1.1
2	.4667	31.3	1.9
3	.4853	37.5	8.3
4	.5007	34.9	5.9
5	.5166	33.8	5.0
6	.533	35	6.4
7	.5414	42.7	14.2
8	.563	32.6	4.4
9	.5719	36.4	8.3
10	.5854	34.3	6.3
11	.5947	50.4	22.5
12	.6088	33.9	6.2
13	.6232	35.6	8.1
14	.643	41.1	13.8
15	.6583	40.8	13.6
16	.6739	34.7	7.7
17	.6899	32.6	5.7
18	.7062	29.1	2.4
19	.723	34.7	8.1
20	.7401	31.6	5.2
21	.7577	29.7	3.4
22	.7696	36.9	10.7
23	.7879	39	13.0
24	.8066	29.1	3.2
25	.8193	29.2	3.4
26	.8387	31.6	6.0
27	.8519	31.9	6.4
28	.8722	34.4	9.0
29	.8859	37.6	12.3
30	.8999	35.7	10.5
31	.9212	41.7	16.7
32	.9357	39.3	14.4
33	.9505	41.8	17.0
34	.9654	41.3	16.6
35	.9806	39.7	15.1
36	.9961	39.9	15.4
37	1.0[redacted]	44.1	19.8
38	1.0[redacted]	46.3	22.2
39	1.[redacted]	41.4	17.5
40	1.111	45.6	21.8
41	1.129	42.1	18.4
42	1.147	42.5	18.9
43	1.165	39.7	16.2
44	1.211	39.5	16.3
45	1.279	36.1	13.2
46	1.31	34.1	11.4
47	1.351	34.2	11.7
48	1.405	37.1	14.8
49	1.438	34.3	12.2
50	1.461	36.1	14.1
51	1.519	38.6	16.9

D616074 4/30/02

52	1.555	37.6	16.0
53	1.58	32.5	11.0
54	1.617	39.4	18.1
55	1.722	36.1	15.2
56	1.818	32.6	12.0
57	1.876	32.2	11.8
58	1.921	27.2	7.0
59	1.951	28.6	8.5
60	2.013	27.4	7.4
61	2.093	23	3.0
62	2.16	23.1	3.1
63	2.281	21.2	1.2
64	2.391	20.6	.6
65	3.589	20.2	.2
66	3.912	22	2.0
67	4.099	23	3.0
68	4.164	23.9	3.9
69	4.23	21.7	1.7
70	4.296	20.9	.9
71	4.502	22	2.0
72	4.793	20.3	.3
73	5.023	20.9	.9
74	5.102	20.4	.4
75	5.347	21	1.0
76	5.517	20.2	.2
77	5.873	21	1.0
78	6.06	20.9	.9
79	6.252	21.2	1.2
80	10.07	30.9	10.9
81	11.96	21.1	1.1
82	12.54	23.1	3.1
83	13.14	20.5	.5
84	13.77	20.6	.6
85	15	24.1	4.1
86	15.24	23.6	3.6
87	15.48	25.5	5.5
88	15.85	23.4	3.4
89	16.1	22.1	2.1
90	16.48	22.8	2.8
91	17	23.5	3.5
92	17.27	22.7	2.7
93	17.68	24.7	4.7
94	18.24	23.2	3.2
95	18.67	20.4	.4
96	18.97	20.2	.2
97	29.16	20.1	.1
98	35.1	20.5	.5



11/20/02 PQC 11/21/02



4/29/02 PQC

Engrg 4/30/02

EMI-TEST 29 Apr 2002 20:36:03

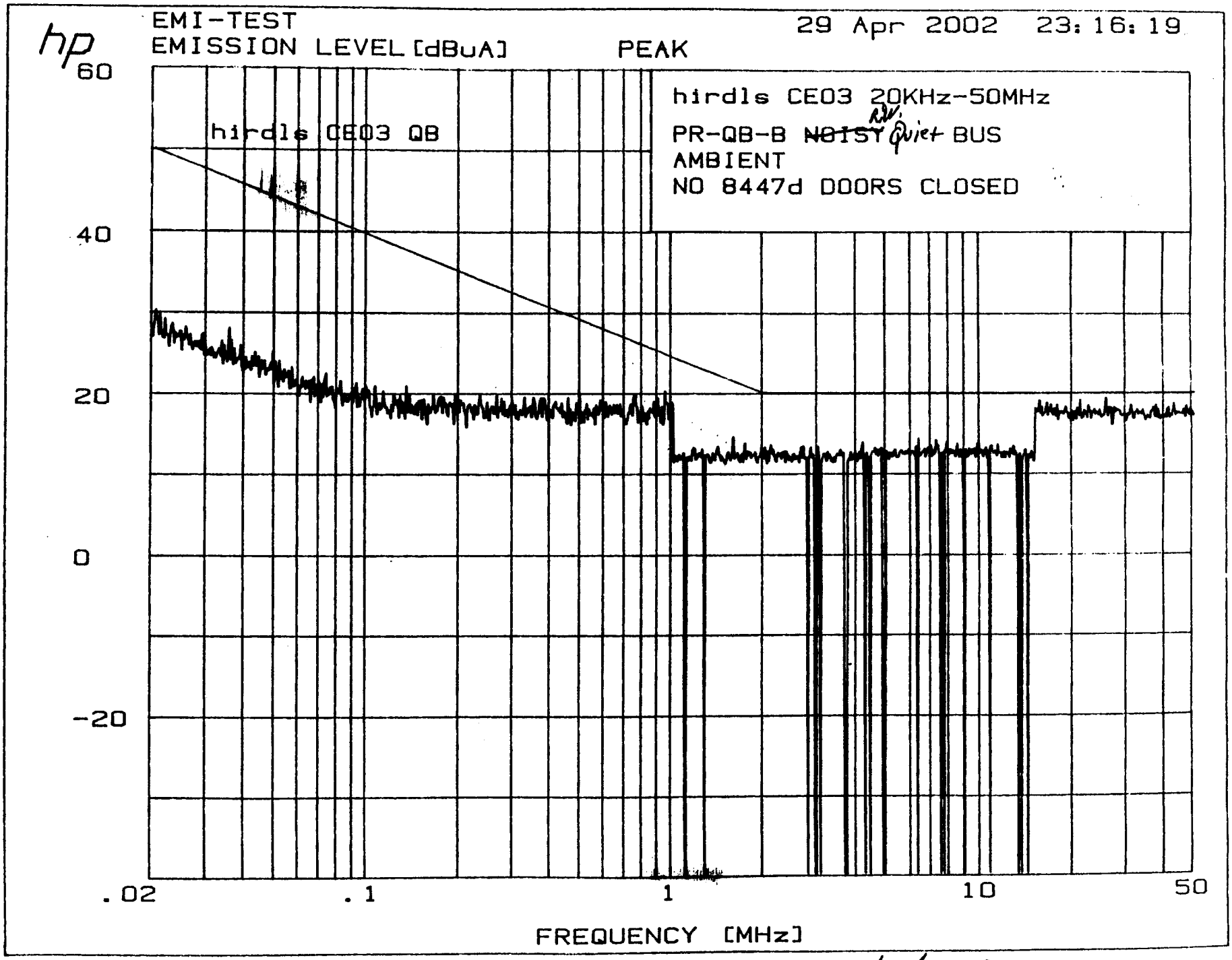
1. hirdls emi test
   1.13 hirdls CE03 20KHz-50MHz QB VER5 PR-QB-B

Peaks above 0 dB of Limit Line #1 OPER.
peak criteria = 1 dB

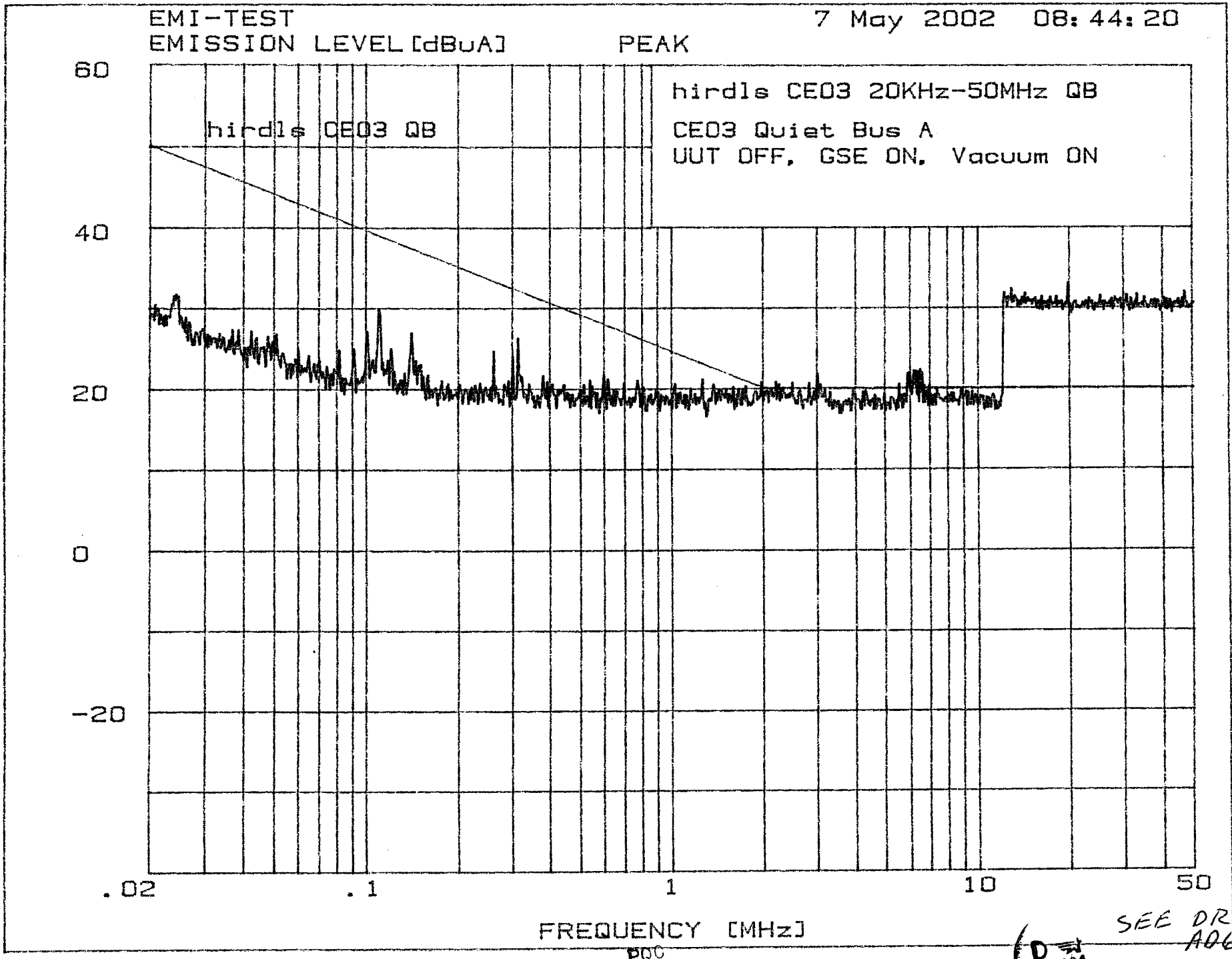
PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.306	35	2.8
2	.3387	31.6	.1
3	.355	36.4	5.2
4	.3691	33.2	2.2
5	.3839	32.8	2.1
6	.4023	36.5	6.1
7	.435	36.7	6.8
8	.4488	34.4	4.7
9	.4667	33.1	3.7
10	.4815	38.5	9.3
11	.5007	33.6	4.6
12	.5166	34.2	5.4
13	.533	38	9.4
14	.5457	45.3	16.9
15	.563	36.7	8.5
16	.5763	36.4	8.3
17	.5993	51.2	23.4
18	.6135	33.8	6.2
19	.6281	39	11.5
20	.643	34.3	7.0
21	.6634	39.4	12.3
22	.6739	37.7	10.7
23	.6899	35.2	8.3
24	.7062	35.8	9.1
25	.723	36.4	9.8
26	.7401	36.9	10.5
27	.7518	35	8.7
28	.7696	26.8	.6
29	.7879	36.9	10.9
30	.8003	27.6	1.7
31	.8193	34	8.2
32	.8387	35.3	9.7
33	.8519	37.8	12.3
34	.8654	29.6	4.2
35	.8859	33.6	8.3
36	.[illegible]	40.9	15.7
37	.9[illegible]	31.4	6.3
38	.9857	36.3	11.4
39	.9505	35.8	11.0
40	.9654	35.3	10.6
41	.9806	41.4	16.8
42	1.012	41.1	16.7
43	1.044	38.7	14.5
44	1.077	37.8	13.8
45	1.094	41	17.1
46	1.111	38.9	15.1
47	1.129	41.3	17.6
48	1.147	40.5	16.9
49	1.165	39.8	16.3
50	1.192	36.4	13.1
51	1.23	36.4	13.3

D 56078 4/30/02

52	1.269	32.6	9.7
53	1.299	29.9	7.1
54	1.32	28.8	6.1
55	1.351	32	9.5
56	1.394	29.3	7.0
57	1.438	31.1	9.0
58	1.472	31.1	9.2
59	1.507	32.6	10.8
60	1.543	31.6	10.0
61	1.592	31.8	10.4
62	1.617	34.3	13.0
63	1.669	31.3	10.2
64	1.722	30.4	9.5
65	1.818	29.5	8.9
66	1.876	26.2	5.8
67	1.951	25.3	5.2
68	2.029	20.4	.4
69	3.094	20.4	.4
70	3.589	20.2	.2
71	3.674	20.9	.9
72	3.762	20.6	.6
73	3.821	21.3	1.3
74	3.912	20.1	.1
75	4.036	21.6	1.6
76	4.682	20.1	.1
77	5.347	20.9	.9
78	5.56	20.1	.1
79	6.451	20.2	.2
80	6.867	20.8	.8
81	9.993	26.2	6.2
82	15	20.2	.2
83	15.24	20.6	.6
84	15.48	21.2	1.2
85	15.85	24.9	4.9
86	16.1	20.3	.3
87	16.48	26.5	6.5
88	17	26.1	6.1
89	17.27	22.7	2.7
90	17.68	26.1	6.1
91	18.24	26.5	6.5
92	18.67	24.2	4.2
93	19.27	23.9	3.9
94	19.88	22.9	2.9
95	20.51	21.5	1.5
96	21	20.6	.6
97	41.[redacted]	20.1	.1


EMI-TEST
29 Apr 2002 23:16:19
EMISSION LEVEL [dBuA]
PEAK
hp
60
40
20
0
-20
.02
.1
1
10
50
FREQUENCY [MHz]
hirdls CE03 QB
hirdls CE03 20KHz-50MHz
PR-QB-B ~~NOISY~~ Quiet BUS
AMBIENT
NO 8447d DOORS CLOSED

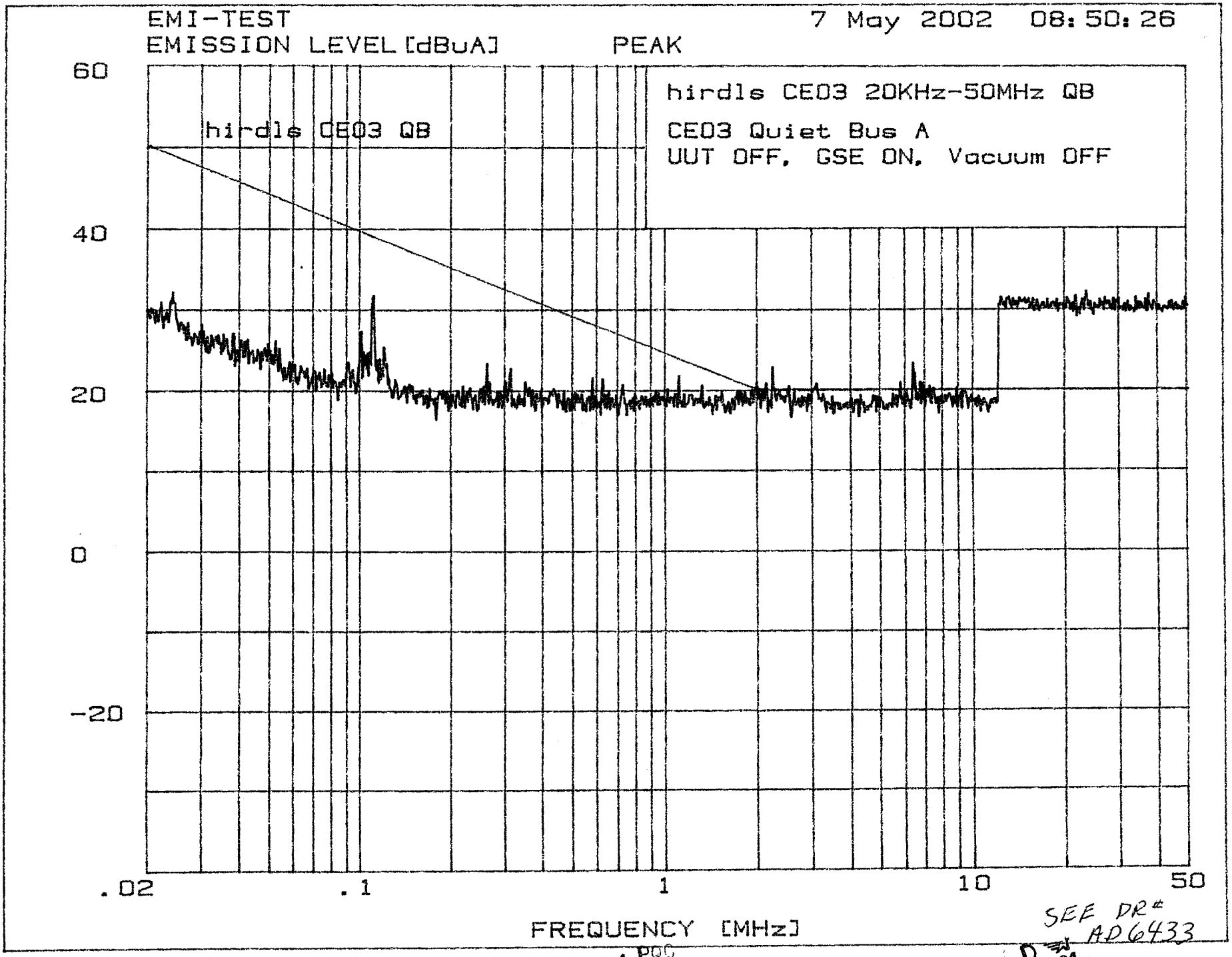
4/19/07 PQC



PQC 601335 MAY 08 2002

SEE DR # AA6433

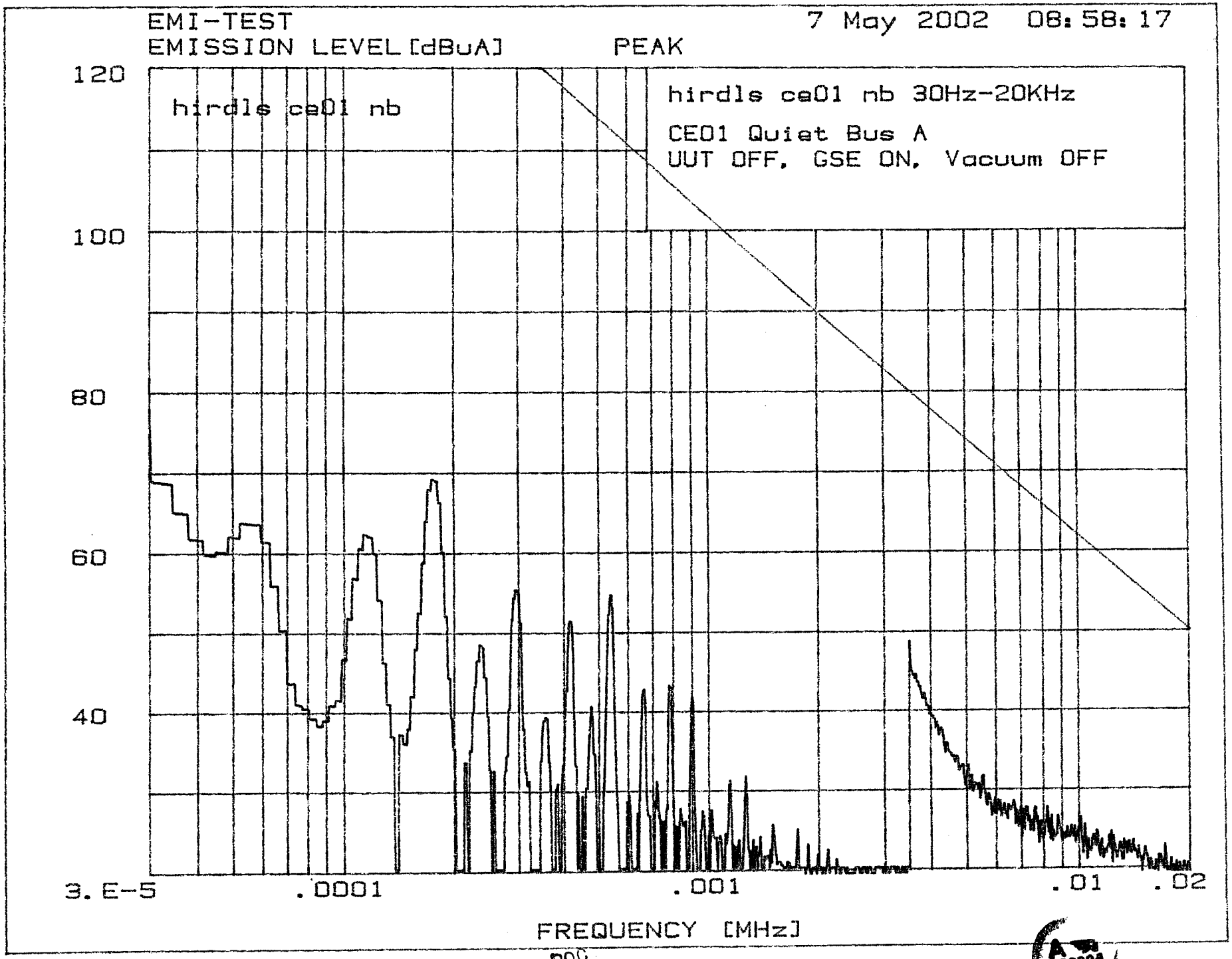
D 686894 MAY 08 2002



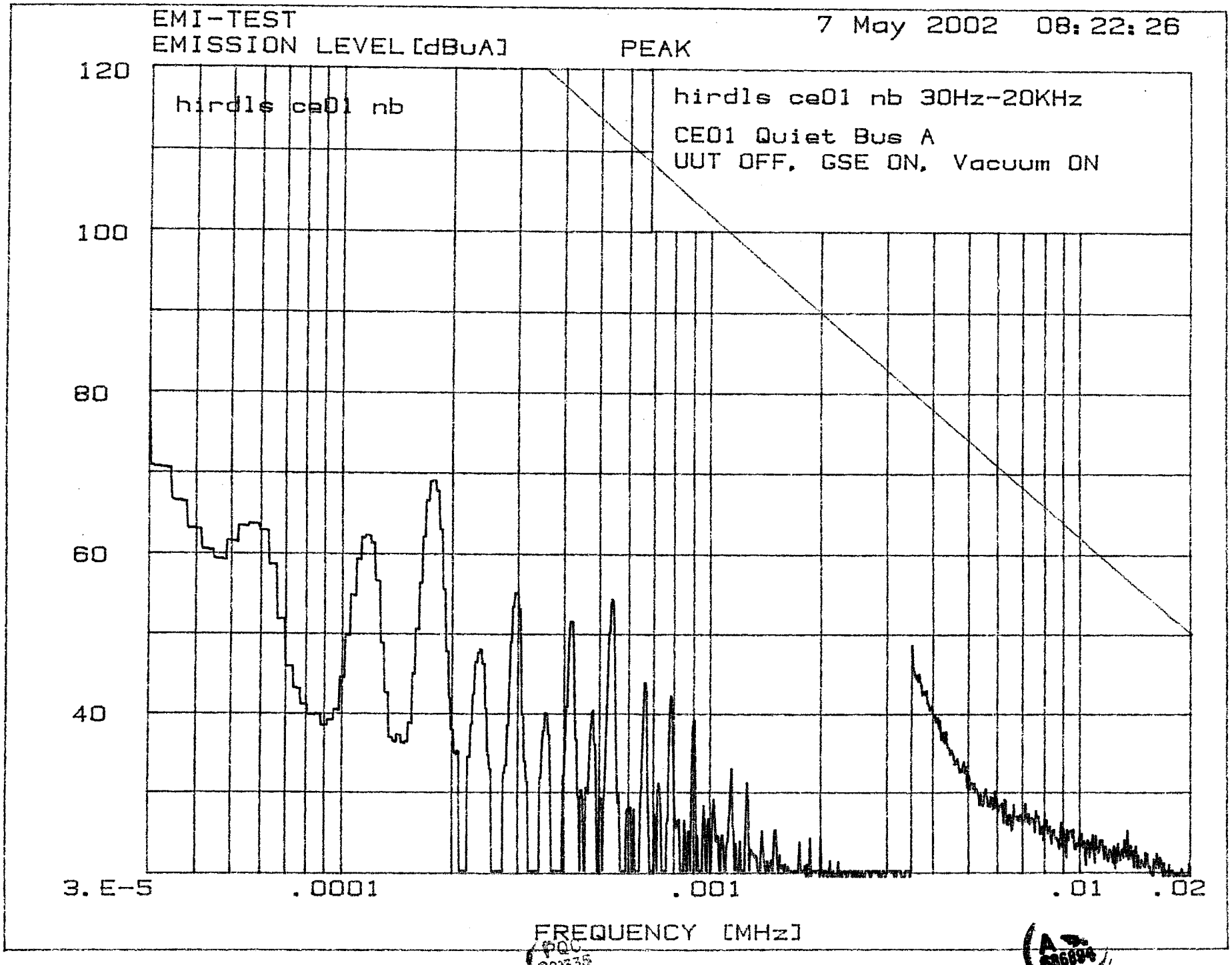
SEE DR# AD6433

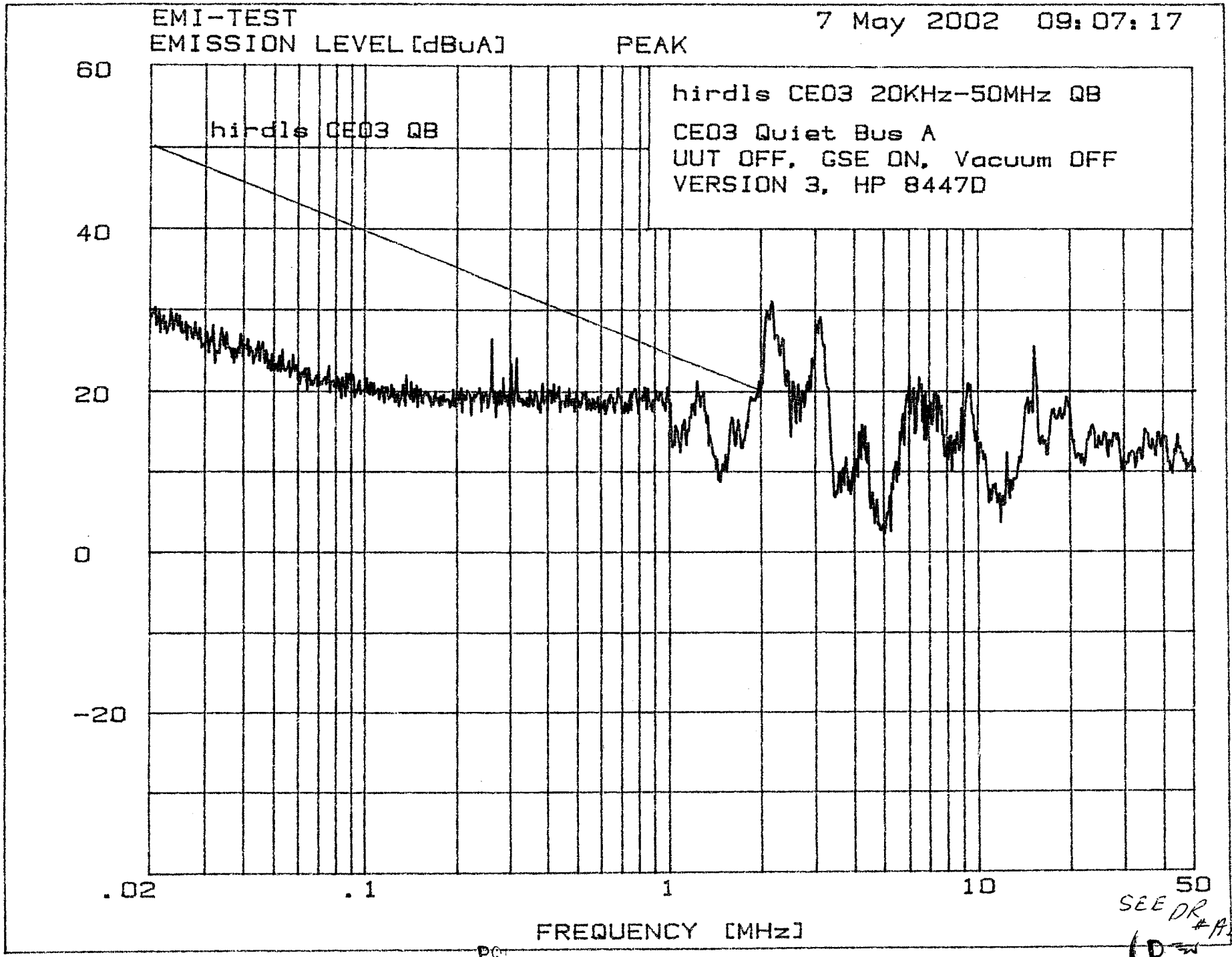
PQC 601335

D 686894



MAY 08 2002
PQC 001336
A 666894
MAY 08 2002


EMI-TEST
7 May 2002 08:22:26
EMISSION LEVEL [dBuA]
PEAK
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
CE01 Quiet Bus A
UUT OFF, GSE ON, Vacuum ON
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]



SEE DR # AD6433

PC 601335

D 686894

EMI-TEST 7 May 2002 09:07:17

1. hirdls emi test
   1.10 hirdls CE03 20KHz-50MHz VER3

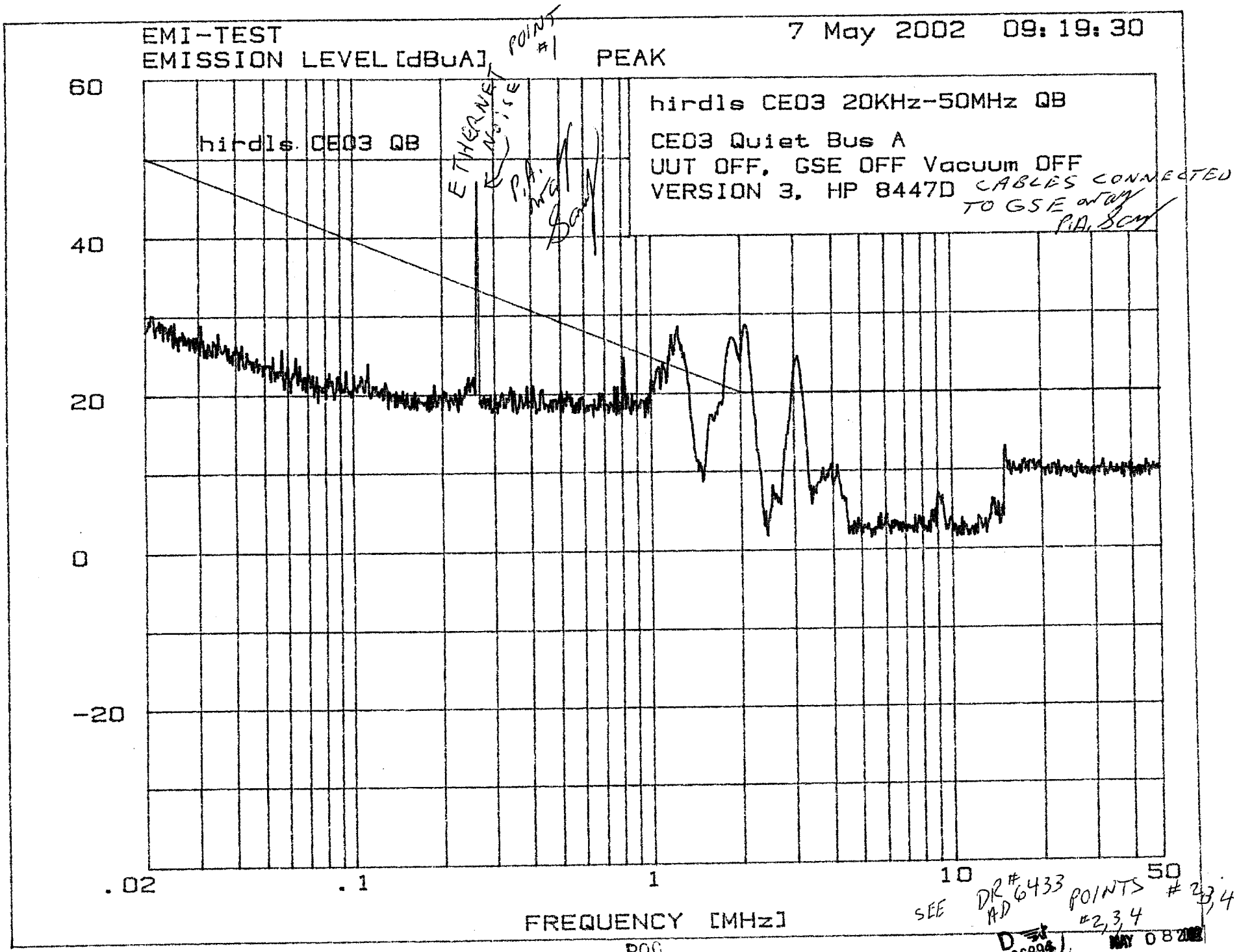
Peaks above 0 dB of Limit Line #1
peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	2.143	31.1	11.1
2	3.07	29.1	9.1
3	15	25.6	5.6
4	5.966	22	2.0
5	6.4	21.8	1.8
6	9.17	21	1.0

SEE DR# AD6433

PQC 601335 MAY 08 2002

D 686894 MAY 08 2002



PQC
MAY 08 2002

D 686894
MAY 08 2002

CE03 5/9/02 09:25PST QUIET BUS A, GSEOFF, LLCTOFF, VAECOMOFF WITH AMP ITP 8447D, VERSION 3

EMI-TEST 7 May 2002 09:19:30

1. hirdls emi test
   1.10 hirdls CE03 20KHz-50MHz VER3

Peaks above 0 dB of Limit Line #1
peak criteria = 6 dB

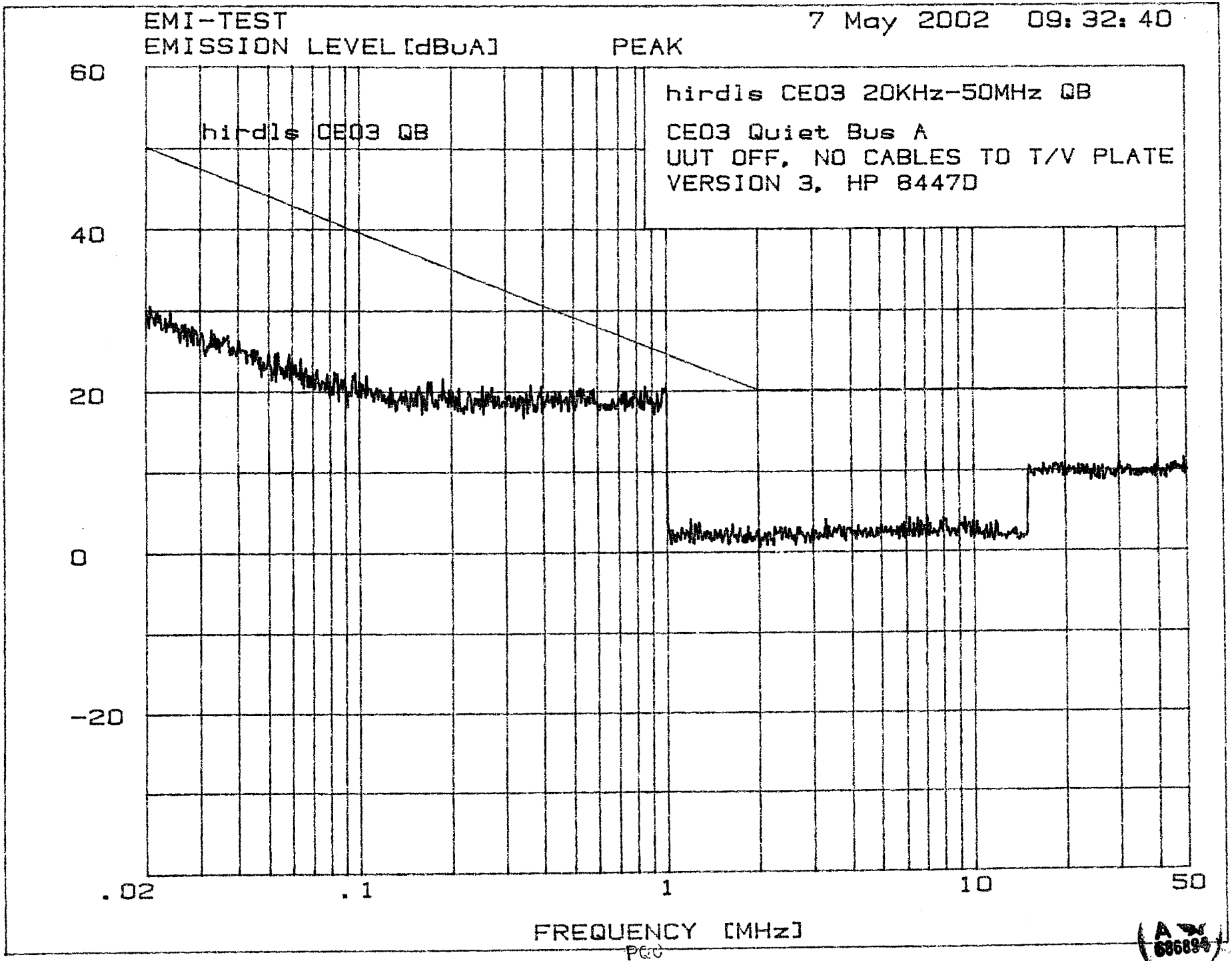
PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.2638	47.1	14.0
2	2.077	28.6	8.6
3	1.24	28.5	5.4
4	3.094	24.6	4.6

POINT #1 ETHERNET NOISE

POINTS #2,3,4 SEE DR # AD6433

P 601335 MAY 08 2002

D 686894 MAY 08 2002


EMI-TEST
7 May 2002 09:32:40
EMISSION LEVEL [dBuA]
PEAK
hirdls CE03 QB
hirdls CE03 20KHz-50MHz QB
CE03 Quiet Bus A
UUT OFF, NO CABLES TO T/V PLATE
VERSION 3, HP 8447D
60
40
20
0
-20
.02
.1
1
10
50
FREQUENCY [MHz]

PGC
601335

APPENDIX E

RE 02, RE 04 Emission Test Data

TEST DATA SHEET

RE02 Electric Field Radiated Emissions
(14KHz to 18GHz)

PARAGRAPH 13.5

DATE OF TEST 5-6-02

PART NO. . 1A27800

CCA/SERIAL NO. 01

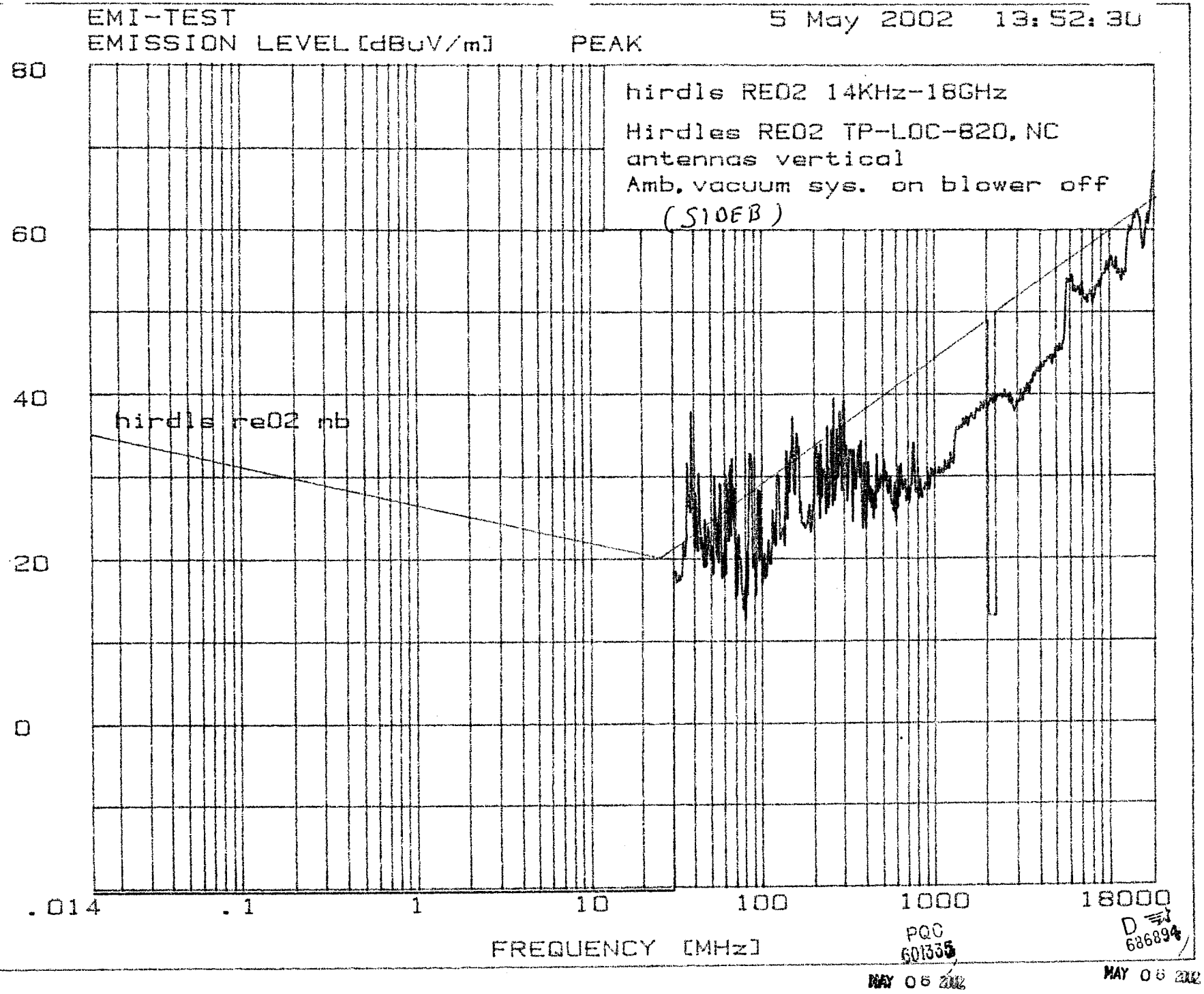
TEST TECHNICIAN

NOTES: SIDE A & B TESTED

Antenna/Frequency Range	Scan Complete	Pass	Fail	Comments
Active Rod Antenna 14 KHz – 20MHz			✓	
Biconical Antenna Vertical Polarity 20MHz-200MHz		X FIC	✓	
Biconical Antenna Horizontal Polarity 20MHz-200MHz			✓	
Log periodic antenna Vertical Polarity 200MHz – 1GHz			✓	
Log periodic antenna Horizontal Polarity 200MHz – 1GHz			✓	
Double Ridged Guide Horn Antenna, Vertical Polarity 1GHz-18GHz			✓	
Double Ridged Guide Horn Antenna, Horizontal Polarity 1GHz-18GHz			✓	
DOUBLE RIDGED GUIDE HORN			✓	
HORIZ. 2GHz – 2.4GHz			✓	SIDE A (+Y)
VERT. 2GHz – 2.4GHz			✓	SIDE A (+Y)
HOR. 2GHz – 2.4GHz			✓	SIDE B (-Y)
VERT. 2GHz – 2.4GHz			✓	SIDE B (-Y)

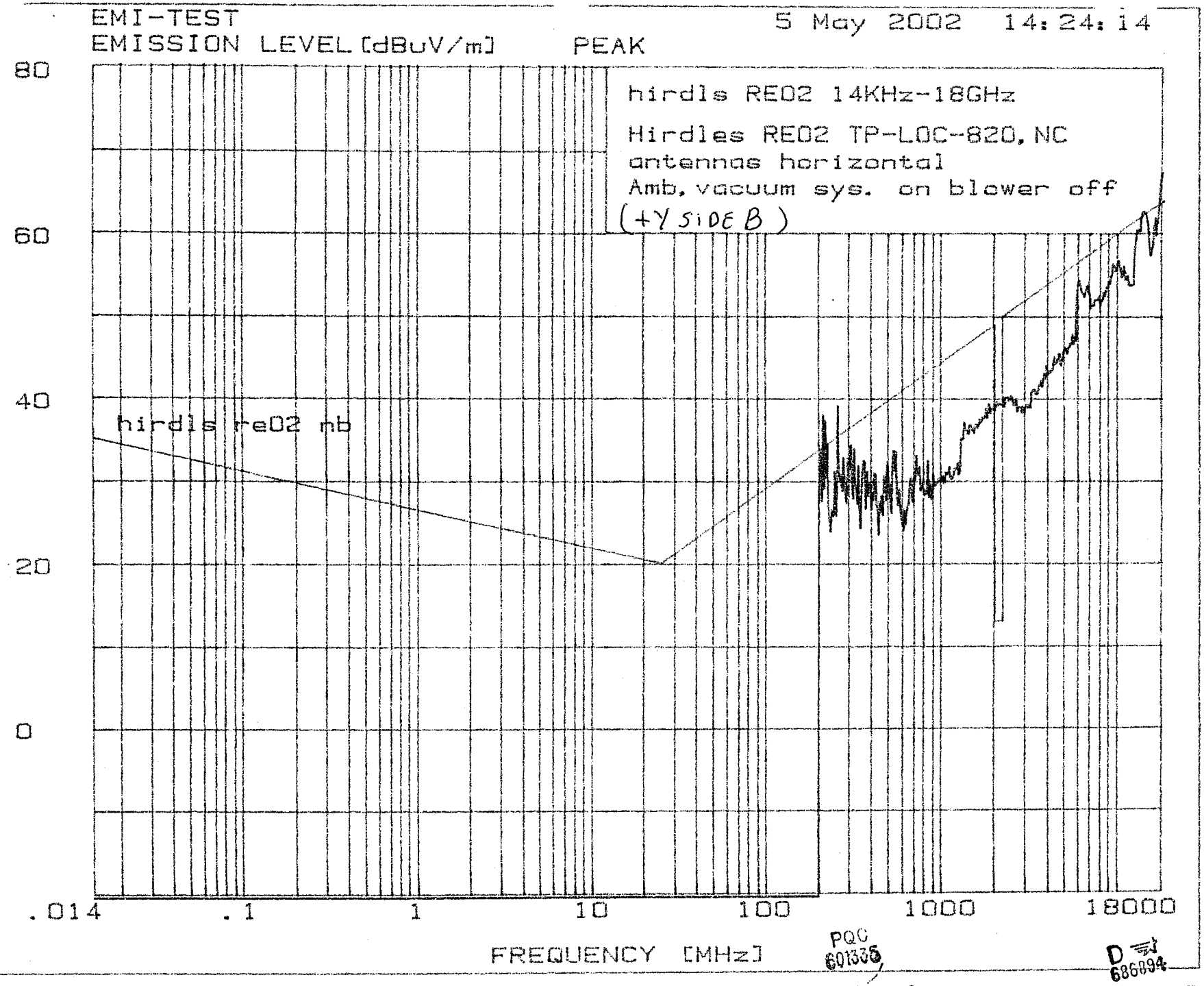
D 686894 MAY 06 2002

PQC 601336 MAY 06 2002

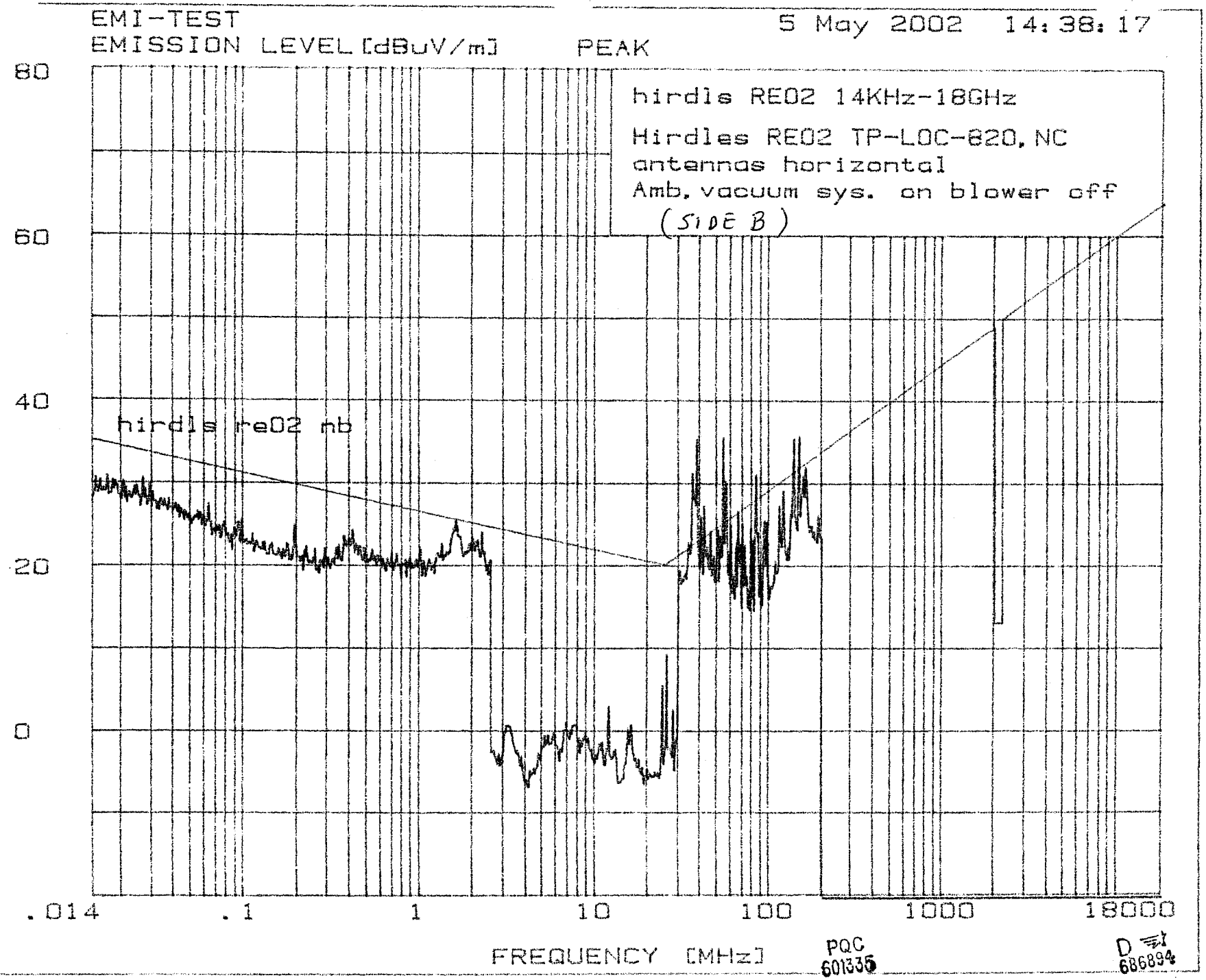


PQC 601335 MAY 06 2002

D 686894 MAY 06 2002



PQC 601335
MAY 06 2002
D 686894
MAY 06 2002



PQC 601335

D 686894

MAY 06 2002

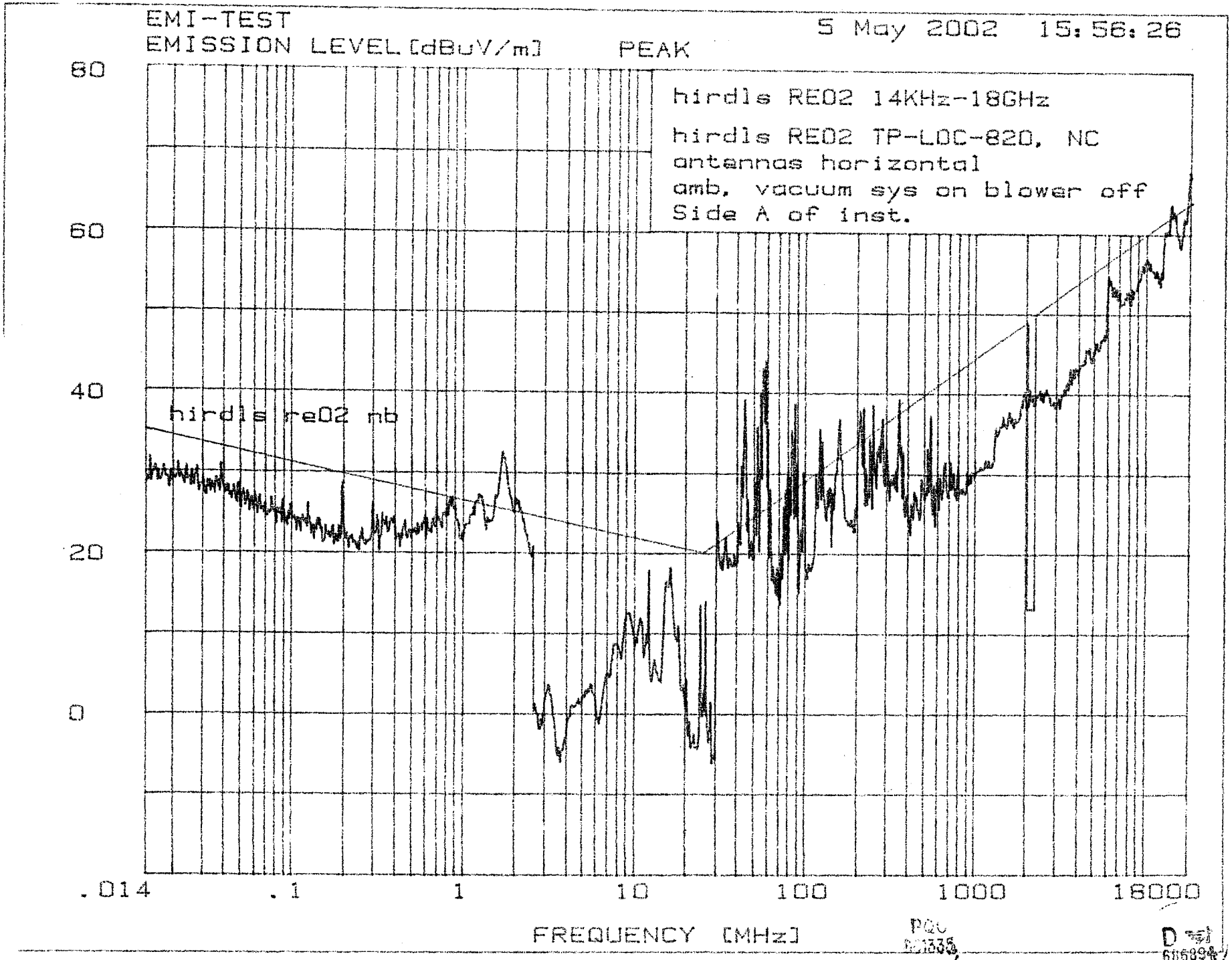
MAY 06 2002

EMI-TEST 5 May 2002 14:38:17

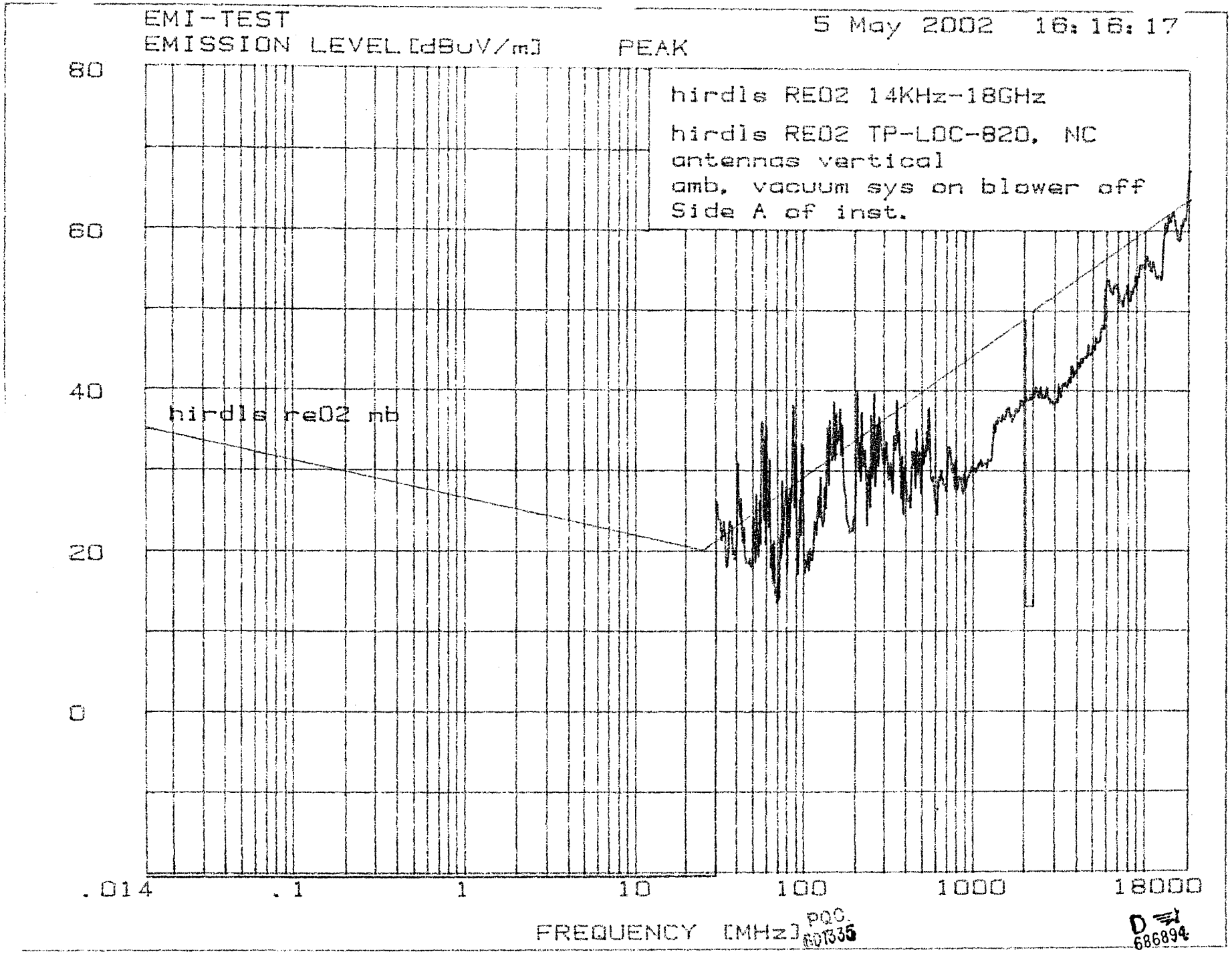
1. hirdls emi test
   1.7 hirdls RE02 14KHz-18GHz ver2

Peaks above 0 dBuV/m
peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuV/m)	DELTA
1	149.33	35.7	35.7
2	54.29	35.5	35.5
3	139.19	35.4	35.4
4	38.21	35.3	35.3
5	162.46	32	32.0
6	83.93	31.1	31.1
7	55.84	30.3	30.3
8	120.95	29.1	29.1
9	42.16	27.3	27.3
10	66.09	26.7	26.7
11	40.42	26	26.0
12	93.92	25.5	25.5
13	1.618	25.4	25.4
14	59.9	25.1	25.1
15	69.92	25.1	25.1
16	78.23	24.6	24.6
17	50.61	24.4	24.4
18	80.46	23.2	23.2
19	25.78	9.2	9.2
20	24.37	5.5	5.5
21	12.07	3	3.0
22	16.21	.7	.7



PQC
MAY 06 2002
D
MAY 06 2002



PQC. R01335

D 686894

MAY 06 2002

MAY 06 2002

EMI-TEST 5 May 2002 16:16:17

1. hirdls emi test
   1.3 hirdls RE02 14KHz-18GHz

Ambient, Vertical Polarity

Peaks above 0 dBuV/m
peak criteria = 6 dB

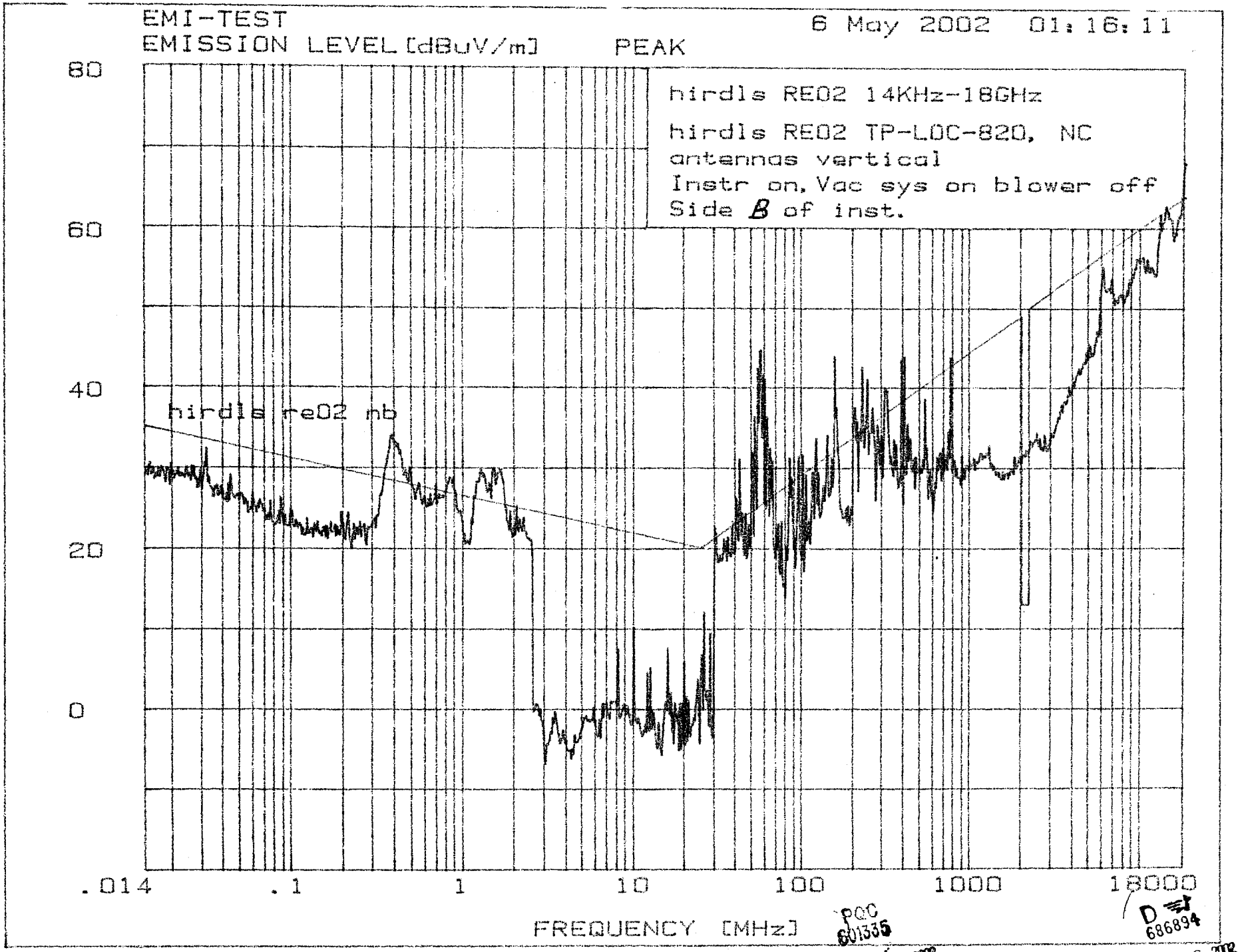
Vacuum Syst. ON
Blower OFF
Side "A"

PEAK#	FREQ (MHz)	(dBuV/m)	DELTA
1	206.3	40	40.0
2	258.32	39.7	39.7
3	351.9	38.8	38.8
4	149.33	38.6	38.6
5	86.32	38.2	38.2
6	544.02	37.9	37.9
7	162.46	37.7	37.7
8	218.23	37.3	37.3
9	247.65	36.9	36.9
10	277.12	36.7	36.7
11	55.84	36.1	36.1
12	59.9	35.5	35.5
13	137.25	35.4	35.4
14	459.6	35.2	35.2
15	58.24	34.4	34.4
16	88.78	33.5	33.5
17	96.59	33.5	33.5
18	62.48	31.5	31.5
19	40.42	31	31.0
20	124.39	29.2	29.2
21	73.96	28.7	28.7
22	78.23	27.9	27.9
23	52.05	27.1	27.1
24	30.09	26.2	26.2

PQC 601335

D 686894

MAY 06 2002



PQC 601335 MAY 06 2002

D 686894 MAY 06 2002

EMI-TEST 6 May 2002 01:16:11

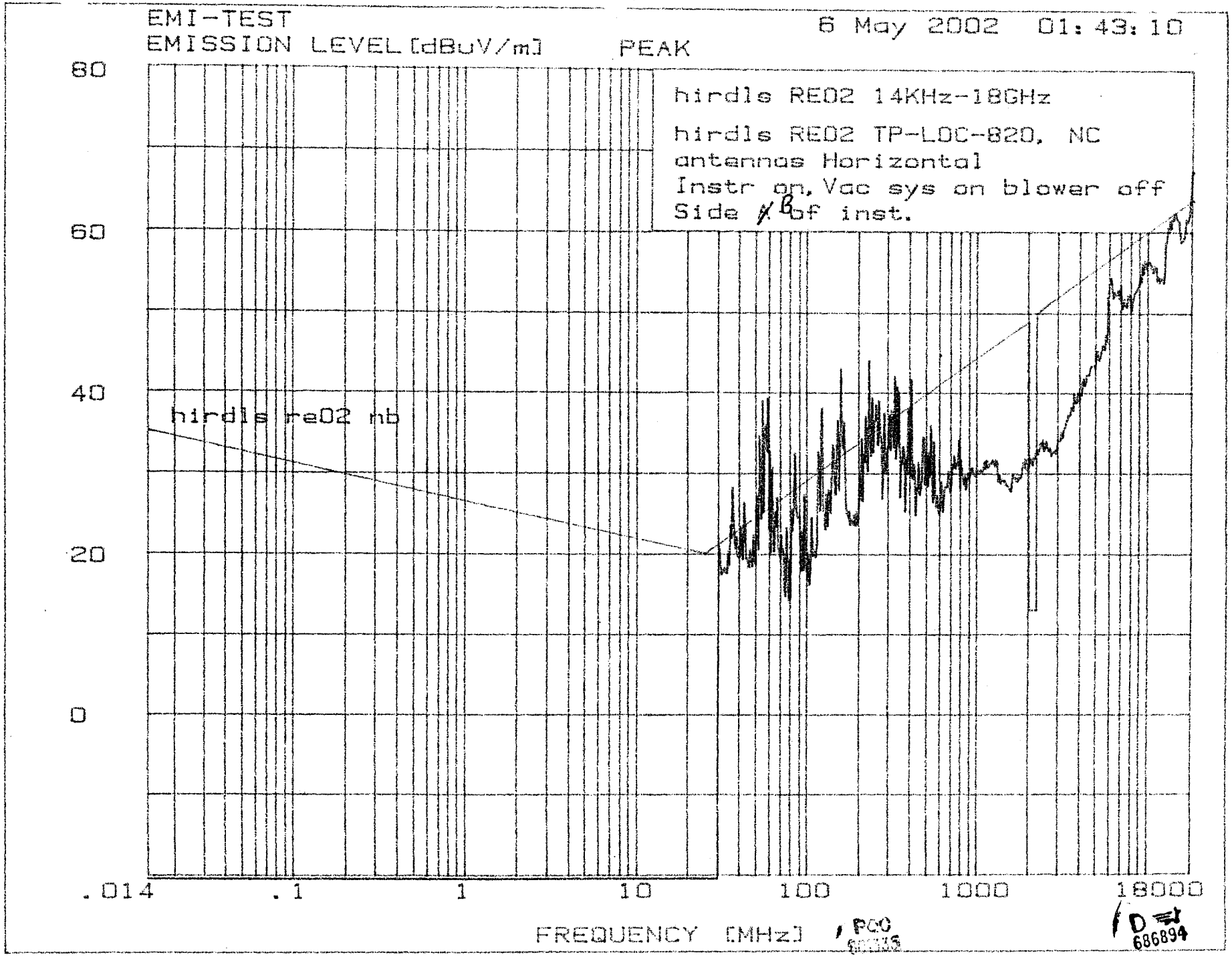
1. hirdls emi test
   1.3 hirdls RE02 14KHz-18GHz

Peaks above 0 dB of Limit Line #1
peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuV/m)	DELTA
1	.3859	34.1	5.8
2	1.487	30.1	4.5
3	42.16	31.2	7.8
4	49.9	32.1	7.6
5	52.05	36.4	11.6
6	54.29	42.6	17.5
7	56.63	44.8	19.4
8	58.24	41.7	16.2
9	59.9	41	15.3
10	61.61	36.4	10.5
11	64.26	32.5	6.3
12	83.93	31.3	3.3
13	95.24	31.6	2.8
14	100.75	31.7	2.5
15	120.95	33.8	3.4
16	141.16	34.2	2.8
17	155.76	44	11.9
18	206.3	37.6	3.7
19	227.63	42.6	8.0
20	244.2	41.1	6.1
21	310.09	40	3.4
22	388.28	43.6	5.5
23	405	43.9	5.5
24	762.23	43.9	1.3

hirdls RE02 14KHz-18GHz
Antennas vertical
Instr on, Vac sys on, blower off
Side B of inst.

D 686894



D 686894

MAY 06 2002

MAY 06 2002

==========

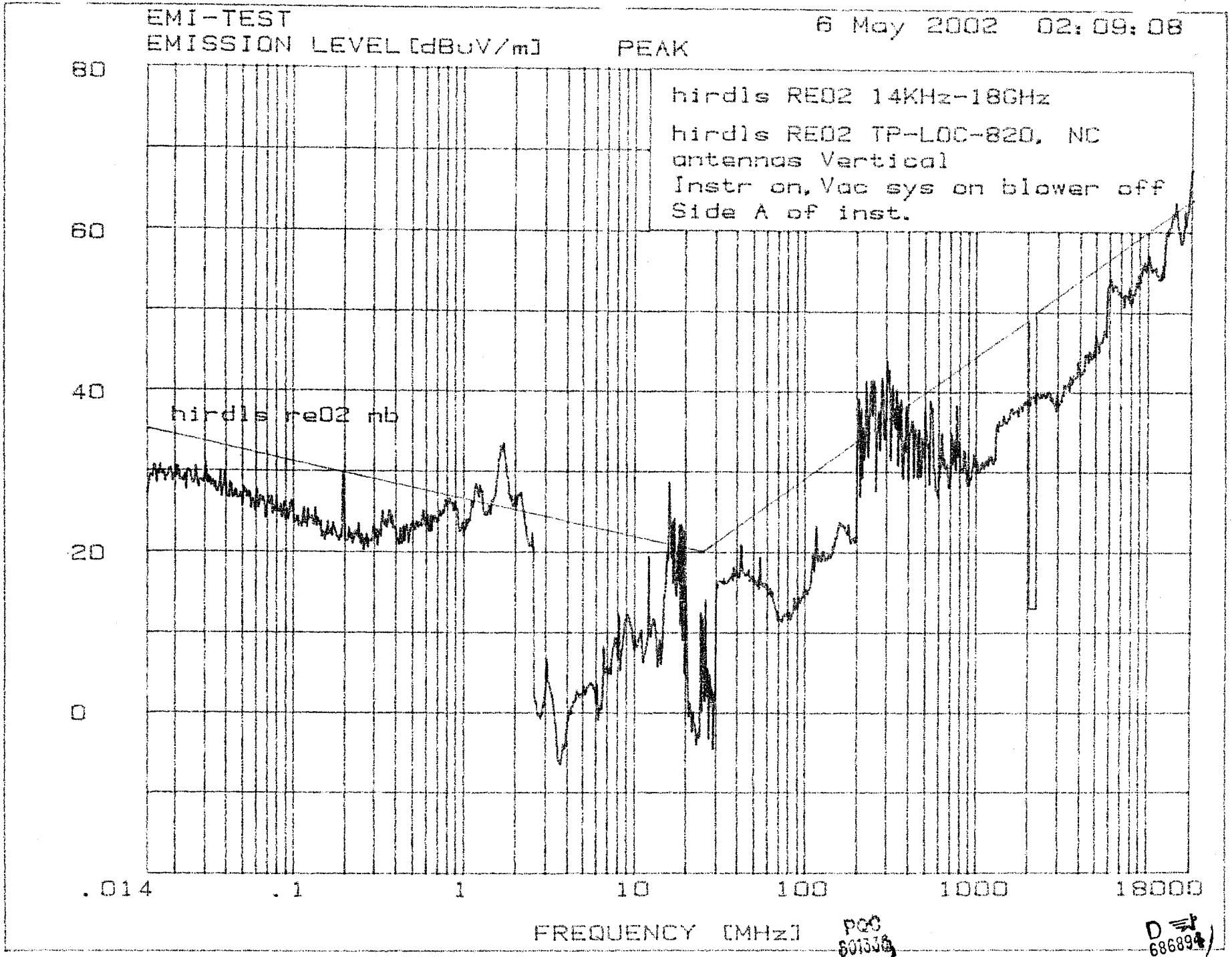
1. hirdls emi test
   1.3 hirdls RE02 14KHz-18GHz

==========

Peaks above 0 dB of Limit Line #1
peak criteria = 6 dB

hirdls RE02 14kHz-18GHz
Antennas Horizontal
Instr on, Vac sys on blowoff
Side B of inst.

PEAK#	FREQ (MHz)	(dBuV/m)	DELTA
1	36.12	28.4	6.0
2	42.16	26.5	3.1
3	50.61	27.2	2.6
4	52.05	34.7	9.9
5	54.29	39	13.9
6	58.24	39.4	13.9
7	59.9	32.8	7.1
8	61.61	30.8	4.9
9	66.09	27.1	.7
10	83.93	32.5	4.5
11	114.33	32.7	2.7
12	120.95	38.1	7.7
13	139.19	33.6	2.3
14	149.33	36.7	4.9
15	155.76	43.1	11.0
16	206.3	34.4	.5
17	218.23	37.2	2.9
18	227.63	44.1	9.5
19	237.43	39.4	4.6
20	261.97	39	3.5
21	281.04	37.5	1.5
22	323.45	42.1	5.2
23	332.67	40.8	3.7
24	342.15	40.3	3.0
25	405	41.6	3.2



PQC 601336
MAY 06 2002

D 686894
MAY 06 2002

EMI-TEST
TEST SETUP TABLE

Library File : hirdls RE02 14KHz-18GHz ver2

```
Display Title     : hirdls RE02 14KHz-18GHz
Units Label       : dBuV/m
Disp Ref Lvl (dB): 80
Test Type         : PEAK
Freq Uncert. (%): .5
Min Swp Time/Oct : 6

Range 1 of 5
  Start Freq(MHz): .014
  Stop Freq (MHz): 2.5
  Transducer      : ACTIVE ROD 3301B S/N 2793
  Gain/Loss       : NONE
  SA Input        : RIGHT
  Presel/Input3   : BYPASS
  Quasi-Peak Bw   : BYPASS
  SA Res Bw  (Hz): 1000
  Video Bw   (Hz): 10000
  Ref. Lvl (dBuV): 100
  Int Atten  (dB): 10
  Presel Atten    : 0
  Ext Atten  (dB): 0
  # Setups        : 1
  # Sweeps/Setup : 1
  Msg,Sub,Cont    : MESSAGE
        Line #1   : Connect active rod antenna to
        Line #2   : spectrum analyzer

Range 2 of 5
  Stop Freq (MHz): 30
  Transducer      : ACTIVE ROD 3301B S/N 2793
  Gain/Loss       : NONE
  SA Input        : RIGHT
  Presel/Input3   : BYPASS
  Quasi-Peak Bw   : BYPASS
  SA Res Bw  (Hz): 10000
  Video Bw   (Hz): 100000
  Ref. Lvl (dBuV): 100
  Int Atten  (dB): 10
  Presel Atten    : 0
  Ext Atten  (dB): 0
  # Setups        : 1
  # Sweeps/Setup : 1
  Msg,Sub,Cont    : CONTINUE

Range 3 of 5
  Stop Freq (MHz): 200
  Transducer      : BICON 3104 S/N 3606
  Gain/Loss       : HP8447D +20'Coax
  SA Input        : RIGHT
  Presel/Input3   : BYPASS
  Quasi-Peak Bw   : BYPASS
  SA Res Bw  (Hz): 100000
  Video Bw   (Hz): 1.E+6
  Ref. Lvl (dBuV): 100
  Int Atten  (dB): 10
  Presel Atten    : 0
```

```
   Ext Atten  (dB): 0
   # Setups       : 1
   # Sweeps/Setup : 1
   Msg,Sub,Cont   : MESSAGE
          Line #1 : Connect Bicon and 8447D to
          Line #2 : spectrum analyzer

Range 4 of 5
   Stop Freq (MHz): 1300
   Transducer     : LOG PERIODIC ANT. SN 1331
   Gain/Loss      : HP8447D +20'Coax
   SA Input       : RIGHT
   Presel/Input3  : BYPASS
   Quasi-Peak Bw  : BYPASS
   SA Res Bw  (Hz): 100000
   Video Bw   (Hz): 300000
   Ref. Lvl (dBuV): 100
   Int Atten  (dB): 10
   Presel Atten   : 0
   Ext Atten  (dB): 0
   # Setups       : 1
   # Sweeps/Setup : 1
   Msg,Sub,Cont   : MESSAGE
          Line #1 : Connect log periodic
          Line #2 : and 8447d to analyzer

Range 5 of 5
   Stop Freq (MHz): 18000
   Transducer     : HORN 3115 9002-3360
   Gain/Loss      : HP-8349B PRE-AMP+CL
   SA Input       : RIGHT
   Presel/Input3  : BYPASS
   Quasi-Peak Bw  : BYPASS
   SA Res Bw  (Hz): 100000
   Video Bw   (Hz): 300000
   Ref. Lvl (dBuV): 100
   Int Atten  (dB): 10
   Presel Atten   : 0
   Ext Atten  (dB): 0
   # Setups       : 1
   # Sweeps/Setup : 1
   Msg,Sub,Cont   : MESSAGE
          Line #1 : Connect 3115 horn and 8349B
          Line #2 : to spectrum analyzer

Limit #1 Label    : hirdls re02 nb
Limit #2 Label    : NONE
Limit #3 Label    : NONE

------------- Test Setup Table Notes --------
```

A [redacted] "INFORMATION ONLY" (AW)

MAY 06 2002

==========

1. hirdls emi test
   1.3 hirdls RE02 14KHz-18GHz

==========

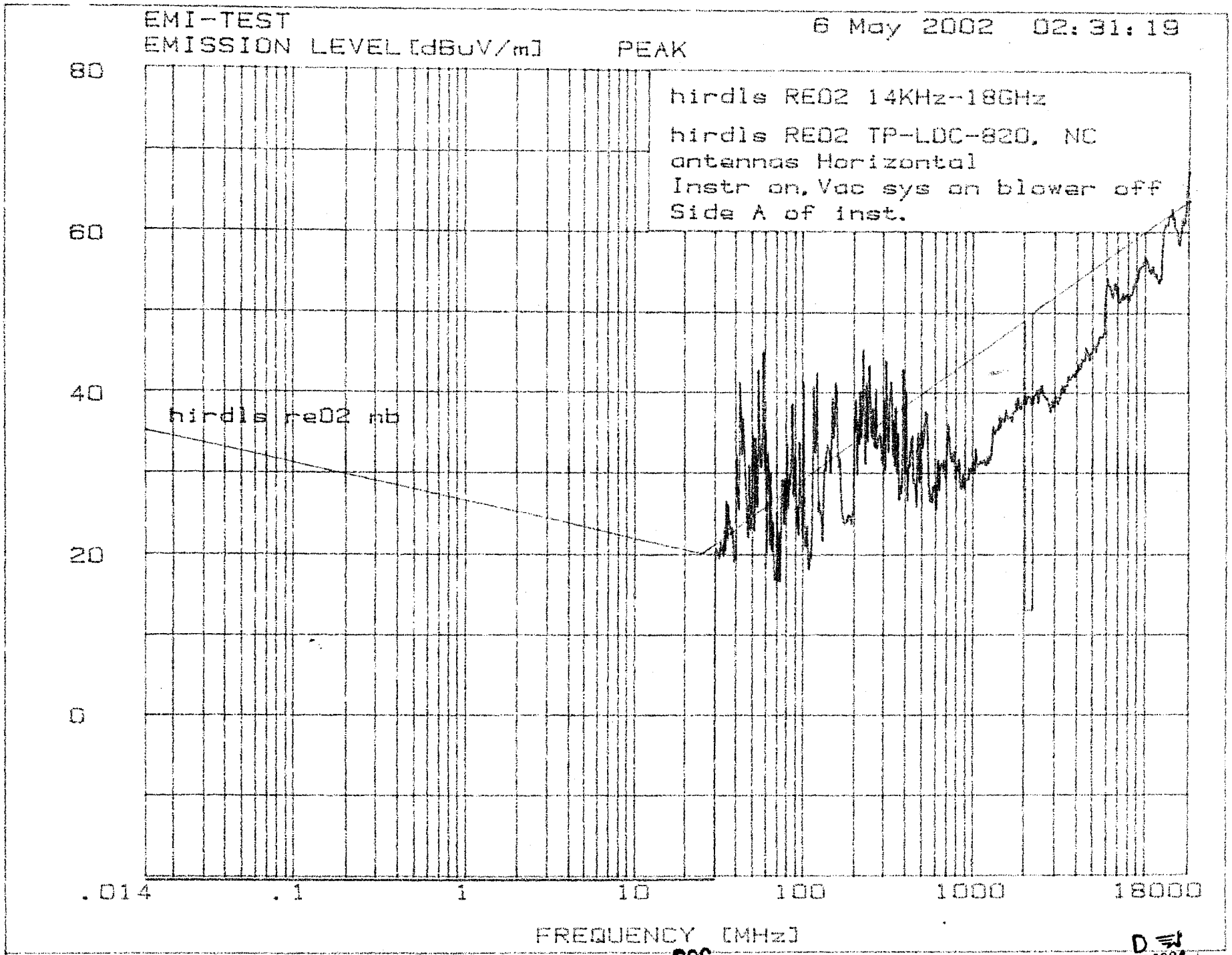
Peaks above 0 dB of Limit Line #1
peak criteria = 6 dB

hirdls RE02 14KHz-18 GHz
antennas vertical
Instr on, cbl sys on blocks off
Scale A of 10db

PEAK#	FREQ (MHz)	(dBuV/m)	DELTA
1	.1966	29.8	.1
2	1.711	33.5	8.2
3	15.99	28.7	7.9
4	17.15	24.2	3.5
5	18.4	23.4	2.8
6	18.92	23.5	3.0
7	19.46	22.9	2.4
8	206.3	39.2	5.3
9	212.18	37.9	3.8
10	227.63	41.4	6.8
11	251.16	41.5	6.3
12	281.04	41.7	5.7
13	301.5	44	7.6
14	323.45	40.9	4.0
15	361.93	39	1.4
16	388.28	38.2	.1

PQC
601335
MAY 06 2002

D
686894
MAY 06 2002



PQC 601335 MAY 06 2002
D 686894 MAY 06 2002

EMI-TEST 6 May 2002 02:31:19

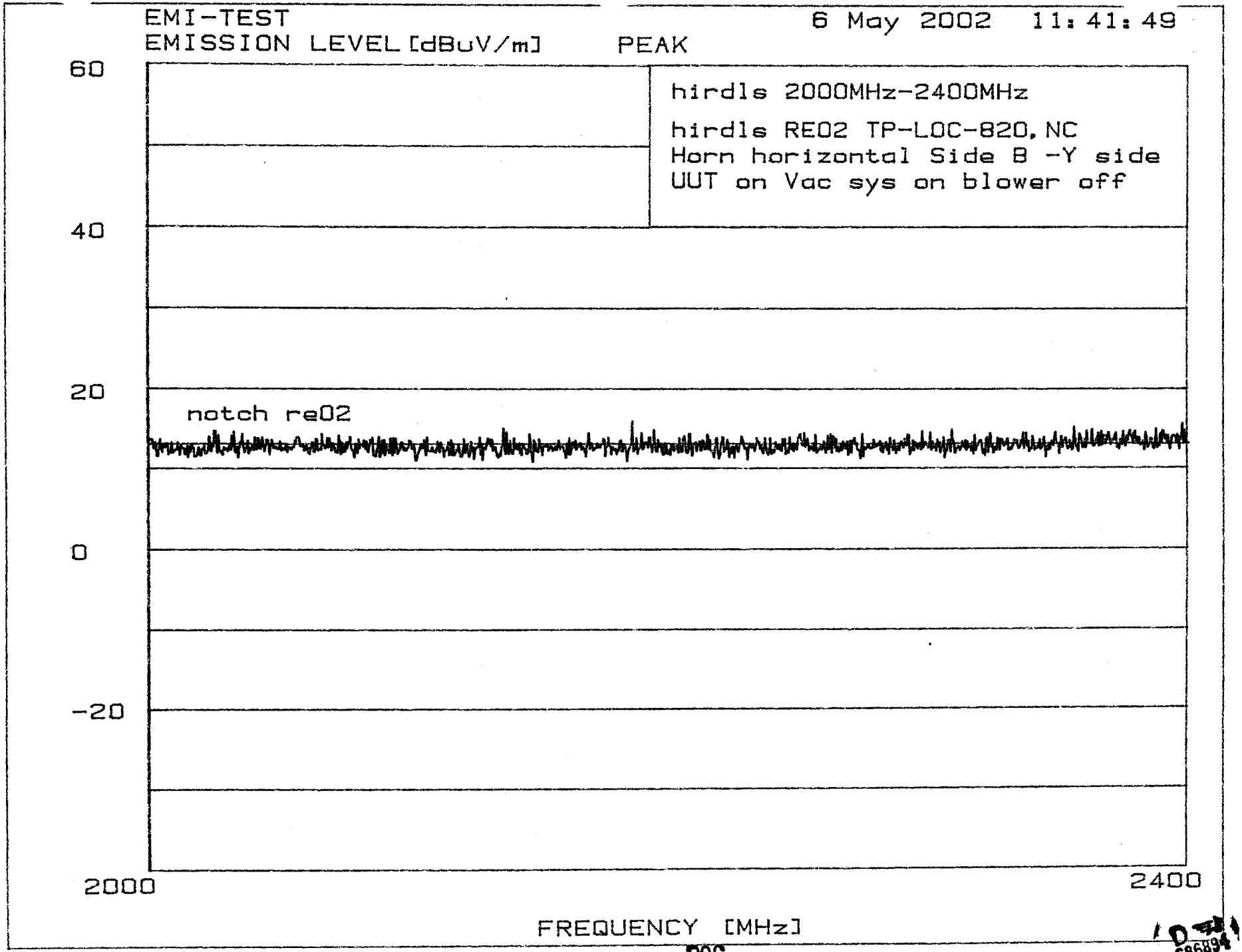
1. hirdls emi test
   1.3 hirdls RE02 14KHz-18GHz

Peaks above 0 dB of Limit Line #1
peak criteria = 6 dB

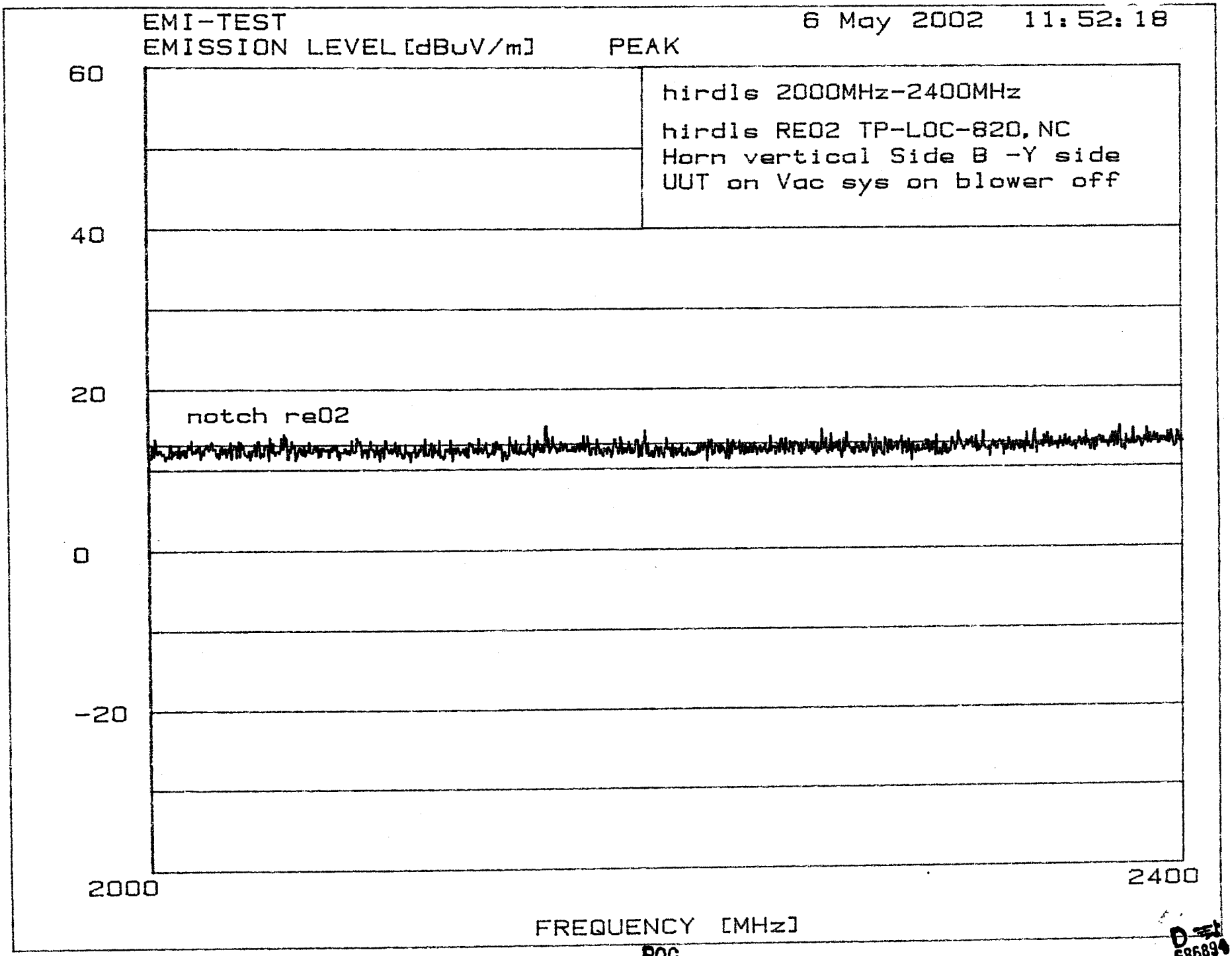
hirdls RE02 14KHz-18GHz
Antennas Horizontal
Instr on, Vac sys on blower off
Side A of inst.

PEAK#	FREQ (MHz)	(dBuV/m)	DELTA
1	35.12	26.5	4.3
2	40.42	32.2	9.1
3	42.16	41.3	17.9
4	47.84	31	6.8
5	50.61	34.6	10.0
6	52.05	34.4	9.6
7	54.29	42.9	17.8
8	58.24	45.2	19.7
9	61.61	32.6	6.7
10	64.26	30.2	4.0
11	80.46	33.6	5.9
12	86.32	38.7	10.5
13	95.24	33.8	5.0
14	100.75	41.3	12.1
15	115.95	40.8	10.7
16	120.95	42.5	12.1
17	155.76	41.3	9.2
18	206.3	39.2	5.3
19	227.63	45.5	10.9
20	237.43	41.3	6.5
21	247.65	43.5	8.4
22	269.44	40.4	4.7
23	301.5	39.2	2.8
24	310.09	44.1	7.5
25	332.67	41.3	4.2
26	351.9	38.3	.8
27	388.28	43	4.9
28	405	40.2	1.8

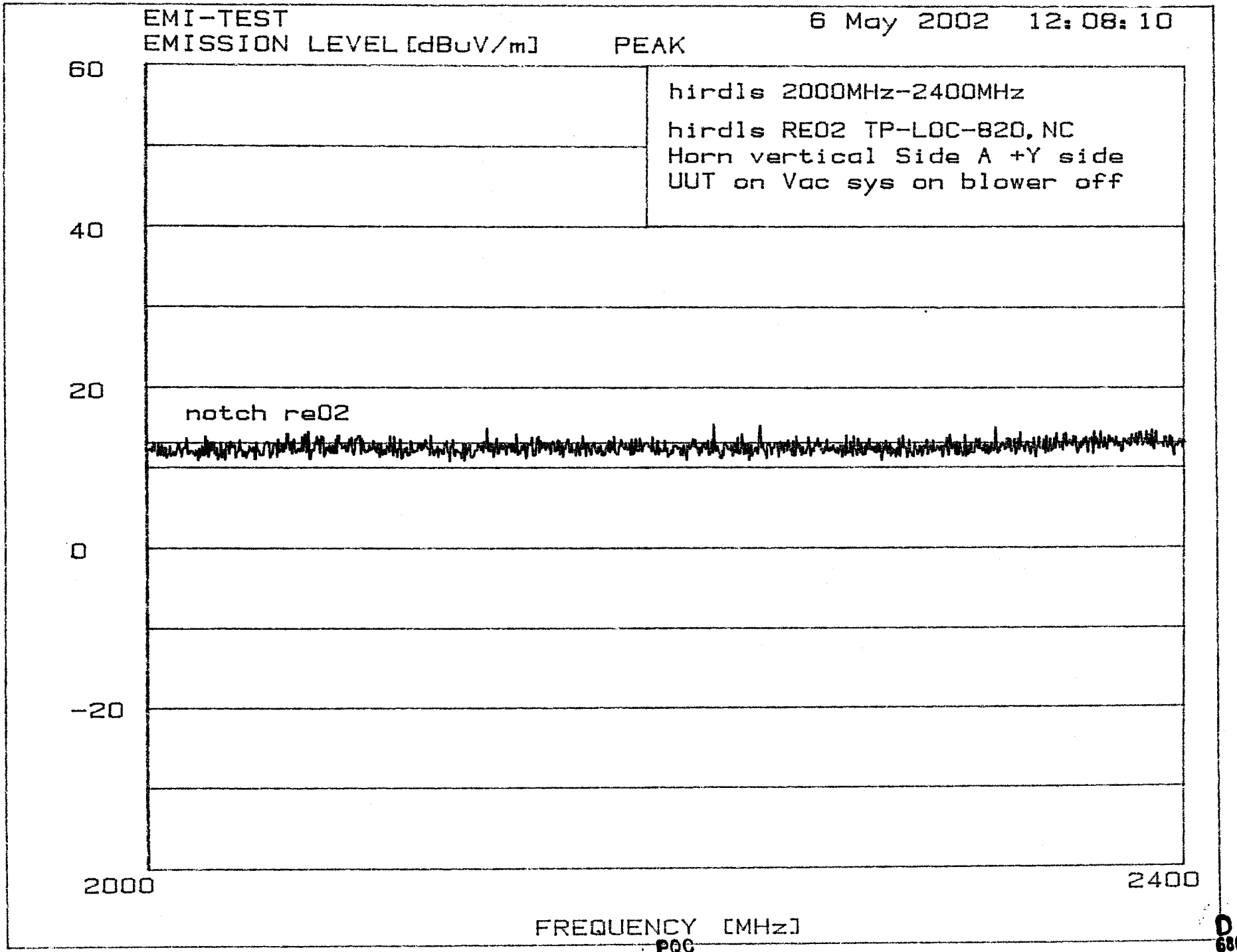
PQC 601335
D 686894
MAY 2002



PQC 601339
DES 06 2002
D 686894
DES 06 2002



PQC
601335 MAY 06 2002
MAY 06 2002
D 686894

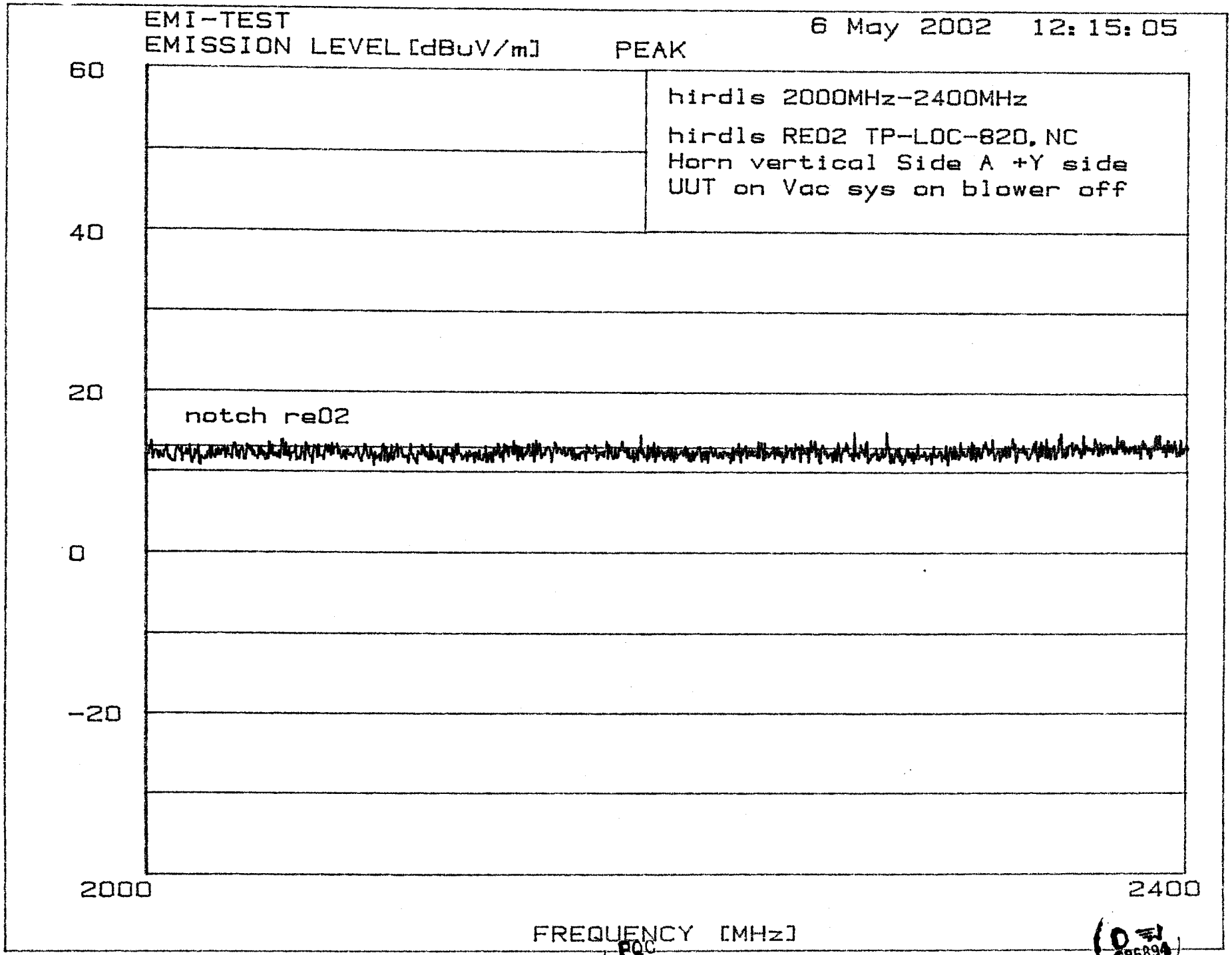


PQC
601335

MAY 06 2002

D
686894

MAY 06 2002



PQC 601335 MAY 06 2002
D 686894 MAY 06 2002

TEST DATA SHEET

RE04 Magnetic Field Radiated Emissions (20Hz to 50KHz)

PARAGRAPH 13.6

DATE OF TEST 05-06-02

PART NO. . 1A27800

CCA/SERIAL NO. 01

TEST TECHNICIAN

NOTES:

Antenna Polarity	Test Completed	Pass	Fail	Comments
Parallel Vertical		✓		
Perpendicular Vertical		✓		
Horizontal		—	—	N/A

PQC 601335 MAY 06 2002

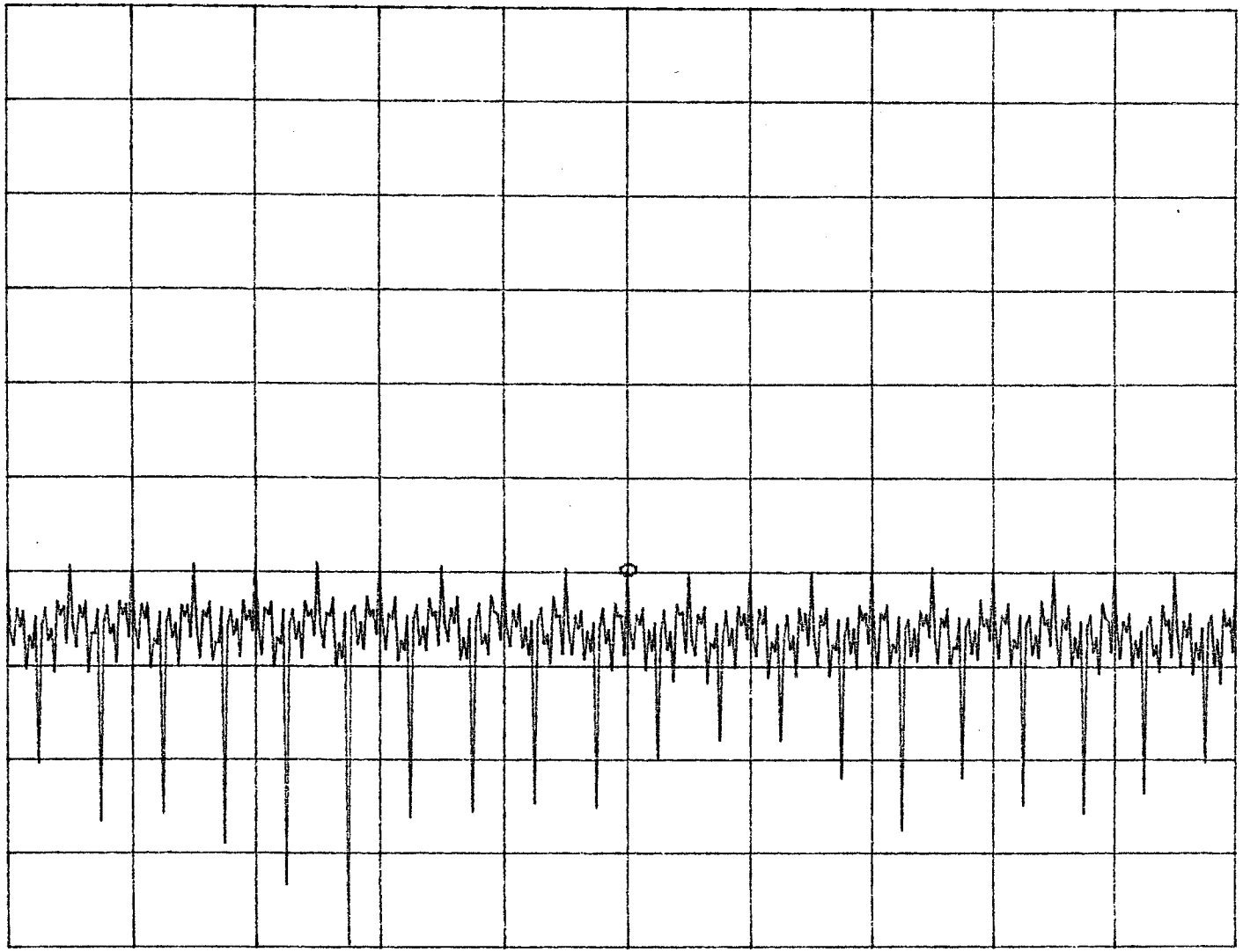
A 686854 MAY 06 2002

REF LEVEL
0.000dBm

/DIV
10.000dB

MARKER 160.000Hz
MAG (A) -59.735dBm

HIROLS REQ4 20 TO 300 Hz
TP-LOC-820 NC
LOOP PERPENDICULAR TO SIDE B (-Y AXIS)
INSTRON, VAC SYS ON, BLOWER OFF



START 20.000Hz
AMPTD -11.0dBm

STOP 300.000Hz

PQC 601335
MAY 06 2002

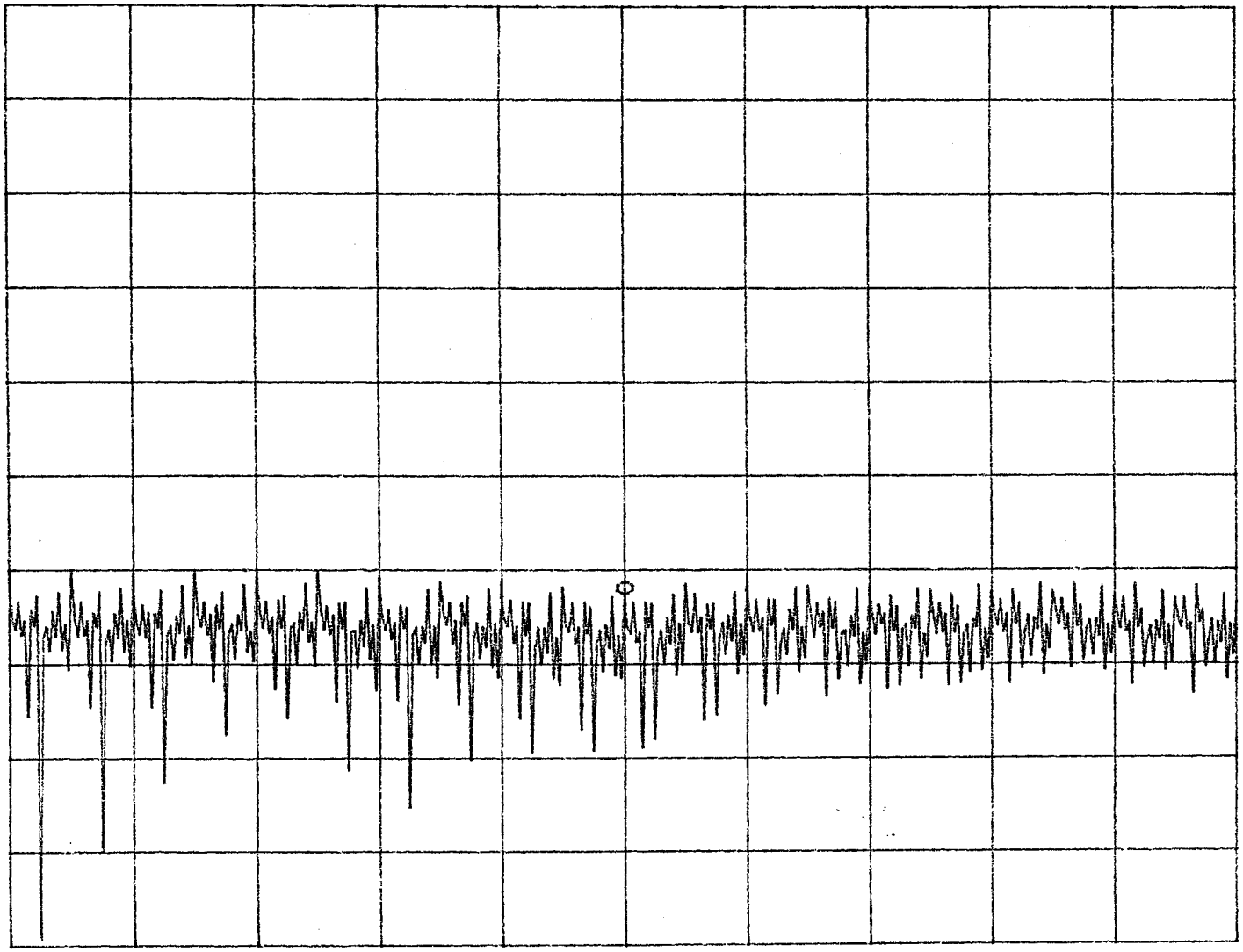
A 636894
MAY 06 2002

REF LEVEL 0.000dBm

/DIV 10.000dB

MARKER 160.000Hz
MAG (A) -61.884dBm

HIROLS REØ4 20 TO 300Hz
TP-LOC-820 NC
LOOP PARALLEL TO SIDE B (-Y AXIS)
INSTRON, VAC SYS ON, BLOWER OFF



START 20.000Hz
AMPTD -11.0dBm

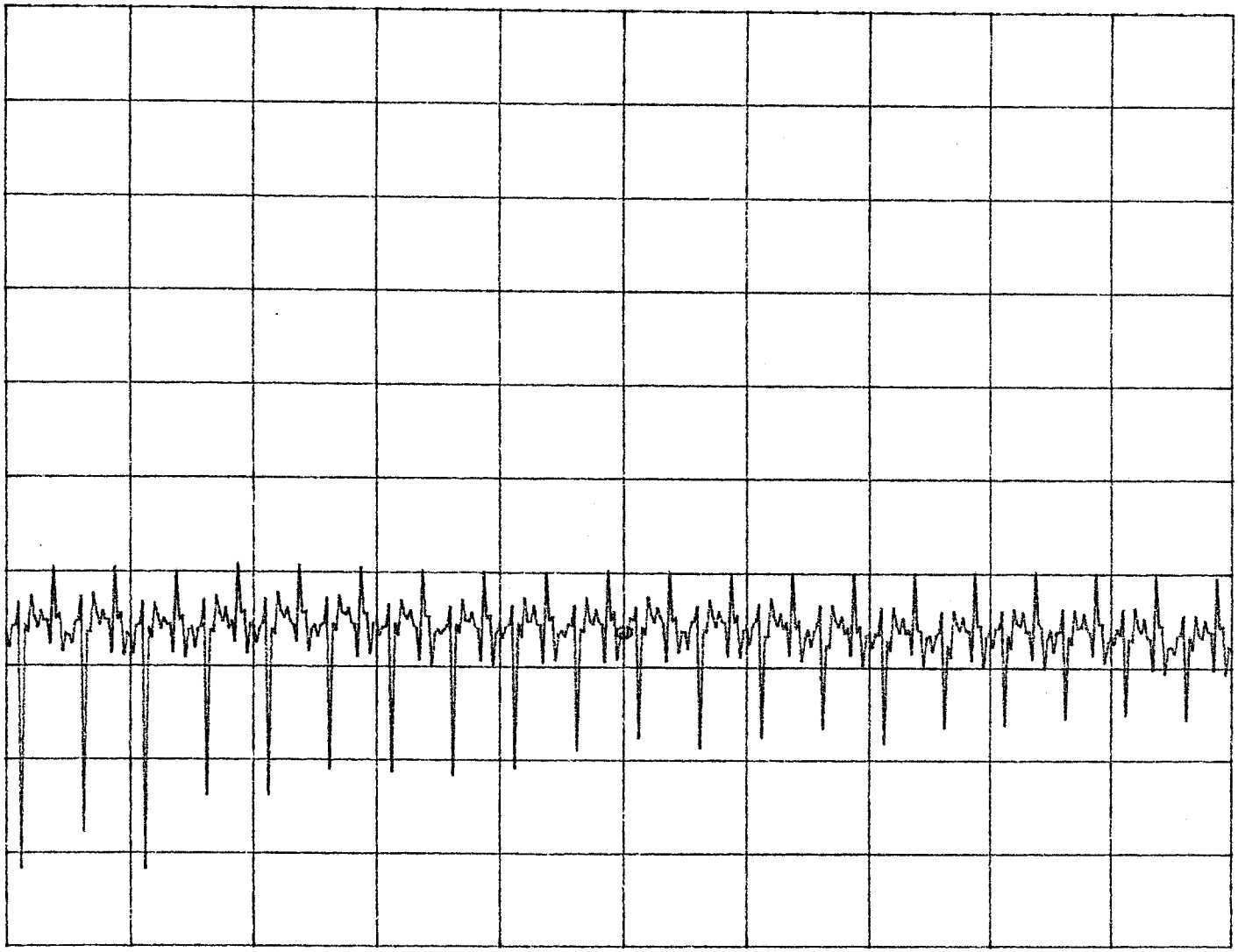
STOP 300.000Hz

PQC 601336
NOV 06 2002

A 606894
NOV 06 2002

REF LEVEL /DIV MARKER 160.000Hz
0.000dBm 10.000dB MAG (A) −66.257dBm

HIRDLS REQ#4 20 TO 300HZ
TP-LOC-820 NC
LOOP PGA PCN DIGITAL TO SIDE A (+Y, AX
INSTRON, V_{AC} SYS ON, BLOWER OFF



START 20.000Hz STOP 300.000Hz
AMPTD −11.0dBm

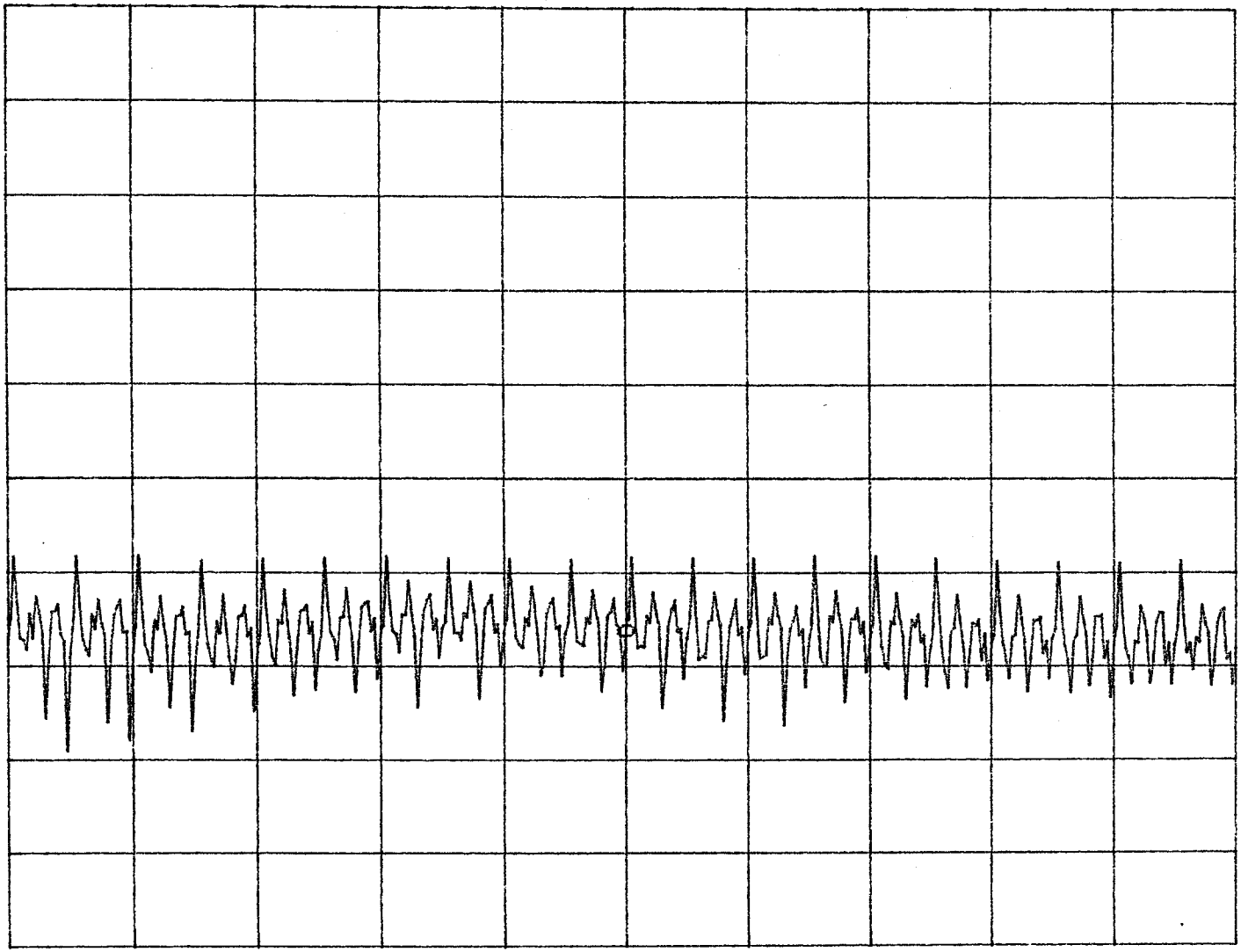
PQC 601336
MAY 06 2002
A 686894
MAY 06 2002

REF LEVEL 0.000dBm

/DIV 10.000dB

MARKER 160.000Hz
MAG (A) −66.179dBm

HIRDLS Req't 20 TO 300Hz
TP-LOC-820 NC
LOOP PARALLEL TO SIDE A (+Y AXIS)
INSTRON, V_{AC} SASON, Blower OFF

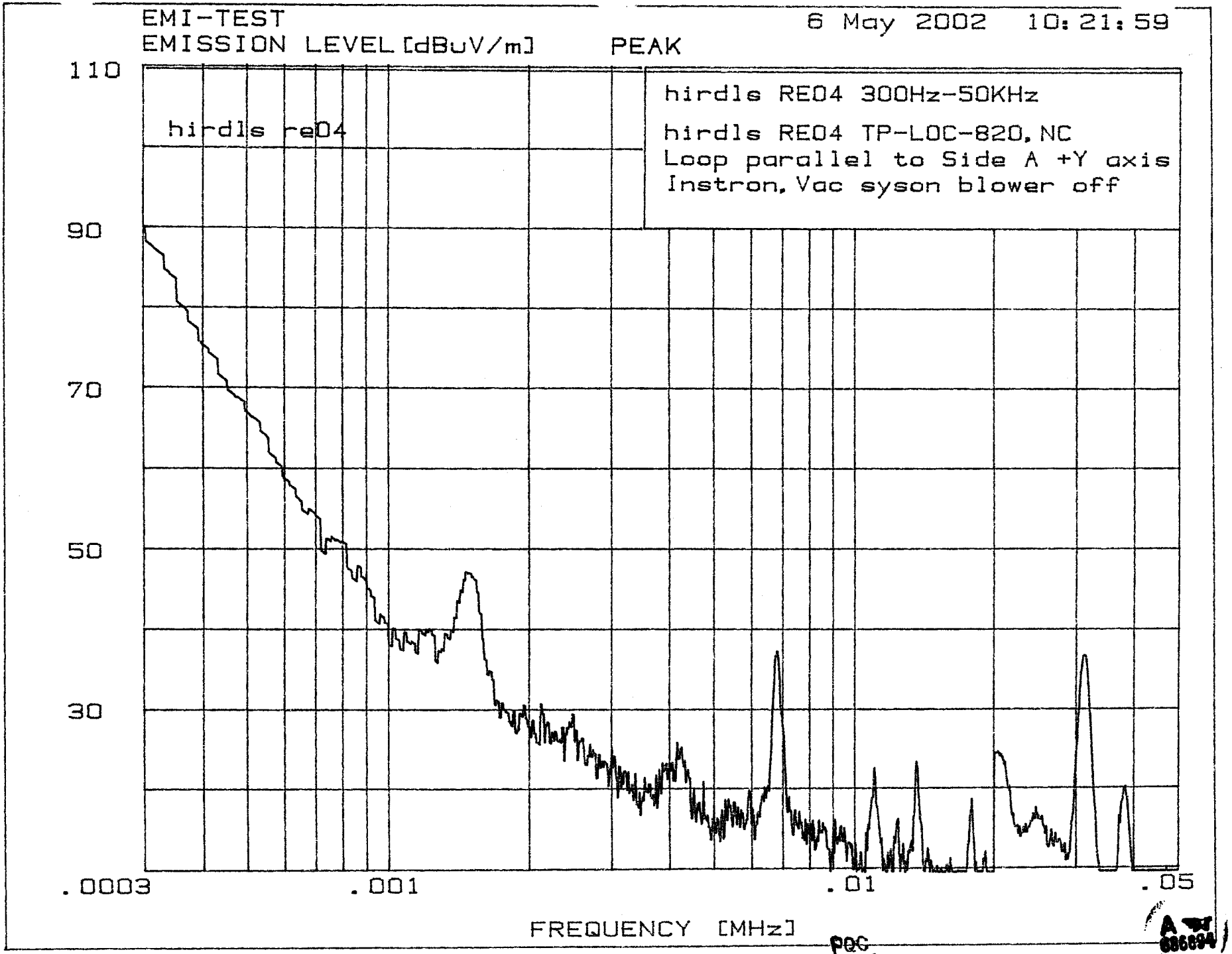


START 20.000Hz
AMPTD −11.0dBm

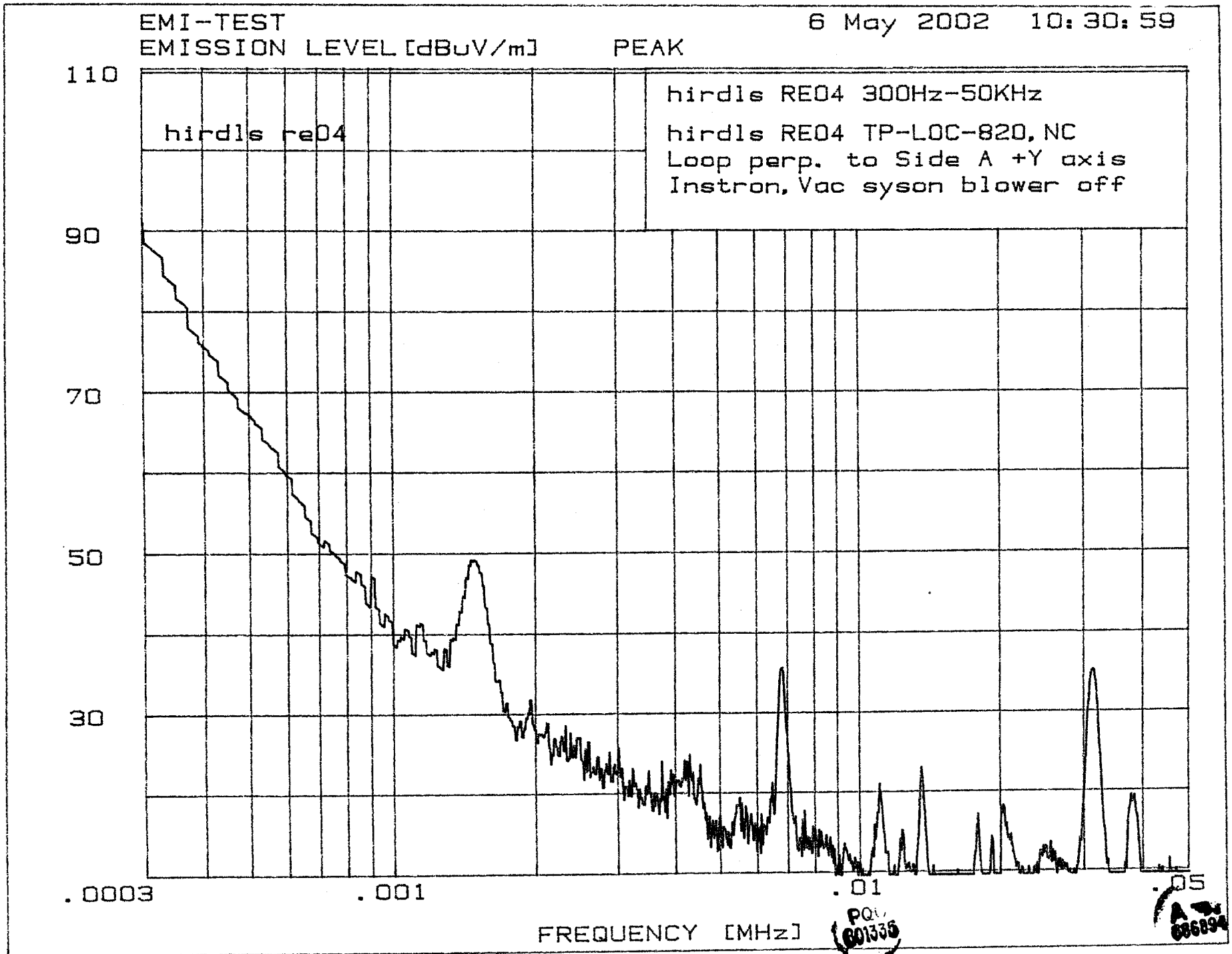
STOP 300.000Hz

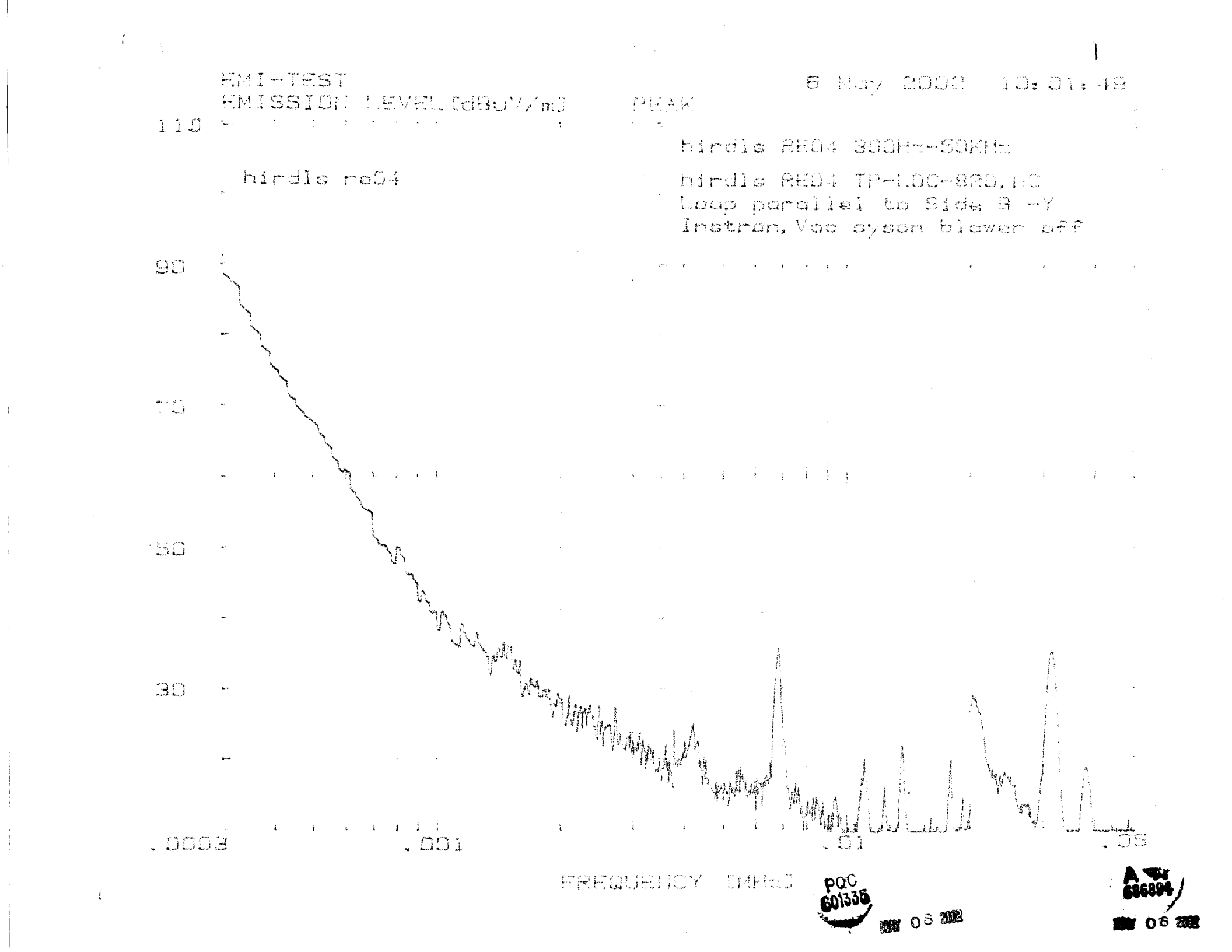
PQC 601338 MAY 06 2002

A 636894 MAY 06 2002

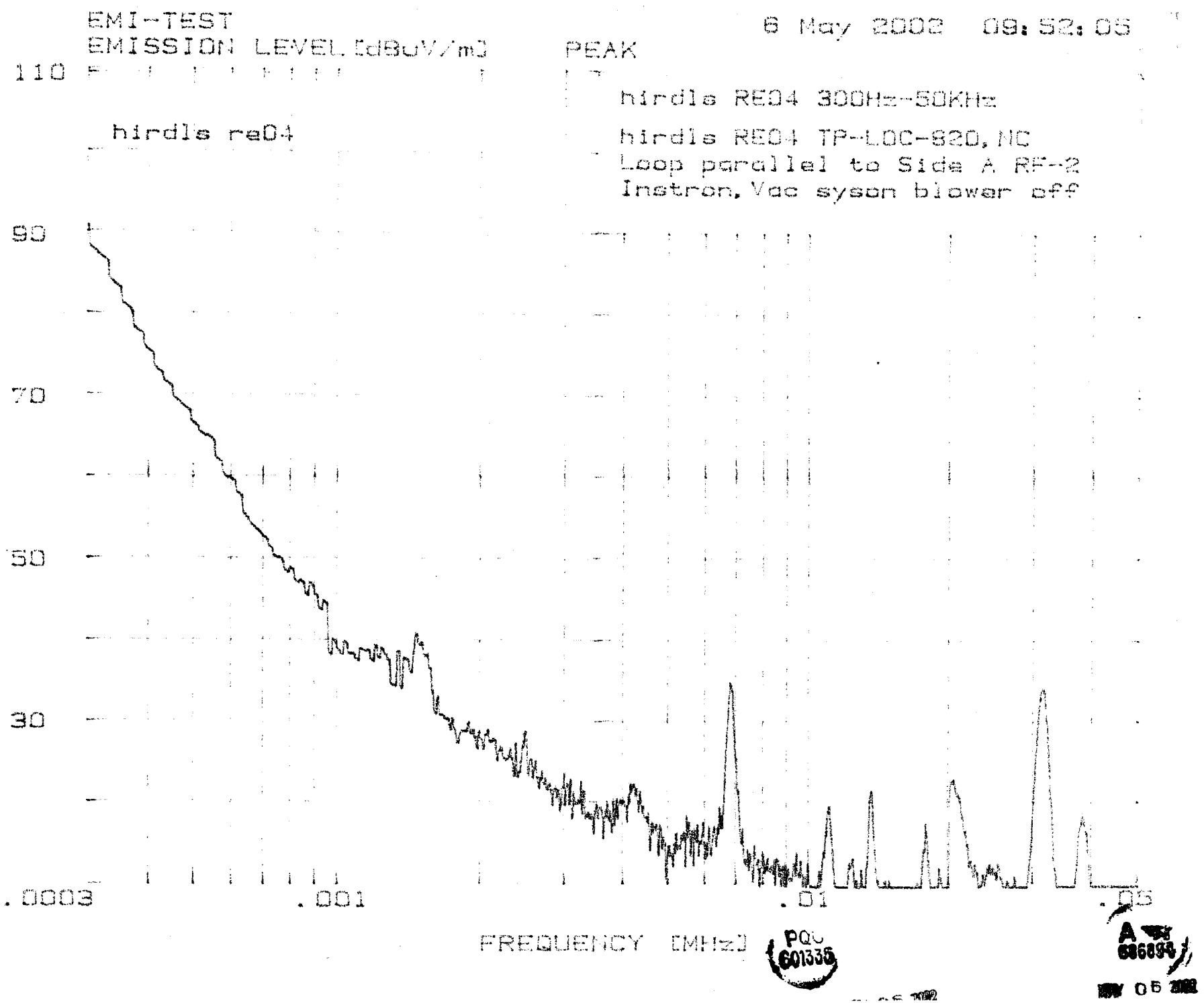


POC 601336 MAY 06 2002
A 686894
MAY 06 2002


EMI-TEST
6 May 2002 10:30:59
EMISSION LEVEL [dBuV/m] PEAK
110
90
70
50
30
hirdls re04
hirdls RE04 300Hz-50KHz
hirdls RE04 TP-LOC-820, NC
Loop perp. to Side A +Y axis
Instron, Vac syson blower off
.0003
.001
.01
.05
FREQUENCY [MHz]



PQC 601335
06 2003
A 686894
06 2003



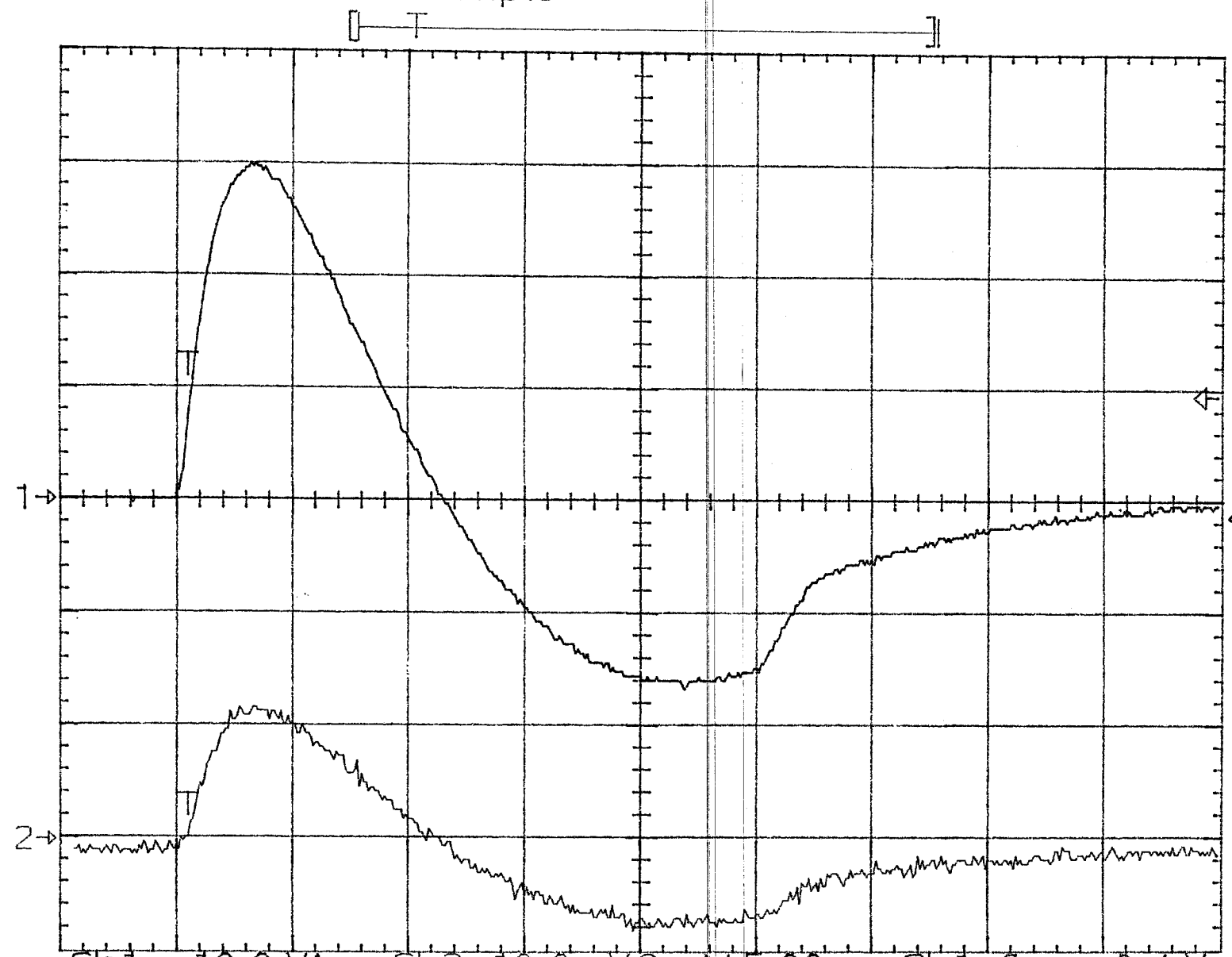
PQC 601335

A 686094

NOV 05 2002

APPENDIX F

CS 06 EMISSION TEST DATA



FOR:
CS06

C1 Ampl
29.6 V
Unstable
histogram

Calibration
Plot
Across 5Ω

VOLTAGE

5A/DIV.

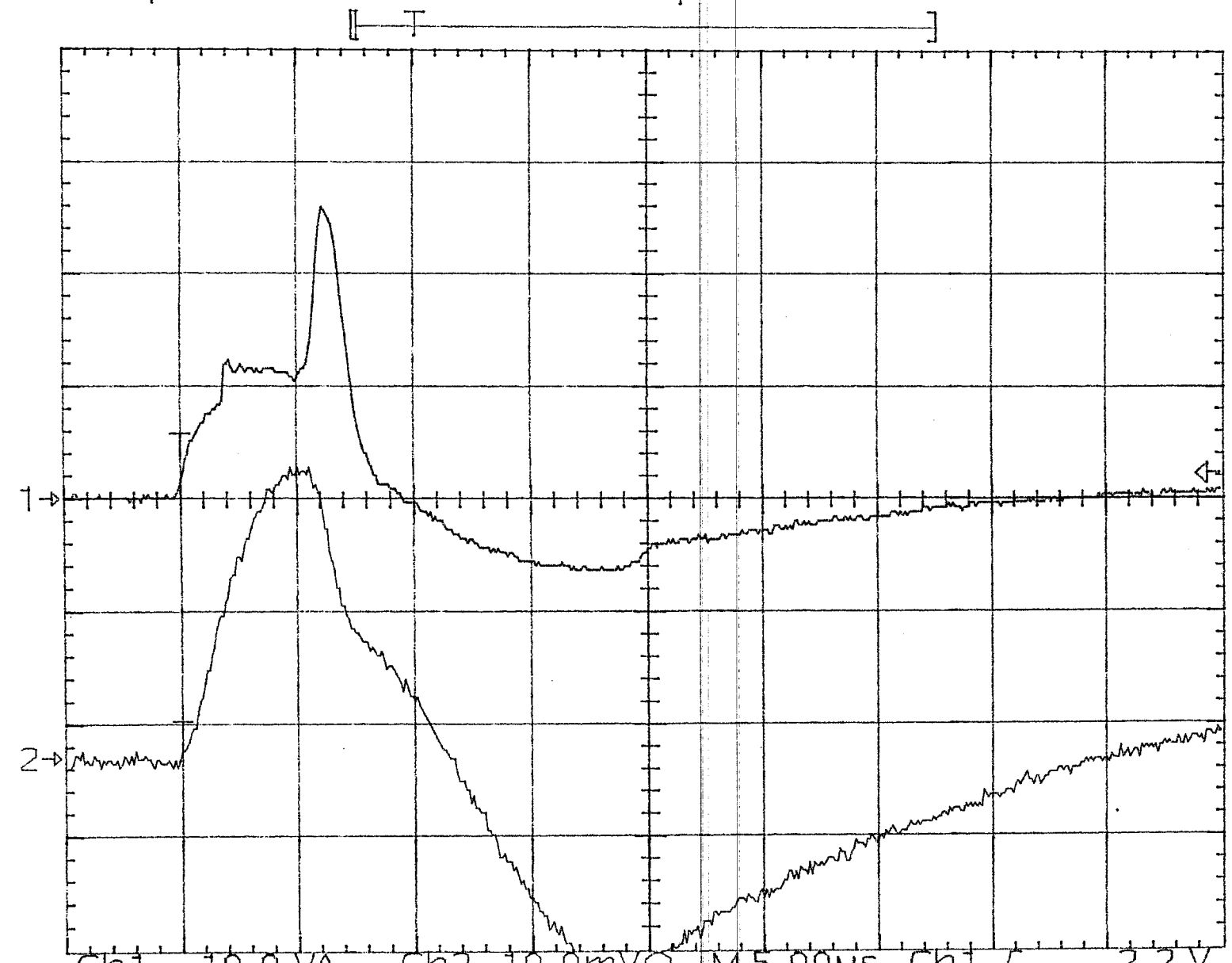
CURRENT

5 May 2002
05:07:21

PQC
686047
4-5-02

A
686894

MAY 05 2002



C1 Ampl
11.6 V
Unstable
histogram

CS06
Quiet Bus
+29 V Injection

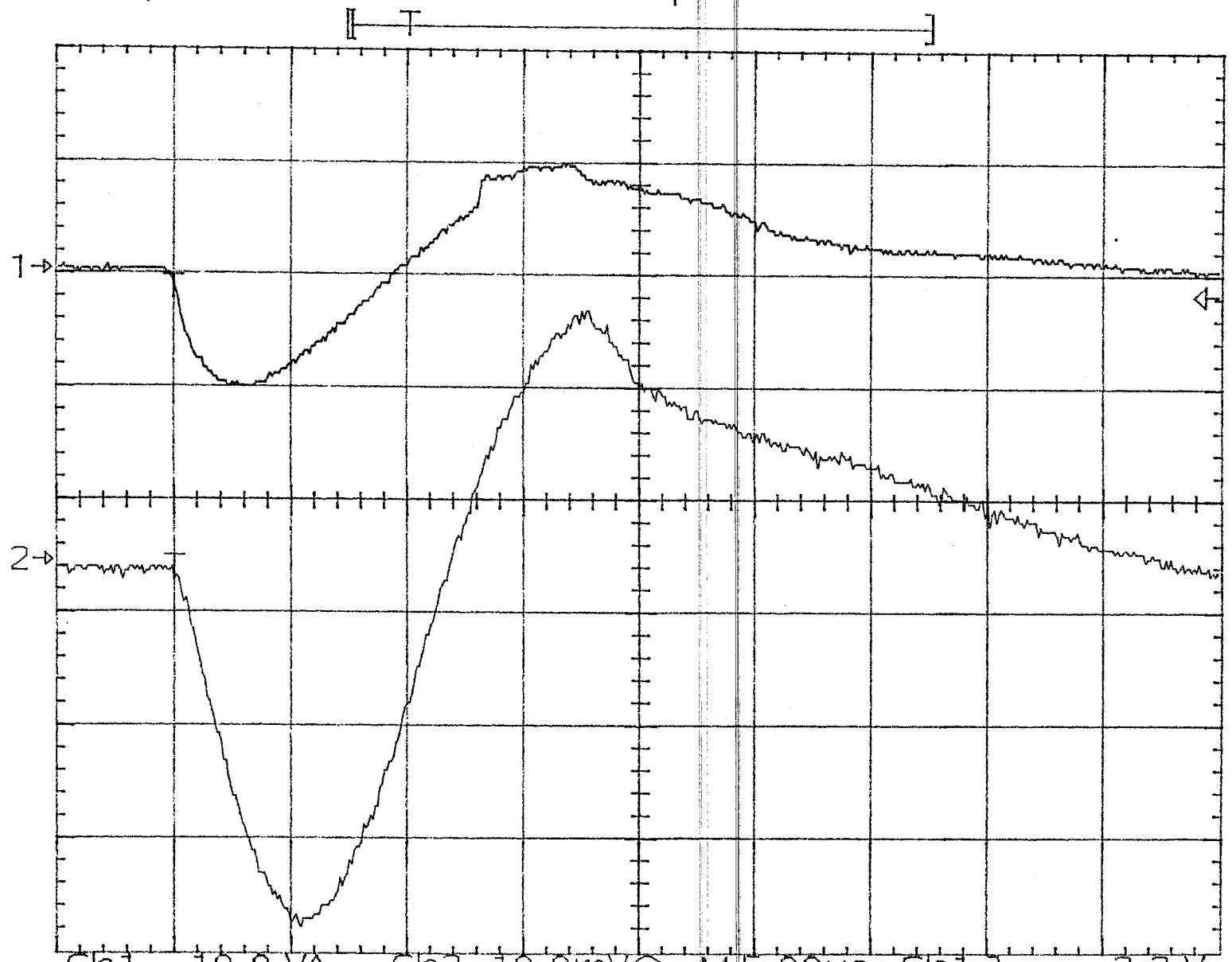
Current
5A/DIV

5 May 2002
05:57:26

PQC
686047
4-5-02
5

A
686894

MAY 05 2002



CSϕ6

C1 Min
−10.4 V

C2 Min
−32.6mV

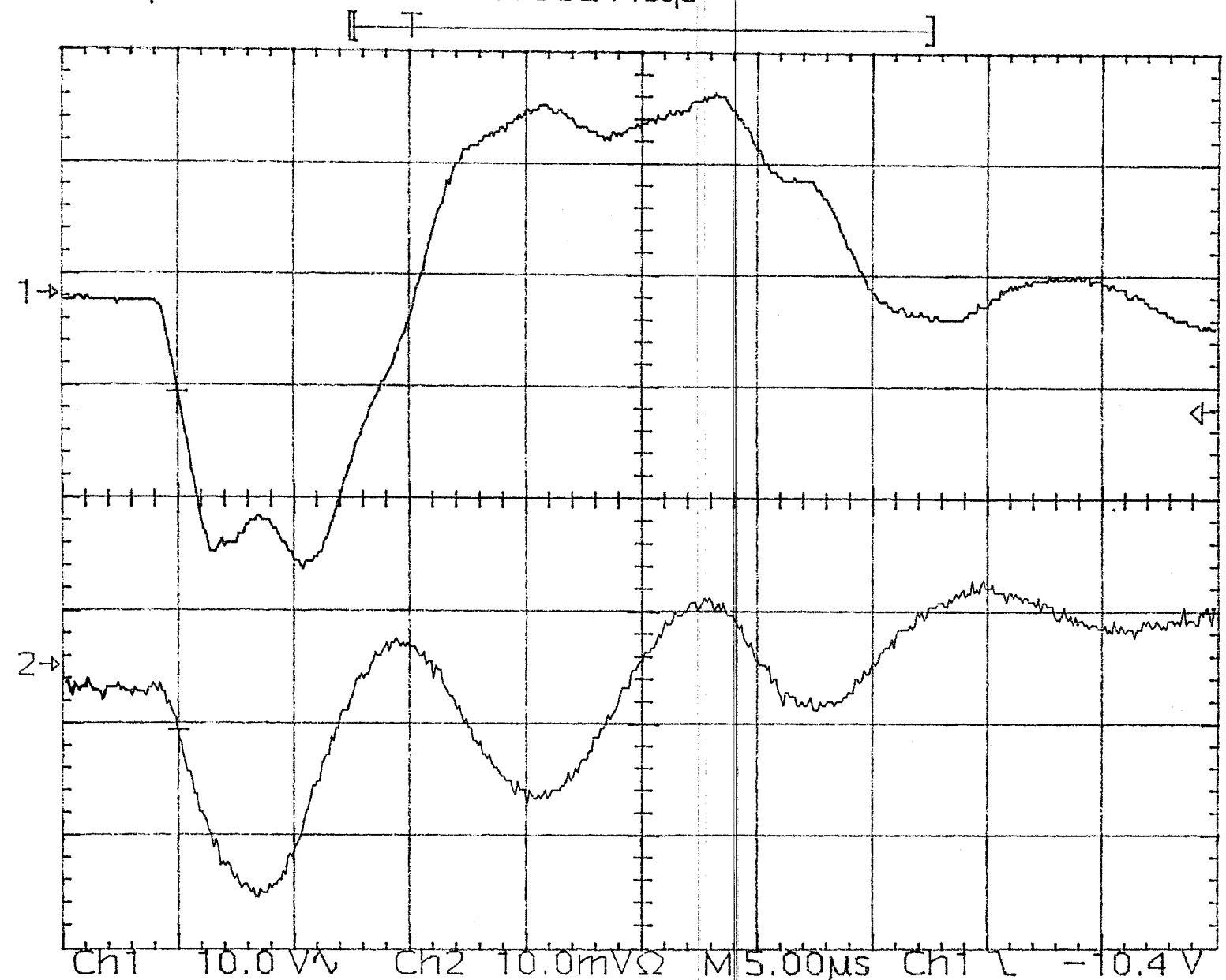
(10mV = 5A/Div)

QUIET BUS

5 May 2002
06:37:36

PQC
648603
5-5-02

A
686894
MAY 06 2002



C5Ø6

C1 Min
−24.6 V

C2 Min
−20.8mV
(10mV = 5A/DIV)

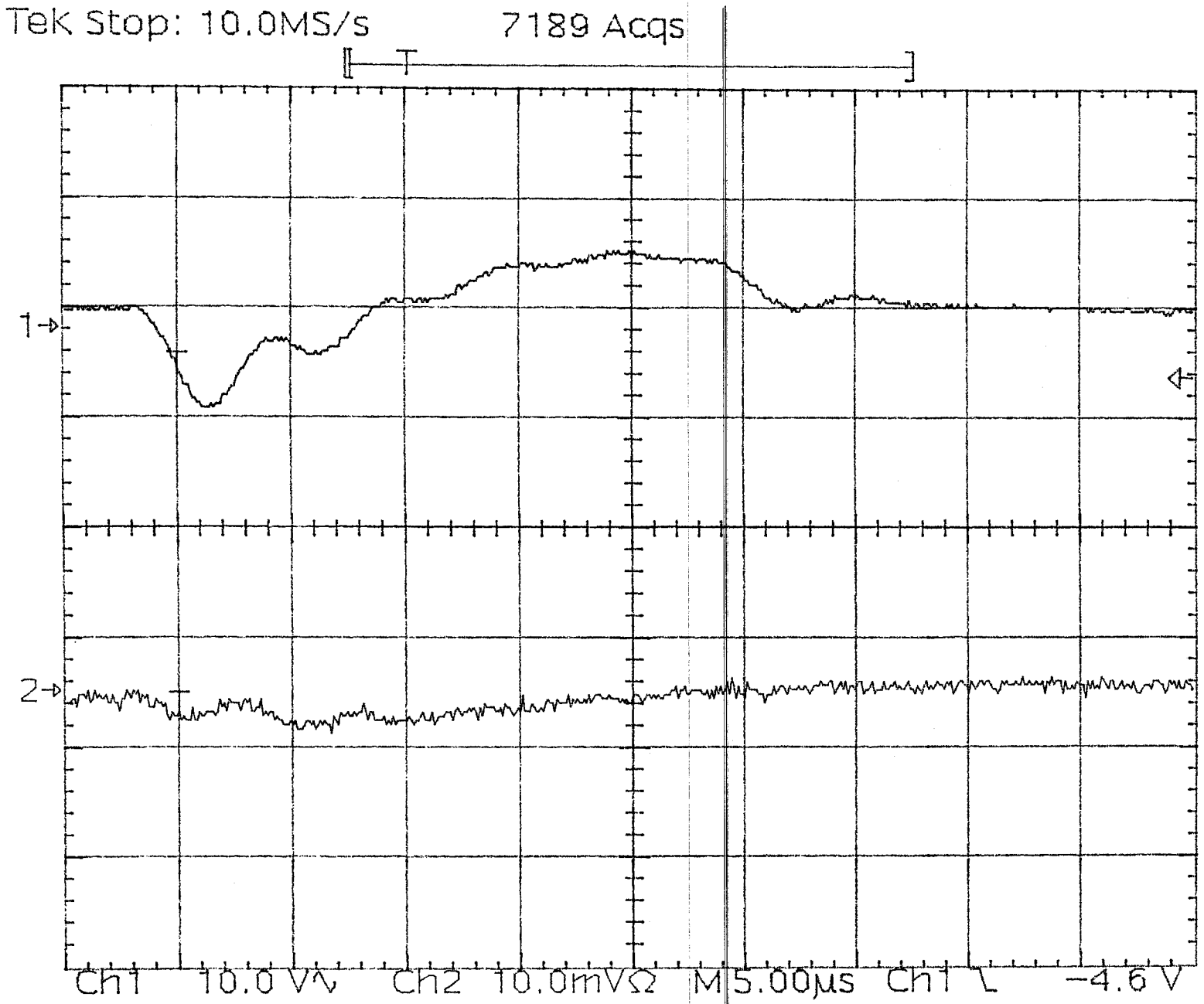
NOISY ~~QUIET~~ BUS

−29V INJECTION

5 May 2002
07:06:28

PQC
648603
MAY 05 2002

686894
MAY 05 2002



CS #6

NOISY BUS ~~20V~~ AC
-10 V INTEGR

C1 Min
-7.4 V

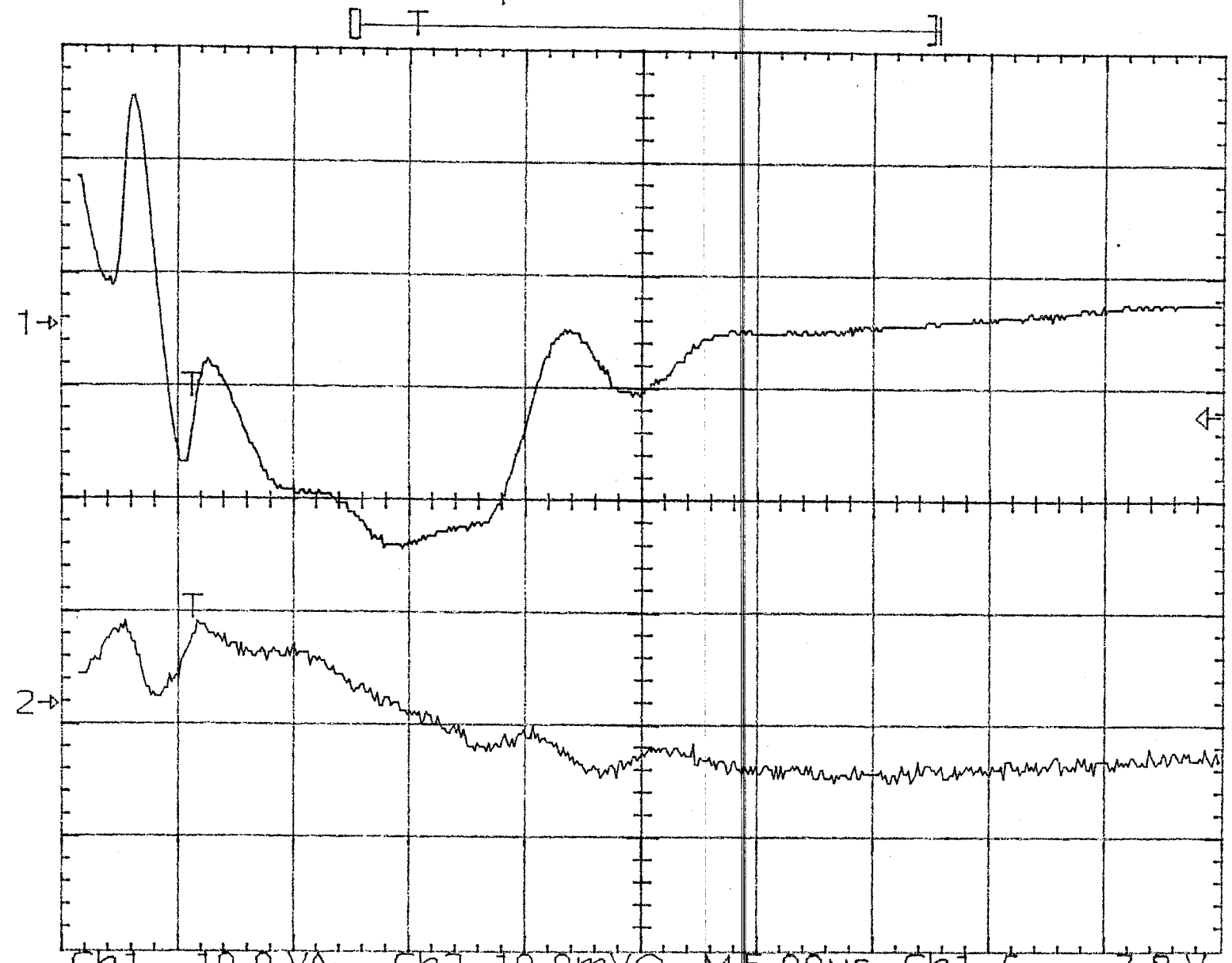
C2 Min
-4.0mV

(10mV = 5A/DIV)

5 May 2002
07:16:11

PQC
648603
MAY 05 2002

A
666894
MAY 05 2002



CS Ø6
Noisy Bus
+29V Injection

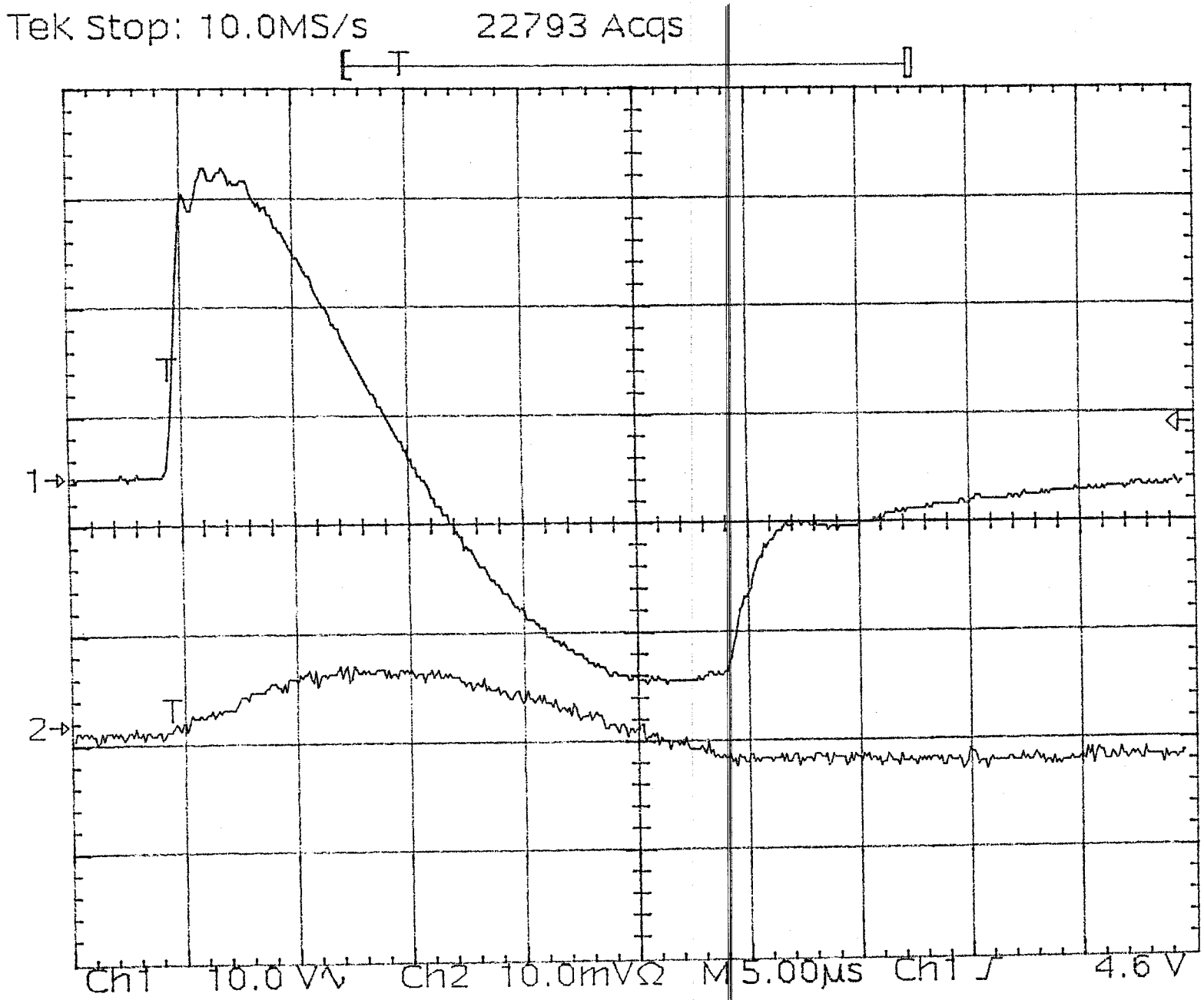
C1 Max
20.2 V

C2 Max
7.4mV

(10mV = 5A/div)

5 May 2002
07:30:39

FOC
648603
MAY 05 2002
686894
MAY 05 2002



CS Ø6
SURVIVAL BUS
+29V INJECTION

C1 Max
28.4 V

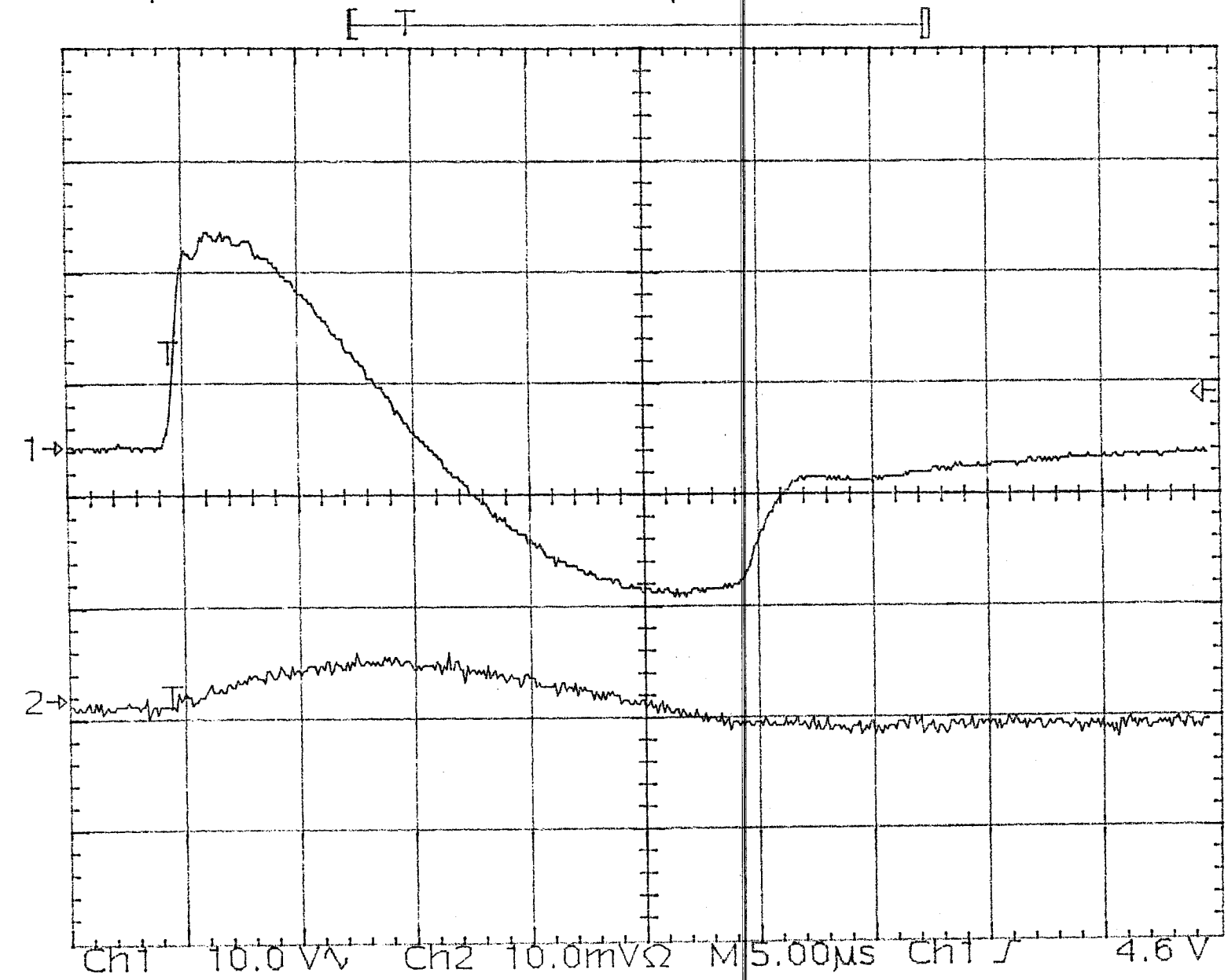
C2 Max
5.4mV

(10mV = 5A/DIV)

5 May 2002
07:48:34

PQC
648603
MAY 05 2002

A
636894
MAY 05 2002

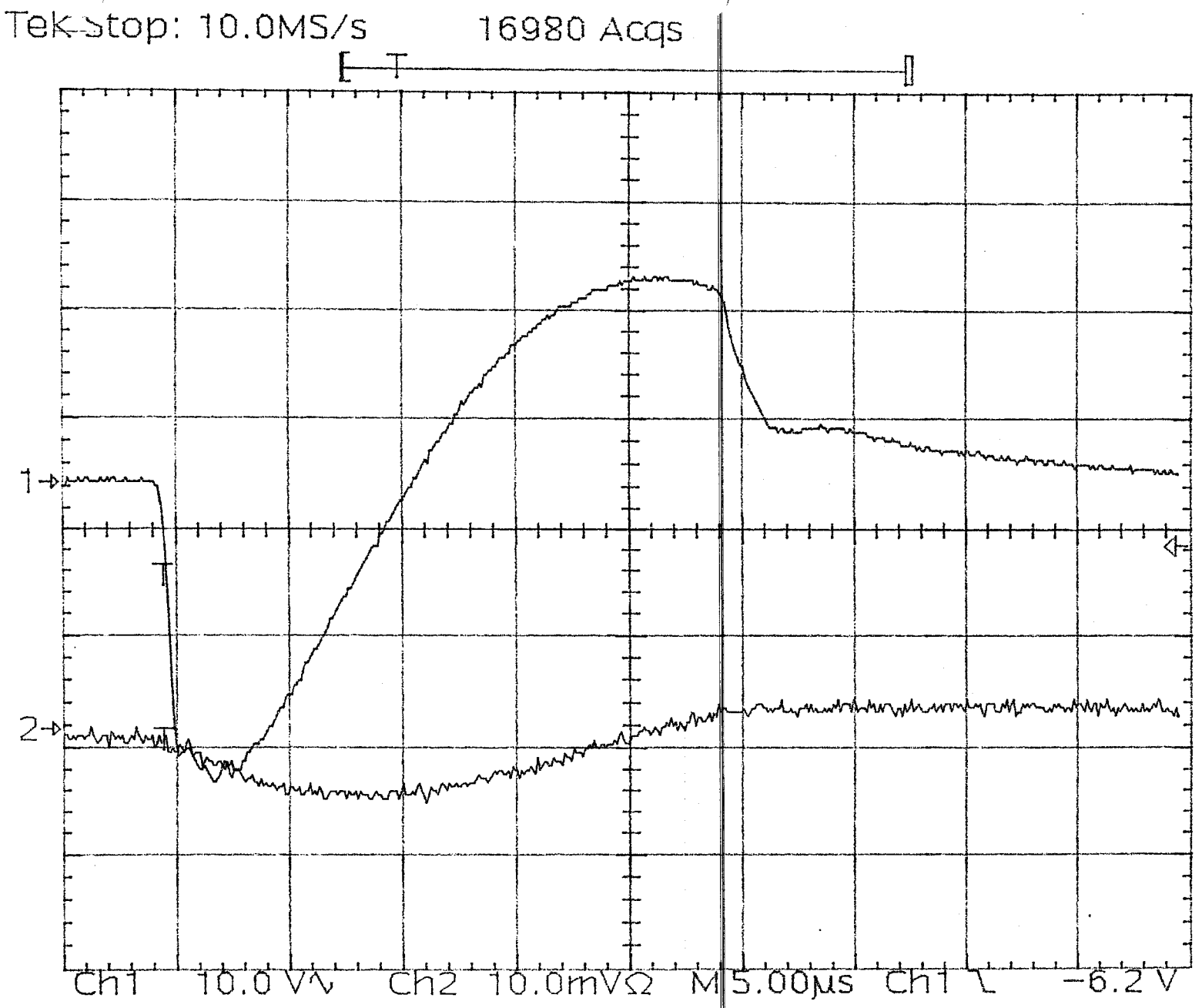


ES #6
SURVIVAL BUS
+20V INJECTION
THRESHOLD
C1 Max
19.2 V

C2 Max
4.2mV
(10 mV = 5A/DIV)

5 May 2002
07:58:46

PQC
648603
MAY 05 2002
666894
MAY 05 2002



CS #6
SURVIVAL BUS
-19.2V INJECTION
THRESHOLD

C1 Max
18.8 V

C2 Max
2.6mV

(10mV = 5A/DIV)

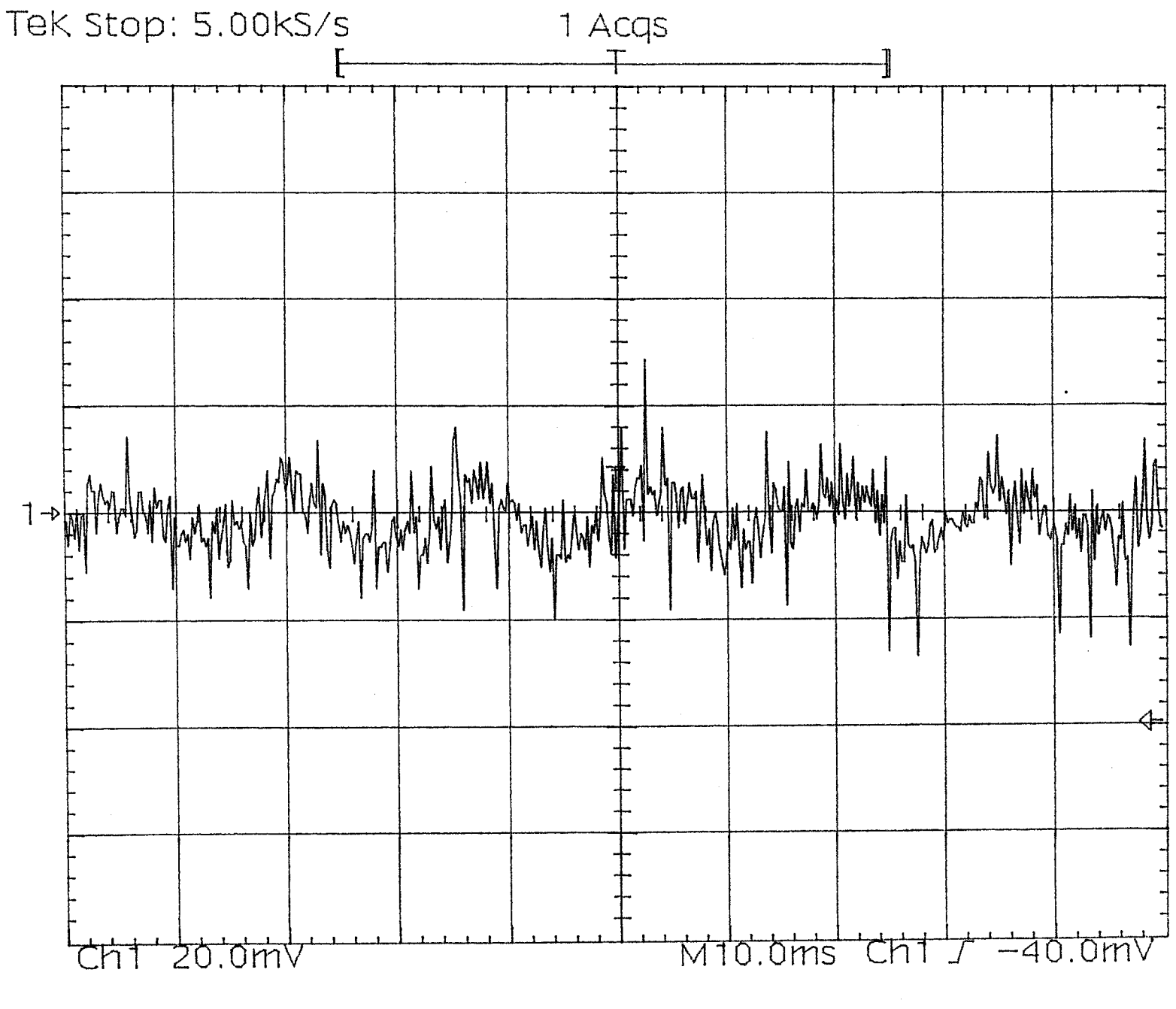
5 May 2002
08:18:21
MET 16:16

PQL
648603
MAY 05 2002

686894
MAY 05 2002

APPENDIX G

Ripple Voltage Test Data



File T0-000021
TEK 19:19:04

C1 Pk-Pk
56.0mV

PR-QB-A
to
PI-QB-A

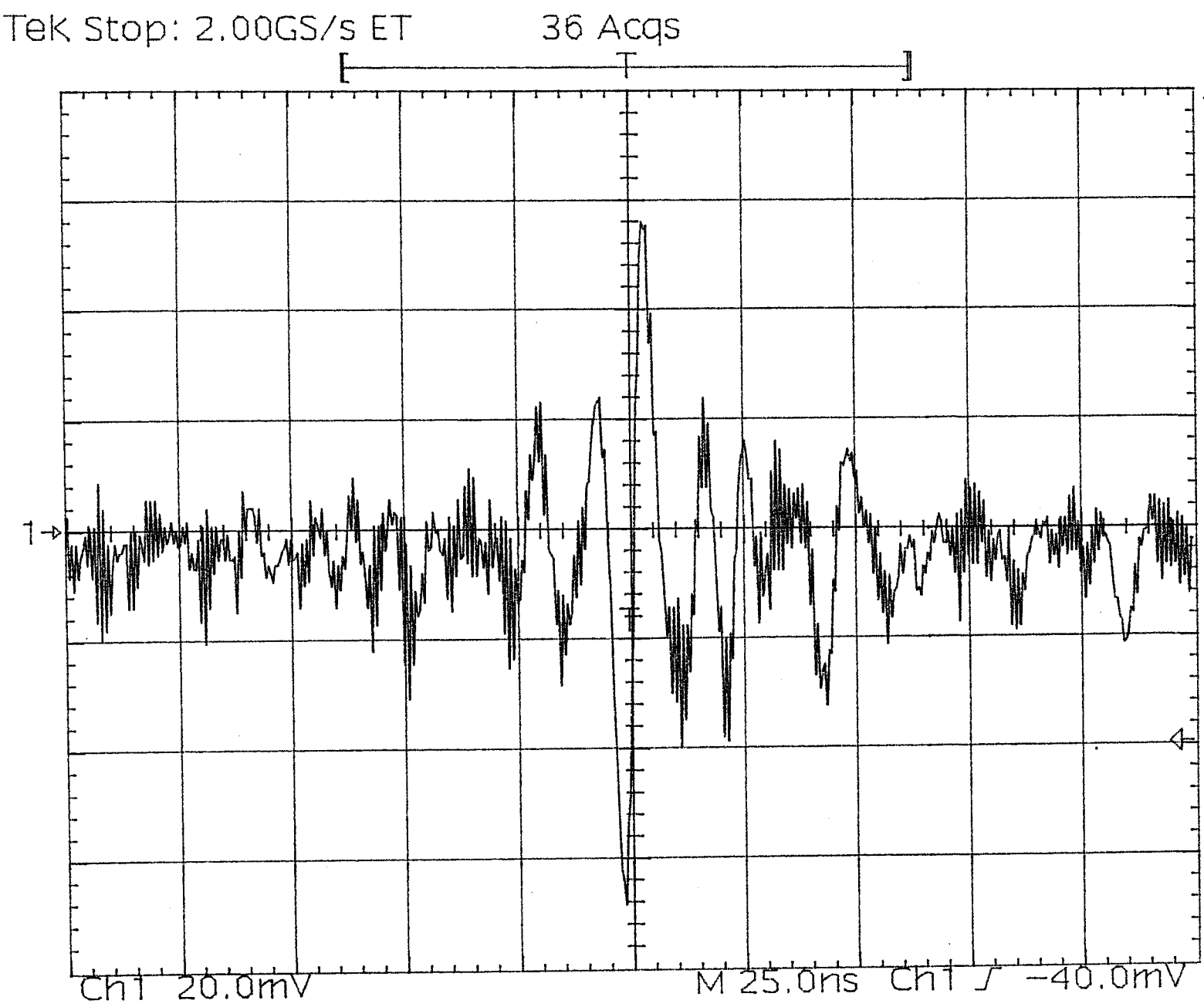
UUT ON
STE ON
Gyro's OFF

28 Apr 2002
19:11:58

PQC
601335 APR 29 2002

686894
APR 29 2002

INFORMATION ONLY



TEK File 00022
19:56:42

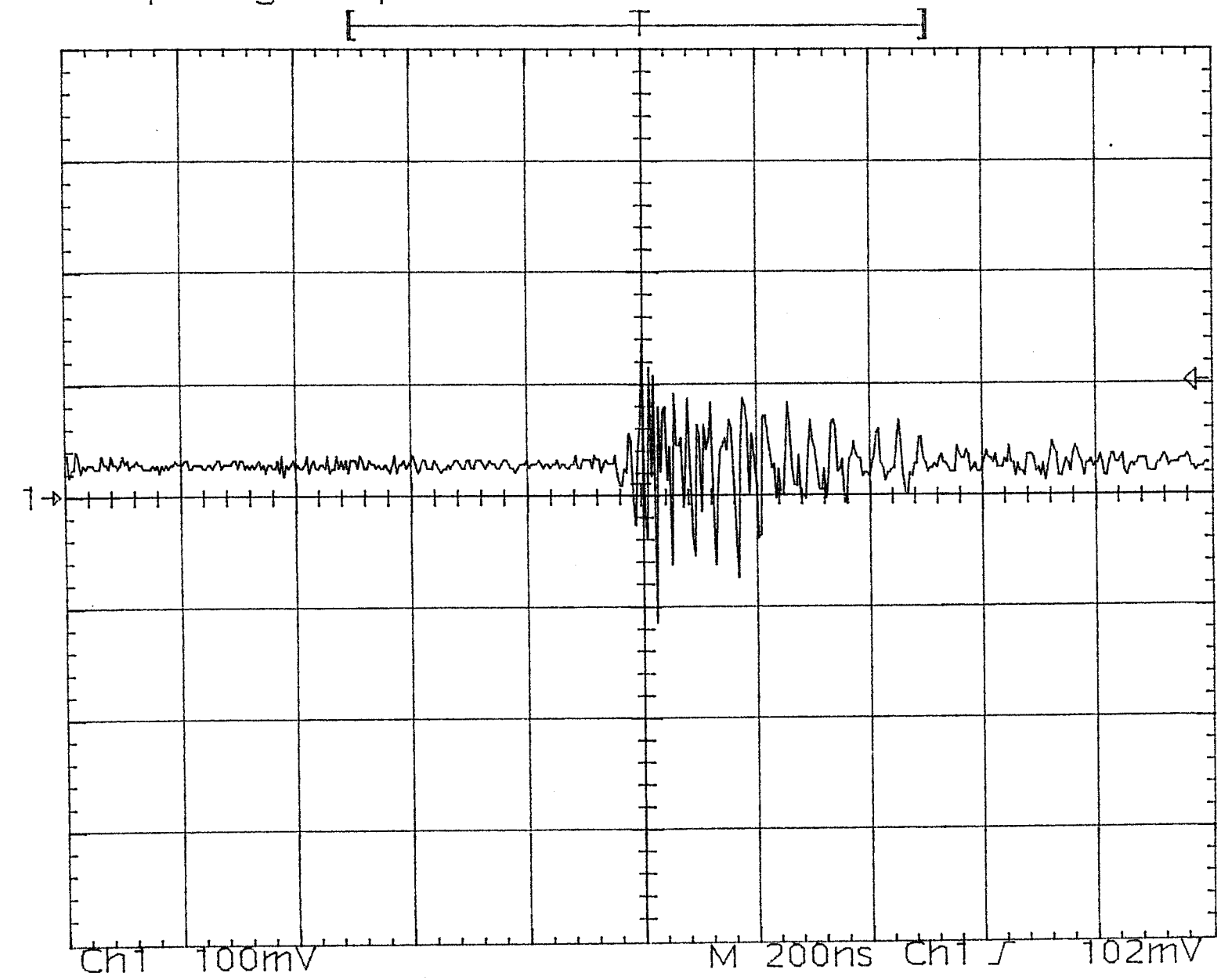
C1 Pk-Pk
124.8mV

PR-QB-A
to
PI-QB-A

UUT ON
STE ON
Gyro's OFF

28 Apr 2002
19:41:40

601335
PDC
APR 29 2002
A 686894
INFORMATIONAL ONLY
APR 29 2002



file 000023
TEK 20:49:08

C1 Pk-Pk
252mV

PR-QB-A
to
Chassis

UUT ON
STE ON
Gyro's ON

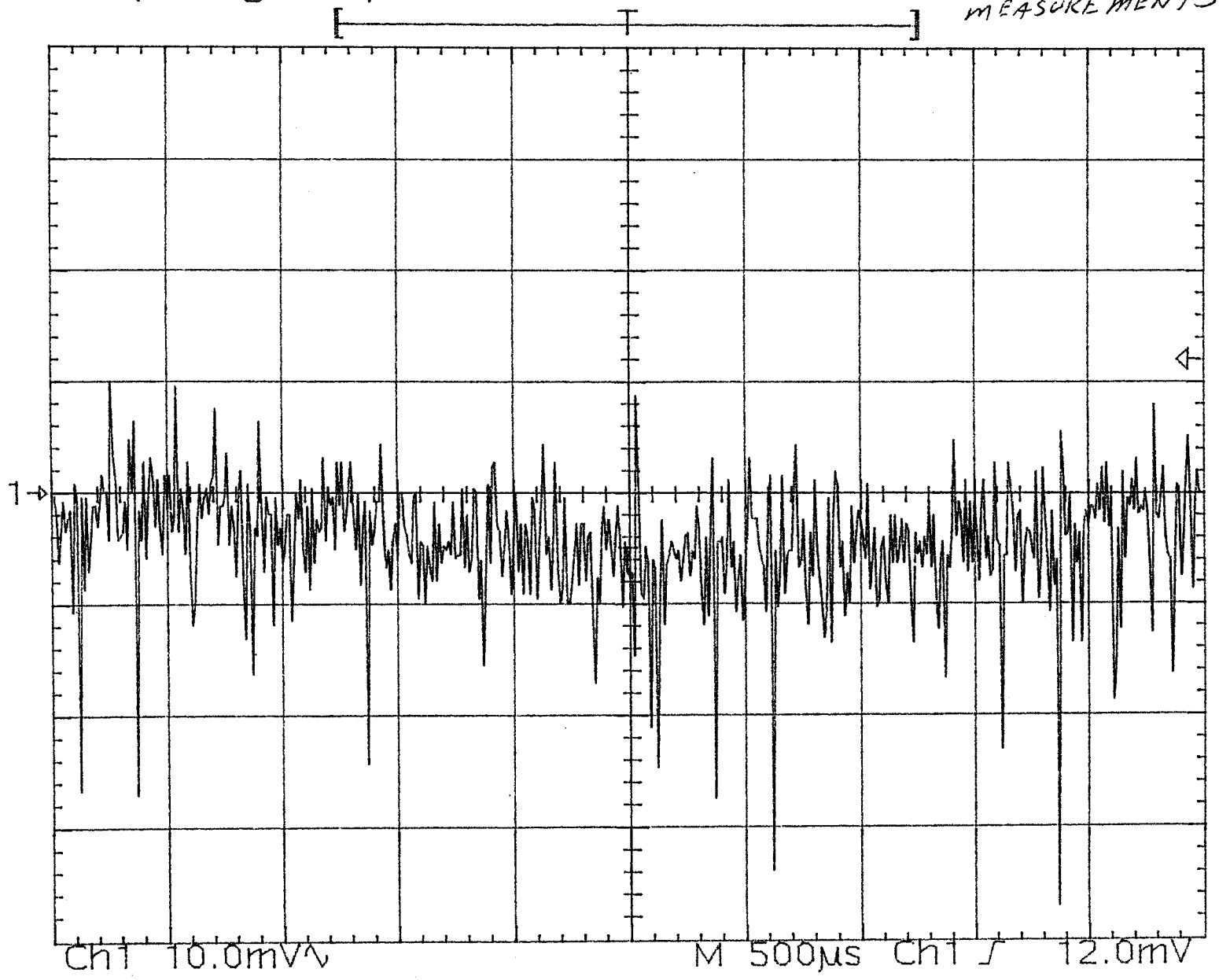
28 Apr 2002
20:43:20

INFORMATIONAL ONLY

PQC
601335
APR 29 2002

A
686894
APR 29 2002

RIPPLE VOLTAGE MEASUREMENTS



File 000024
TEK 20:59:16

C1 Pk-Pk
47.2mV

PR-9B-A
to
Chassis
OUT ON
STE ON
Gyro's ON

28 Apr 2002
20:53:25

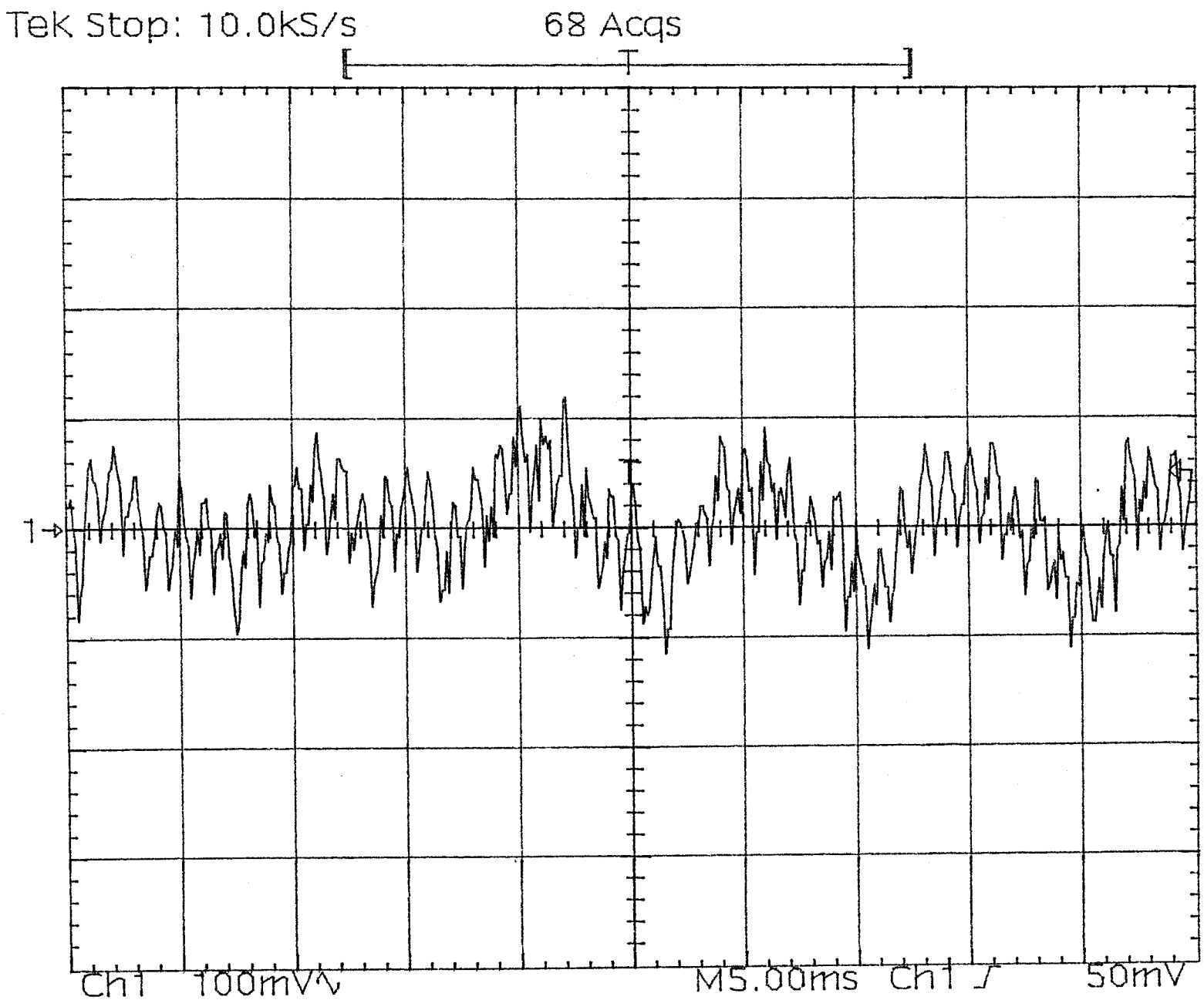
INFORMATIONAL ONLY

PQC
601335

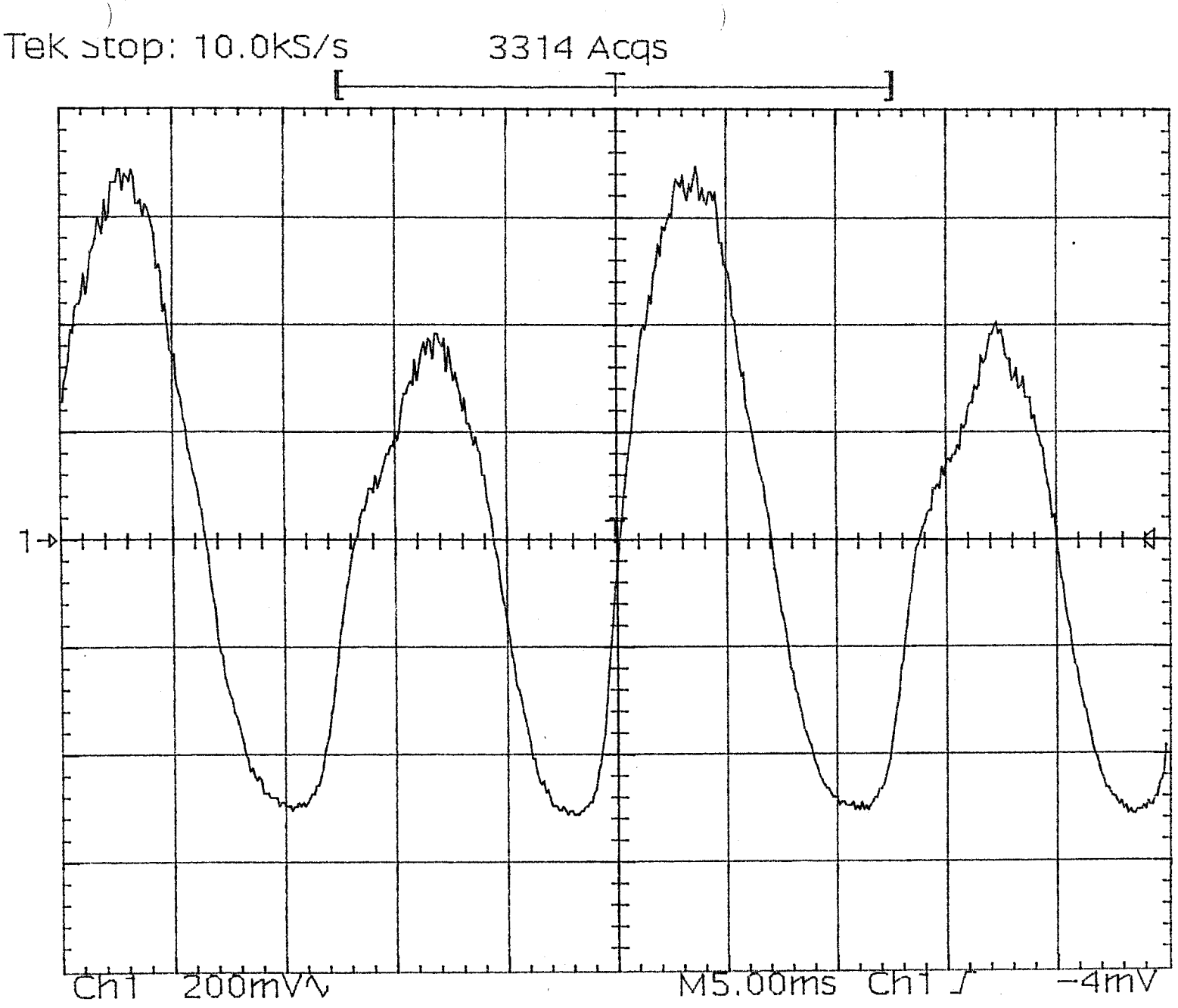
APR 29 2002

A
686894

APR 29 2002



PDC 601336
APR 29 2002
INFORMATION ONLY
A 086894
APR 29 2002



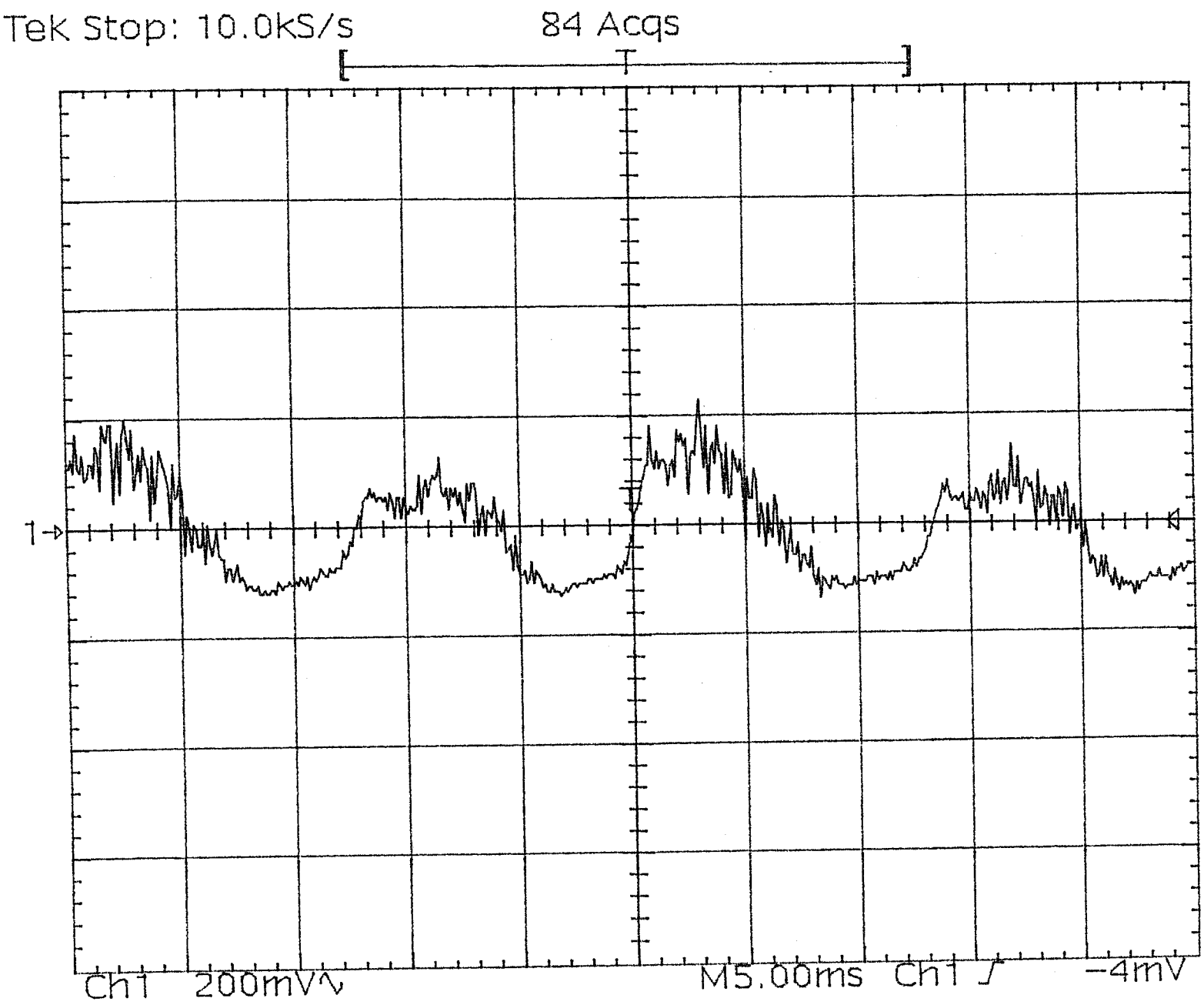
C1 Pk-Pk
1.208 V

PI-NB-A
TO
STRUCTURE

OUT ON
STE ON
F/K 27

29 Apr 2002
09:45:14

PQC
601335
APR 29 2002
INFORMATIONAL
A
696894
APR 29 2002



C1 Pk-Pk
368mV

PI-NB-A
TO
PR-NB-A

OUT ON
SITE ON
File 26

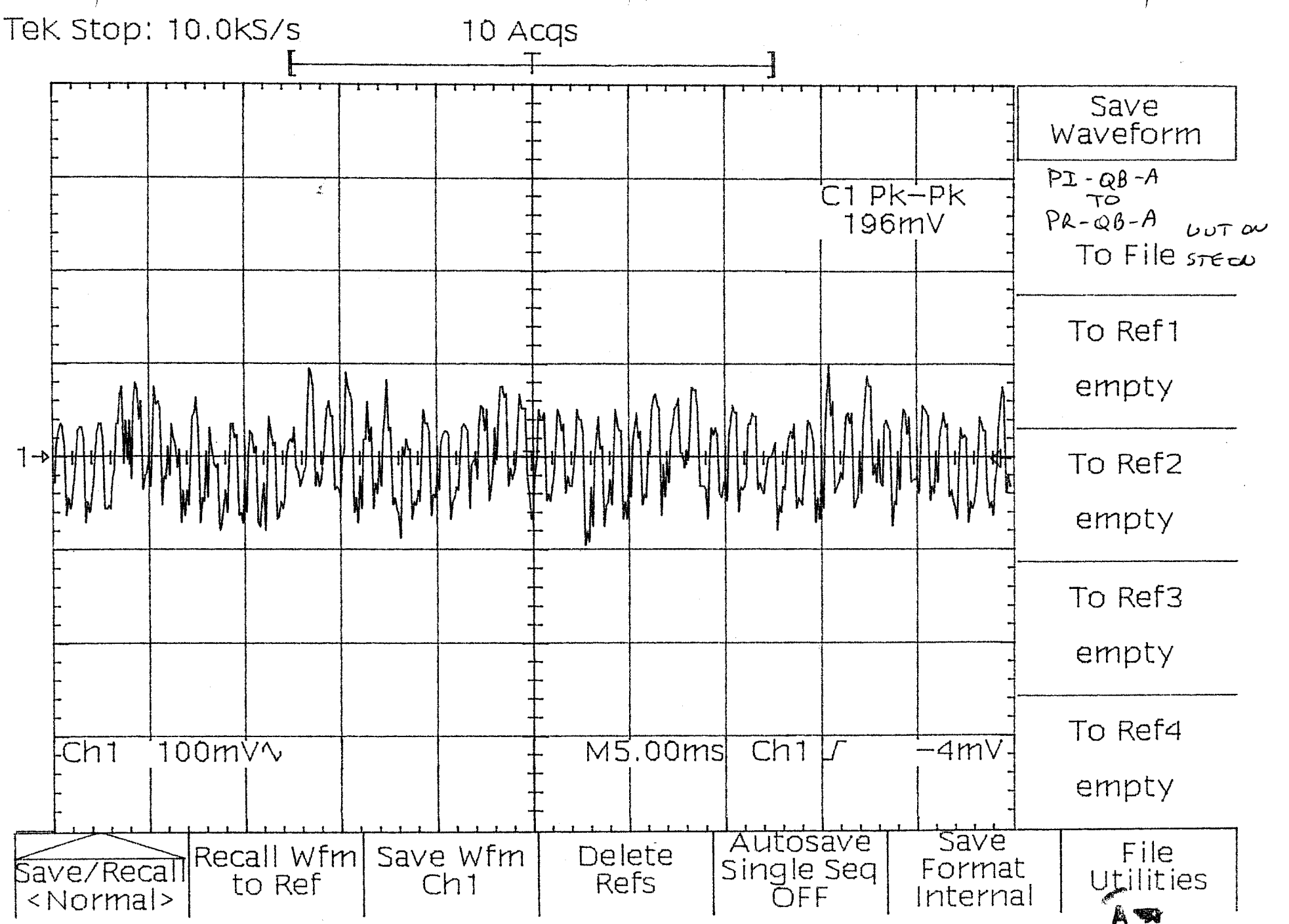
29 Apr 2002
09:52:40

(e) INFORMATIONAL ONLY

A 686804

PQC
601335 APR 29 2002

APR 29 2002



PQC
601335
APR 29 2002

A
606094
APR 29 2002
INFORMATION ONLY

APPENDIX H

HIRDLS Instrument EMI/EMC Test Data

CDR Index

DR Index

INSTRUCTIONS: All DRs related to discrepancy items recorded in this Log Book will be documented below, along with appropriate cross-references.

#1 of 2

ITEM NO.	DR NUMBER	PART NUMBER	OPER. NO.	INSPECTION (POSTING) STAMP	INSPECTION (POSTING) DATE	✔ INDICATES COPY 2 IS IN BOOK	REMARKS	INSPECTION (COMPLETION)
1	AD6416	1A27800	3-9-7	D 686894	MAY 05 2002		TP-LOC-971 D.P. ORDER BAGGING MATERIAL ON FIXED SUN SHIELD	
2	AD6417	"	6.3 THER ENVIR	D 686894	MAY 05 2002		O/O & TP-LOC-971 CCU-BOX-TEMP OVER 35°C	
3	AD6418	"	STEP 3.21.2	D 686894	MAY 05 2002		O/O & TP-LOC 971 CONVERTER TELEMETRY OSCILLATING	
4	AD6419	"	13.4	D 686894	MAY 05 2002		TP-LOC-820 NOISY BUS A FAILED CE01	
5	AD6426	"	13.4.9	D 686894	MAY 05 2002		TP-LOC-820 NOISY BUS NBA UNEXPECTED LOSS IN TELEMETRY CE01	
6	AD6433	"	13.4	D 686894	MAY 05 2002		TP-LOC-820 NOISY BUS POWER & RETURN FAILED CE03	
7	AD6442	HIRDLS IEGSE	VAR	D 686894	MAY 05 2002		TP-LOC-820 WITHOUT HIRDLS INSTRUMENT AMBIENT EMI DATA NBA CE03 O/L	
8	AD6464	1A27800	13.10	D 686894	MAY 05 2002		TP-LOC-820 DATA PACKET DROP-OUTS RS03	
9	AD6471	"	13.8.5	D 686894	MAY 05 2002		TP-LOC-820 FOCAL PLANE TEMP. DROP RS01 30Hz-50Hz	
10	AD6487	"	13.11	D 686894	MAY 05 2002		TP-LOC-820 CS01 CCU LOSS OF POWER	
11	AD6490	"	13.11	D 686894	MAY 05 2002		TP-LOC-820 CS02 IPU RESET 39.7mHz	
12	AD6491	"	13.11	D 686894	MAY 05 2002		GYRO HEATERS NOT (TO 5-50C) HEAT GYRO'S	
13	AD6494	"	13.11	D 686894	MAY 05 2002		TP-LOC-820 CS01 AD590 SHOWING SUSCEPTABILITY	
14	AD6495	"	13.11	D 686894	MAY 05 2002		CS02 " " "	
15	AD6496	"	13.12	D 686894	MAY 05 2002		CS06 " " "	
16	AD6497	1A27800	13.12	D 686894	MAY 05 2002		19.1V SURVIVAL BUS IEGSE SHUTOFF	

BOOK TITLE | UNIT SERIAL NO. | O.K. TO FILE | STAMP | DATE | PAGE | OF

FORM LMMS 1257AA-5

LOCKHEED MARTIN MISSILES & SPACE

DR Index

INSTRUCTIONS: All DRs related to discrepancy items recorded in this Log Book will be documented below, along with appropriate cross-references.

#2 of 2

ITEM NO.	DR NUMBER	PART NUMBER	OPER. NO.	INSPECTION (POSTING) STAMP	INSPECTION (POSTING) DATE	✔ INDICATES COPY 2 IS IN BOOK	REMARKS	INSPECTION (COMPLETION)
17	AD6510	HIRDLSIEGSE	13,5,7	D 686894	MAY 06 2002		ALL LIMITS BACKGROUND EMISSIONS REQ2 NB EXCEEDS	
18	AD6511	IA27800	13,5	D 686894	MAY 06 2002		POWER ON REQ2 EXCEEDS LIMITS	
19	AD6516	IA27800	R/L	D 686894	MAY 07 2002		COMPRESSOR STROKE @ 20 S/B 80% AFTER FINAL EMI 90K TEST REQ LINE	

BOOK TITLE	UNIT SERIAL NO.	O.K. TO FILE	STAMP	DATE	PAGE	OF

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	AD6416	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A00781A	LOCKHEED MARTIN CORPORATION	EN	152	L911	1	1	1		X

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	3-9-7	Lucy LANHAM	636975	L150	27-APR-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT
Bagging material is resting on fixed sun shield and contacting sunshield door as it opens.

31 SHOULD BE TEXT
Sunshield door should not make contact with bagging material.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
BL	1A27800		N/A	1	1	PROCESS	ME - INADEQUATE	P5A	L320	PA	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
LUN99	ELECTRONICS TEST/BOX TEST//EMISSION/MISCELLANEOUS	N/A				0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 27-APR-2002 RECORDED BY NAME Lucy LANHAM

After commanding SSH door to open 10 deg, (TP-LOC-971, strp 3.9.7.1) observers noted that internal bag was draped over outer corner of fixed sunshield and SSH door posing a snag hazzard. Test Conductor notified notified and attempted to abort remainder of STOL proc. Abort failed and door continued to open to 60 deg (Step 3.9.9). Bag remained intact but rests on movable SSH door.

DATE 27-APR-2002 RECORDED BY NAME Armando CORTEZ

interim #1
Attempt to asses anomaly was made by Randy Kay & Don Wilson & Armano Cortez and could not confidently determine if anything anomalous had occured to the SSH Door through the bagging material. Contamination control was notified of the condition and will make modifications, as neccessary, to the inner bag for appropriate clearance prior to any additional SSU Door command movements. Additional assessment of Door and mechanism will be made at that time. As interim action, OK to proceed with other sections of CPT2.
concurrence: Eric Johnson, Randy Kay, Ray Von Savoye, Armando Cortez
via telecon: Dale Phelps, Althea Macfield

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	AD641	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

29 DEFECT NUMBER	OF
1	1

50 CAUSE TEXT

DATE 27-APR-2002 RECORDED BY NAME Althea MCFIELD

Internal bag was draped over outer corner of fixed sunshield and SSH door posing a snag hazard/obstruction.

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm. . DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	AD641o	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0				0	MRB accepted	27-APR-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm)iscrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	AD641'	1	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	3-3-3	Lucy LANHAM	636975	L150	27-APR-2002

29 DEFECT NUMBER 1 **OF** 2

30 IS TEXT
CCU box temperature (CCU_BOX_TMP) exceeded 35 deg C at GMT 2002/117-1840 (1140 PST 27 April 2002) The temperature reached 45 deg C within 2 hours.

31 SHOULD BE TEXT
The maximum operational temperature of the CCU box is specified to be 35 deg C.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	SP-HIR-034	F	6.3 Thermal Environment	1	1	PROCESS	EM - INADEQ MAINT	P3A	L941	PA	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGA85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/TEMPERATURE/OVER	N/A				0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	REPAIR						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 27-APR-2002 RECORDED BY NAME Lucy LANHAM

At 1840 GMT, approximately 1 hour after instrument power-on, the CCU box temperature exceeded its specified maximum operational temperature of 35 deg C. The box temperature continued to rise to 45 deg C when the CMU stroke was reduced. Additional venting was provided and the box temperature held steady at 44 deg C.

DATE 27-APR-2002 RECORDED BY NAME Armando CORTEZ

Additional venting provided marginal improvement. CCU temp returned to upper spec limit (35 deg C) when cryo-cooler compressor was commanded off.
Total duration of temp overlimit approx. 8 hours (11:40am to approx. 7:30pm).
OK to proceed with CPT2. Anomaly to be re-addressed prior to EMI/EMC.
Concurrence: Randy Kay, Armando Cortez, Ray Von Savoye
via tele: Dale Phelps.

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	AD641.	2	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

29 DEFECT NUMBER 1 OF 2

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 30-APR-2002 RECORDED BY NAME Althea MCFIELD

Armando CORTEZ 04/27/2002 08:30:45 PM
The inner bag was pulled away from the CCU and (GEU) and around the instrument baseplate to allow for the flow of nitrogen. However this was only marginally successful in lowering the box temperature. MRB authorization to remove the outer bag from the CCU, exposing it to a non-cleanroom environment, is required.

50 CAUSE TEXT

DATE 27-APR-2002 RECORDED BY NAME Althea MCFIELD

Inadequate venting due to double bagging of instrument required to ensure contamination control.

51 C/A TEXT

DATE 01-MAY-2002 RECORDED BY NAME Althea MCFIELD

C/A will be submitted by Contamination Control Engineer.

DATE 02-MAY-2002 RECORDED BY NAME Althea MCFIELD

C/A must include re-design of instrument bagging and cooling system that ensures CCU and all other subsytems are maintained at proper operational temperature during testing.

52 FINAL DISPOSITION TEXT

DATE 01-MAY-2002 RECORDED BY NAME Althea MCFIELD

In order to maintain the CCU at specified operational temperature, the MRB authorizes:

Cut instrument bag (interior and exterior) in the area of the CCU, exposing the box to ambient air.
Tape the periphery of the cutout area to maintain cleanliness of the rest of the instrument.
Apply external cooling to the CCU, as necessary to maintain proper operational temperature.
Continue with testing operations.

Additional Disposition

CCU and adjacent area must be re-cleaned at re-certified for cleanliness (see Defect #2).
Perform analysis to determine the effect of temperature excursion on the CCU. (Note: Temperature data is electronically attached to this DR)

Concurrence: Ray von Savoye (APM-Technical), Armando Cortez (QE), Althea McField (QE), Syndie Meyer (CCE), Lucy Lanham (SE)

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	AD641	3	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

29 DEFECT NUMBER 2 **OF** 2

30 IS TEXT The Cooler Electronics Units was removed from Contaminations-controlled (Class 100) environment during EMI/EMC Testing (see Defect #1)

31 SHOULD BE TEXT The Cooler Electronics Unit maintained in a Class 100 environment

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
PR	PA-LOC-006	B	-	1	1	PROCESS	EM - INCAPABLE	P3D	L911	PA	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
TTJ49	TEST EQUIP/TEMP CHAMBER/FACILITY/LIQ NITRO/CONTAMINATION	N/A				0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	REWORK						

49 INTERIM TECHNICAL INVESTIGATION TEXT **DATE** 01-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

The MRB authorized the removal of the outer and inner bag to ensure adequate cooling of the CCU (see Defect #1). The CCU will require cleaning and re-certification prior to returning the HIRDLS instrument to the Class 100 Clean Room.

50 CAUSE TEXT **DATE** 01-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

See Defect #1

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm. DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	AD641.	4	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB accepted	27-APR-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	AD641c	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC971		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE NOT OK INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	3-21	Lucy LANHAM	636975	L150	27-APR-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT: PSS_REG_28VA converter telemetry began oscillating between 29.2 and 31.1 Volts beginning at GMT 2002/118-02:21

31 SHOULD BE TEXT: PSS_REG_28VA converter telemetry should be stable at approximately 30.1V.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
OP	TP-LOC-971		Procedure step 3.21.2	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFC99	FINAL ASY & TST/SYSTEM TST/TELEMETRY/MISCELLANEOUS	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 27-APR-2002 RECORDED BY NAME Lucy LANHAM

PSS_REG_28VA began oscillating between 29.2 and 31.1 Volts beginning at GMT 2002/118-02:21:59. The start of the oscillation was coincident with the power down of the A-side of the instrument. The ocsillations continued until 28Reg was shut off at 22:23:59. This condition has been observed before and recorded on DR#: AB9576.

DATE 02-MAY-2002 RECORDED BY NAME Althea MCFIELD

Althea MCFIELD 04/27/2002 10:21:10 PM

MRB INTERIM TECHNICAL

Proceed with EMI/EMC testing. The MRB will investigate this defect and will assign CAUSE, C/A and FINAL DISPOSITION prior to the start of CPT1.

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	AD641[illegible]	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC971		

29 DEFECT NUMBER	OF
1	1

49 INTERIM TECHNICAL INVESTIGATION TEXT DATE 02-MAY-2002 RECORDED BY NAME Althea MCFIELD

Concurrence: Ray von Savoye (APM-Technical), Lucy Lanham (SE), Althea McField (QE), Armando Cortez (QE)

Note: The condition noted in this DR was observed previously and repairs were made in the IPU that were expected to eliminate the oscillations. A 1.0 K ohm load resistor was added to to the 28VREG input in the IPU Power Distribution Board.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm[illegible] DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	AD641[illegible]	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC971		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0				0	MRB investigation	02-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	AD641	1	6

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A00781A	LOCKHEED MARTIN CORPORATION	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.4	Lucy LANHAM	636975	L150	28-APR-2002

29 DEFECT NUMBER 1 OF 4

30 IS TEXT
Noisy Bus A 28V power and return failed CE01. Measured emissions are up to 20dB over specified limits.

31 SHOULD BE TEXT
CE01 should be less than speficied limits per HIRDLS GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	USE AS IS						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 28-APR-2002 RECORDED BY NAME Lucy LANHAM

Both A and B sides failed CE01 NB testing. In both cases the emission curves closely resembled the results of the CSS subsystem testing.

DATE 29-APR-2002 RECORDED BY NAME Lucy LANHAM

Subsuquent testing (called "ambient" tests) with a) no power to instrument but with IEGSE and GSE operating and with b) all test instrument and test equipment power off showed no emissions from test equipment. All exceedances are attributable to HIRDLS instrument.

DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review CCU Subsytem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

REPORT DATE: 05-MAY-2002 12:49 PM

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	AD641>	2	6

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 1 OF 4

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)
Technical Input: Paul Guy (NASA-GSFC), Ed Bielecki (NASA-GSFC)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm( )iscrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	AD641(	3	6

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER: 2 OF 4

30 IS TEXT: Niosy Bus B 28V power and return failed CE01. Measured emissions up to 20 dB over specified limits.

31 SHOULD BE TEXT: Emissions measured by CE01 tests should be less than specified limits per GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF84	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/UNDER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	USE AS IS						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 29-APR-2002 RECORDED BY NAME Lucy LANHAM

Subsuquent testing (called "ambient" tests) with a) no power to instrument but with IEGSE and GSE operating and with b) all test instrument and test equipment power off showed no emissions from test equipment. All exceedances are attributable to HIRDLS instrument.

DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review CCU Subsytem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm(Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	GE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	AD6415	4	6

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 3 **OF** 4

30 IS TEXT Quiet Bus A 28V power and return failed CE01 testing. Measured emissions are up to 10 dB above specified limits from 3.5 to 10 KHz.

31 SHOULD BE TEXT CE01 emissions should be less than specified limits per GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-112-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	USE AS IS						

49 INTERIM TECHNICAL INVESTIGATION TEXT **DATE** 29-APR-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review IPU Subsytem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	AD641	5	6

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 4 **OF** 4

30 IS TEXT Quiet Bus B 28V power and return failed CE01 testing. Signature is similar to Quiet Bus A test results.

31 SHOULD BE TEXT Emissions should be less than specified in GIRD for CE01 tests.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	USE AS IS						

49 INTERIM TECHNICAL INVESTIGATION TEXT **DATE** 29-APR-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review IPU Subsytem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	AD6415	6	6

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB accepted	29-APR-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	AD642	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	A		OPERATION ORDER	OOLOC-1023		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	PA	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	5.1.6	Althea MCFIELD	J18575	Q225	29-APR-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT: Unexpected loss in telemetry during Noisy Bus B (NBB) EMI CE01 Narrowband test case

31 SHOULD BE TEXT: No loss of telemetry during EMI testing while instrument is powered on

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-820	NC	13.4.9	1	1	PROCESS	EM - BROKEN	P3C	L310	PA	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF99	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/MISCELLANEOUS	Verified				0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	REWORK						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

The DASH 8 data recorder indicated that the current was very noisy. The Test Conductor had difficulty powering on Quiet Bus A. An MRB was convened to review the anomaly.

DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

Interim Technical Investigation:

MRB Instructions:

1. Turn off the Quiet (QB), Noisy (NB) and Survival Buses (SB) at the SPC
2. Inspect capacitor connections at instrument interface: PI-NBA, PR-NBA, PI-QBA, PR-QBA, PR-NBB, and PI-NBB.
3. Report findings to the MRB.

Comm)iscrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	AD642	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	A		OPERATION ORDER	OOLOC-1023		

29 DEFECT NUMBER 1 OF 1

50 CAUSE TEXT DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

Test Equipment damaged---Supply side of the Quiet Bus A (QBA) shunt capacitor banana jack lug broken.

51 C/A TEXT DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

HIRDLS QA personnel will verify test equipment components and connections AFTER test facility EMI Technician and EMI Inspector.

52 FINAL DISPOSITION TEXT DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

1. Remove the damaged capacitor, PR-QBA (QA witness required). Red tag "DO NOT USE" and remove from the test area.
2. QA shall verify that spare capacitor is free of defects
3. Replace damaged capacitor with spare. (QA witness required)
4. Power on the instrument and continue testing.

MRB Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE)
Technical Input: Tim Crews (CSE), Rick Brown (I & T Engineer), Ron Baraze (Software Developer), Gary Heyman (Software Developer)

DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

REWORK Test set-up.

Commo.. DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	AD642b	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	A		OPERATION ORDER	OOLOC-1023		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	REWORK						

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
1		MINOR		0	MRB accepted	29-APR-2002

60 PQC - NAME	DATE	61 PA NAME	DATE
		Althea MCFIELD	29-APR-2002

62 POST CLOSURE TEXT — DATE 29-APR-2002 — RECORDED BY Althea MCFIELD

Mike Bartolomei (Badge No. 616723), EMI Technician, removed and replaced defective capacitor.
Craig Bogle (Badge No. 616071), HIRDLS QA Inspector witnessed removal and replacement of capacitor. Defective capacitor was red-tagged capacitor and removed it from test area.

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Comm( )iscrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	AD643[illegible]	1	8

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.4	Lucy LANHAM	636975	L150	29-APR-2002

29 DEFECT NUMBER 1 OF 6

30 IS TEXT
Noisy Bus A 28V power and return failed CE03.

31 SHOULD BE TEXT
Emissions measured during CE03 testing should be less than the limits specified in the GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	USE AS IS						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review CCU Subsystem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)
Technical Input: Paul Guy (NASA-GSFC), Ed Bielecki (NASA-GSFC)

DATE 30-APR-2002 RECORDED BY NAME Althea MCFIELD

Reference DR AD6442--Ambient (HIRDLS instrument off) Noisy Bus A CE03 emissions exceeded specified limits.

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	AD643	2	8

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 1 **OF** 6

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	AD643	3	8

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER	OF
2	6

30 IS TEXT Quiet Bus A 28 V power and return failed CE03

31 SHOULD BE TEXT Emissions measured during CE03 testing should be less that GIRD-specified limits

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	GSFC42-11-12-01	B	10.11.1	1	2	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 30-APR-2002 RECORDED BY NAME Althea MCFIELD

Reference DR AD6442--Ambient (HIRDLS instrument off) Quiet Bus A CE03 emissions exceeded specified limits.

DATE 30-APR-2002 RECORDED BY NAME Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review IPU Subsystem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)
Technical Input: Paul Guy (NASA-GSFC), Ed Bielecki (NASA-GSFC)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	AD643	4	8

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 3 **OF** 6

30 IS TEXT Noisy Bus B 28V power and return failed CE03.

31 SHOULD BE TEXT Emissions measured during CE03 tests should be less than limits per HIRDLS GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 30-APR-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review CCU Subsystem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)
Technical Input: Paul Guy (NASA-GSFC), Ed Bielecki (NASA-GSFC)

DATE 30-APR-2002 **RECORDED BY NAME** Althea MCFIELD

Reference DR AD6442--Ambient (HIRDLS instrument off) Noisy Bus B CE03 emissions exceeded specified limits.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	AD643	5	8

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 4 **OF** 6

30 IS TEXT
Quiet Bus B 28 V power and return failed CE03.

31 SHOULD BE TEXT
Emissions measured during CE03 testing should be less than the limits specified in the HIRDLS GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	433-11-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	AD643	6	8

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 5 **OF** 6

30 IS TEXT
Survival Bus A failed 28 Volt Power and RTN failed CE03

31 SHOULD BE TEXT
Emissions measured during CE03 testing should be less than the limits specified in the GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	GSFC42211-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	AD643[illegible]	7	8

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 6 **OF** 6

30 IS TEXT
Survival Bus B 28 Volt Power and RTN failed CE03

31 SHOULD BE TEXT
Emissions measured during CE03 testing should be less than the limits specified in the GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	GSFC42211-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm . DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	AD643	8	8

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB accepted	29-APR-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	30-APR-2002	HARDWARE	AD6442	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS IEGSE		NON-END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE NOT OK	INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	Var	Lucy LANHAM	636975	L150	30-APR-2002

29 DEFECT NUMBER 1 OF 2

30 IS TEXT
Ambient EMI data (without HIRDLS instrument) exceeds specified limits for CE03 Noisy Bus A (NBA)

31 SHOULD BE TEXT
Ambient EMI data, (without the HIRDLS instrument) be within specified limits

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-820	NC	-	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
TDD85	TEST EQUIP/SYSTEMS MAGE/SUPPORTS/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT
DATE 03-MAY-2002 RECORDED BY NAME Althea MCFIELD

INTERIM TECHNICAL DISPOSITION
Ambient EMI data showed out of specification condition that was unexpected. This background data will have to be evaluated against the UUT and subtracted out during analysis. Ref. DR AD6419 and AD6433.

Continue with EMI testing pending completion of test data analysis.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	30-APR-2002	HARDWARE	AD644	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 2 **OF** 2

30 IS TEXT Ambient EMI data (without HIRDLS instrument) exceeds specified limits for CE03 Noisy Bus B (NBB)

31 SHOULD BE TEXT Ambient EMI data (without HIRDLS instrument) within specified limits

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-820	NC	-	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
TDD85	TEST EQUIP/SYSTEMS MAGE/SUPPORTS/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT **DATE** 03-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

INTERIM TECHNICAL DISPOSITION

Ambient EMI data showed out of specification condition that was unexpected. This background data will have to be evaluated against the UUT and subtracted out during analysis. Ref. DR AD6419 and AD6433.

Continue with EMI testing pending completion of test data analysis.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm[illegible] DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	30-APR-2002	HARDWARE	AD644[illegible]	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			OPERATION ORDER	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0				0	MRB investigation	03-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	01-MAY-2002	HARDWARE	AD646	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE NOT OK INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L941	1	1	1	X

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.10	Althea MCFIELD	J18575	Q225	02-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT: Observed Minor Frame (MiF) data packet drop outs during EMI RS03 testing

31 SHOULD BE TEXT: No MiF data packet losses

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
PR	SW-LOC-113	NC	4.4.5	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFC34	FINAL ASY & TST/SYSTEM TST/TELEMETRY/MISSING/OMITTED	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE: 02-MAY-2002 — RECORDED BY NAME: Althea MCFIELD

During the RS03 test case five (5) MiF packet drop outs were noted. Times of occurrences are: Day 121 at 13:32, 14:29, 22:01, 22:08 and Day 122 at 13:30.
The Day 121, 14:29 occurrence indicated no sequence gap.
The frequency sweep was repeated after the Day 121, 22:01 and 22:08, and on Day 122 at 13:30 occurrences. During this second sweep no MiF drop outs occurred.
In the instance Day 122 13:30 the number of packet dropped was 26.

Initial MRB Disposition:

Continue EMI testing. In the event of other MiF data packet drop outs, repeat frequency sweep at the level where the dropout occurred. Report findings to the MRB.

Cause and Corrective Action MUST be established post-EMI testing and prior to the start of CPT-2. A formal MRB must be convened to assign a Final

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	01-MAY-2002	HARDWARE	AD6464	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER 1 OF 1

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 02-MAY-2002 RECORDED BY NAME Althea MCFIELD

Disposition of this defect.

Concurreence: Ray von Savoye (APM-Technical), Althea McField (QE), Talin Kaloustian (I &T Manager), Wally Opyd (Chopper REE)

DATE 03-MAY-2002 RECORDED BY NAME James MCGILL

Sofware engineer Ron Baraze has examined the relevant data from days 121 and 122. In examining the data from day 121, he has found no evidence data dropouts, packet losses, or exceptions. He is suggesting that the tool used to determine the reported MiF drops be investigated for bugs. In examining the data from day 122, he has identified a data gap in the IEGSE file present at 13:30. After checking relevant indicators and counters, he has concluded that the data gap was caused by the IEGSE being overloaded with tasks and dropping a number of packets.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	01-MAY-2002	HARDWARE	AD6464	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB investigation	02-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	AD6471	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L941	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.8	Althea MCFIELD	J18575	Q225	03-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT
Focal Plane temperature dropped by 0.5 Degrees and Compressor stroke reached it maximum during RS01 30 Hz - 520 Hz frequency sweep of the CCU

31 SHOULD BE TEXT
Focal Plane temperature stable and Compressor stroke must not exceed 80%

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-820	NC	13.8.5 (CCU)	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFJ85	FINAL ASY & TST/SYSTEM TST/OUTPUT SIGNAL/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT DATE 03-MAY-2002 RECORDED BY NAME Althea MCFIELD

At 05:56 GMT--During performance of the RS01 frequency sweep of the CCU using the magnetic coil, a clear drop on focal plane temperature was observed in telemetry. The temperature drop was 0.5 Deg C and the Compressor stroke reached it maximum pre-set level at 80% (start point was 78 %).

At 09:00 GMT--Confirmation of anomaly was performed. The magnetic coil was once again moved to the CCU and the drop in temperature was once again observed. It should be noted that there is a cooling fan in front of the CCU (Ref. DR AD6417) and the magnetic coil was place just in front of it during this testing.

At 09:20 GMT-- The magnetic coil was placed in front of the CCU and the focal point dropped 0.1 Deg C in 5 minutes
At 09:26 GMT--The magnetic coil was removed and the focal point temperature increased. There was no power on the amplifier at this point in time.

Preliminary analysis indicates that while this anomaly is not related to the EMI test, it does demonstrate a thermal anomalous condition that requires further evaluation and analysis.

Comm( )iscrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	GE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	AD647	2	3

PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER	OF
1	1

49 INTERIM TECHNICAL INVESTIGATION TEXT DATE 03-MAY-2002 RECORDED BY NAME Althea MCFIELD

The MRB authorizes continuing with the EMI test. Resolution of this anomaly must be completed prior to the start of CPT1.

Concurrence: Ray von Savoye (APM Technical), Dave Seidl (QE), Althea McField (QE), Wally Oyd (Chopper RPE)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm... DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	AD6471	3	3

PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB investigation	03-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Commc Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	AD648'	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L320	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.11	Althea MCFIELD	J18575	Q225	03-MAY-2002

29 DEFECT NUMBER: 1 OF 1

30 IS TEXT: Unexpected loss of power on Quiet Bus A accompanied by rattling sound eminating from CCU during CS01 testing.

31 SHOULD BE TEXT: No loss of power during testing

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-820	NC	13.11	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XEG71	FINAL ASY & TST/ELEC SYS TST/CURRENT/FAILED	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE: 03-MAY-2002 — RECORDED BY NAME: Althea MCFIELD

This anomaly occurred during the CS01 portion of the EMI testing, at 3.92 KHz, 3 V p-p (4 A max). The current in the chamber DID NOT exceed 1 A p-p on QBA, however the DASH-8 data recorder monitoring QBA recorded 9-10 A p-p. During the anomaly QB-A current loss occurred without a report of an over-voltage or an over-current condition. The Noisy Bus and Survival Bus were still operational. These buses were powered off manually at the IEGSE SPC switch.

An MRB was convened to review the anomaly and outline troubleshooting.

Troubleshooting operations are recorded in the test log and will be scanned into the DR electronically as an attachment.

MRB Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Dale Phelps --NASA GSFC Customer (per telecon)
Technical Input: Ed Bielecki (NASA GSFC), Don Lew (EMI RPE), Talin Kaloustian (I & T Manager)

Decision: continue EMI testing. Failure believed to be localized to IEGSE & remote/local voltage compensation, which began oscillating

Kurtz 02/05/04 0700

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	AD648	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER	OF
1	1

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm. DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	AD648,	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0				0	MRB investigation	03-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	AD649	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE NOT OK	INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.
				CE03/QB-A	

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.11	Lucy LANHAM	636975	L150	04-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT: During instrument level CS02 testing the IPU reset at 39.7 MHz (2002/124 1540).

31 SHOULD BE TEXT: The IPU should not reset during susceptibility testing.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.3	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFC97	FINAL ASY & TST/SYSTEM TST/TELEMETRY/UNEXPECTED SHUTDOWN	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 04-MAY-2002 RECORDED BY NAME Lucy LANHAM

At 2002/124 1540 during CS02 testing QB-A power-return lines (3V P-P) at 39.7 MHz (injected signal) the IPU reset. All telemetry halted. The Dash-8 strip recorded showed only a slight change. There were no perceptible indicators of any other abnormal performance. The test was immediatly powered down and the instrument power-down sequence was initiated. A check of the data logs showed minor excursions in PCU temps beginning at 20 MHz and an encoder spike at 25.86MHz.

DATE 04-MAY-2002 RECORDED BY NAME Armando CORTEZ

Interim #1
Power up (reboot) per TP and continue CS02 to 100MHz.
Repstart CS02, sweep starting at 20MHz. thru to approx 45MHz at 2.5 V P-P.
If anomaly reoccurs, repeat above steps at reduced voltage to determine anomaly voltage threshold.
Document/attach result for final disposition.

Comm)iscrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	AD649	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER	OF
1	1

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 04-MAY-2002 RECORDED BY NAME Armando CORTEZ

Concurrence: Ray vonSavoye, Althea McField, Lucy Lanham, Mike Spier

DATE 04-MAY-2002 RECORDED BY NAME Lucy LANHAM

Failures reoccured during CE02 test rerun. See test logbook for records.
Restarted at 50 MHz, starting at 0V, stopping at 0.5V, then reducied amplitude to 0V.
Moved freq to 55MHz, 1.0V then gradually increased amplitude to 2.0V. No susceptibility was observed.
Stepped freq to 60 MHz, 1.0V, increased amplitude to 3.0V. No susceptibility observed.
Continued sweep to 100MHz.

Note that Gyro heaters could not bring Gyros up to operational temperatures for this test. (See separate DR.)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm.) DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	AD649(	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB investigation	05-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	AD649	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE NOT OK	INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.11	Lucy LANHAM	636975	L150	04-MAY-2002

29 DEFECT NUMBER: 1 OF 2

30 IS TEXT: Gyro heaters could not heat the Gyros to the minimum operational temperature.

31 SHOULD BE TEXT: Gyro heaters should be able to heat the gyros to 55deg C (spin motor start temperature).

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	SP-HIR-366		GSS Ops constraints	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGA85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/TEMPERATURE/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE: 04-MAY-2002 — RECORDED BY NAME: Lucy LANHAM

At the start of CS01 testing the Gyro temperatures increased more rapidly than normal during the warm-up phase. Then the temperature increase peaked well below the mimimum required to turn on the spin motors and stayed below that temperature for the remainder of the test in spite of extended warm-up times. Examination of the data indicates that the heaters were operational throughout the test with the exception of periods when they were affected by Conducted Susceptibility tests. While there is a correlation of temperature drops to heater turn-off, there is no explanation of the inability of the heaters to reach the spinup temps. Nor can an explanation can be found for the halt in temperature increase at 2002/124 0350. Surrounding box temperatures did not show similar temperature profiles.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm(Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	AD649[illegible]	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 2 **OF** 2

30 IS TEXT
Gyro3 heater would not operate during CS06 QB testing.

31 SHOULD BE TEXT
All four gyro heaters should operate on command.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
PR	OO-LOC-1063	B	3.6	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XAE94	FINAL ASY & TST/MAJ SYS & ASY/THERM CNTRL/HEATER/INOPERATIVE	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT **DATE** 05-MAY-2002 **RECORDED BY NAME** Lucy LANHAM

2002/125 12:57. Gyro heater 3 turned off during CS06 reconfiguration. Attempted to restart heater, but it immediatly switched off when the test inductors were connected in series with the power lines. Initial assessment is that the instantaneous demand for current by the heater produces a voltage spike from the inductor which trips the protection circuit in the gyro heater and switches it off.

Direction was given to continue with only three gyro heaters on. Gyro 3 heater will be restarted after the QB inductors are removed.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	AD649	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	Initiate DR	04-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

C n Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	AD6494	1	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE NOT OK	INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.11	Lucy LANHAM	636975	L150	05-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT
During CS01 tests, several AD590 temperature sensors showed susceptibility during QB, NB and SB tests.

31 SHOULD BE TEXT
There should be no noticible susceptibility.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.3	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFH47	FINAL ASY & TST/SYSTEM TST/OUTPUT DATA/CORRUPTED	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT DATE 05-MAY-2002 RECORDED BY NAME Lucy LANHAM

Several AD590s showed susceptibilities at multiple frequencies during QB testing. These susceptibilities were also observed during NB and SB tests at the same frequencies. Retesting confirmed the susceptibilities.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Cr[illegible]m[illegible] DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	AD6494

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	Initiate DR	05-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	AD649[illegible]	1	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE NOT OK	INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.11	Lucy LANHAM	636975	L150	05-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT
During CS02 tests, several AD590s showed susceptibilities at multiple frequencies.

31 SHOULD BE TEXT
There should be no observed susceptibilities during CS02 tests.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.3	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XEE73	FINAL ASY & TST/ELEC SYS TST/TELEMETRY/UNSTABLE/DRIFTS	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT DATE 05-MAY-2002 RECORDED BY NAME Lucy LANHAM

Temperature sensors on the OBA and on electronics boxes showed susceptibility to CS02 QB, NB, SB tests.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Commo.. DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	AD6495	2	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0				0	Initiate DR	05-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	AD649.	1	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.12	Lucy LANHAM	636975	L150	05-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT
Several AD590 and PRT temperature sensors showed susceptibilities during CS06 testing.

31 SHOULD BE TEXT
No susceptibilities should be observed.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.4	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFC99	FINAL ASY & TST/SYSTEM TST/TELEMETRY/MISCELLANEOUS	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE 05-MAY-2002 — RECORDED BY NAME Lucy LANHAM

During the 5 minute test spans for each bus, AD590 and PRT temp sensors showed anomalous behavior. Temperature spikes of 2-20 degrees C were observed with the larger spikes occuring toward the end of each dwell. This was observed on both QB and NB tests.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm... DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	AD6496	2	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0				0	Initiate DR	05-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	AD649,	1	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.12	Lucy LANHAM	636975	L150	05-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT

During CS06 testing of the survival bus the IEGSE survival power shut off at an amplitude of 19.1V on both positive and negative polarities.

31 SHOULD BE TEXT

The IEGSE power should be available throughout CS06 tests.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
N/	N/A			1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
TNJ99	TEST EQUIP/VENDOR TEST CNSL/POWER SUPPLY/MISCELLANEOUS	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE 05-MAY-2002 — RECORDED BY NAME Lucy LANHAM

During the first run of the survival bus test (positive polarity) the IEGSE survival power switched off during the power-up stage of the test. Retesting localised the failure to slightly under 20V. The same failure occured during reversed polarity tests and was identifoed to occur at 19.1V. The IEGSE survival temp bus was restarted each time with no difficulty.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm. DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	AD649,	2	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0				0	Initiate DR	05-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm))iscrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	06-MAY-2002	HARDWARE	AD651.	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			TEST PROCEDURE	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS IEGSE	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L320	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.5	Althea MCFIELD	J18575	Q225	06-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT: Background (IEGSE on and HIRDLS instrument OFF) measured emissions exceed specified limits for RE02 EMI Narrowband test

31 SHOULD BE TEXT: Background emissions measurements within specified limits for RE02 EMI Narrowband test

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-820	NC	13.5.7	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE: 06-MAY-2002 — RECORDED BY NAME: Althea MCFIELD

The background emissions check (14 KHz to 18 GHz) for baseline with the IEGSE ON and the HIRDLS instrument OFF failed each test case, i.e. instrument +/ - Y side, antenna horizontal/vertical with HEPA filter OFF. (see DR Attachment)

With the HEPA filter blower turned off, other likely sources of the anomaly will have to be identified to close this DR.

The MRB authorizes continuation to EMI RE02 Narrowband Instrument testing.

Concurrence: Ray von Savoye (APM-Technical), Dave Seidl (QE), Althea McField (QE)

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	06-MAY-2002	HARDWARE	AD651[illegible]	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER 1 **OF** 1

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm[illegible] DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	06-MAY-2002	HARDWARE	AD651[illegible]	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			TEST PROCEDURE	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB investigation	06-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Comm) Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	06-MAY-2002	HARDWARE	AD651.	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE NOT OK INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L320	1	1	1	X

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.5	Althea MCFIELD	J18575	Q225	06-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT
Measured emissions with the HIRDLS Instrument powered ON exceeded specified limits for RE02 EMI Narrowband testing

31 SHOULD BE TEXT
Emissions levels within the GIRD specified limits

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	GSFC422-11-12-1	B	10.1.6	1	4	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT DATE 06-MAY-2002 RECORDED BY NAME Althea MCFIELD

1st Interim Technical

Each test case (Instrument +/- Y side, horizontal and vertical antenna for position) RE02 Narrowband testing exceeded GIRD-specified electric field emissions limit. The ambient baseline test, without the HIRDLS Instrument powered ON produced out of specification emissions level. (Ref. DR AD6410)

The MRB authorizes continuation of EMI testing. Cause, C/A and Final Disposition for this DR is required prior to the start of Instrument CPT.

Concurrence: Ray von Savoye (APM-Technical), Dave Seidl (QE), Althea McField (QE)

50 CAUSE TEXT

51 C/A TEXT

Comm) Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	06-MAY-2002	HARDWARE	AD651.	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER	OF
1	1

52 FINAL DISPOSITION TEXT

Comn. DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	06-MAY-2002	HARDWARE	AD651	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB investigation	06-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Comm) Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	07-MAY-2002	HARDWARE	AD651.	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-I&T	AMB QUAL TEST	IV

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L320	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	R/L	Althea MCFIELD	J18575	Q225	07-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT: CCU compressor stroke stayed at 20% during testing in Electonics Only mode during "90 K test"

31 SHOULD BE TEXT: CCU Compressor demanded stroke of 80%

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
PR	SP-HIR-034	NC	3.4.2.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFJ84	FINAL ASY & TST/SYSTEM TST/OUTPUT SIGNAL/UNDER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE: 07-MAY-2002 — RECORDED BY NAME: Althea MCFIELD

This test was redlined into the test procedure after the completion of the final EMI test (Magnetic Dipole). —

The following CSTOL procedures were ran:

start_hir_css_elect
@hir_css_pidcoeff 75, 5, 0
@hir_css_freq 390, 650
@hir_css_setting 5, 900, 800, 800

At this point the compressor stroke stayed at 20% and allowed an overshoot in temperature to 96 K (set point was 90 K)

The commands were repeated per MRB direction, and this time the STOL procedures were successful

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	07-MAY-2002	HARDWARE	AD651	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER 1 **OF** 1

50 CAUSE TEXT

DATE 07-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

Identification of CAUSE is required prior to the start of CPT.

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comi. . DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	07-MAY-2002	HARDWARE	AD651[illegible]	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB investigation	07-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

APPENDIX G

Ripple Voltage Test Data

HIRDLS

HIGH RESOLUTION DYNAMICS LIMB SOUNDER

15 July 2002

Originator:

Walter Gregorwich, Don Wilson

Subject/Title:

EMI/EMC Test Report-Instrument Susceptibility, HIRDLS Instrument

Contents/Description/Summary:

This report outlines the tests performed for verification of the functionality of the Unit (DUT) for Instrument Susceptibility and Magnetic Dipole Moment.

Keywords:

HIRDLS Instrument, EMI/EMC Test Report-Instrument Susceptibility

Purpose:

EMI/EMC Test Report Instrument susceptibility and magnetic dipole moment.

Reference:

Approvals:

/s/ Don Wilson, RE	/s/ Tim Crews, Systems Engineer
/s/ Althea Mc Field, Quality Engineer	/s/ Talin Kaloustian, Test Engineer

Advanced Technology Center, CAGE Code 65113

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United States of America

EOS

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4	RS01 AC Magnetic Field Radiated Susceptibility Test 30 Hz to 200 KHz	25
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OVERVIEW

HIRDLS TEST REPORT

June 2, 2002

List of Tests:

- CS01 Audio and Radio Frequency Conducted Susceptibility Test
  - 30 Hz to 50 KHz
- CS02 Audio and Radio Frequency Conducted Susceptibility Test
  - 50 KHz to 400 MHz
- RS03 Electric Field Radiated Susceptibility Test 14 KHz to 18 GHz
- RS01 AC Magnetic Field Radiated Susceptibility Test 30 Hz to 200 KHz
- CS06 Power Lead Spike Susceptibility Test
- DC Magnetic Field Susceptibility Test
- DC Magnetic Dipole Moment

Test Equipment List:

Nomenclature	Manufacturer	Model
Power line Iso. Transformer	(Lab type)	N/A
Signal Generator	Solar	6550-1
Audio Iso. Transformer	Solar	8282-1
Transient Pulse Generator	Solar	8282-1
Synthesizer	H. P.	3325A
Signal Generator	Fluke	6071A
Signal Generator	H. P.	8672A
Amplifier	Amp. Research	100L
Amplifier	Amp. Research	10W1000
Amplifier	Logimetrics	A6001
Amplifier	Logimetrics	A600S
Amplifier	Logimetrics	A600C
Amplifier	Logimetrics	A600X
Amplifier	Logimetrics	A600U
Field Strength Monitor	Aeritalia	TE3107B
Field Strength Monitor	Holday	HI-3004
Field Strength Monitor	Raham	484
Antenna	EMCO	3301B
Antenna	EMCO	3104P
Antenna	EMCO	3146B
Antenna	Stoddart	93490-1
Antenna	Stoddart	94612-1
Antenna	Electrometric	LCA-25
Spectrum Analyzer	H. P.	8566B
Printer	H. P.	Thinkjet
Close Field Probe Set	EMCO	7405

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Test Summary:

Bonding and Grounding: This test measures the resistance between each panel and connector of the Instrument and the metal transporter. The program personnel performed the test during assembly.

Circuit Isolation: This test measures the electrical isolation between the Instrument input power lead, plus and return, and ground. The program personnel performed the test during assembly.

Payload Coordinates: The HIRDLS test coordinates are shown in **Figure 1**.

CS01 Conducted Susceptibility: This test is to show that the Instrument will not be susceptible to Audio Conducted susceptibility in the range of 30 Hz to 50 KHz applied in series with the input power line, and then the power return line.

CS02 Conducted Susceptibility: This test is to show that the Instrument will not be susceptible to radio frequency (RF) conducted susceptibility in the range of 50 KHz to 400 MHz applied through a coupling capacitor in parallel from input power to power return, and from power return to chassis of the Instrument.

CS06 Conducted Susceptibility: This test is to show that the Instrument will not be susceptible to positive and negative spike interference in parallel from input power-to-power return of the Instrument.

RS01 Radiated Susceptibility: This test is to determine the susceptibility of the Instrument to radiated magnetic fields of required test signals.

RS03 Radiated Susceptibility: This test is to determine the Instrument can continue to operate without any change in indication, malfunction or degradation of performance when subjected to the radiated levels.

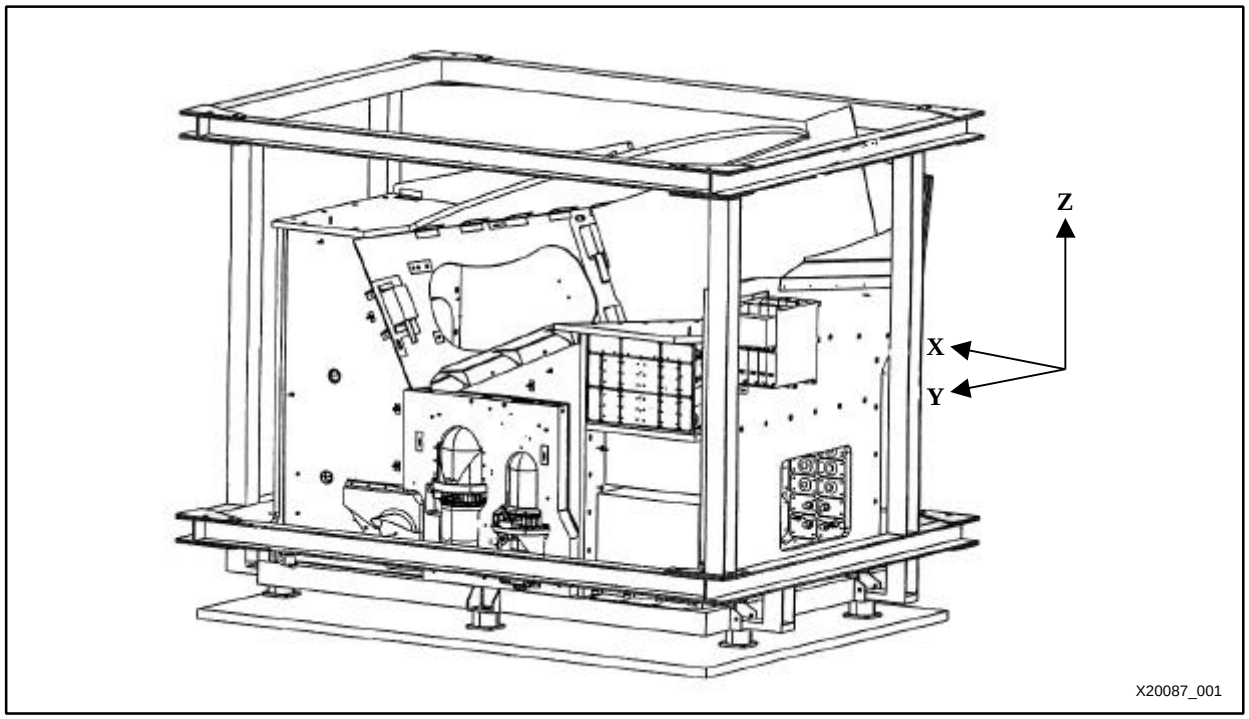

Figure 1 HIRDLS Payload Coordinates

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GENERAL REQUIREMENTS

Facility

All EMI/EMC tests shall be performed in the Organization L3-10 EMI/EMC (a.k.a., Tempest) Test Facility in B/152, Sunnyvale, California. During this EMI test, the Instrument is to be located in the Room #3 Test Chamber, the Instrument support equipment is to be located outside Room #3 and the EMI test equipment is to be located in the Room #1 Control Room.

Facility Power Requirements

Facility power requirements shall include 115 VAC ± 10%, 60 Hz, 20 amperes, single phase, 240 VAC ± 10%, 60 Hz, 20 amperes.

Environmental Conditions

The following environmental (standard laboratory ambient) conditions shall be maintained throughout this procedure:

Ambient Temperature:	+65ºF to +85ºF
Relative Humidity:	30% to 80% Maximum
Atmospheric Pressure:	650-850 torr

Test Facility Ambient Conditions

Ambient tests shall be performed to demonstrate the Instrument actual radiated and conducted emissions. One ambient test with the STE and Instrument unpowered, and another ambient test with the STE powered and Instrument unpowered should provide the necessary ambient data.

Contamination Control

The Instrument shall be bagged, with connector and ground points exposed. At no time during the testing shall the Instrument be removed from the bag. Dust covers shall be placed over all unused connectors. The instrument shall be purged with clean Dry Nitrogen, per the CCP (PA-HIR-006) throughout the test and all handling.

Instrument Support and Cooling

A special water-cooled cold plate under the Instrument is used to cool the base plate. A nitrogen gaseous purge is used as a cooling gas to cool the bagged area of the Instrument during test. The bag will have a positive pressure applied during the testing to keep out particles of contamination. The CMU cryo pump will have an external cooling unit attached and the sensor assembly will have a vacuum pump connected during testing.

Electrostatic Discharge (ESD) Control

The Instrument is ESD sensitive and requires proper handling and ground procedures per LAC 3250-0000001.

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SECTION 1

CS01 TEST TIMELINE
3-4 May 2002
2002/123-14:54 Through 2002/124-11:37

Test (A-side)	Start 2002/124	End	Comments
QB-I	04:25	06:40	Repeated parts of tests several times at different input voltages. Of greatest interest: 1.89 and 52 KHz
NB-I	07:25	08:04	Single run no repeats. (Shift change, new Test conductor)
SB-I	08:26	08:51	Single run no repeats. Linear increase in temp sensor noise throughout test.
Special Test	08:54	08:58	Turned off external fan. Lowered Elevation noise
QB-R	09:26	10:16	After single run held at 23 KHz reducing input voltage from 4V to 0.5V. (10:11-10:16)
NB-R	10:27	11:07	After single run held at 29.7 KHz reducing input voltage from 4V to 0.5V. (11:03-11:07)
SB-R	11:15	11:37	Similar to SB-I

CS01/CS02 Audio and Radio Frequency Conducted Susceptibility Test 30Hz to 50kHz/50kHz to 400Mhz

Test Requirements:

CS01/CS02 Audio and Radio Frequency Conducted Susceptibility Test 30 Hz to 50KHz/50KHz to 400 MHz (GIRD 10.11.3)

The requirement for this test is shown in **Figure 1-1**. The susceptibility signal shall be injected onto the PCU power input lines.

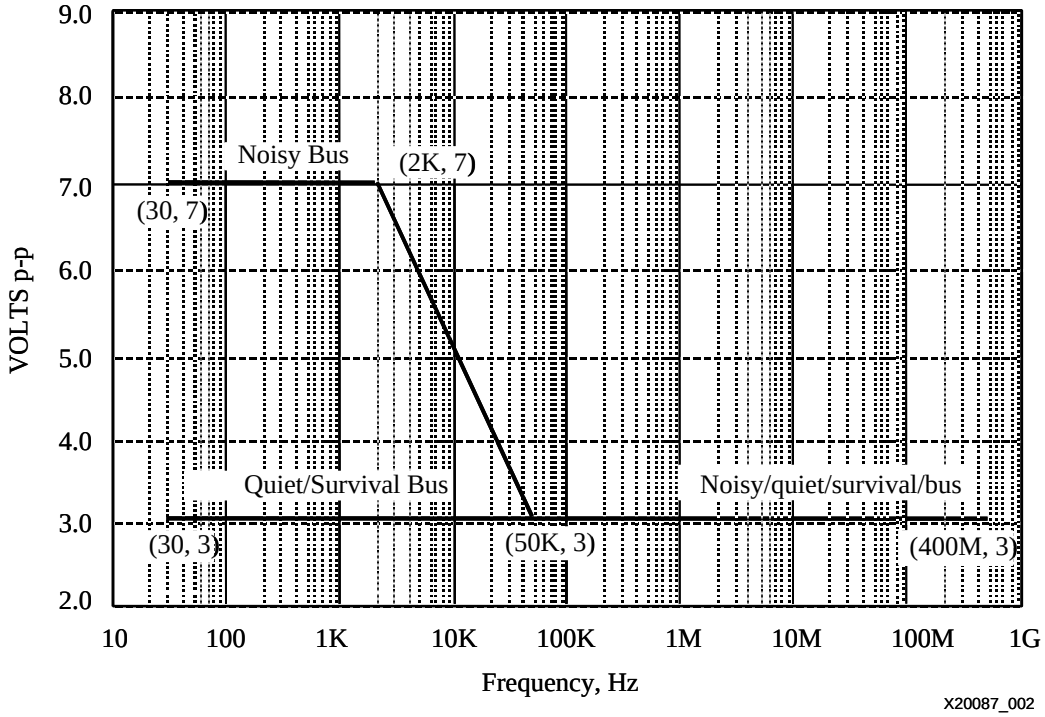

Figure 1-1 CS01/CS02 Conducted Susceptibility Test Limit

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The Quiet Bus and Survival Bus is Series injection (CS01) will be used from 30 Hz to 50 KHz and parallel injection, 3 V p-p or 4.0 Amp. p-p max.. Series injection (CS02) will be limited to 3 V p-p (1.07 Arms) or 1 Watt from a 50 Ohm load, used from 50 KHz to 400 MHz. as shown in Figure 2.

The Noisy Bus (CS01) susceptibility signal will start at 7 V p-p or 20 Amp. p-p max., from 30 Hz. To 2 KHz then ramp down to 3 V p-p or 20 Amp. p-p max., at 50 KHz. Series injection (CS02) will be 3 V p-p or 0.8 Amp. p-p max., used from 50 KHz to 400 MHz, as shown in Figure 2.

The series injection test configuration will apply the signal onto the positive Primary Power Lines and Power Return Lines. The susceptibility tests will be performed on the following:

PI-QB-A	Primary power input lead (Quiet Bus A)	Cable PQA/connect together wire A, B, C
PR-QB-A	Primary power return lead (Quiet Bus A)	Cable PQA/connect together wire D, E, F
PI-QB-B	Primary power input lead (Quiet Bus B)	Cable PQB/connect together wire A, B, C
PR-QB-B	Primary power return lead (Quiet Bus B)	Cable PQB/connect together wire D, E, F
PI-SB-A	Power Input lead (Survival Bus A)	Cable PSA/connect together wires A, B, C
PR-SB-A	Power Return lead (Survival Bus A)	Cable PSA/connect together wires D, E, F
PI-SB-B	Power Input lead (Survival Bus B)	Cable PSB/connect together wires A, B, C
PR-SB-B	Power Return lead (Survival Bus B)	Cable PSB/connect together wires D, E, F
PI-NB A	Primary power input lead (Noisy Bus A)	Cable PNA/connect together wires A, B, C
PR-NB A	Primary power return lead (Noisy Bus A)	Cable PNA/connect together wire D, E, F
PI-NB B	Primary power input lead (Noisy Bus B)	Cable PNB/connect together wire A, B, C
PR-NB B	Primary power return lead (Noisy Bus B)	Cable PNB/connect together wire D, E, F

Test Objective: The series injection will apply the signal onto the positive Primary Power Lines and the Power Return Lines at the levels specified per test case below per bus.

Testing for CS01 began 2002/123-14:54 ending 2002/124-14:00.

Testing for CS02 began 2002/124-13:18, ending2002/125- 11:40.

Test Data

Lead	CS01	CS02
Primary power input lead (Quiet Bus A)	Complete	Complete
Primary power return lead (Quiet Bus A)	Complete	Complete
Primary power input lead (Quiet Bus B)	N/A	N/A
Primary power return lead (Quiet Bus B)	N/A	N/A
Primary power input lead (Survival Bus A)	Complete	Complete
Primary power return lead (Survival Bus A)	Complete	Complete
Primary power input lead (Survival Bus B)	N/A	N/A
Primary power return lead (Survival Bus B)	N/A	N/A
Primary power input lead (Noisy Bus A)	Complete	Complete
Primary power return lead (Noisy Bus A)	Complete	Complete
Primary power input lead (Noisy Bus B)	N/A	N/A
Primary power return lead (Noisy Bus B)	N/A	N/A

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Specifics for CS01:

Bus	Injections	Signal
QB	Frequency Voltage	30 Hz to 50 kHz 3V p-p (4.0 amp p-p max)
SB	Frequency Voltage	30 Hz to 50 kHz 3V p-p (20 amp p-p max)
NB	Frequency Voltage	30 Hz to 2 kHz During ramp down set to 50 kHz 7V p-p (20.0 amp p-p max) ramp down to 3V p-p

Specifics for CS02:

Bus	Injections	Signal
QB	Frequency Voltage	50 Hz to 400 kHz 3V p-p (0.8 amp p-p max)
SB	Frequency Voltage	50 Hz to 400 kHz 3V p-p (0.8 amp p-p max)
NB	Frequency Voltage	50 Hz to 400 MHz During ramp down set to 50 kHz 3V p-p (0.8 amp p-p max) ramp down to 3V p-p

Configuration:

Break out boxes (BOB) were added to the configuration between the IEGSE and the Instrument to reduce the number of needed power cycles and need to change the configuration. For the CS01/CS02 primary high side and power return, see Appendix A for BOB setup. The CS01 test setup is shown in **Figure 1-2**.

Test Results: Instrument Test Operators Log (CS01)

CS01 began the test 2002/123-14:54:00 on the quiet bus A-side (+Y, see Figure 1) for the frequency range of 30 Hz to 50 kHz. The system was initially powered-on with the gyro motors and cooler at stable operational temperature conditions (see Test Data, **Figures 1-3** and **1-4**).

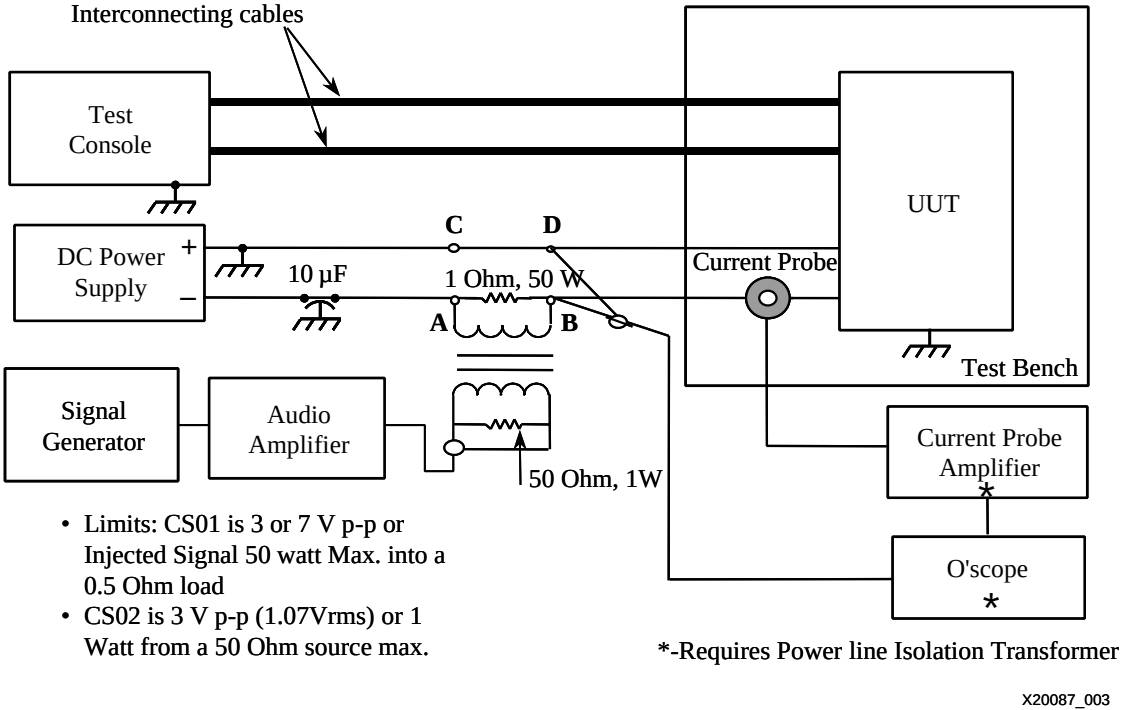

Figure 1-2 CS01 Audio Frequency Conducted Susceptibility Test Setup

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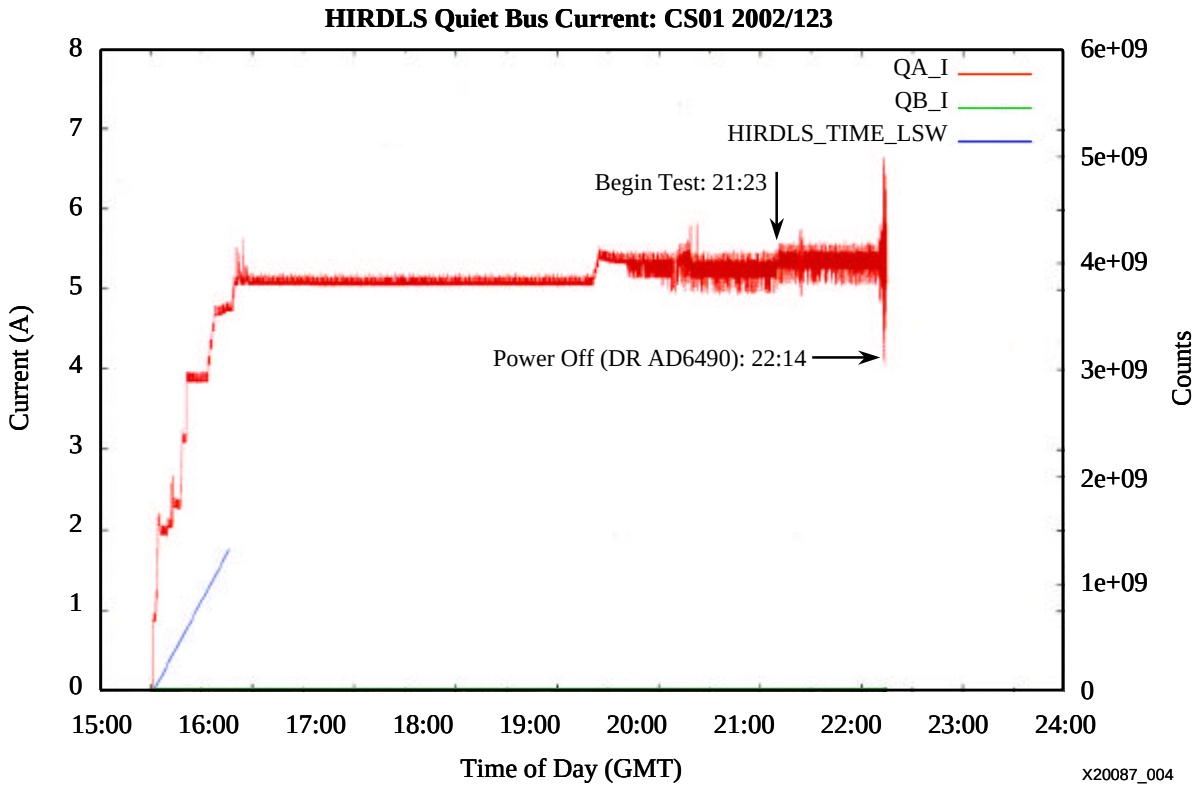

Figure 1-3 Archive Integrity and Quiet Bus Current

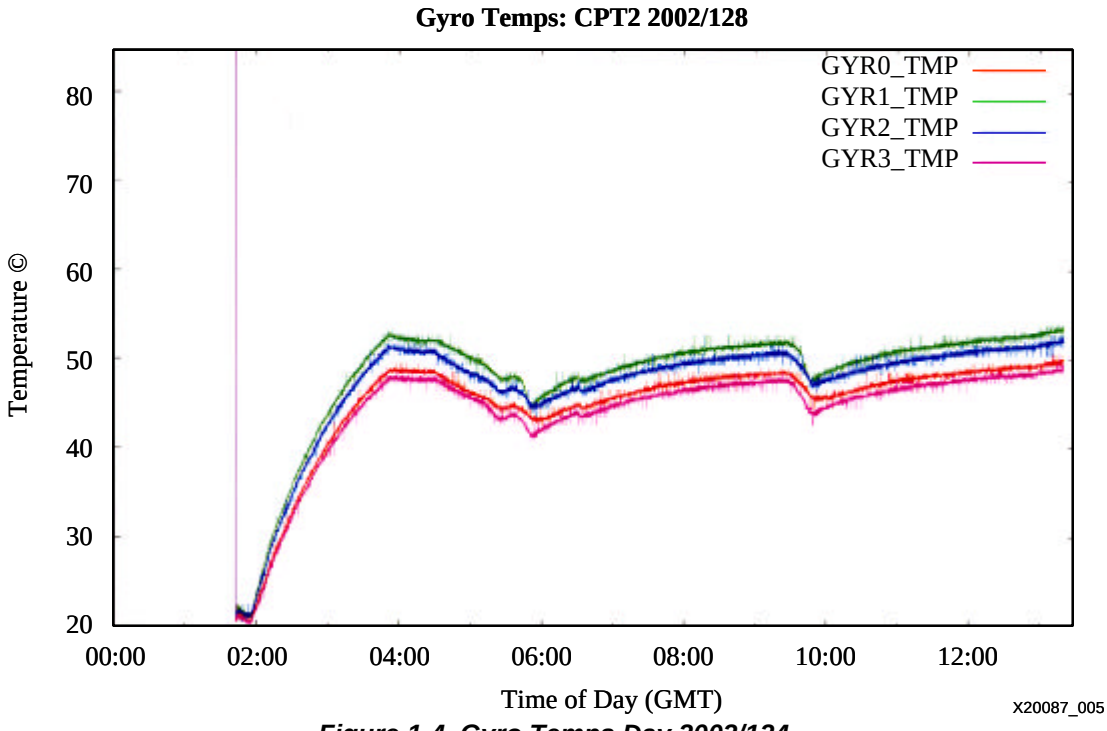

Figure 1-4 Gyro Temps Day 2002/124

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Just as the sweep began, TSS encoder data spiked at the 30 Hz frequency; when the frequency level reached 3.92kHz at 3 Vp-p. The CSS began over-stoking followed by bad radiance data (see **Figure 1-5**). The CMU was immediately powered off with the all IEGSE buses remaining powered. Suddenly, a loss of QB current was noted with no over-current or over-voltage protection trigger tripped on the power supply. All instrument telemetry was lost at this time (see **Figure 1-6**), while both survival and noise buses were still operational. The noisy bus was then powered off from the SPC panel. DASH-8 strip-chart (recording volt and current between the IEGSE and instrument) recorded a 9-10 Amp. p-p with EMI chamber GSE amplitude not exceeding 1 amp p-p. At that time, the injected voltage changed from 3V p-p to 5.16 V p-p before operator turned the source off. The survival bus was then turned off from the SPC panel.

An MRB was held and DR AD6487 was generated against the TP-LOC-820 on 5/3/02. Under MRB direction, the test configuration was inspected and various resistance measurements taken on the IPU-PCU interface and between the IEGSE and the PCU interface. All measurements compared with historical values. The IEGSE was powered up, and 28 volts was measured on the GSE side of the BOB. Further investigation showed the AC coupling mode function was not working preventing the test engineer from seeing the actual injected current from the chamber. It was later discovered that the IEGSE power supply was set to remote sense mode. The system will try to compensate for the injected voltage ripple at the end of the 50ft test cable. Once the IPU commanding capability was lost, spurious commands & clock where sent to the CSS causing the motor oscillation. Ball has been contacted to understand why the limit checking did not stop the oscillation. An instrument health check was initially run prior to resuming the EMI testing. All subsystems responded as excepted.

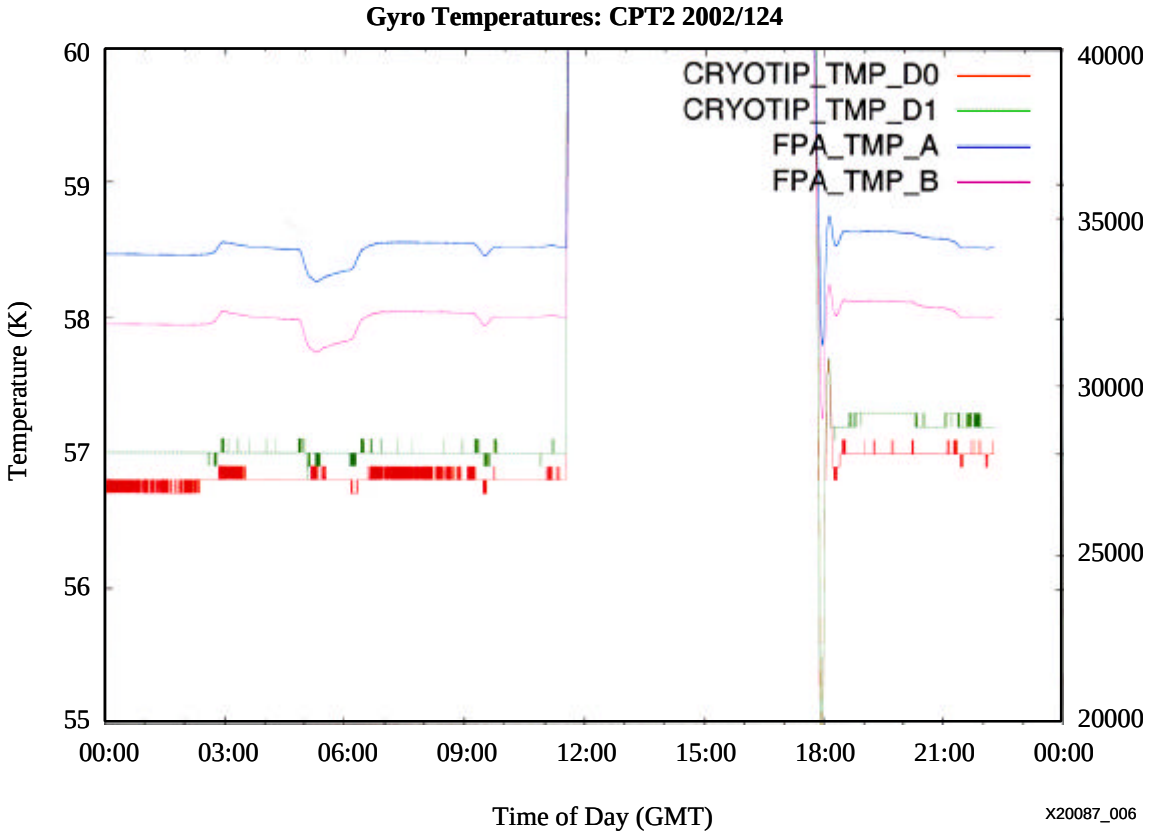

Figure 1-5 CSS

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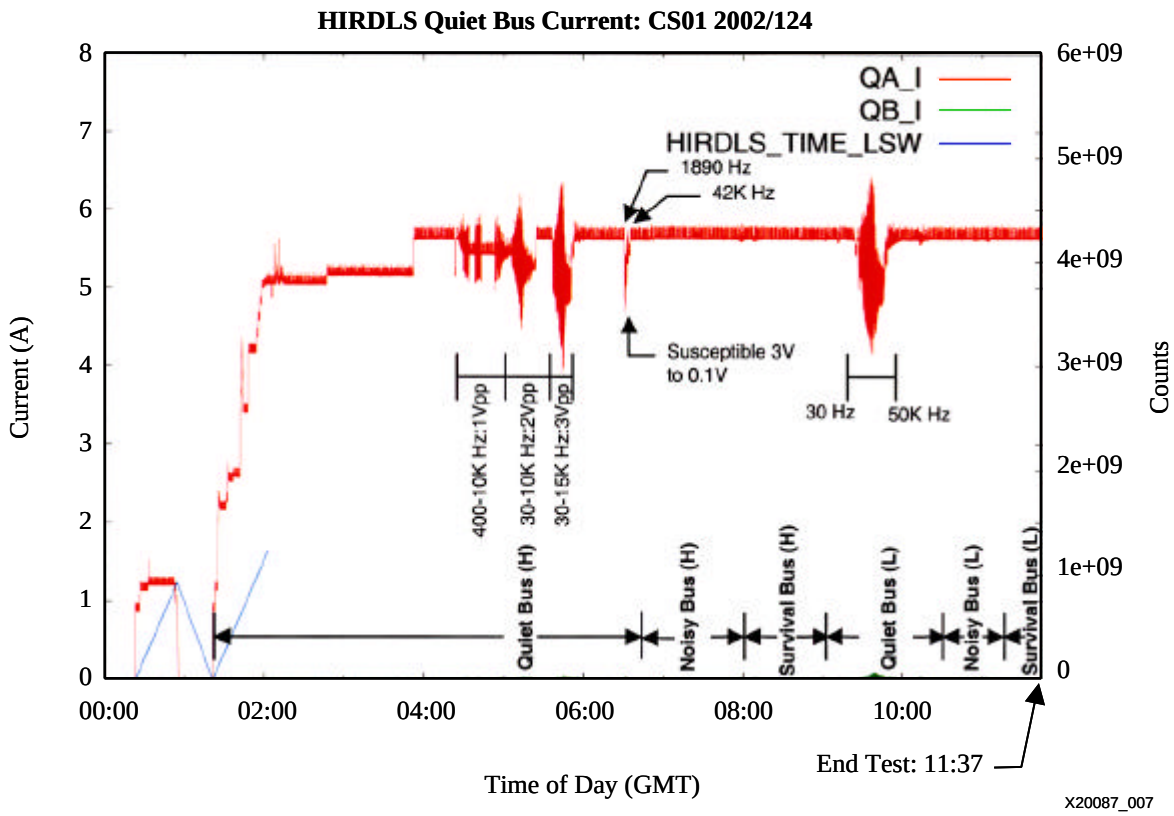

Figure 1-6 Archive Integrity and Quiet Bus Current

Prior to the actual EMI test resuming, a diagnostic sweep from 30Hz to 10KHz was performed with restored remote sense mode on each IEGSE bus. After reaching 400 Hz, the sweep was terminated and the defective scope was replaced. The test resumed starting at 400 Hz at 1 V p-p until completion at 10kHz with minor increases in noise. Sweep was repeated at the 2V p-p with an adjustment to 2.5 V p-p around 346 Hz until noise settled out for the same sweep range. When 5.5 kHz was reached, Gyro 1 & 3 heater turned off (see **Figure 1-7**). Continued with the next sweep at 3V p-p for a range of 30 Hz to 50kHz. Again Gyro heaters 1 & 3 turned off, this time at 130 Hz level. The current was reduced to 2.5 amp p-p causing the gyro 2 heater to turn off. At the 3750 Hz level, the current was reduced again restoring the gyros 2 & 3 back to operational state. Continued to reduce the current restoring gyro 1. Temperature noisy was observed at 8K Hz p-p. A change in the temperature was noted again at 40kHz stabilizing for about 15sec then appeared noisy again. Finished the sweep at 50k Hz.

The next measurement was to gather additional data on the gyro's susceptibility. At 1890 Hz the voltage started at 3 V p-p and reduced in step to 1Vp-p. The following table summarizes the results:

2002/124-	Voltage Setting	Gyro Behavior
06:30	3V	Gyro heaters off
06:31	2.5V	Gyro 2 heater on, Gyro 3 heater off
06:31:30	2.0V	Gyro 1 & 3 heaters off
06:32:15	1.75V	Gyro 1 & 3 heaters off
06:32:36	1.5V	Gyro 1 heater on, Gyro 3 heater off
06:33:18	1.25	Gyro 1 heater on, Gyro 3 heater off
06:33:40	1V	Gyro 3 temporarily turned on, then went off

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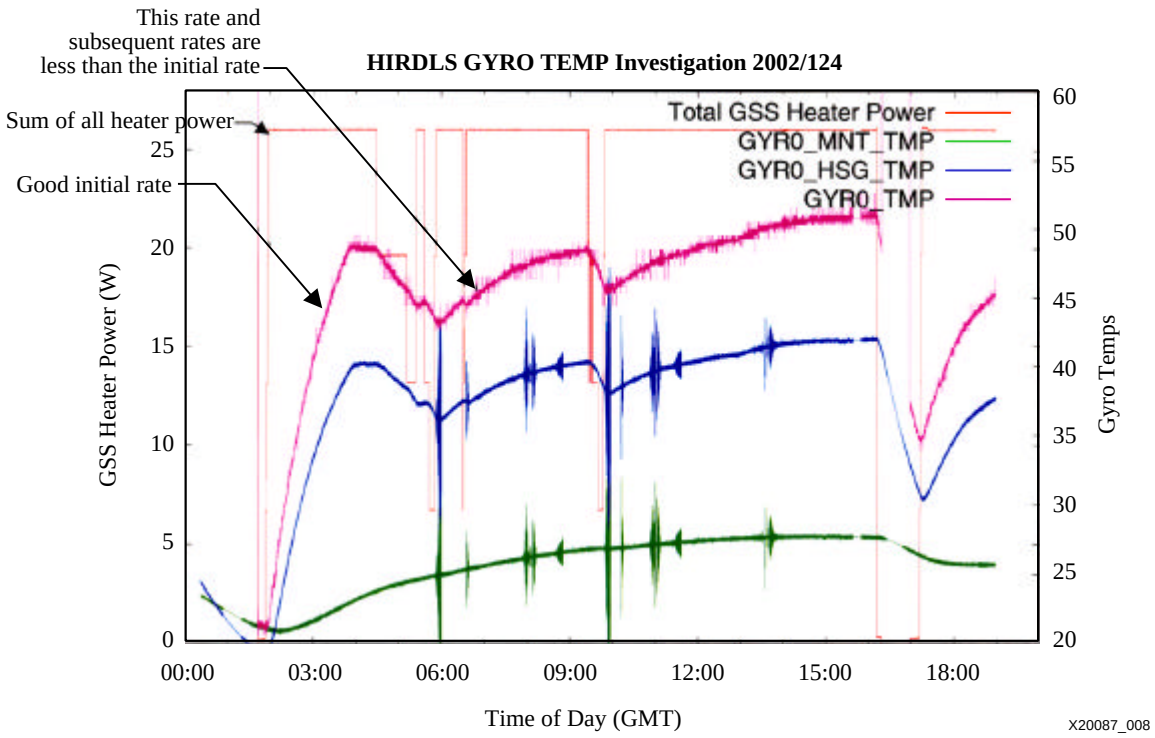

Figure 1-7 Failure of Gyros to Heat to Spin Temperature (DR# AD6491)

At the 42 Hz level over a range was varied 1V to 0.1V p-p. Gyros 1&2 heaters remained on with the 3rd heater off. The variations here made no difference to the gyro's; however, the CALMIR_TMP1&2, LNS1_WF_TMP1&3 and SM_TMP1 all changed as summarized below:

2002/124-	Voltage Setting	Temperature Behavior
06:35	1V	6-7°C
06:31	0.75V	5-6°C
06:35:51	0.5V	3°C
06:36:46	0.25V	2°C
06:37:48	0.1V	No changes here

The test ended at 06:40 and the system was reconfigured for CS01 Noise Bus high side.

CS01 Noisy Bus primary high began 2002/124-07:03:00 sweeping thru 30Hz to 50kHz. Variations in El position where noted after 916.1 Hz level was reached. Temperature variations started at 1.4kHz by 3-4°C growing linearly with increases in frequency up to 2.55 kHz then began decreasing again. At frequency 4.41kHz, temperature increased again about 1°C from near stability. Finished sweep at 50kHz.

CS01 Noisy Bus return side began 2002/124-08:26:00 sweeping thru 30 Hz to 50 kHz. Minor variations in elevation and azimuth encoder positions. Results looked acceptable otherwise.

Performed a special test to isolate the 18.5Hz noise source in the radiance data by turning the CCU Hepa filter system off temporary and record 4 minutes of data for later post processing.

CS01 Return Side for the quiet bus began 2002/124-09:26:00 sweeping thru 30 Hz to 50kHz.

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2002/124-	Frequency Setting (Hz)	Gyro Behavior/Temperature Behavior
09:26:00	30	Gyro heaters off, gyro 1&3 turning on/off
09:35:00	366.4	Gyro 2 heater on, Gyro 3 heater off
09:40:00	1357	Gyro heaters off
09:45:00	3422	Gyro 1 & 3 heaters off
09:46:00	6800	Sent command to turn on Gyro's
09:48:00	11k Hz	No change
09:50:00	16k Hz	1°C noise moving to 2°C
09:52:00	23k Hz	12-20°C, 8-10°C
09:54:00	33k Hz	10-15°C
09:56:00	46k Hz	10-15°C
09:57:00	50k Hz	10-15°C

The sensitivity noticed on the 23k Hz level was repeated and the voltage was varied.

2002/124-	Voltage Setting	Gyro Behavior/Temperature Behavior
10:11:00	4 V p-p	No notations
	2.56 V p-p	8°C
	2.00 V p-p	6°C
	1.52 V p-p	2°C
	1.04 V p-p	1°C
10:16:00	560 mV	0.5°C

CS01 return side for the Noisy Bus began sweeping at 2002/124-10:27:00 sweeping at 30 Hz to 50 kHz.

2002/124-	Frequency Setting	Observed Behavior
10:27:00	30	
10:30:00	109	
10:35:00	249	Current p-p variation at its peak
10:37:00		Current variation still increasing
10:38:00	331	Current is peaking still higher
10:39:00		Current almost got to abort level
10:42:00		Current creeping down; 9°C variation
10:45:00	1.8 kHz	
10:50:00	4 kHz	
10:52:00	12.1 kHz	1°C noise, with normal current
10:54:00	18.7 kHz	2°C noise, with normal current
10:55:00	26.8 k Hz	4°C noise, with normal current
10:56:00	29.7 k Hz	6°C noise, with normal current
10:57:00	35.6 k Hz	2°C noise, with normal current
10:59:00	47.9 k Hz	6°C noise, with normal current
11:00:00	50 k Hz	6°C noise, with normal current

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The sensitivity noticed on the 29.7k Hz level was repeated and the voltage was varied.

2002/124-	Voltage Setting	Gyro Behavior/Temperature Behavior
11:03:00	3.4V p-p	6°C
	3.04 V p-p	6°C
	2.48 V p-p	5°C
	2.0 V p-p	4°C
	1.52 V p-p	3°C
	1.1 V p-p	2°C
11:07:00	560 mV	1°C

CS01 Survival Return Side sweep from 30 Hz to 50k Hz began 2002/124. Temperature variation and El/Az variations were noted as listed below.

2002/124-	Frequency Setting	Observed Behavior
11:15:00	30	Consistent Az Variations
11:18:00		Two Az Variations
11:20:00	302	No notations
11:25:00	2.2 k Hz	1°C
11:27:00	3.7 k Hz	1°C
11:33:00	30.6 k Hz	Sharp/Spike Az/El changes
11:34:00		Current creeping down; 9 Amp. p-p variation
11:35:00	40.4 k Hz	1.5°C
11:36:00	48 k Hz	2.5°C
11:37:00	50 kHz	2.5°C

Performed a special test for ambient noise (see **Figure 1-8**). It was discovered during this test that the ambient noise could be reduced by almost 40 dB by simply turning off an external cooling fan in the test chamber (see 9:00 GMT in Figure 9).

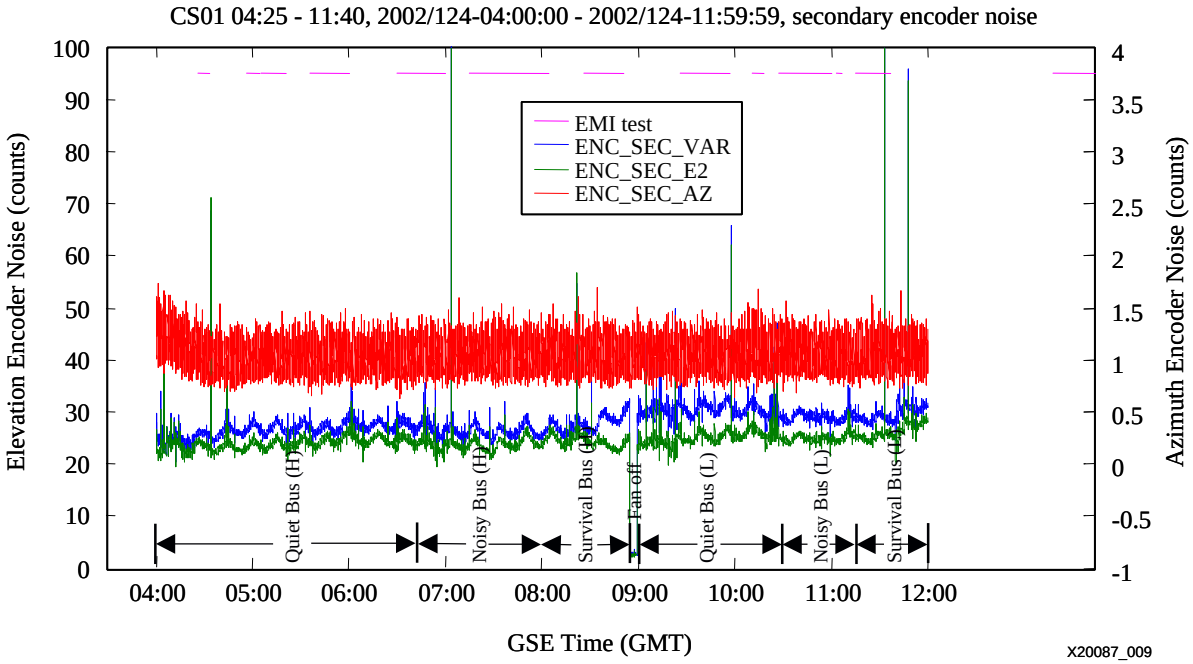

Figure 1-8 Ambient Noise: Secondary Encoders

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Data Sheet Review

Lead-	CS01	Notes
Survival Bus A, Plus leads 30 Hz to 5.0 KHz	Pass	
Survival Bus A, Plus leads 6.0 KHz to 50.0 KHz	Pass	
Survival Bus A, Return leads 30 Hz to 5.0 KHz	Pass	
Survival Bus A, Return leads 6.0 KHz to 50.0 KHz	Pass	
Quiet Bus A, Plus leads 30 Hz to 5.0 KHz	Fail	1.49 KHz, Threshold 1.0 V
Quiet Bus A, Plus leads 6.0 KHz to 50.0 KHz	Fail	46 KHz, Threshold 0.0 V
Quiet Bus A, Return leads 30 Hz to 5.0 KHz	Pass	
Quiet Bus A, Return leads 6.0 KHz to 50.0 KHz	Fail	23 KHz, threshold 0.5 V p-p
Noisy Bus A, Plus leads 30 Hz to 5.0 KHz	Pass	
Noisy Bus A, Plus leads 6.0 KHz to 50.0 KHz	Fail	19 KHz, threshold 0.0 V p-p
Noisy Bus A, Return leads 30 Hz to 5.0 KHz	Pass	
Noisy Bus A, Return leads 6.0 KHz to 50.0 KHz	Fail	29.7 KHz, threshold 560 m V p-p
Lead-	**CS02**	**Notes**
Survival Bus A, Plus leads 50 KHz to 2.4 MKHz	Pass	
Survival Bus A, Plus leads 3.2 MHz to 400 KHz	Pass	
Survival Bus A, Return leads 50 KHz to 2.4 MKHz	Pass	
Survival Bus A, Return leads 3.2 MHz to 400 KHz	Fail	46 MHz, threshold 0.0 V p-p
Quiet Bus A, Plus leads 50 KHz to 2.4 MKHz	Pass	
Quiet Bus A, Plus leads 3.2 MHz to 400 KHz	Fail	39.7 MHz, threshold not noted
Quiet Bus A, Return leads 30 KHz to 5.0 MKHz	Pass	
Lead-	**CS02**	**Notes**
Quiet Bus A, Return leads 3.2 MHz to 400 KHz	Pass	
Survival Bus A, Plus leads 50 KHz to 2.4 MKHz	Pass	
Survival Bus A, Plus leads 3.2 MHz to 400 KHz	Pass	
Survival Bus A, Return leads 50 KHz to 2.4 MKHz	Pass	
Survival Bus A, Return leads 3.2 MHz to 400 KHz	Pass	

EMI/EMC Test Flash Report Anomalies:

CS01 Conducted Susceptibility: This test is to show that the Instrument will not be susceptible to Audio Conducted signals in the range of 30 Hz to 50 KHz applied in series with the input power line, and then the power return line. For this test, only the A side power input and return were tested due to A/B similarity. The survival bus lines passed all measurements. The noisy bus power input line was susceptible at 19 KHz with a threshold level of essentially zero; the power return line was susceptible at 29.7 KHz with a threshold of 0.56 V. The quiet bus power input line was susceptible at 1.49 KHz with a threshold of 1.0 V and at 42 KHz with a threshold of essentially zero; the power return was susceptible at 23 KHz with a threshold of 0.5V. CDR AD 6494 was written to document the CS01 test anomalies.

CS02 Conducted Susceptibility: This test is to show that the Instrument will not be susceptible to radio frequency (RF) conducted signals in the range of 50 KHz to 400 MHz applied through a coupling capacitor in parallel from input power to power return, and from power return to chassis

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of the Instrument. For this test, only the A side power input and return were tested due to A/B similarity. The noisy bus power lines passed all measurements. The quiet bus power return to chassis combination passed all measurements; the power input to return combination was susceptible at 39.7 MHz, 50 MHz and 55 MHz with thresholds at essentially zero V, 0.5 V and 2.5 V respectively. The survival bus power input to return combination passed; the return to chassis combination was susceptible at 46 MHz with a threshold of essentially zero. CDR's AD 6490 and AD 6495 were written to document the CS02 anomalies.

Test Paragraph	Test Title	Pass	Fail	Comments
13.11.3	CS01 Audio Frequency Conducted Susceptibility 30 Hz to 50 KHz		X	CDR #AD6494, AD6487, AD6491
13.11.14	CS02 Radio Frequency (RF) Conducted Susceptibility 50 KHz to 400 MHz		X	CDR #AD6495, AD6490

CDR's

AD6487 Is: During CS02 test, several AD590s showed Susceptibilities at multiple frequencies.
Should Be: There should be no observed susceptibilities during CS02 tests

AD6490 Is: During instrument level CS02 testing the IPU reset at 39.0 MHz (2002/124@1540GMT)
Should Be: The IPU should not reset during susceptibility test.

AD6491 Is: Gyro heaters could not heat the Gyros to minimum operational temperature.
Should Be: Gyro heaters should be able to heat the Gyros to 55 deg C (spin motor start temperature).

AD6494 Is: During CS01 test, several AD590 temperature sensors showed susceptibility during QB, NB and SB test.
Should Be: There should be no noticeable susceptibility.

AD6495 Is: During CS02 test, several AD590 temperature sensors showed susceptibility during QB, NB and SB test.
Should Be: There should be no noticeable susceptibility.

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SECTION 2

CS02 TEST TIMELINE
4-5 May 2002
2002/124-13:17 Through 2002/125-11:40

Date	Day	Time (GMT)	Comments
5/4/02	124	13:13	Start sweep @ 50 KHz, PI-QB-A, Pulse lead to Return lead
5/4/02	124	15:41	Step sweep @ 39.735 MHz, 3V pp PI-QB-A, Fault loss of encorders
5/4/02	124	20:44	Stop sweep again @ 50.46 MHz, 3 V pp, PI-QB-A, Fault HIRDLS anomaly
5/4/02	124	16:20	Gyro failure to heat to spin temperature
5/5/02	125	00:13	All radiance measurements showing noise
5/5/02	125	02:39	CALMIR—TMPI temperature spiking
5/5/02	125	11:40	Stop tests @ 46 MHz, PR-SB-A

The break-out-boxes (BOB) setup for CS02 can be found in Appendix B. The test set up is shown in **Figure 2-1**.

Test Results: Instrument Test Operators Log for CS02. The test was begun on 2002/124-13:18, see **Figures 2-2** and **2-3**. The sweep was stopped at 39.735 MHz and again at 50.46 MHz because of loss of encoders. (See **Figures 2-4** and **2-5**.)

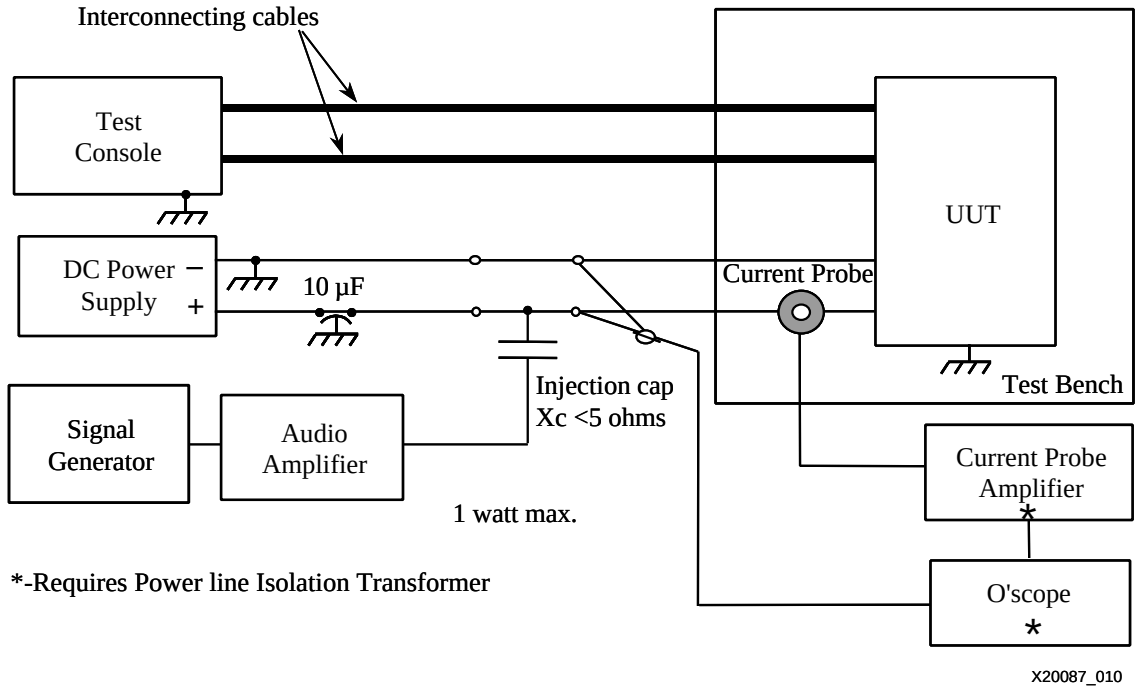

Figure 2-1 CS02 Radio Frequency Conducted Susceptibility Test Setup

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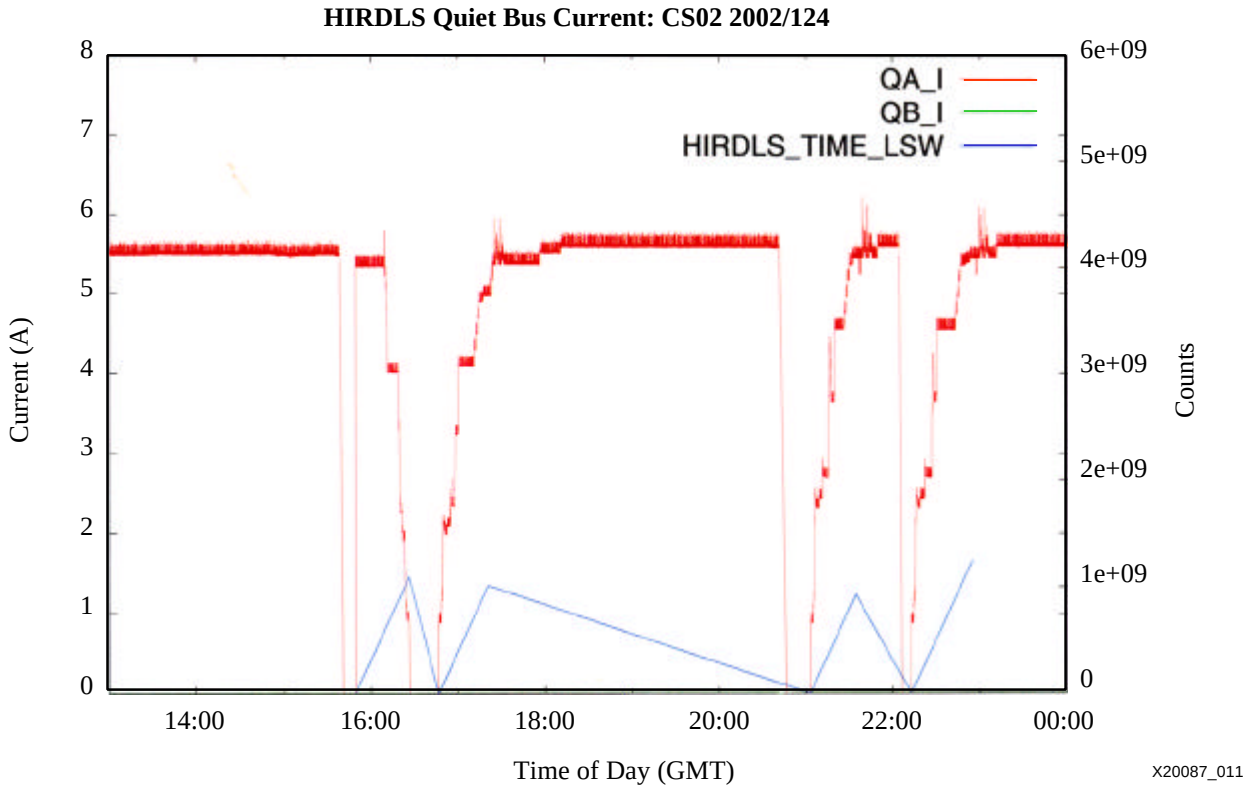

Figure 2-2 Archive Integrity and Quiet Bus Current

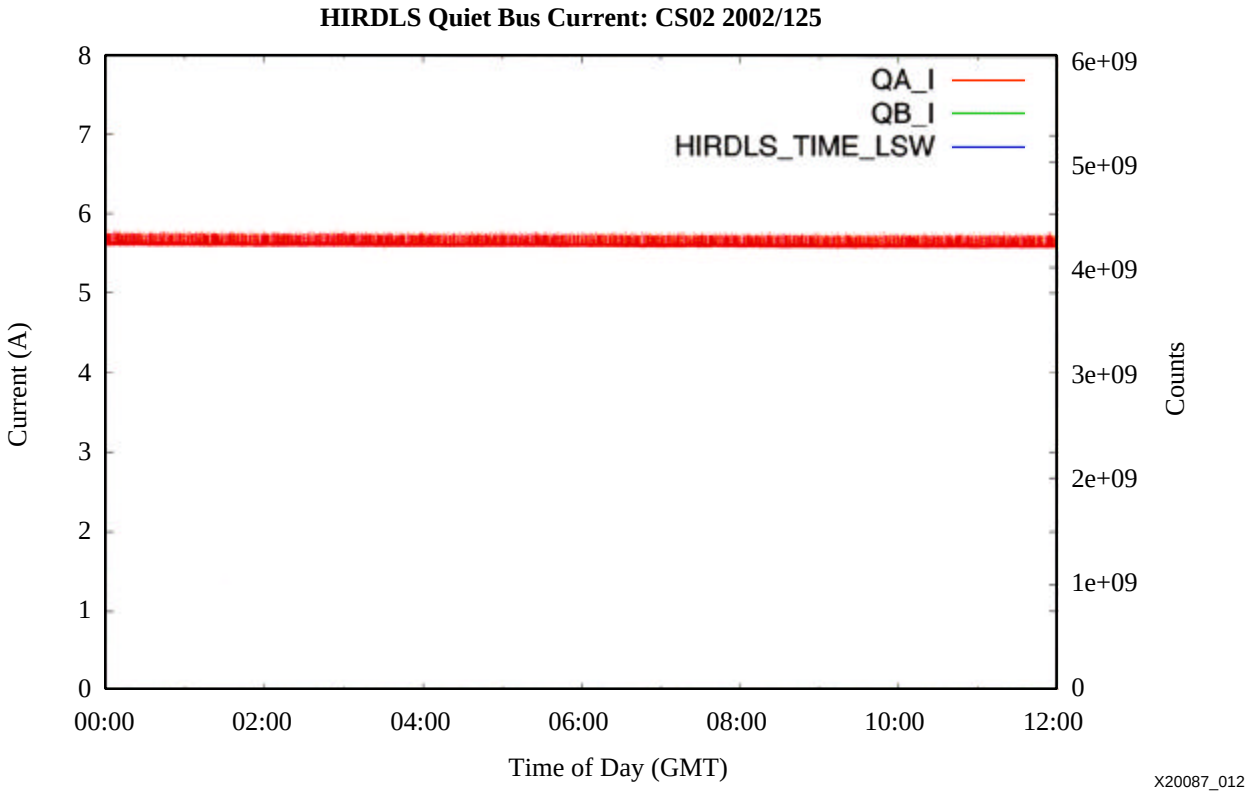

Figure 2-3 Archive Integrity and Quiet Bus Current

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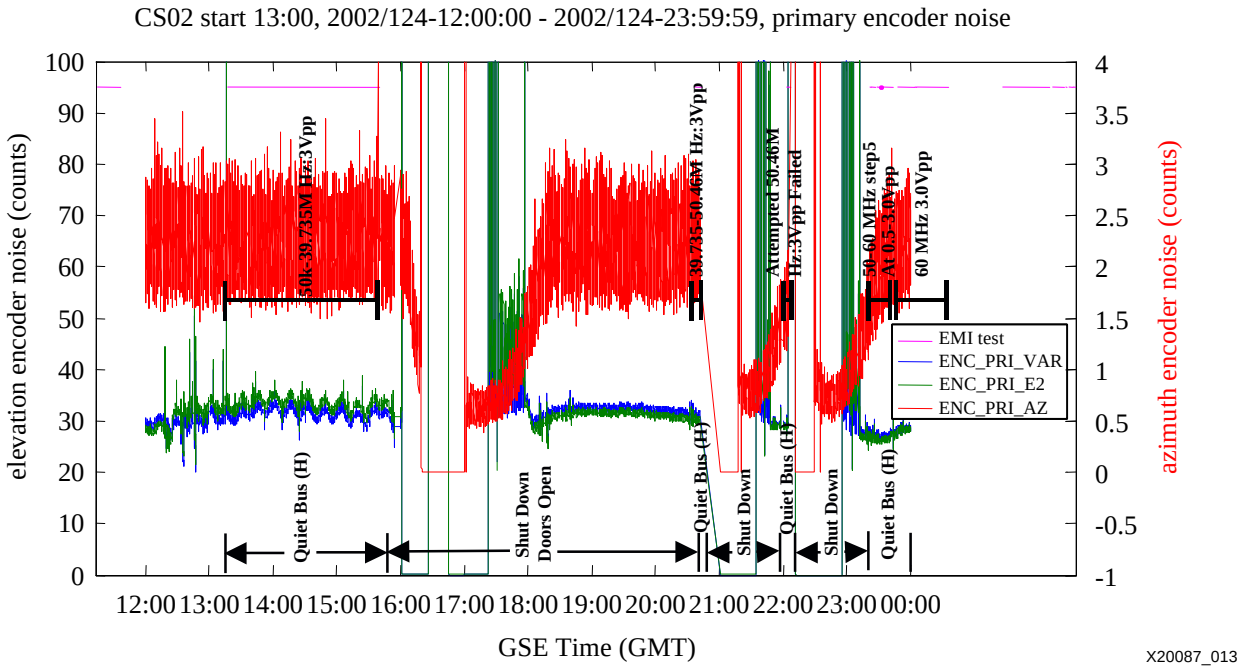

Figure 2-4 Noise: Primary Encoders

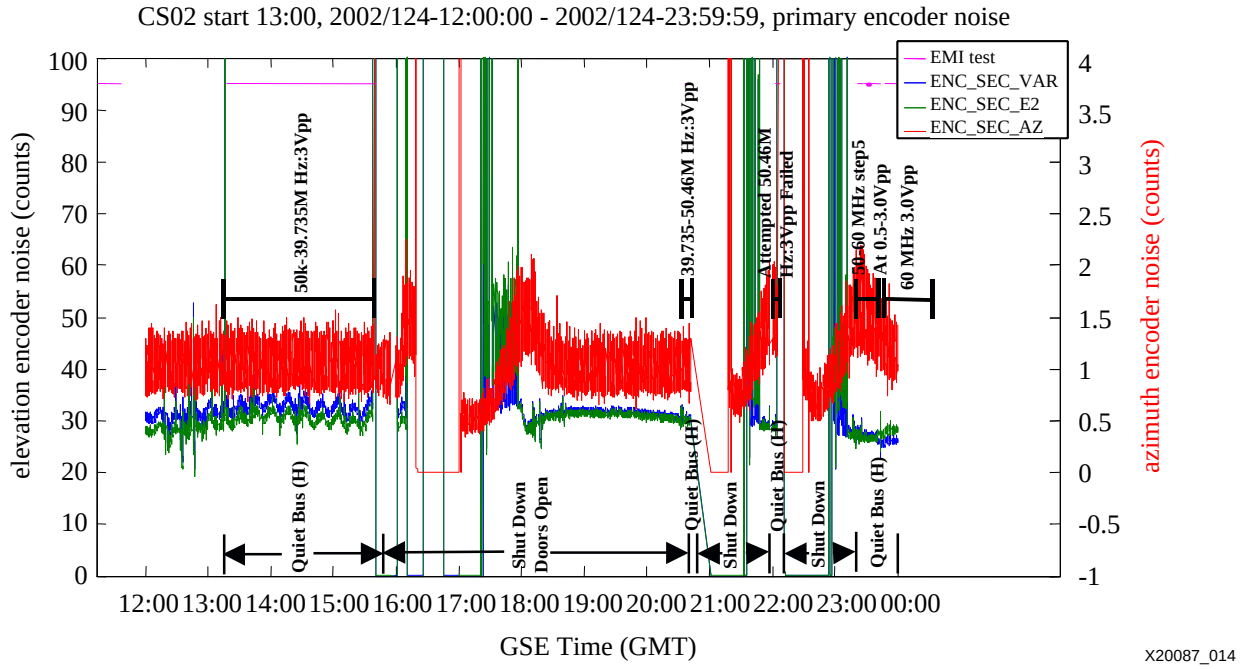

Figure 2-5 Noise: Secondary Encoders

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At 16:20, the Gyro failed to heat to spin temperature. This resulted in DR# AD6491, see **Figure 2-6**. On 5/5/02, the radiance measurements showed high noise, see **Figure 2-7**. In addition, at 02:39 CALMIR-TMPI showed temperature spikes, see **Figure 2-8**.

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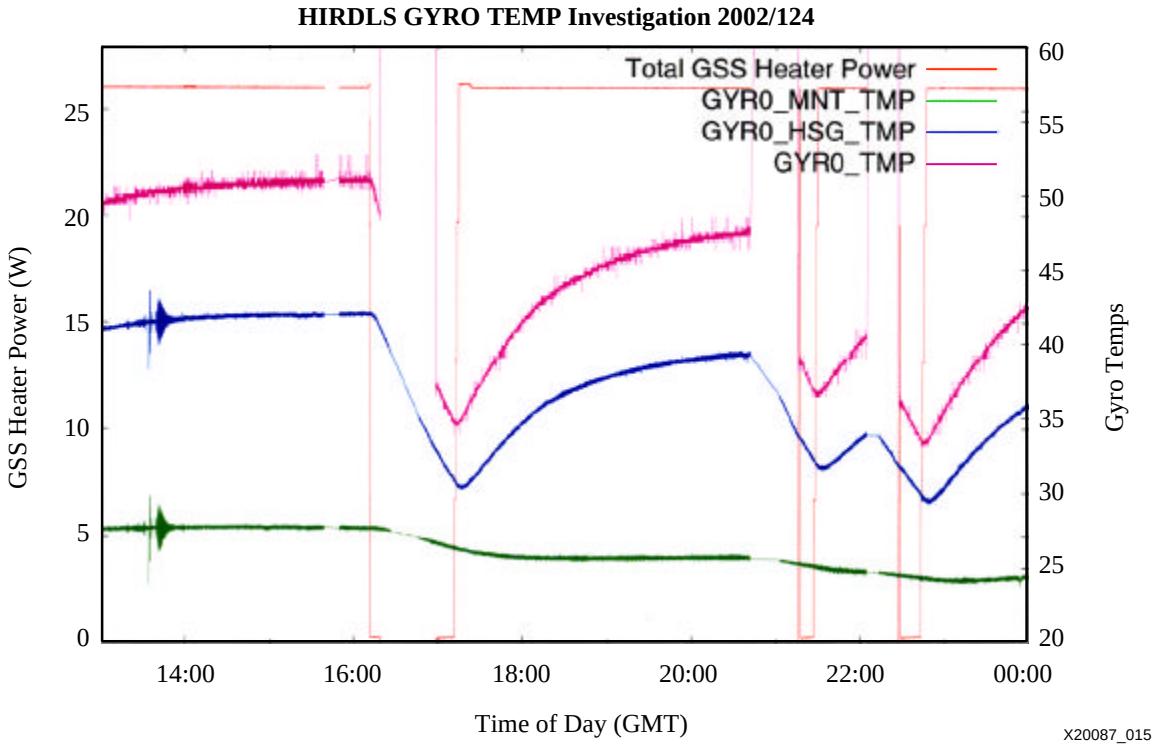

Figure 2-6 Gyro Failure to Heat to Spin Temperature Day 2002/124 (DR# AD6491)

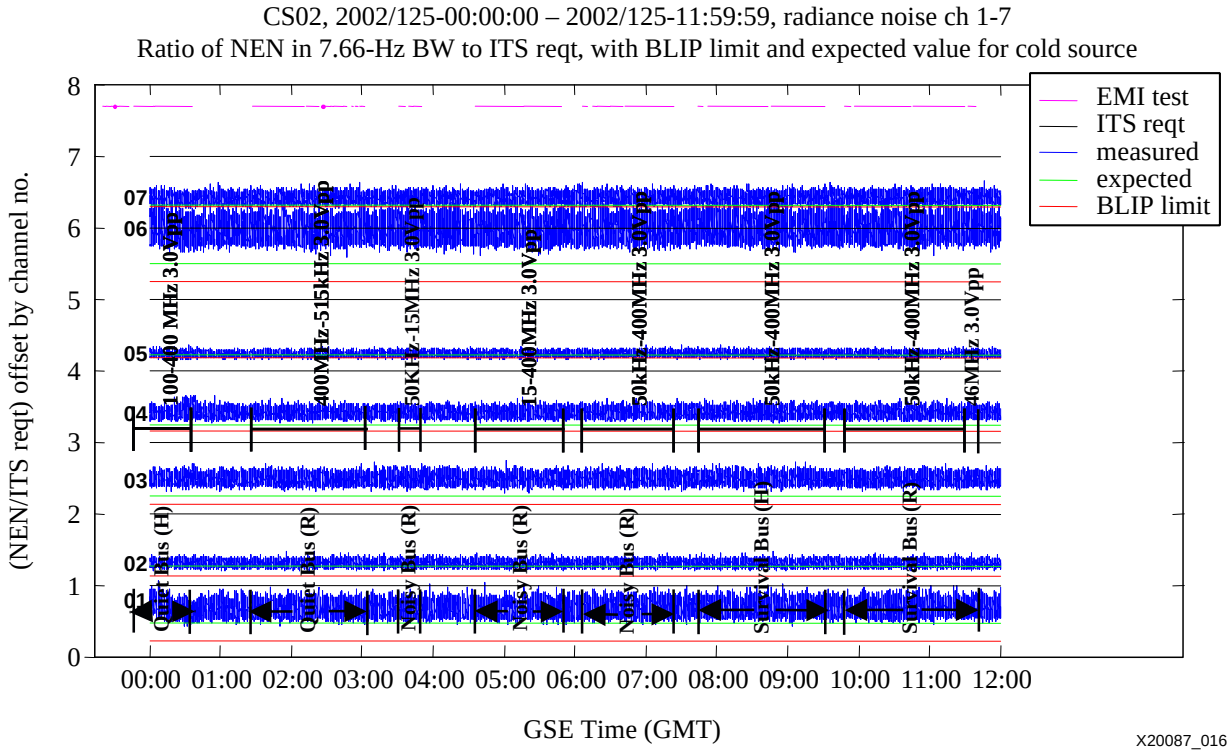

Figure 2-7 Noise: Radiance Channels 1-7

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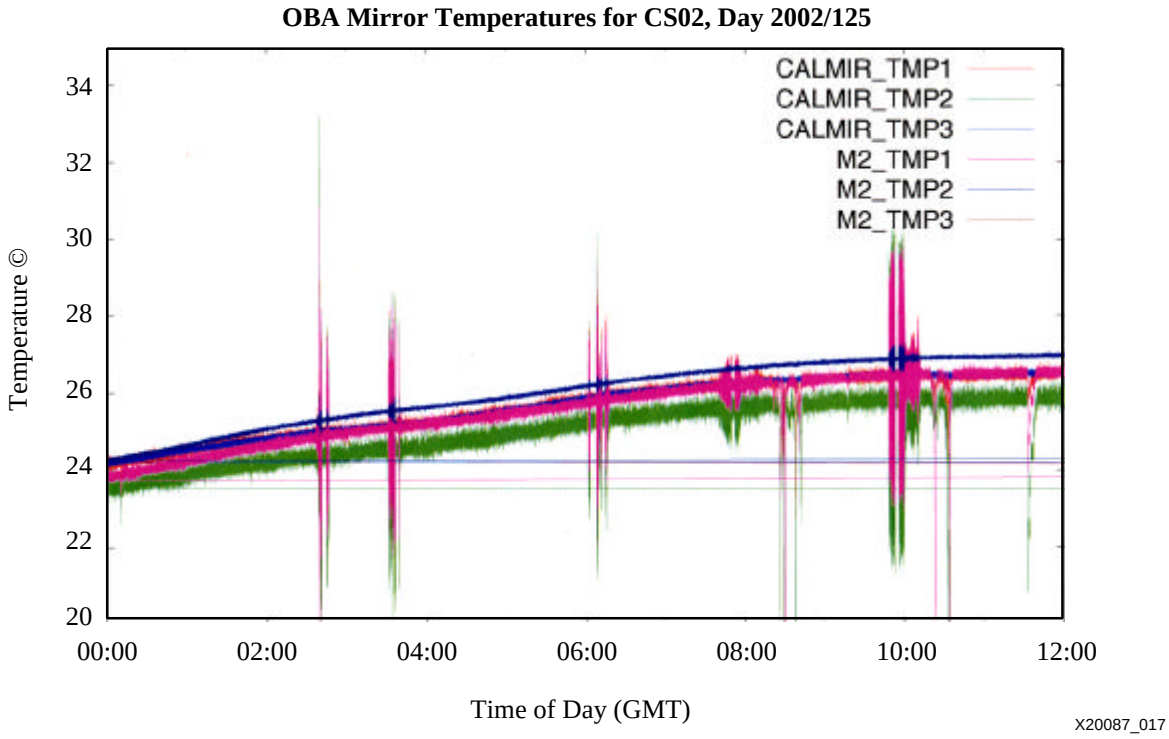

Figure 2-8 CS02 OBA Temperatures Set: 3 Day: 2002/125

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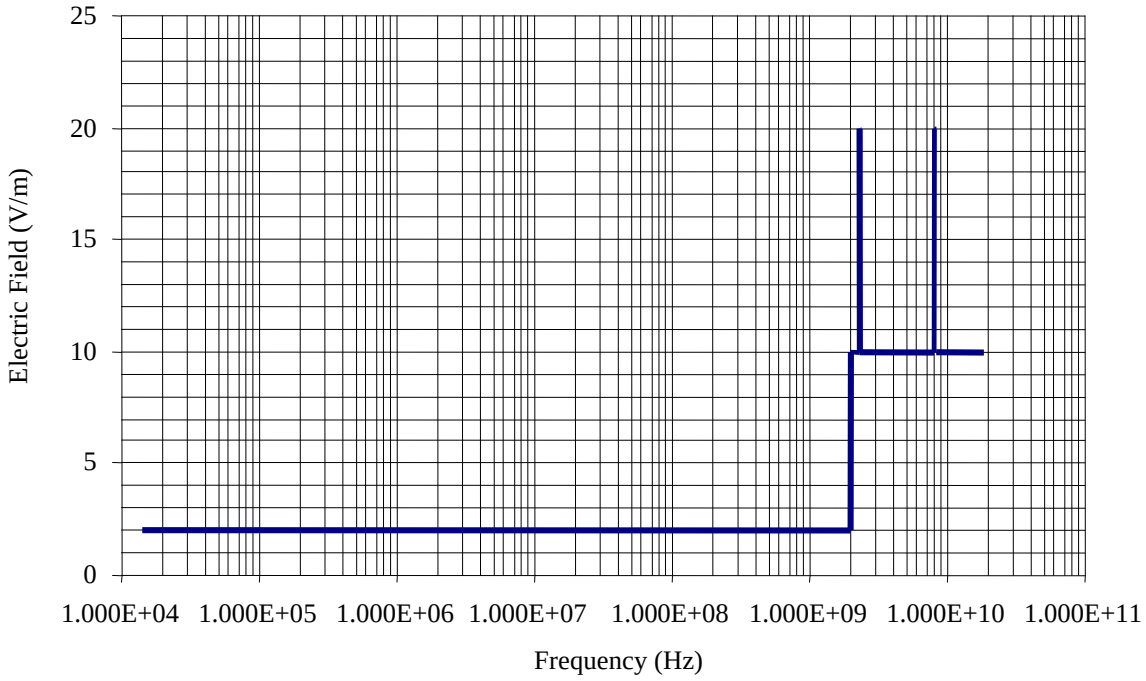
SECTION 3

RS03 TEST TIMELINE
30 April 2002
2002/120-19:00 Through 2002/123-01:35

Date	Day	Time (GMT)	Comments
4/30/02	120	19:01	Start sweep @ 14 KHz, Vert. Pol.
4/30/02	120	20:25	Temperature data glitches noted
5/01/02	121	13:32	Telemetry data dropout @ 1551 MHz
5/02/02	122	02:40	Cal Mirror temperatures drop/telemetry glitches
5/03/02	123	01:35	Stop sweep @ 8 GHz, test terminated

The requirements for RS03 (GIRD 10.11.8) are shown in **Figure 3-1**.

Test results: The test setup for RS03 is depicted in **Figure 3-2**.



Frequency	Electric Field (V/m)	Modulation
14.0KHz	2	50% AM @ 1KHz
2.0GHz	10	50% AM @ 1KHz
2.2855GHz	20	50% AM @ 1KHz
2.2895GHz	20	50% AM @ 1KHz
8.06GHz	20	50% AM @ 1KHz
8.26GHz	20	50% AM @ 1KHz
18.0GHz	10	50% AM @ 1KHz

X20087_018

Figure 3-1 RS03 Electric Field Radiated Susceptibility Test Limit

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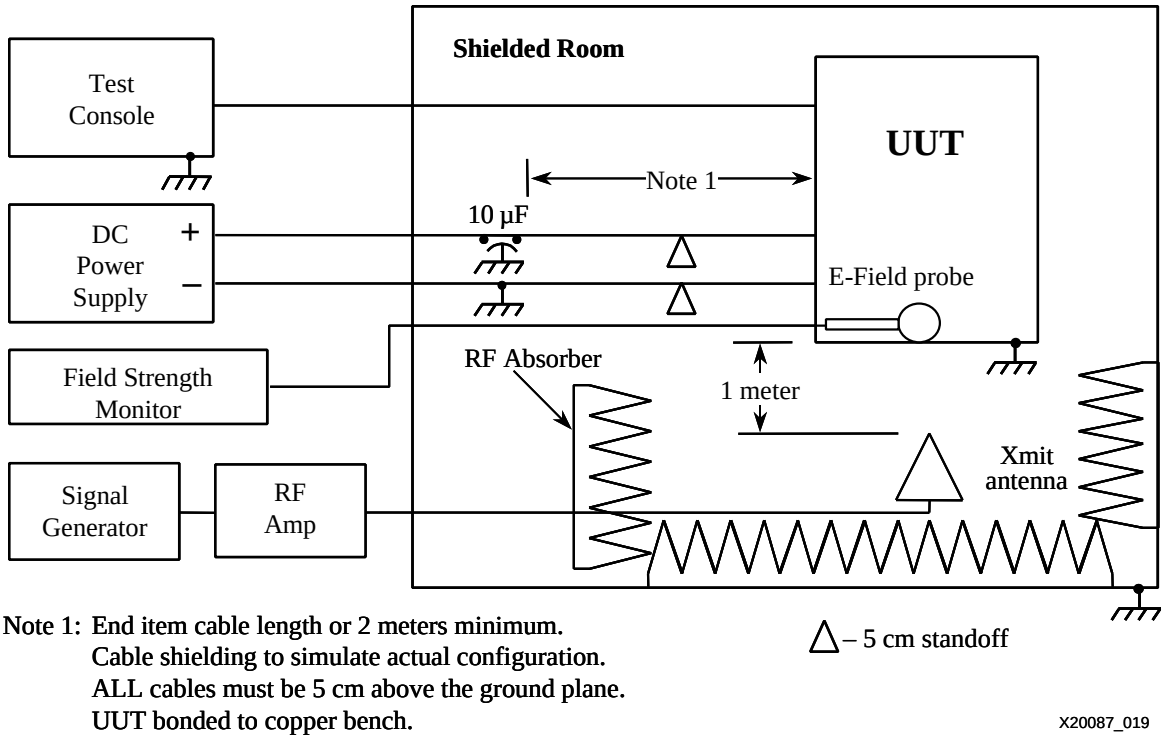

Note 1: End item cable length or 2 meters minimum.
Cable shielding to simulate actual configuration.
ALL cables must be 5 cm above the ground plane.
UUT bonded to copper bench.

Figure 3-2 RS03 Electric Field Radiated Susceptibility Test Setup

RS03 was started on 2002/120 on "A" side at 19:01 and ended on 2002/123 at 01:35 (see **Figures 3-3** and **3-4**). At 20:25, glitches in the temperature data were noted through 23:11 (see **Figure 3-5**). At 13:32 (day 121), there was a telemetry data dropout. On day 122 at 02:40, the Cal Mirror temperatures dropped for a short period of time (see **Figure 3-6**). This dropout can also be seen in the data of **Figures 3-7** and **3-8** at 48.75 MHz.

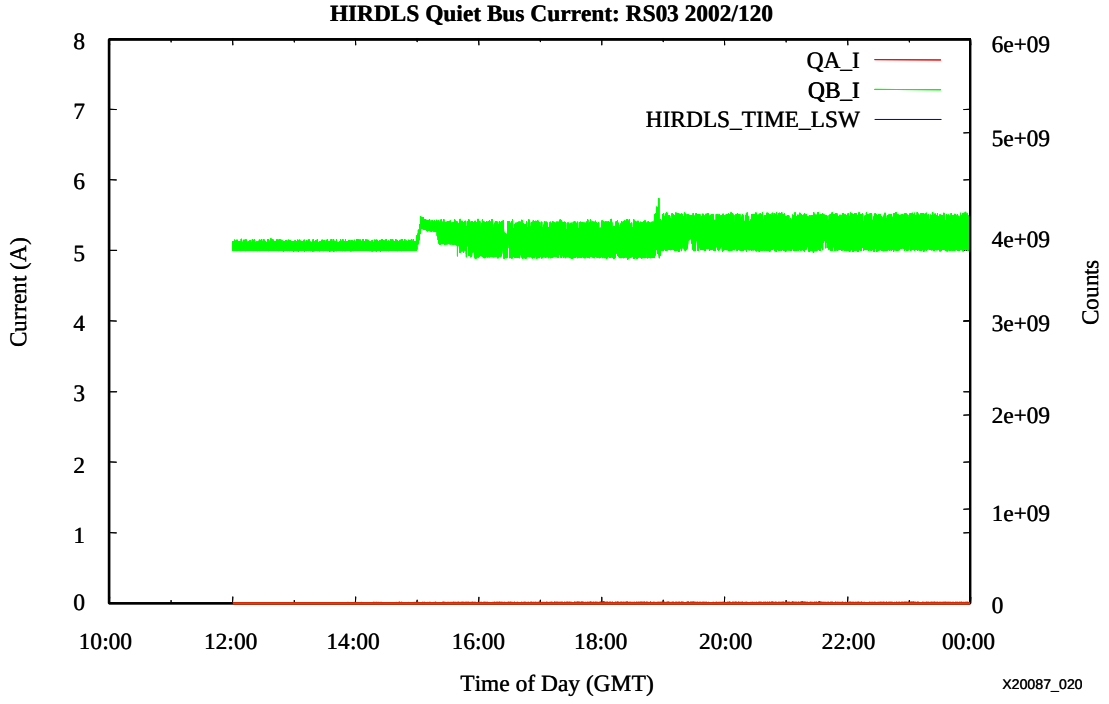

Figure 3-3 Archive Integrity & Quiet Bus Current: Day 120

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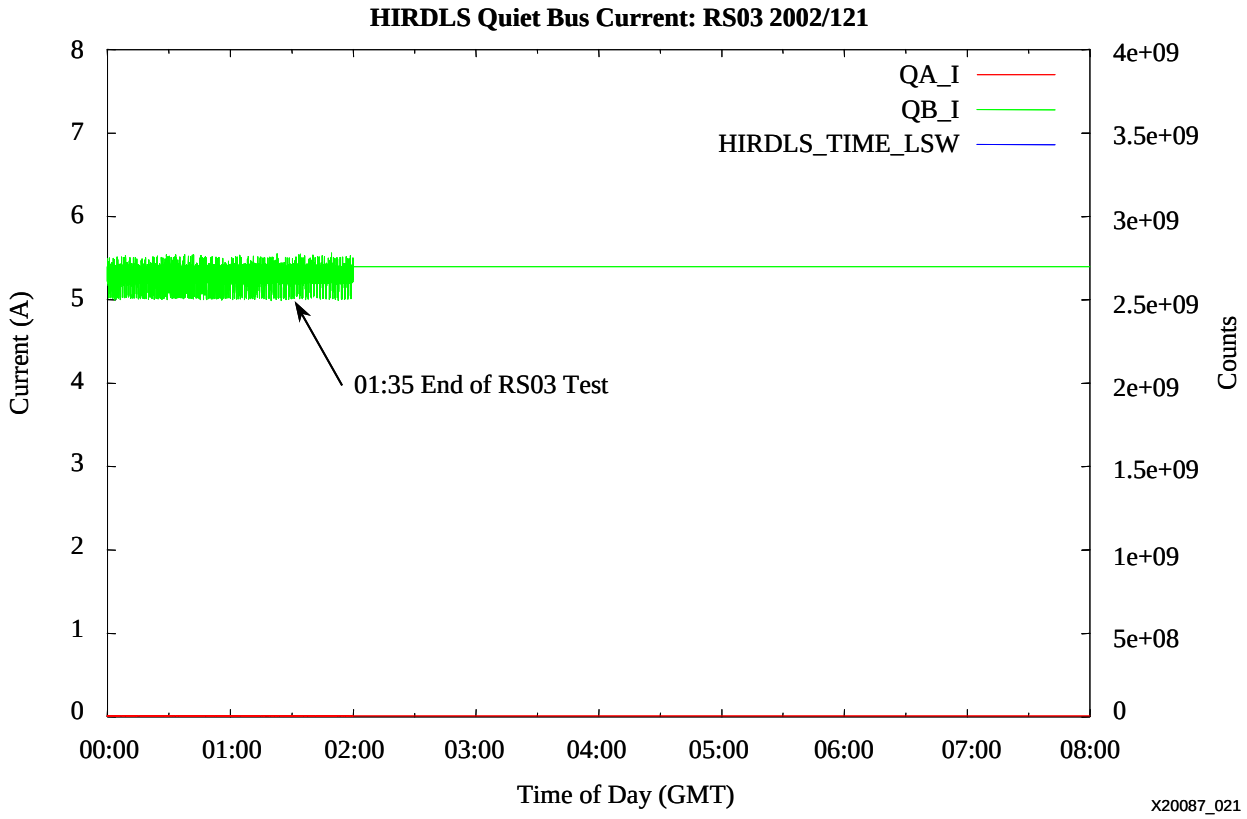

Figure 3-4 Archive Integrity & Quiet Bus Current: Day 123

Figure 3-5 shows spikes starting at 20:25 GMT in blue that spike down from 28.5º to 24.25º, at 21:00 GMT in blue the spike down from 28.5º to 22.0º, at 21:20 GMT in blue the spike down from 28.5º to 24.75º, at 23:15 GMT in blue the spike down from 28.5º to below 20.0º and off the chart.

Anomalies noted on Figure 3-6, 3-7, 3-8:

Figure 3-6 at 01:20 GMT, CALMIR_TMP2 in red shows temperature spikes from 25.9º down to 21.5º. SPVUMIR_TMP1 in blue show, temperature spikes from 26.3º down to 25.1º.

Figure 3-6 at 02:05 GMT, CALMIR_TMP2 in red shows temperature spikes from 25.9º down to 22.2º. SPVUMIR_TMP1 in blue show, temperature spikes from 26.4º down to 24.8º. CHOP_HSG_TMP2, in green show, temperature spikes from 28.5º down to 25.8º. The anomalies took place at 45.75 MHz

Figure 3-6 at 02:45 GMT, CALMIR_TMP2 in red shows temperature spikes from 25.9º down to 24.3º. SPVUMIR_TMP1 in blue show, temperature spikes from 26.4º down to 24.8º.

Figure 3-6 at 03:15 GMT, CALMIR_TMP2 in red shows temperature spikes from 25.9º down to 24.5º

CDR's AD 7313 and AD 7366 were written to cover the anomalies listed.

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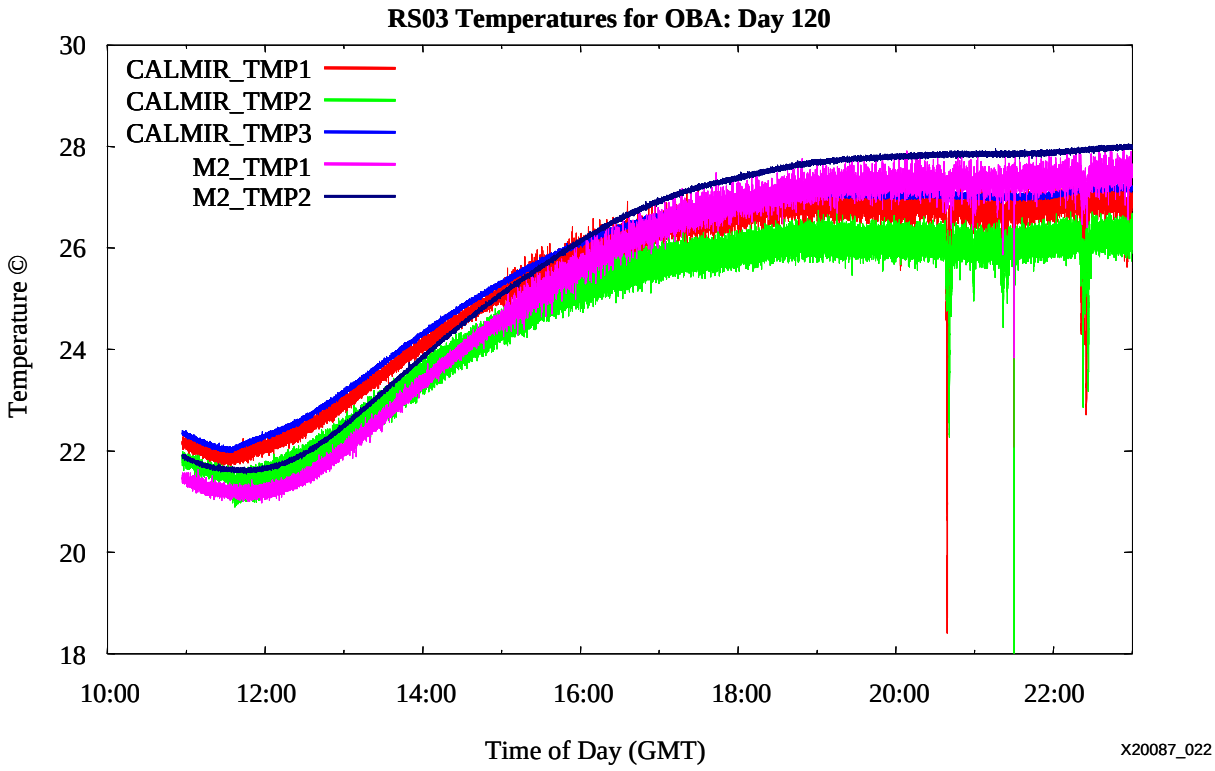

Figure 3-5 OBA Temp Sensors: Day 120

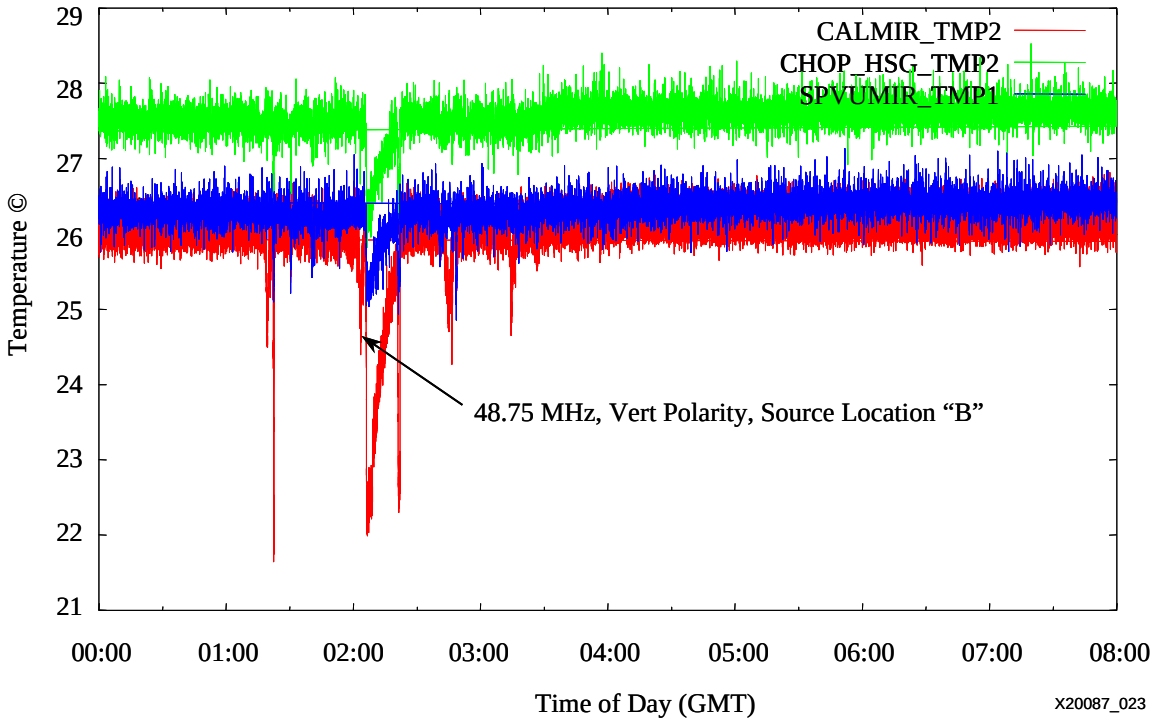

Figure 3-6 OBA Temps: Day 122-1 Cal Mirror, Space View Mirror, and Chopper Housing

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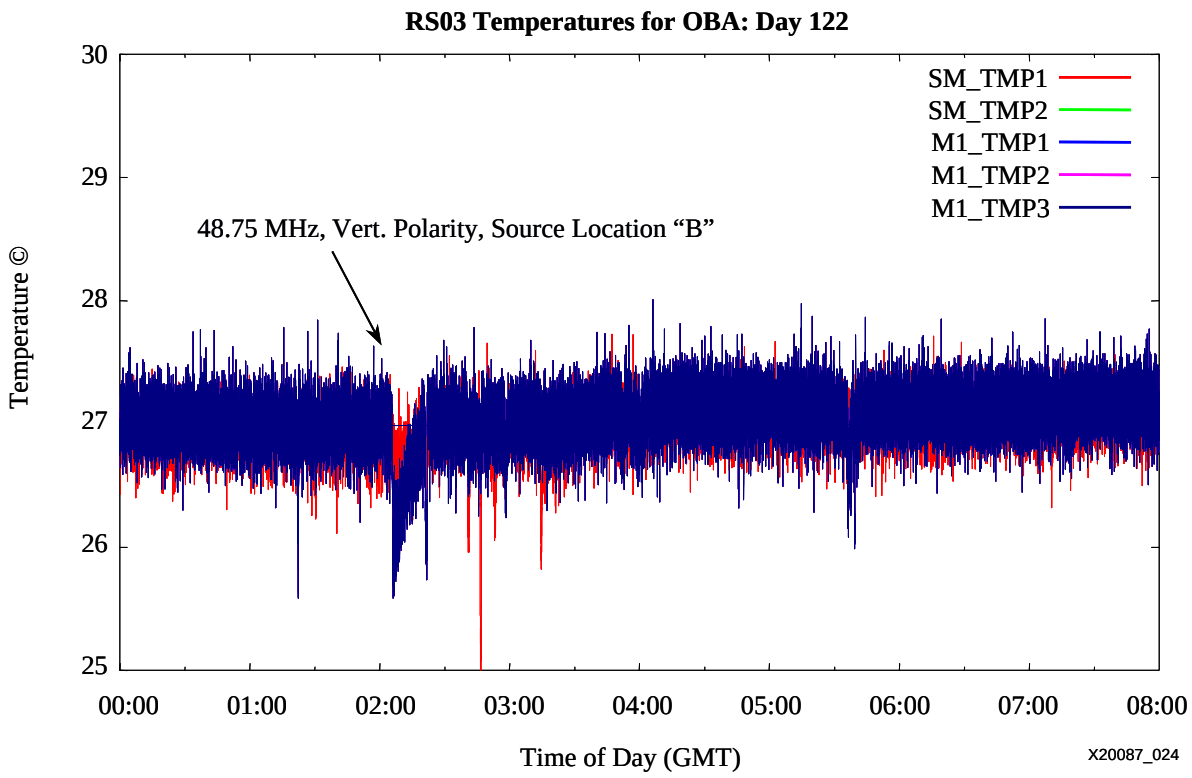

Figure 3-7 OBA Temps: Day 122-1 Scan Mirror and M1

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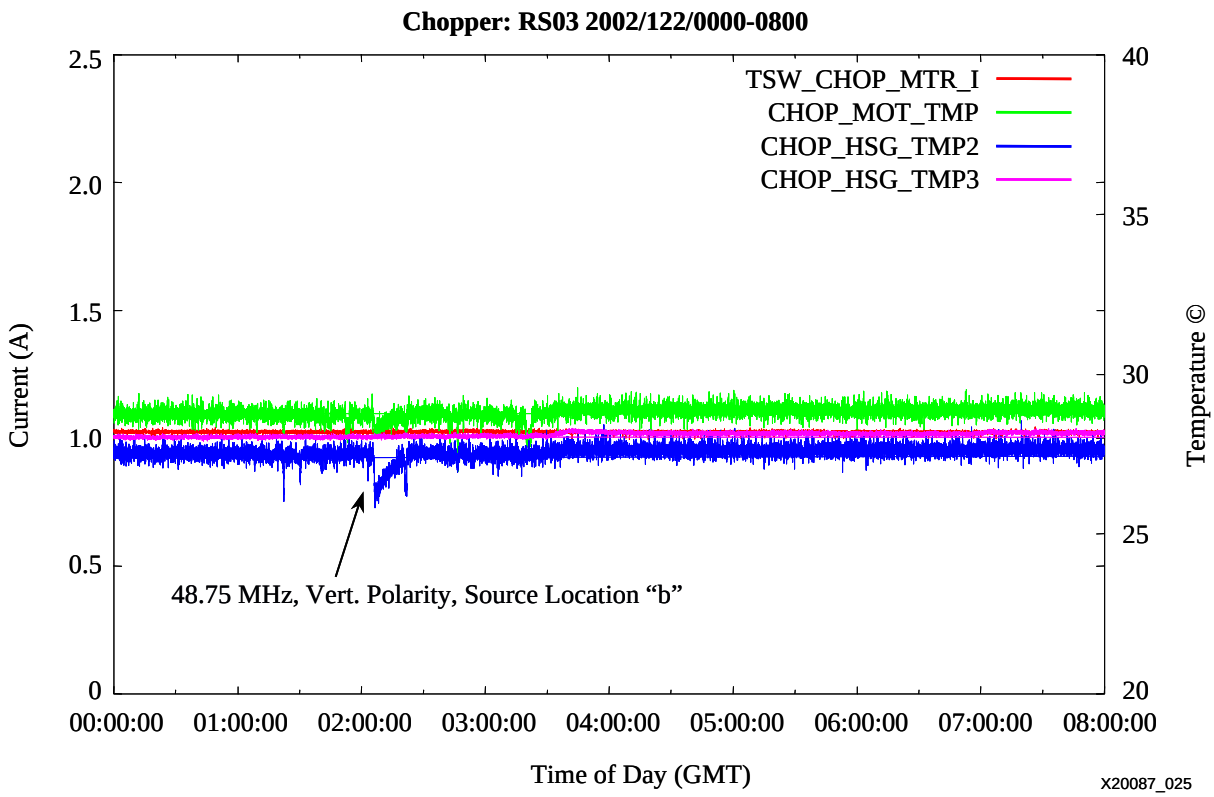

Figure 3-8 Chopper: Day 122/0000-0800

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SECTION 4

RS01 TEST TIMELINE
02 May 2002
2002/123-03:16 Through 2002/123-12:02

Date	Day	Time (GMT)	Comments
5/3/02	123	03:16	Start sweep @ 200 KHz
5/3/02	123	05:56	Stop sweep @ 200 KHz, DR-AD6471
5/3/02	123	07:51	Stop sweep @ 200 KHz, Test finished

The requirements for RS01 (GIRD 10.11.7.1) is shown in **Figure 4-1**.

Test results: The test setup for RS01 is depicted in **Figure 4-2**. RS01 was started on side "A" (+y) on 2002/123 at 03:16 and ended at 07:51; see **Figures 4-3** and **4-4**. Throughout the test encoder spikes were encountered; see **Figure 4-5**. At 05:56, the focal plane temperature dropped and the DR#AD6471 was initiated.

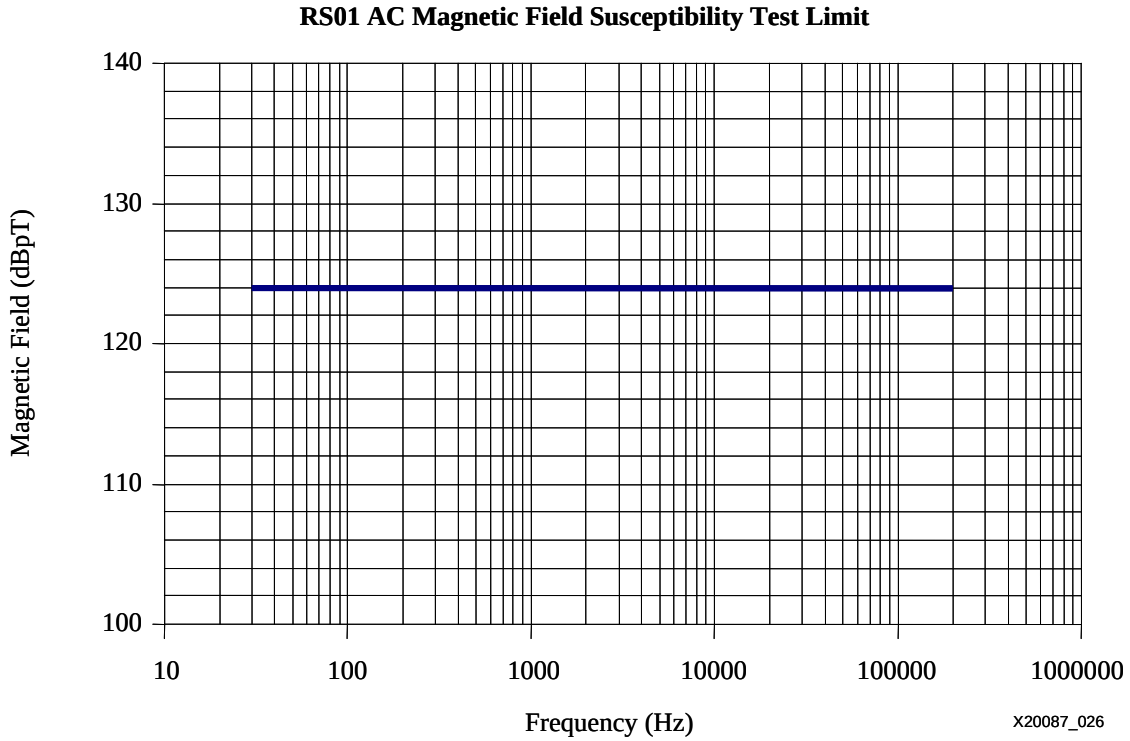

Figure 4-1 RS01 AC Magnetic Field Radiated Susceptibility Test Limit

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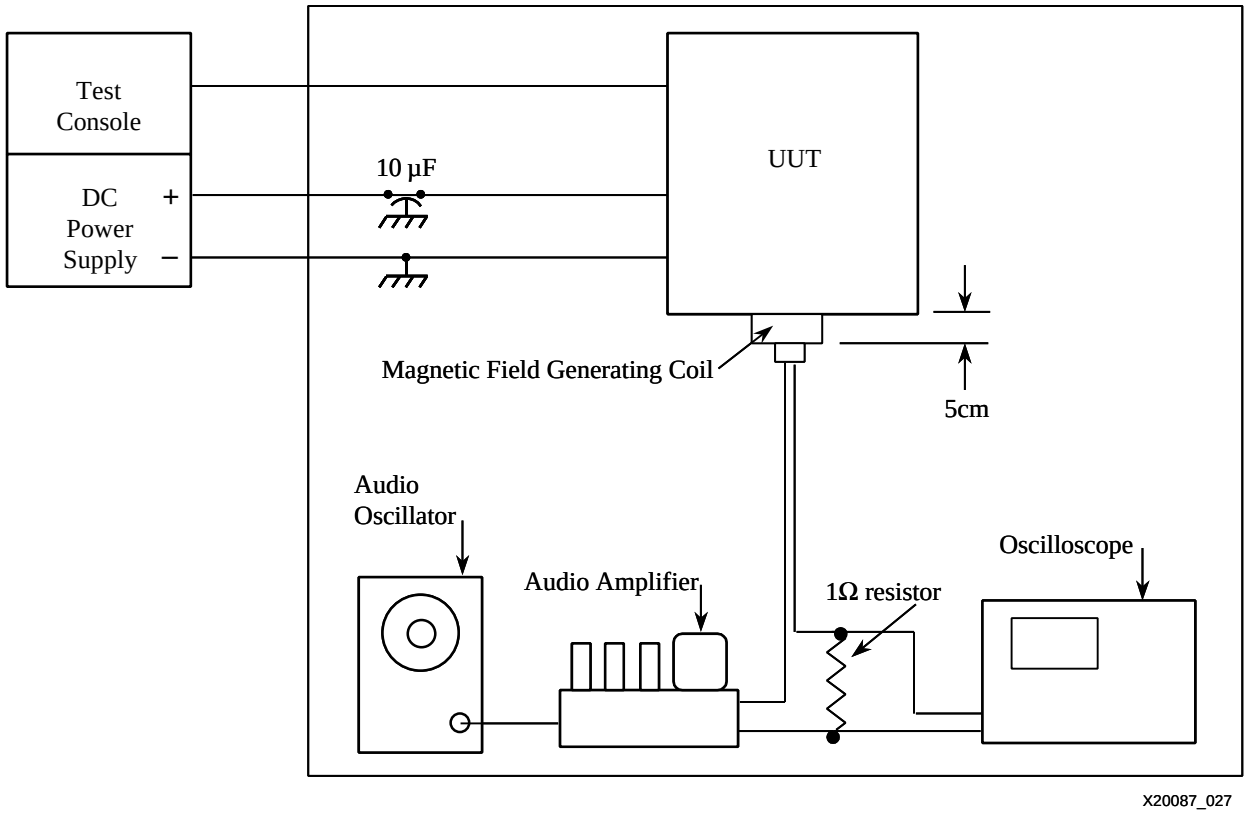

Figure 4-2 RS01 Radiated AC Magnetic Field Susceptibility Test Setup

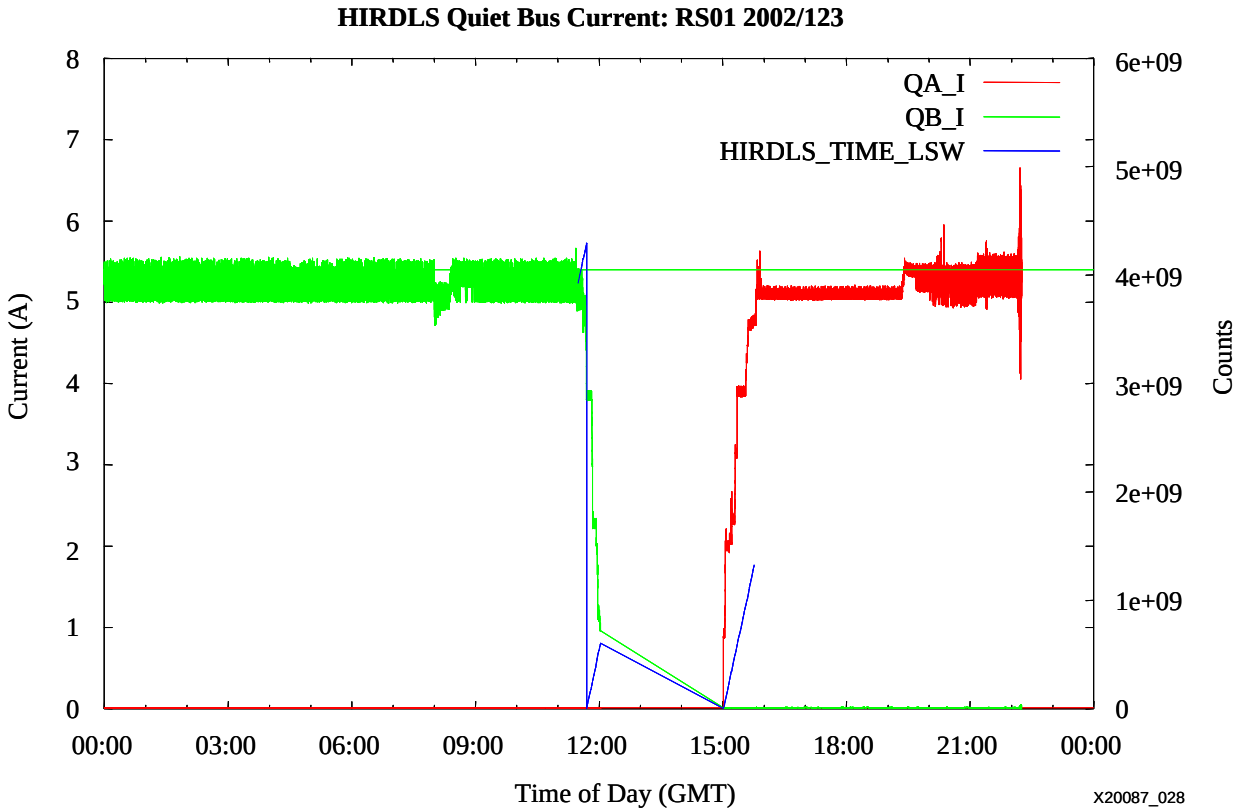

Figure 4-3 Archive Integrity and Quiet Bus Current: Day 123 (1)

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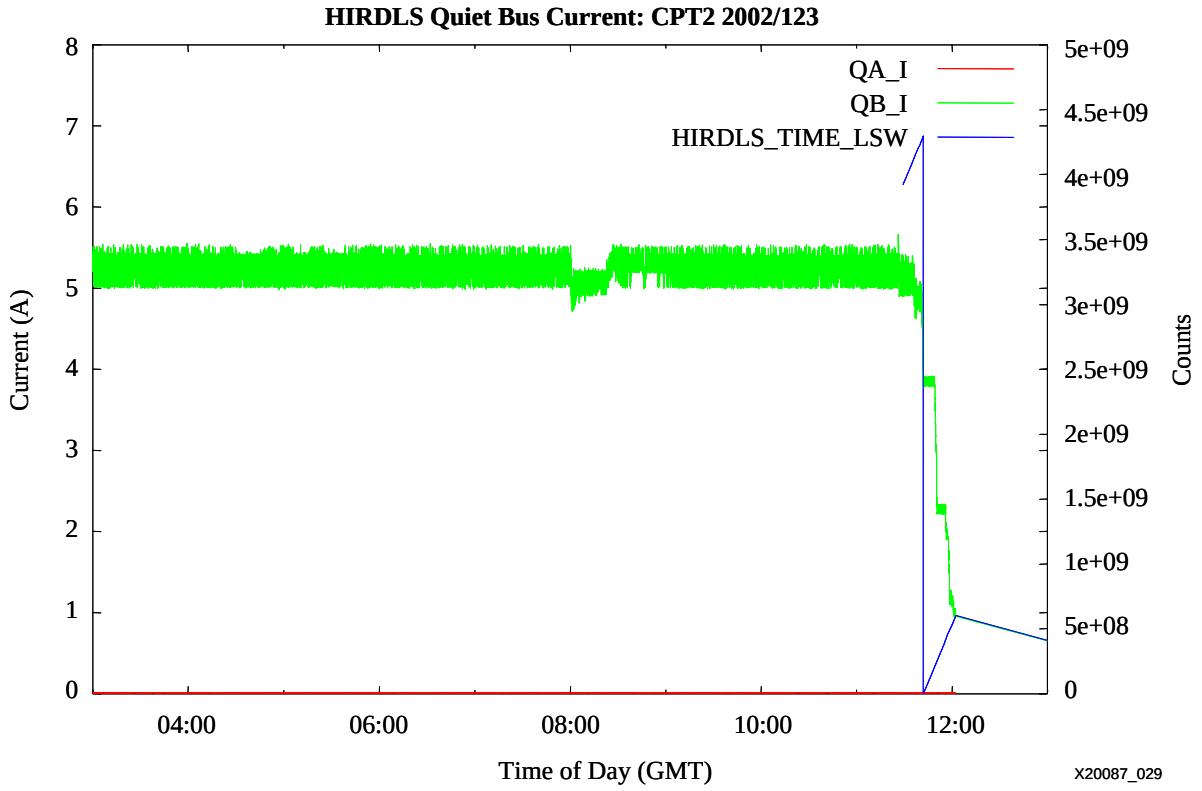

Figure 4-4 Archive Integrity and Quiet Bus Current: Day 123 (2)

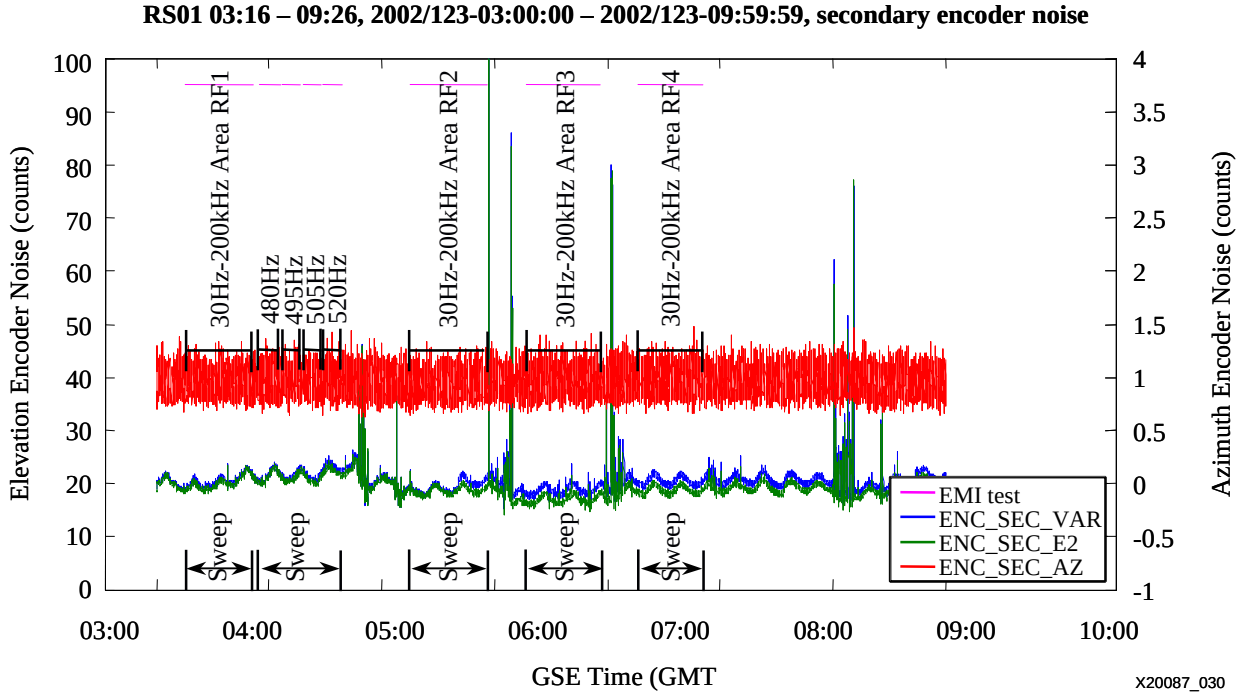

Figure 4-5 Day 123: Gyro 3 Warm and Spin-Up

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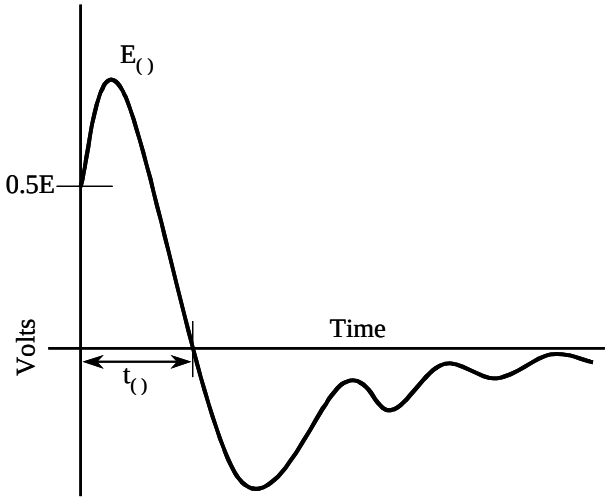
SECTION 5

CS06, CONDUCTED SUSCEPTIBILITY, SPIKE, POWER LEADS (GIRD 10.11.4)

Positive and negative spikes having a peak voltage equal to the steady state input power bus voltage and a pulse width of 10 micro-seconds shall be applied to each input power lead using the CS06 test method of MIL-STD-462. The wave shape of the spike is defined in **Figure 5-1**.

The spikes shall be applied for a duration of 5 minutes at a repetition rate of 60 pulses/sec. The component/instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification.



Note: The test sample shall be subjected to the spike(s) with the waveform shown and with the specified voltage(s) and pulsewidth(s)

X20087_031

Figure 5-1 CS06 Spike Waveshape

Test Procedure Set-Up:

CS06, Power Lead Spike Susceptibility Test (GIRD 10.11.4)

The requirement for this test is shown in the table below. The susceptibility signal will be injected between the Instrument input power lines. *Note: (+29V Power Line)+(+29V Spike Amplitude superimposed on top of power line) = +58V Peak Amplitude.*

Tests will be performed on the following:

	Test Point	Spike Amplitude	Pulse Width	Pulse Repetition Rate
PI-NB A&B PR-NB A&B	Primary power input lead (Noisy Bus A & B)	+29V peak superimposed on top of power line	10µ sec	60 pps For 5 Minutes Minimum
PI-NB A&B PR-NB	Primary power input lead (Noisy Bus A & B)	-29V peak superimposed on top of power line	10µ sec	60 pps For 5 Minutes Minimum

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	Test Point	Spike Amplitude	Pulse Width	Pulse Repetition Rate
A&B				
PI-SB A&B PR-SB A&B	Primary power input lead (Survival Bus A & B)	+29V peak superimposed on top of power line	10µ sec	60 pps For 5 Minutes Minimum
PI-SB A&B PR-SB A&B	Primary power input lead (Survival Bus A & B)	-29V peak superimposed on top of power line	10µ sec	60 pps For 5 Minutes Minimum
PI-QB A&B PR-QB A&B	Primary power input lead (Quiet Bus A & B)	+29V peak superimposed on top of power line	10µ sec	60 pps For 5 Minutes Minimum
PI-QB A&B PR-QB A&B	Primary power input lead (Quiet Bus A & B)	-29V peak superimposed on top of power line	10µ sec	60 pps For 5 Minutes Minimum

PI-QB-A	Primary power input lead (Quiet Bus A)	Cable PQA/connect together wire A,B,C
PR-QB-A	Primary power return lead (Quiet Bus A)	Cable PQA/connect together wire D,E,F
PI-QB-B	Primary power input lead (Quiet Bus B)	Cable PQB connect together wire A,B,C
PR-QB-B	Primary power return lead (Quiet Bus B)	Cable PQB/connect together wire D,E,F
PI-SB-A	Power Input lead (Survival Bus A)	Cable PSA/connect together wires A, B, C
PR-SB-A	Power Return lead (Survival Bus A)	Cable PSA/connect together wires D, E, F
PI-SB-B	Power Input lead (Survival Bus B)	Cable PSB/connect together wires A, B, C
PR-SB-B	Power Return lead (Survival Bus B)	Cable PSB/connect together wires D, E, F
PI-NB A	Primary power input lead (Noisy Bus A)	Cable PNA/connect together wires A,B,C
PR-NB A	Primary power return lead (Noisy Bus A)	Cable PNA/connect together wire D,E,F
PI-NB B	Primary power input lead (Noisy Bus B)	Cable PNB/connect together wire A,B,C
PR-NB B	Primary power return lead (Noisy Bus B)	Cable PNB/connect together wire D,E,F

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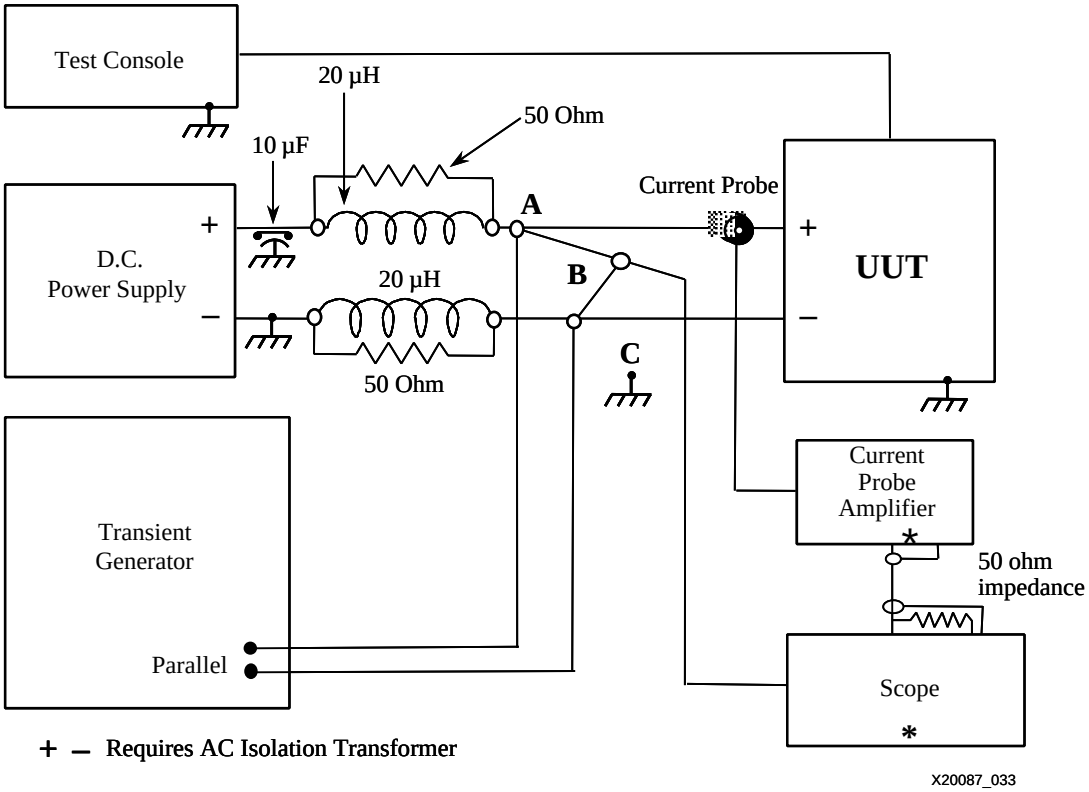

Figure 5-3 CS06 Power Lead Spike Susceptibility Test Setup

The test set-up is shown in **Figures 5-2** and **5-3**.

Test Start and Stop Times

Day	Test	Log	TimeGMT	Notes
125	CS06	ETOL	13:44:00	Start @ +29.0 V p Spikes, 10micro-Sec., P1-QB-A, (CS06)
125	CS06	ETOL	13:51:00	Stop @ +29.0 V p Spikes, 10micro-Sec., P1-QB-A, (CS06)
125	CS06	ETOL	14:31:00	Start @ -29.0 V p Spikes, 10micro-Sec., P1-QB-A, (CS06)

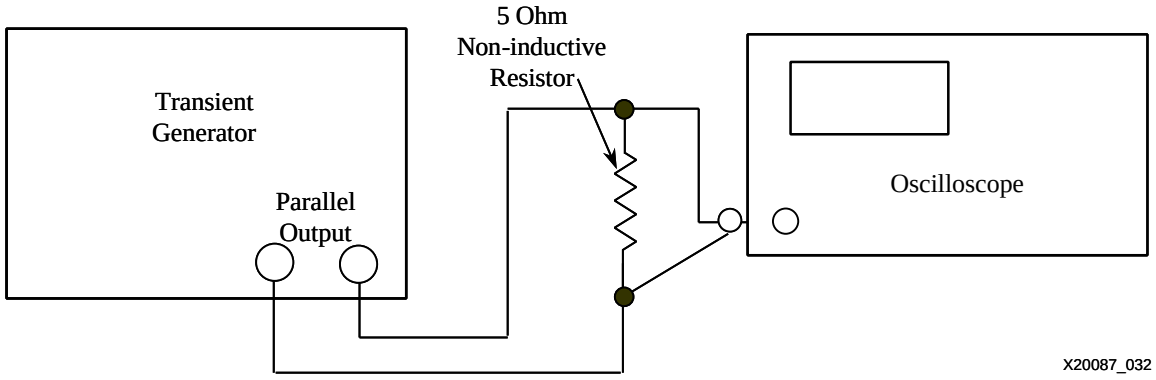

Figure 5-2 CS06 Power Lead Spike Susceptibility Test Calibration Setup

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Day	Test	Log	TimeGMT	Notes
125	CS06	ETOL	14:37:00	Stop @ -29.0 V p Spikes, 10micro-Sec., P1-QB-A, (CS06)
125	CS06	ETOL	14:58:00	Start @ -29.0 V p Spikes, 10micro-Sec., P1-NB-A, Fault, (CS06)
125	CS06	ETOL	15:03:00	Stop @ -29.0 V p Spikes, 10micro-Sec., P1-NB-A, Fault, (CS06)
125	CS06	ETOL	15:12:00	Start @ -9.0 V p Spikes, 10micro-Sec., P1-NB-A, Fault, (CS06)
125	CS06	ETOL	15:15:00	Stop @ -9.0 V p Spikes, 10micro-Sec., P1-NB-A, Fault, (CS06)
125	CS06	ETOL	15:25:00	Start @ +29.0 V p Spikes, 10micro-Sec., P1-NB-A, (CS06)
125	CS06	ETOL	15:30:00	Stop @ +29.0 V p Spikes, 10micro-Sec., P1-NB-A, (CS06)
125	CS06	ETOL	15:41:00	Start @ +29.0 V p Spikes, 10micro-Sec., P1-SB-A, Fault, glitch, (CS06)
125	CS06	ETOL	15:48:00	Stop @ +29.0 V p Spikes, 10micro-Sec., P1-SB-A, Fault, glitch, (CS06)
125	CS06	ETOL	15:53:00	Start @ +29.0 V p Spikes, 10micro-Sec., P1-SB-A, Repeat, Fault, glitch, (CS06)
125	CS06	ETOL	15:53:00	Stop @ +29.0 V p Spikes, 10micro-Sec., P1-SB-A, Repeat, Fault, glitch, (CS06)
125	CS06	ETOL	15:55:00	Start @ +9.0 V p Spikes, 10micro-Sec., P1-SB-A, (CS06)
125	CS06	ETOL	15:57:00	Stop @ +9.0 V p Spikes, 10micro-Sec., P1-SB-A, (CS06)
125	CS06	ETOL	15:57:00	Start @ +15.0 V p Spikes, 10micro-Sec., P1-SB-A, (CS06)
125	CS06	ETOL	15:58:00	Stop @ +15.0 V p Spikes, 10micro-Sec., P1-SB-A, (CS06)
125	CS06	ETOL	16:13:00	Start @ +20.0 V p Spikes, 10micro-Sec., P1-SB-A, (CS06)
125	CS06	ETOL	16:13:00	Stop @ +20.0 V p Spikes, 10micro-Sec., P1-SB-A, (CS06)
125	CS06	ETOL	16:13:00	Start @ -10.0 V p Spikes, 10micro-Sec., P1-SB-A, (CS06)
125	CS06	ETOL	16:14:00	Stop @ -10.0 V p Spikes, 10micro-Sec., P1-SB-A, (CS06)
125	CS06	ETOL	16:14:00	Start @ -15.0 V p Spikes, 10micro-Sec., P1-SB-A, (CS06)
125	CS06	ETOL	16:16:00	Stop @ -15.0 V p Spikes, 10micro-Sec., P1-SB-A, (CS06)
125	CS06	ETOL	16:16:00	Start @ -19.2 V p Spikes, 10micro-Sec., P1-SB-A, (CS06)

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Day	Test	Log	TimeGMT	Notes
125	CS06	ETOL	16:38:00	Stop @ -10.2 V p Spikes, 10micro-Sec., P1-SB-A, (CS06)

Archive Integrity & Quiet Bus Current

The Quiet Bus Input current shows little disturbance caused by the +29.0 volt spikes applied to the positive power lead of the input bus. Test started at 13:44:00 and stopped at 13:51:00. (See **Figure 5-4**.)

A small spike was noted at about 13:70, no test in progress at this time to cause current dip of 0.1 ampere.

The –29 volt spikes applied to the positive power lead of the input bus caused current to drop about 0.1 ampere, back to normal, rise 0.1 ampere, then slope down to normal and drop about 0.1 ampere below normal for the remainder of the test. At the conclusion of the test, the test signal of –29.0 volt spikes was removed the went back to normal. The test started at 14:31:00 and stopped at 14:37:00.

CS06 CSS Temps: 2002/125

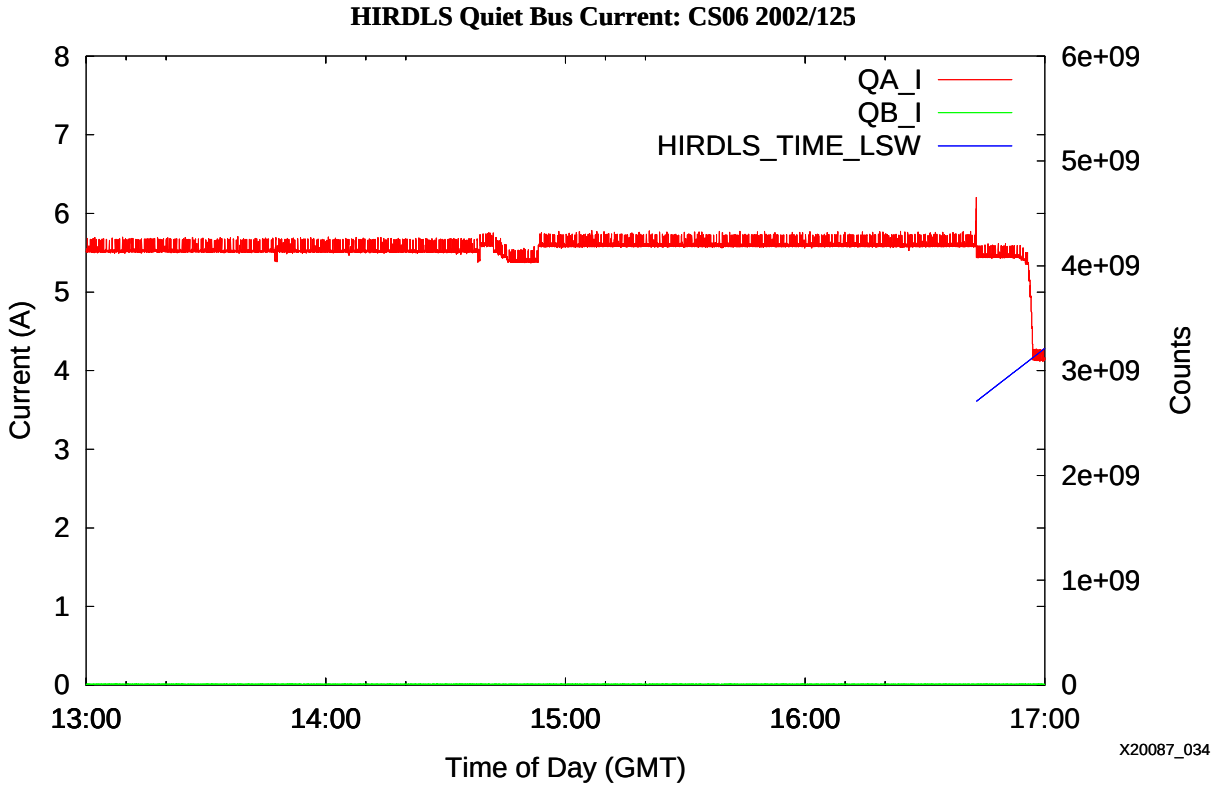

Figure 5-4

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The cryogenic temperature as shown in **Figure 5-5**, shows very little temperature variance over the time of testing. The plots show about a 0.1°C off of normal.

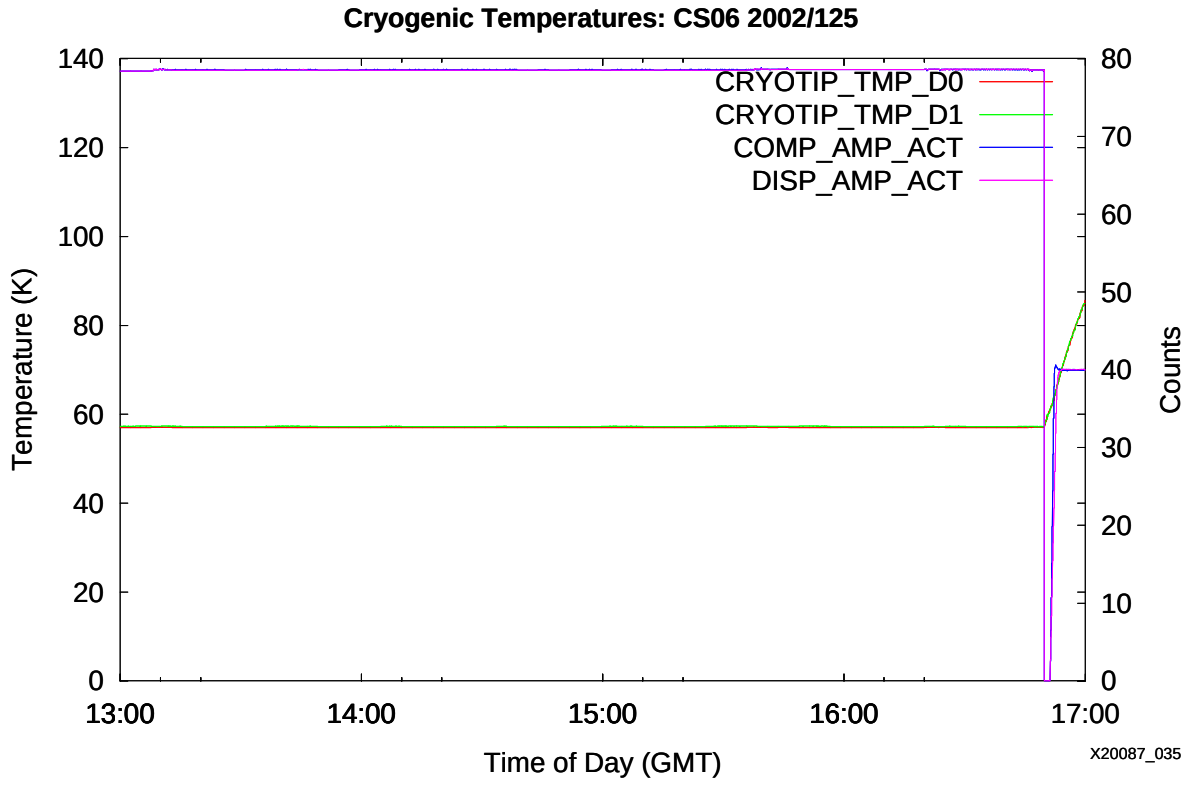

Figure 5-5

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CS06 Chopper Temps: 2002/125

The Chopper motor TMP, chopper housing TMP2 and TMP3 show susceptibility to injected signal. The set at 13:44:00 to 13:51:00 are for +29.0 volt spikes on the Quiet Bus. (See **Figure 5-6**.)

The set at 14:31:00 to 14:37:00 are for –29 volt spikes on the quiet bus.

The set at 14:58:00 to 15:03:00 are for –29 volt spikes on the noisy bus.

The set at 15:12:00 to 15:15:00 are for +9 volt spikes on the noisy bus.

The set at 15:25:00 to 15:30:00 are for +29 volt spikes on the noisy bus.

The set at 15:41:00 to 15:48:00 are for +29 volt spikes on the Survival bus.

Note that the CHOP_HSG_TMP2 shows spikes of about +3.0°C to –1.5°C off of normal when the susceptibility signal is injected into the power leads.

The CHOP_MOT_TMP1 shows spikes of about +2.0°C to –2.0°C off of normal when the susceptibility signal is injected into the power leads.

The CHOP_HSG_TMP3 shows spikes of about +0.2°C to –1.0°C off of normal when the susceptibility signal is injected into the power leads.

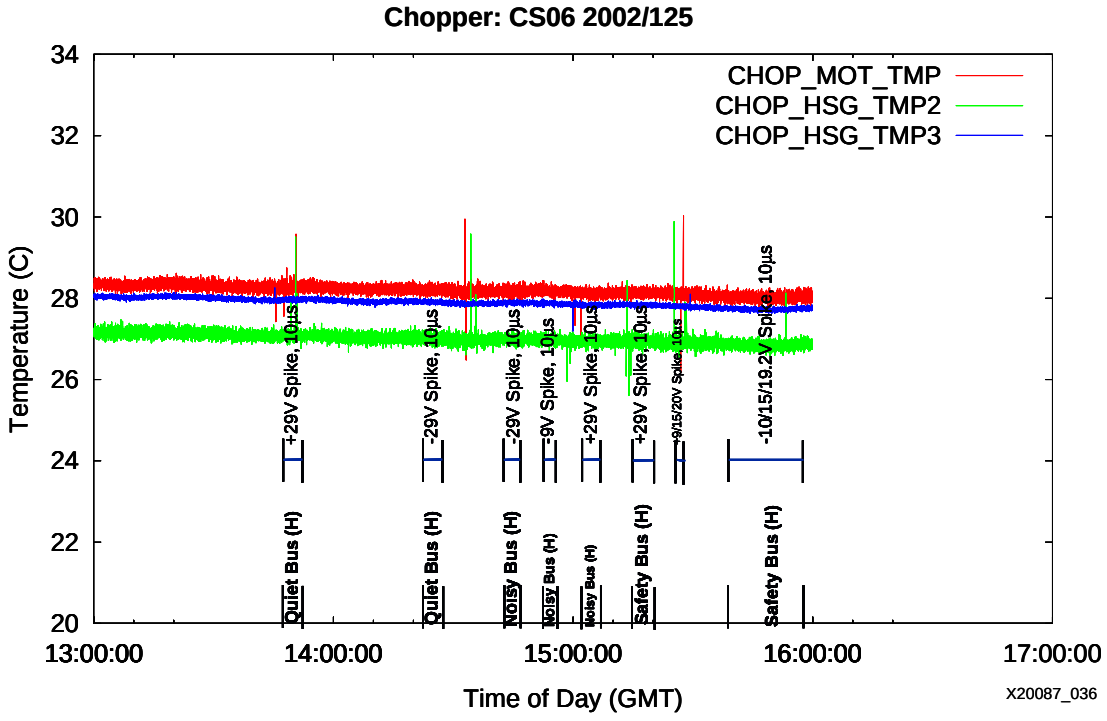

Figure 5-6

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Check Time Sequence

The temperature plot shows noise on the temperature signals with spikes that are greater then noise levels during the test cycle. (See **Figures 5-7** and **5-8**.)

There are a number of noise spikes that are 20°C and higher that fall outside the test area, they are random temperature noise and are not caused by CS06 testing. The noise spikes may be induced by other operating circuits near the sensor. ENC_PRI_VAR, ENC_PRI_E2

There is some small amount of noise and spiking during the CS06 testing.

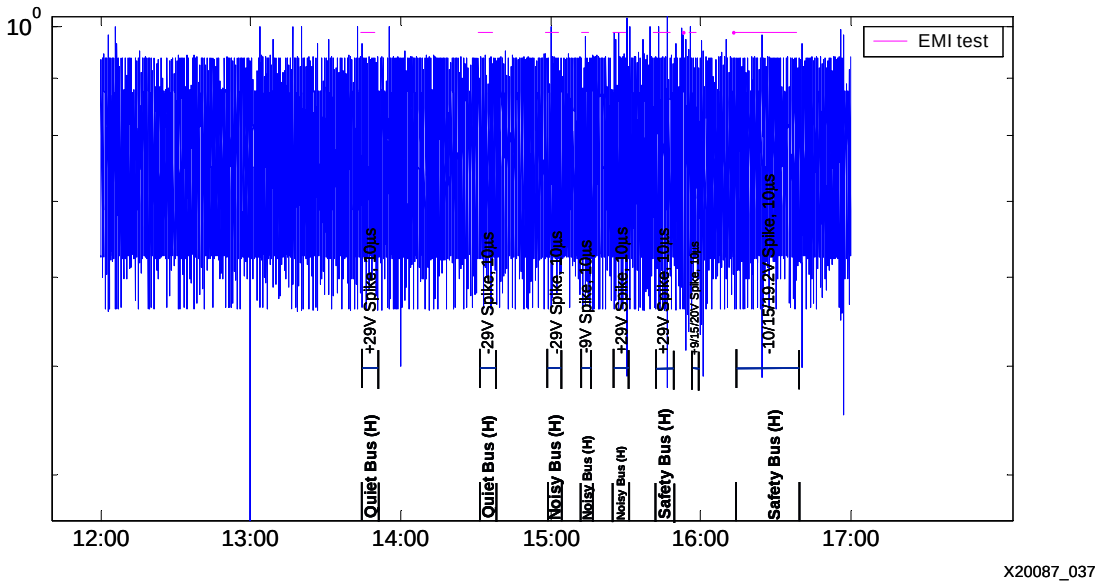

Figure 5-7

Noise: Primary Encoders

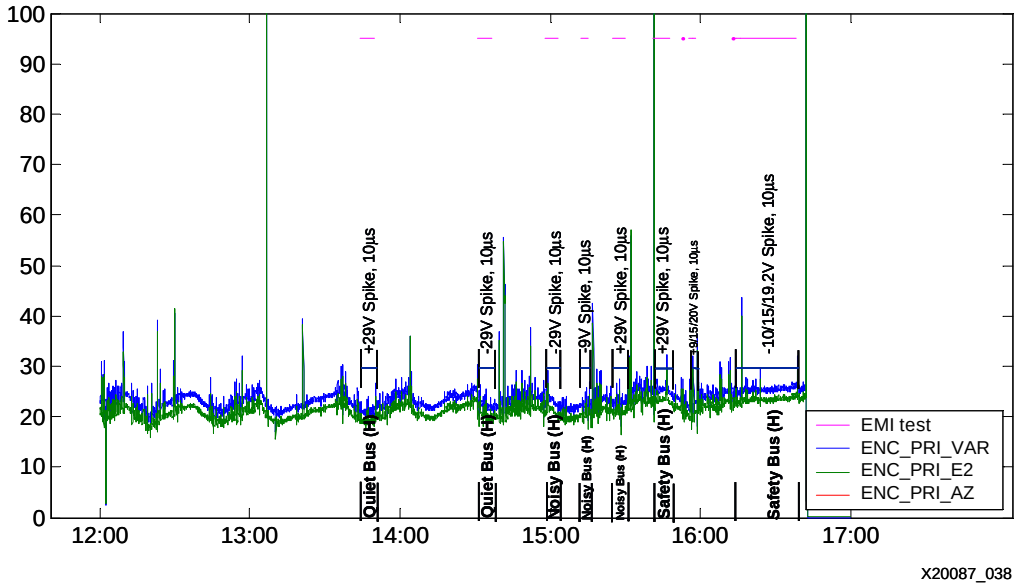

Figure 5-8

Use or disclosure of document data is subject to the restriction on the title page of this document.

Noise: Secondary Encoders

The temperature plot shows noise on the temperature signals with spikes that are greater then noise levels during the test cycle. (See **Figure 5-9**.)

There are a number of noise spikes that are 20°C and higher that fall outside the test area, they are random temperature noise and are not caused by CS06 testing. The noise spikes may be induced by other operating circuits near the sensor. ENC_PRI_VAR, ENC_PRI_E2

There is some small amount of noise and spiking during the CS06 testing.

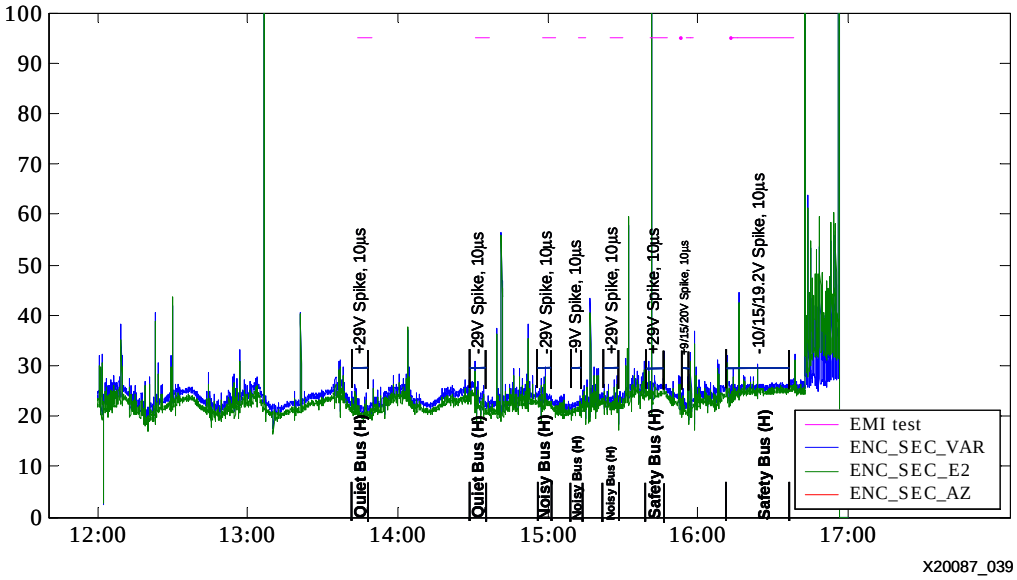

Figure 5-9

Noise: Radiance Channels 1-7

The radiance data for channels 1 through 7 do not show abnormal noise or spikes caused by the susceptibility signal that was injected into the power leads. The noise on the channels is normal system background noise. (See **Figure 5-10**.)

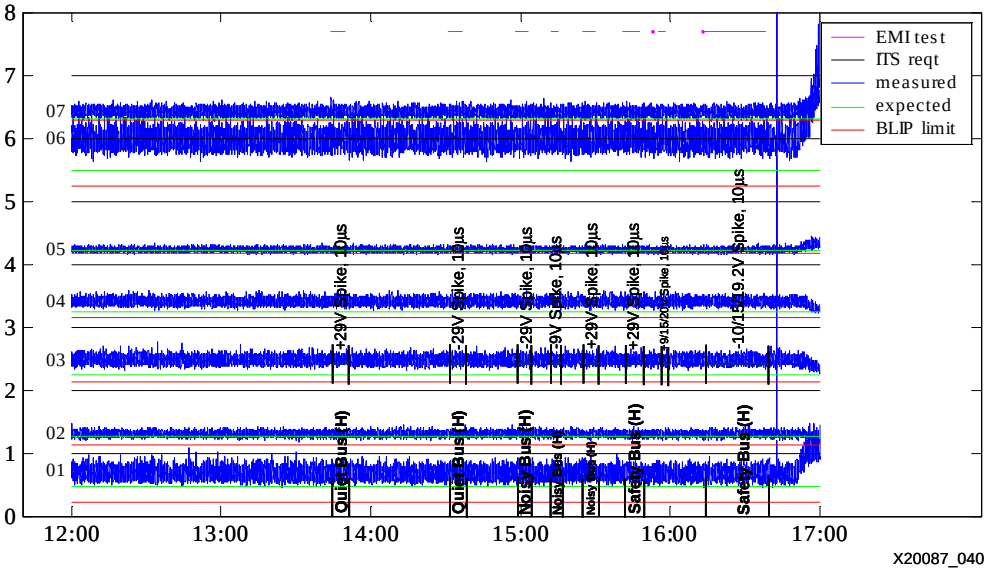

Figure 5-10

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Noise: Radiance Channels 8-14

The radiance data for channels 8 through 14 do not show abnormal noise or spikes caused by the susceptibility signal that was injected into the power leads. The noise on the channels is normal system background noise. (See **Figure 5-11**.)

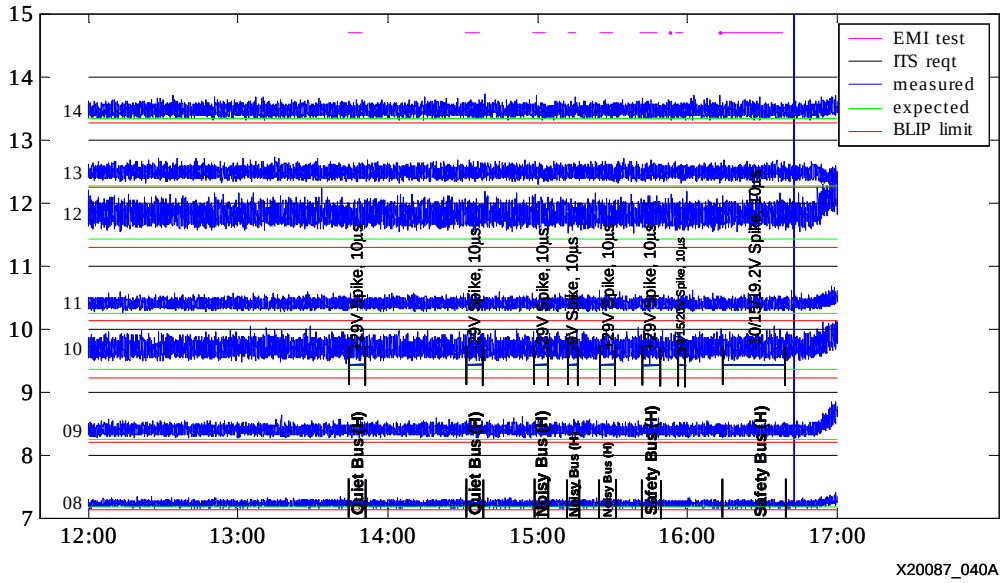

Figure 5-11

Noise: Radiance Channels 15-21

The radiance data for channels 15 through 21 do not show abnormal noise or spikes caused by susceptibility signal that was injected into the power leads. The noise on the channels is normal system background noise. (See **Figure 5-12**.)

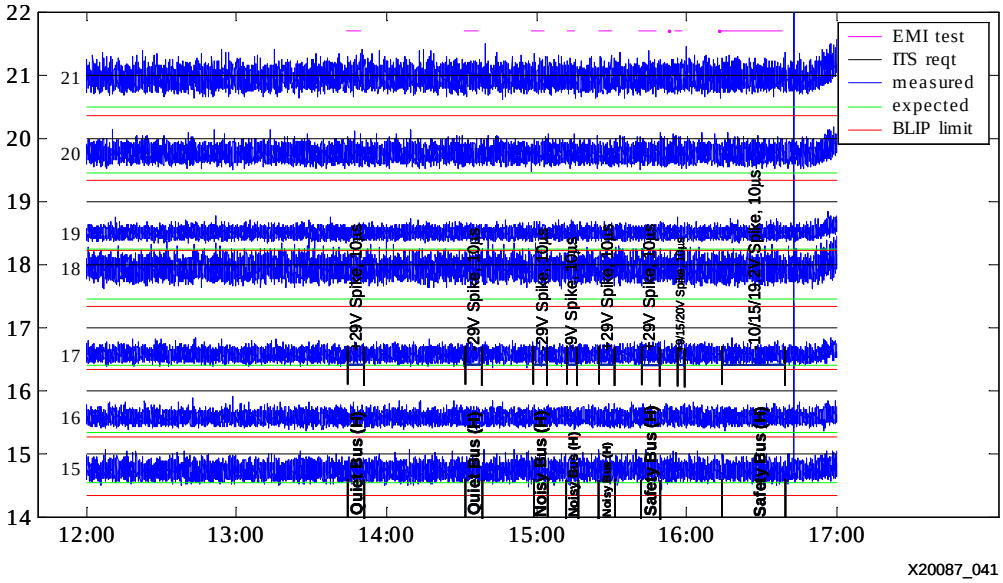

Figure 5-12

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Gyro Failure to Heat to Spin Temperature
Day 2002/125

The GYRO_TMP plot shows noise spikes of 0.5 to 0.75°C off the normal noise floor over the time 13:00 through 17:00. There is some small amount of increased spiking that looks like 1.0° to 1.5°C off of the noise floor in the areas of CS06 testing. (See **Figure 5-13**.)

The GYRO_HSG_TMP shows susceptibility noise spikes of –4.0°C to 20°C. The most common noise spike is about 1.0°C.

GYRO_MNT_TMP shows susceptibility noise spikes of –3.0°C to 4°C in the areas of testing.

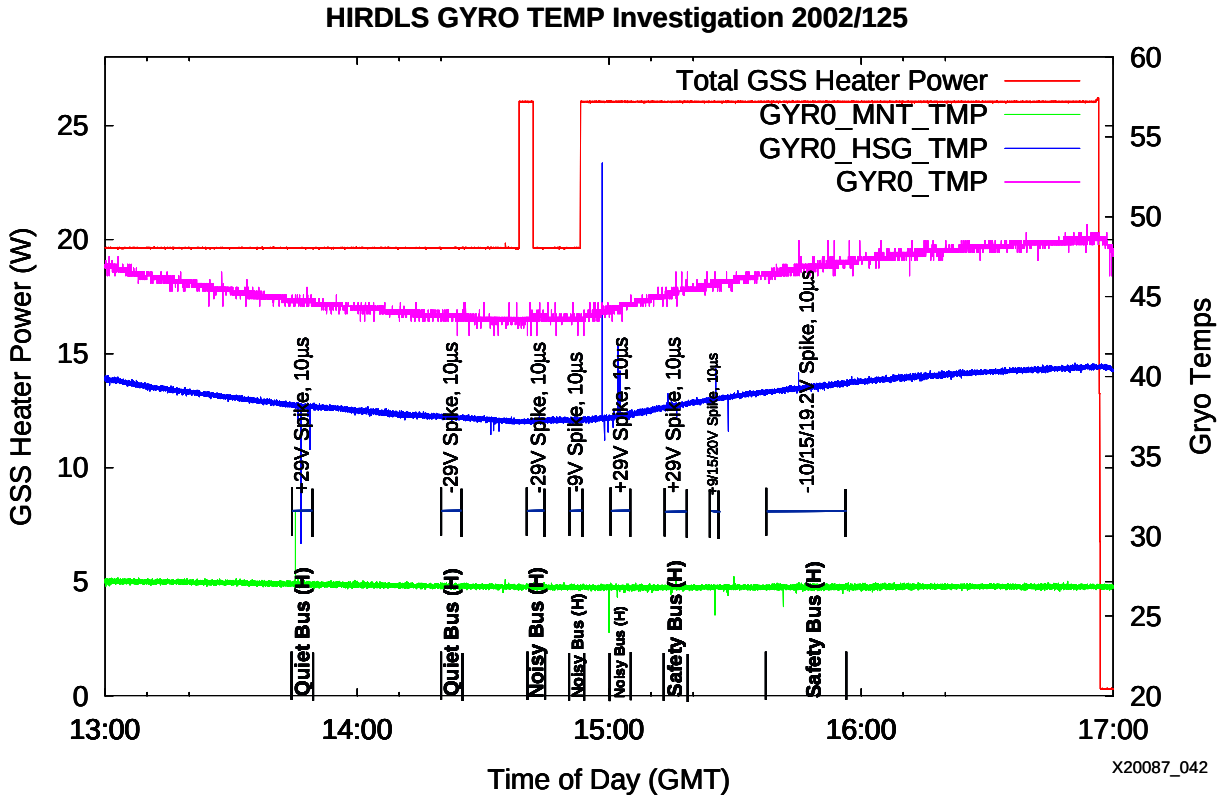

Figure 5-13

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CS06 OBA Temperatures Set: 1
Day: 2002/125

The SM_TMP1 plot is covered by other plots and can not provide data for analyses on this plot. (See **Figure 5-14**.)

The SM_TMP2 plot shows that susceptibility noise spikes that range between –6.0°C to 6.0°C when the signal was applied to the Noisy Bus, the other buses do not show susceptibility.

The M1_TMP1 plot shows susceptibility noise spikes that range between –5.0°C to 3.5°C when the signal was applied to the Noisy Bus. When the signal was applied to the Quiet Bus susceptibility noise spikes that range between –0.75°C to 2.0°C.

The M1_TMP2 plot shows susceptibility noise spikes that range between –0.5°C to 10.5°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –0.75°C to 2.0°C.

The M1_TMP3 plot shows no susceptibility noise spikes only noise floor with normal signal.

The LN_WF_TMP1 plot shows susceptibility noise spikes that range between –0.2°C to nominal value of the signal when the test signal was applied to the Survival Bus. The Quiet and Noisy Buses not affected.

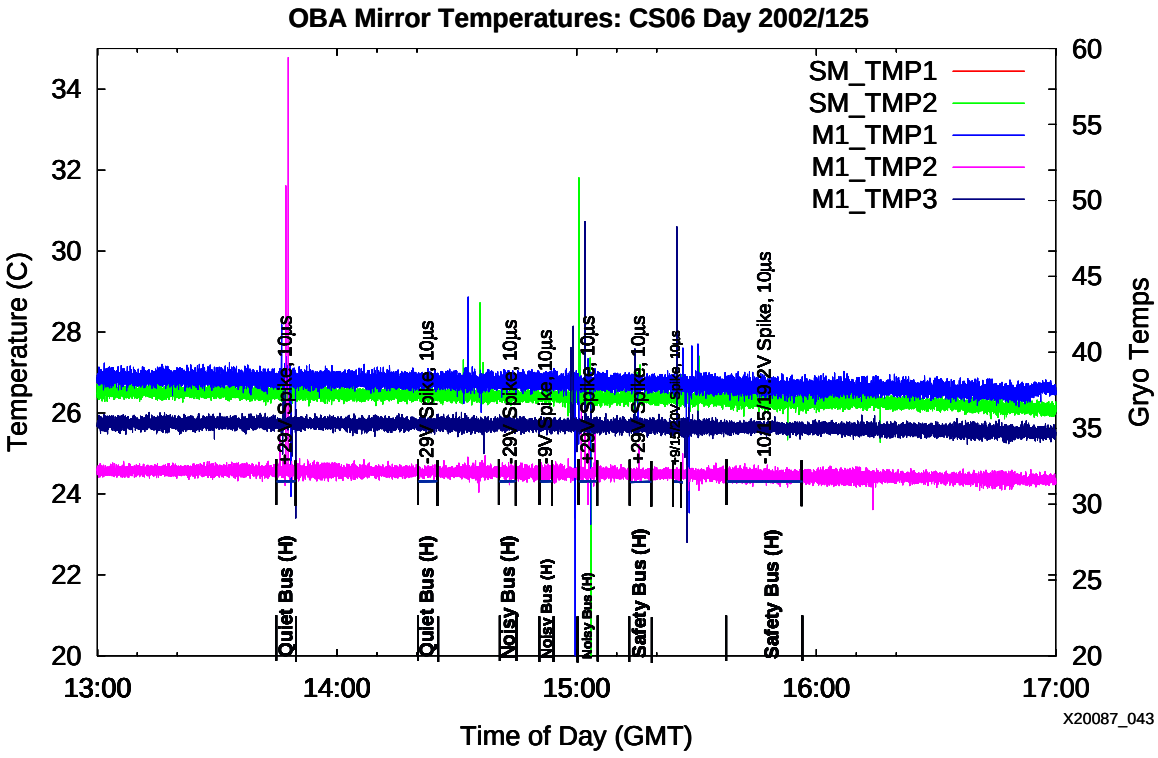

Figure 5-14

Use or disclosure of document data is subject to the restriction on the title page of this document.

CS06 OBA Temperatures Set: 2
Day: 2002/125

The LNS1_WF_TMP2 plot shows susceptibility noise spikes that range between –0.4°C to 1.0°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –9.5°C to 2.5°C. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –0.5°C to 1.5°C. (See **Figure 5-15**.)

The LNS1_WF_TMP3 TMP2 plot shows susceptibility noise spikes that range between –0.3°C to 3.75°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –0.5°C to 0.1°C. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –0.5°C to 0.4°C.

The LNS2_TMP1 plot shows susceptibility noise spikes that range between 0.0°C to 1.25°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –0.0°C to 0.5°C. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –0.0°C to 0.5°C.

The LNS2_TMP2 plot shows susceptibility noise spikes that range between –0.0°C to 4.5°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –0.0°C to 0.4°C. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –0.0°C to 0.5°C.

The LNS2_TMP3 plot shows susceptibility noise spikes that range between –0.5°C to 4.5°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –1.0°C to 1.2°C. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –3.2°C to 3.3°C.

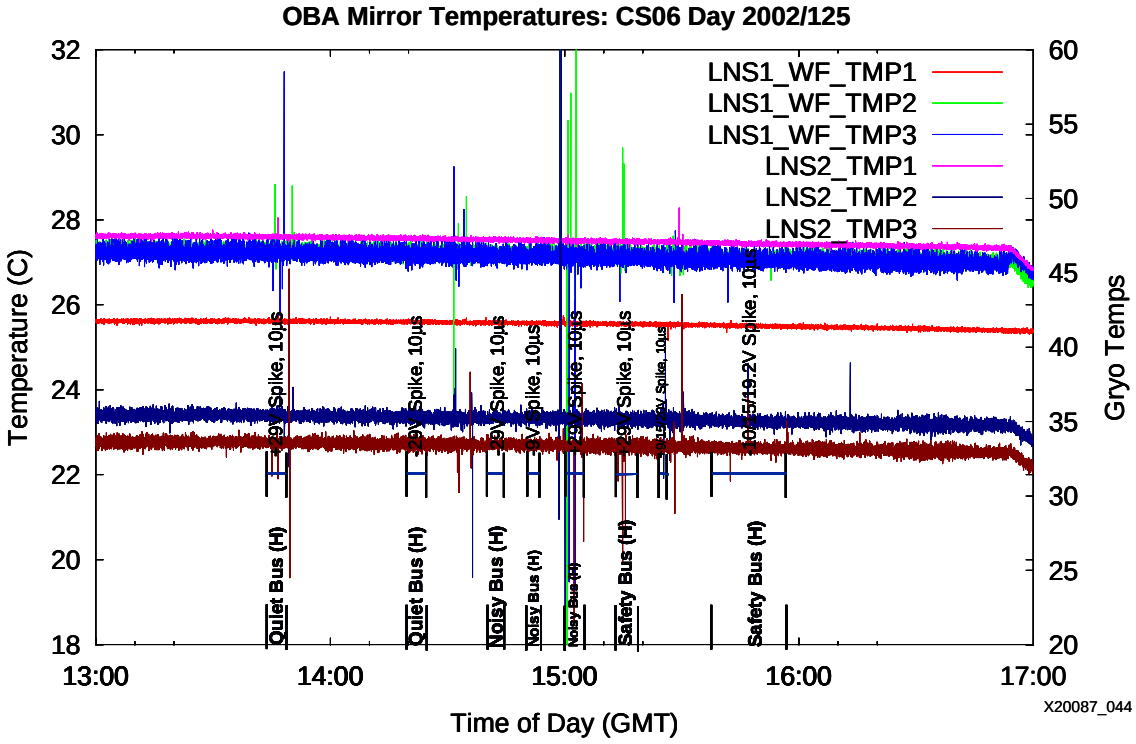

Figure 5-15

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CS06 OBA Temperatures Set: 3
Day: 2002/125

The CALMIR_TMP1 Plot shows a noisy plot that ranges between –1.0°C to 2.0°C. Can not see spikes generated from CE06 test, looks like noise from other generator inside the instrument. (See **Figure 5-16**.)

The CALMIR_TMP2 plot shows susceptibility noise spikes that range between –0.1°C to 1.0°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –6.5°C to 5.5°C. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –5.5°C to 8.0°C.

The CALMIR_TMP3 plot shows susceptibility noise spikes that range between –4.5°C to 2.0°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –6.0°C to 9.0°C. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –6.0°C to 3.8°C.

The M2_TMP1, M2_TMP2, M2_TMP3 plots show back ground noise only, there is no susceptibility noise spikes.

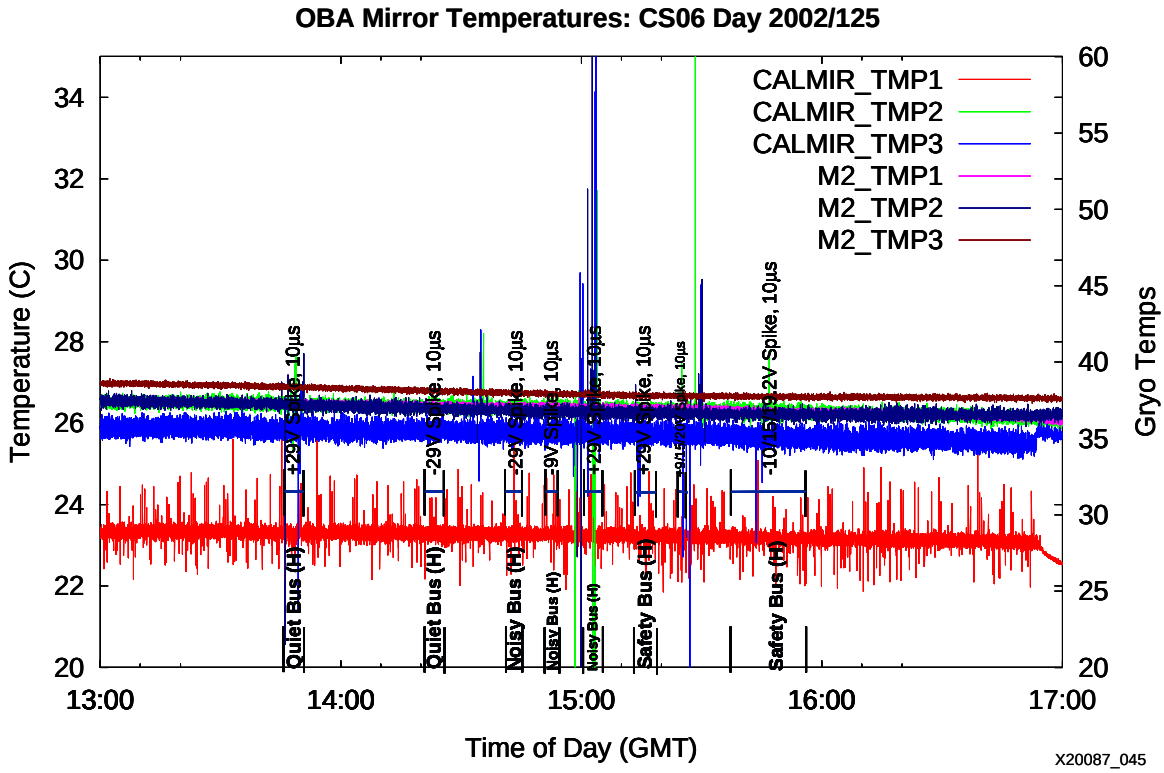

Figure 5-16

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CS06 OBA Temperatures Set: 4
Day: 2002/125

The CHOP_HGS_TMP2 can not see plot. (See **Figure 5-17**.)

The CHOP_HGS_TMP3 plot shows susceptibility noise spikes that range between –0.1°C to 2.5°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –1.1°C to 0.1°C. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –1.5°C to 3.0°C.

The LNSASSY_TMP1 plot shows susceptibility noise spikes that range between –0.1°C to 0.1°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –0.3°C to 0.3°C. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –0.1°C to 0.1°C.

The LNSASSY_TMP2 plot shows susceptibility noise spikes that range between –0.1°C to 0.5°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –0.1°C to 0.1°C. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –0.5°C to 1.25°C.

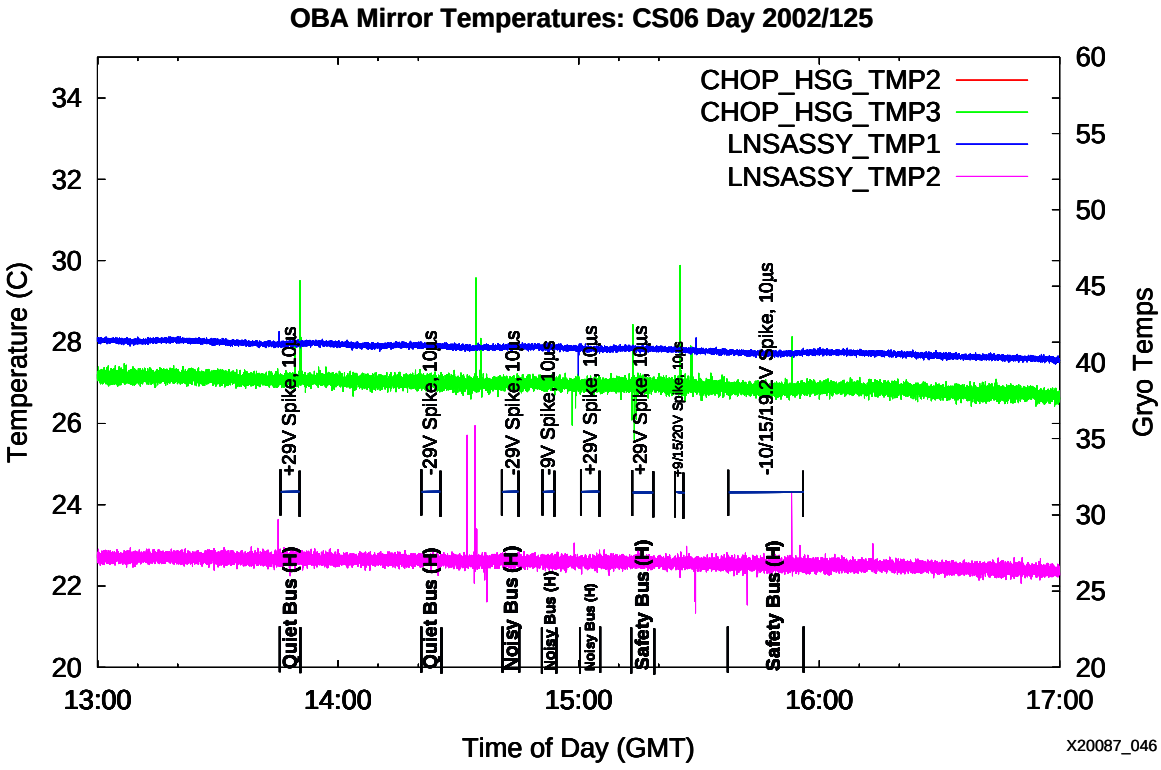

Figure 5-17

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CS06 OBA Temperatures Set: 5
Day: 2002/125

The SPVUMIR_TMP1 plot shows a noise envelop of 2°C p-p, the noise spikes that are generated by CS06 can not be observed. (See **Figure 5-18**.)

The SPVUMIR_TMP2 plot shows susceptibility noise spikes where not noted when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –0.1°C to 10°C. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –0.3°C to 14°C.

The SPVUMIR_TMP3 TMP2 plot shows susceptibility noise spikes that range between –5.5°C to 1.3°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes where not noted. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –0.5°C to 1.25°C.

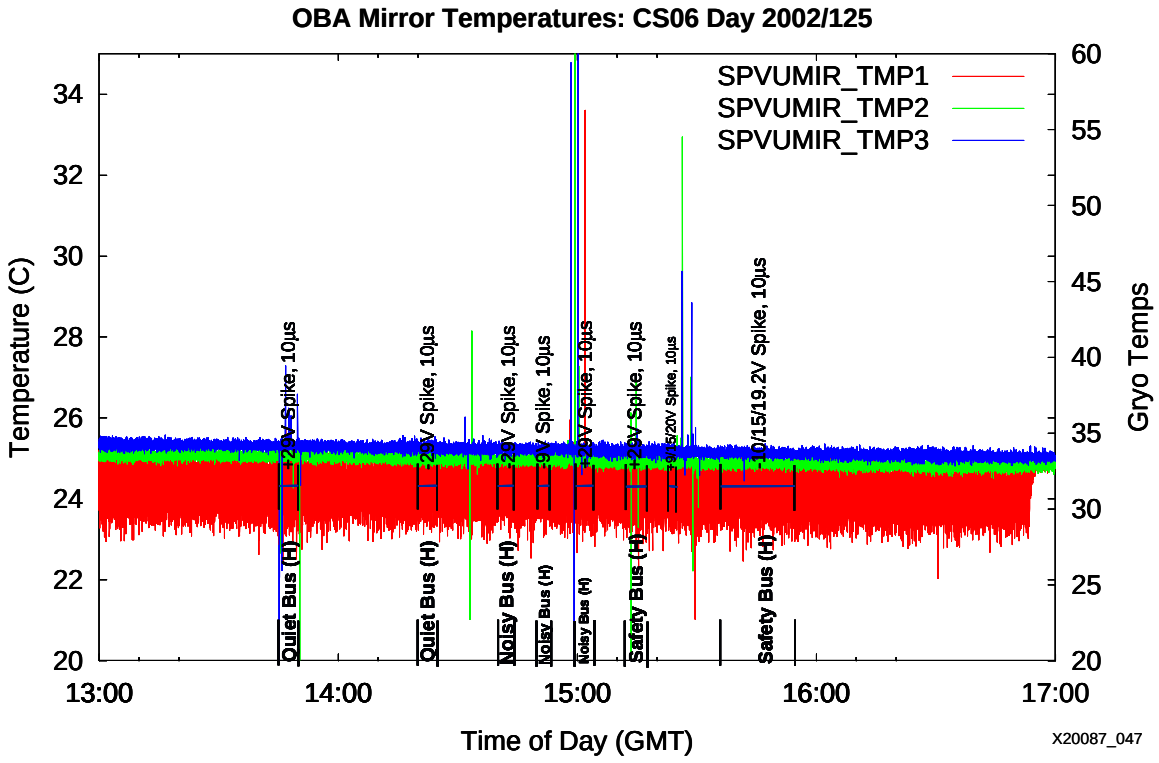

Figure 5-18

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CS06 Day 2002/125 Box Temps Set: 1

The BEU_BOX_TMP TMP1 plot shows susceptibility noise spikes that range between –4°C to 0.6°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –0.5°C to 0.1°C. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –0.2°C to 4°C. (See **Figure 5-19**.)

The BEU_MNT_TMP TMP1 plot shows susceptibility noise spikes that range between –0.5°C to 0.1°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –0.1°C to 0.1°C. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –4°C to 1.5°C.

The SPU_BOX_TMP TMP1 plot shows susceptibility noise spikes that range between –3.5°C to 9°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –3°C to 2°C. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –0.1°C to 0.1°C.

The SPU_MNT_TMP TMP1 plot shows susceptibility noise spikes that range between –3°C to 1°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –1°C to 0.5°C. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –5°C to 3.5°C.

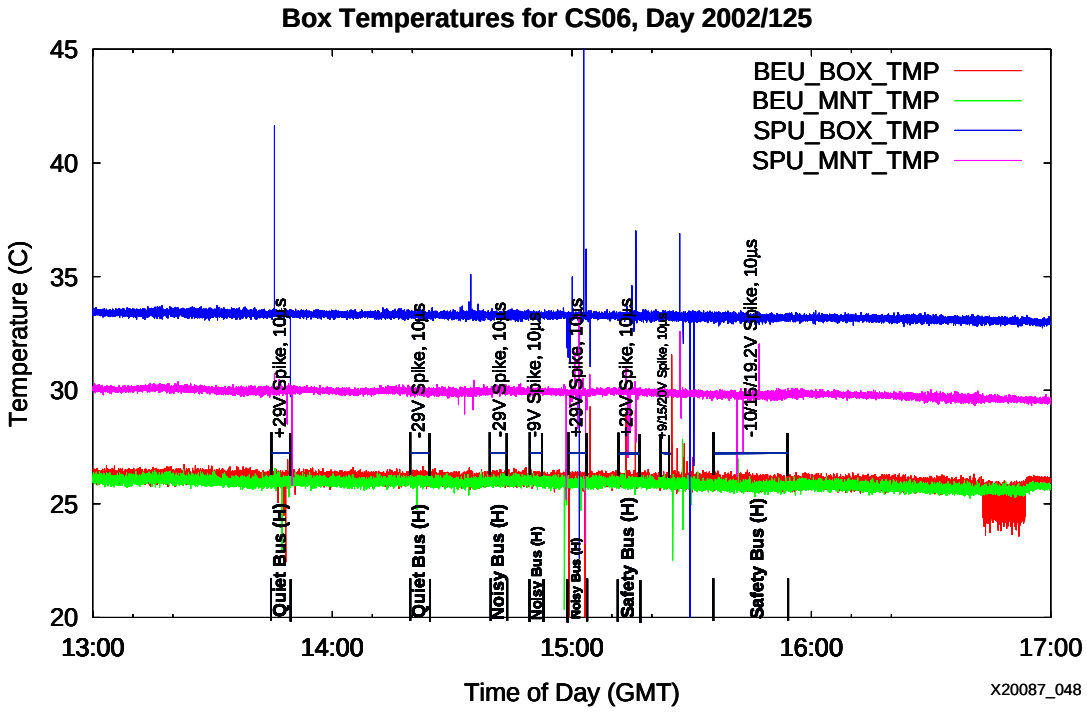

Figure 5-19

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CS06 Day 2002/125 Box Temps Set: 2

The EEA_BOX_TMP plot shows susceptibility noise spikes that range between –0.1°C to 0.5°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –2.5°C to 0.6°C. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –0.5°C to 1.25°C. (See **Figure 5-20**.)

EEA_MNT_TMP plot shows susceptibility noise spikes that range between –3.0°C to 2.3°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –0.1°C to 0.5°C. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –2.1°C to 0.1°C.

TEU_BOX_TMP plot shows susceptibility noise spikes that range between –1.6°C to 0.1°C when the signal was applied to the Quiet Bus. When the signal was applied to the Noisy Bus susceptibility noise spikes that range between –0.25°C to1.5°C. When the signal was applied to the Survival Bus susceptibility noise spikes that range between –0.1°C to 1.0°C.

TEU_MNT_TMP plot shows 3.0°C of noise on the signal. Can not see susceptibility noise spikes.

Figures 5-21 through **5-28** show temperature data.

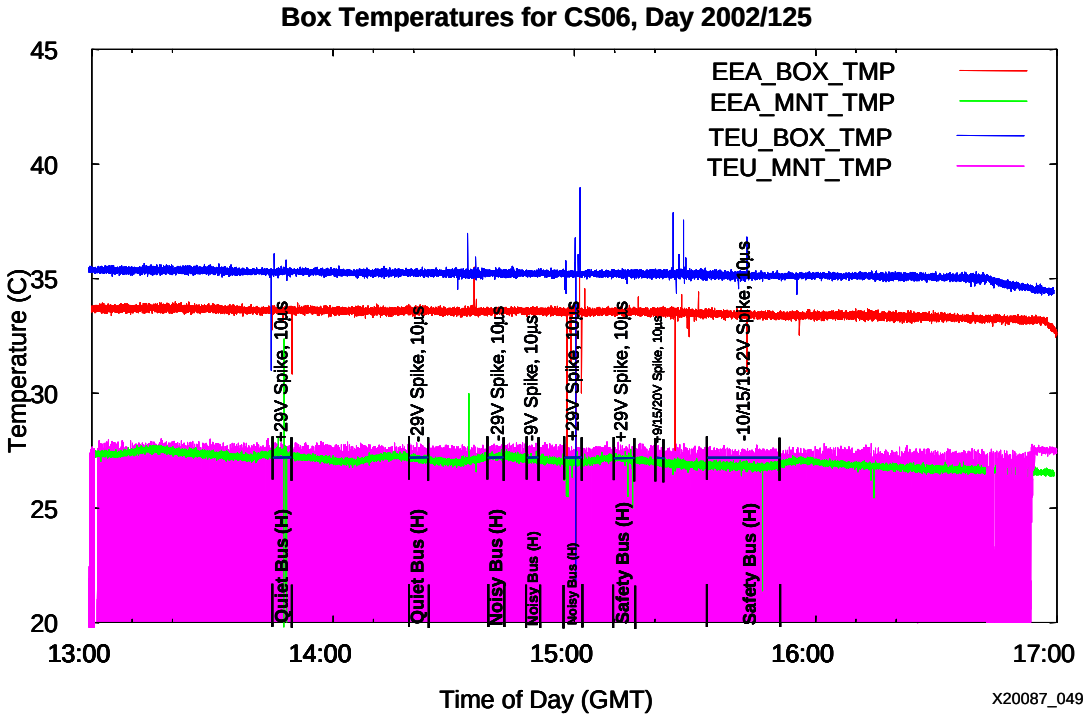

Figure 5-20

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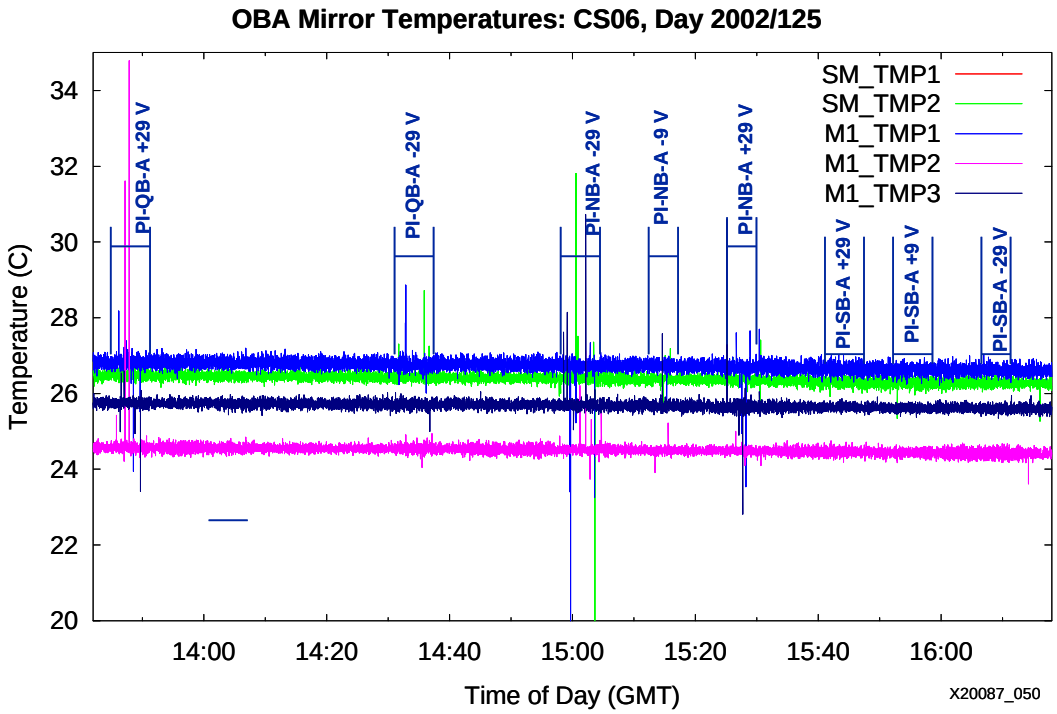

Figure 5-21

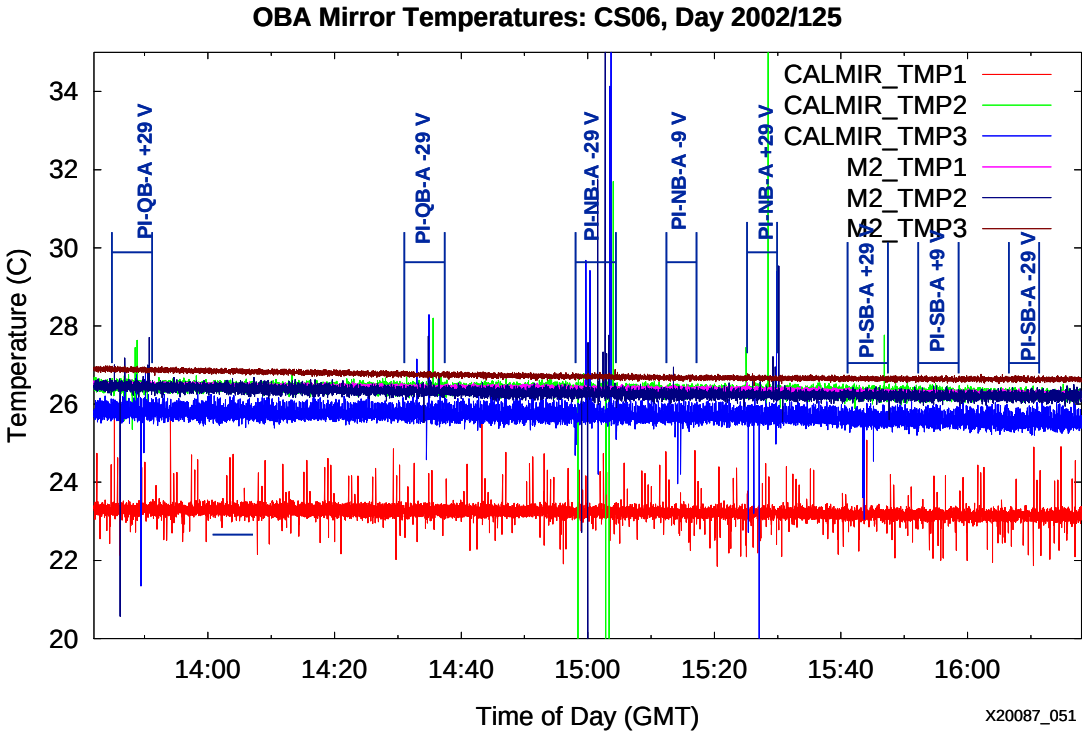

Figure 5-22

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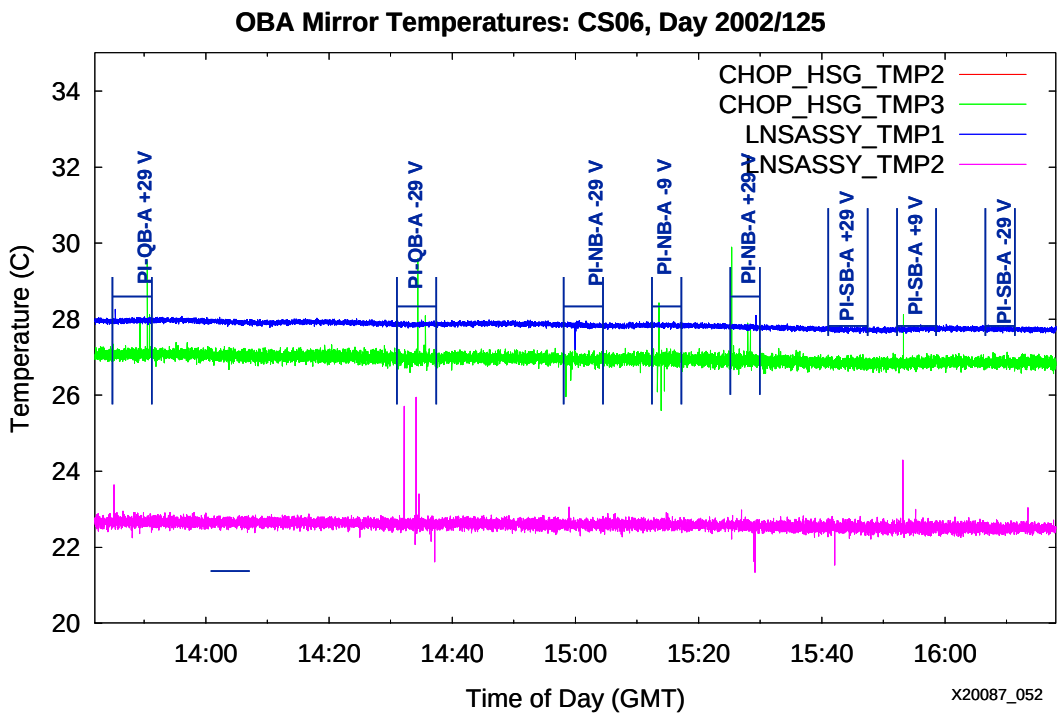

Figure 5-23

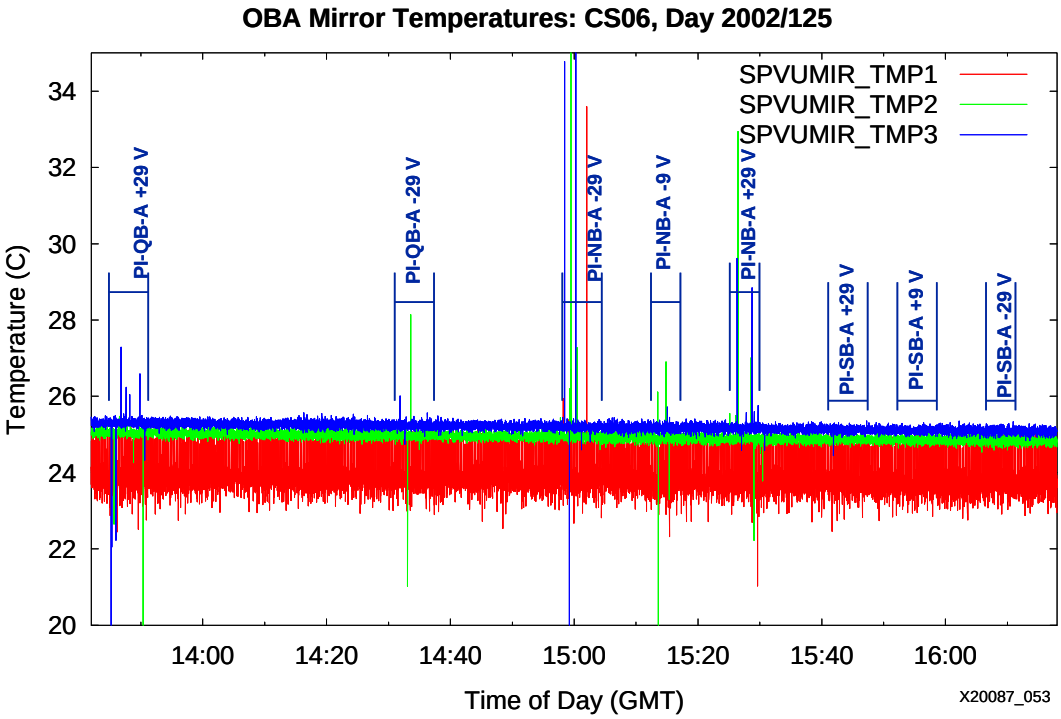

Figure 5-24

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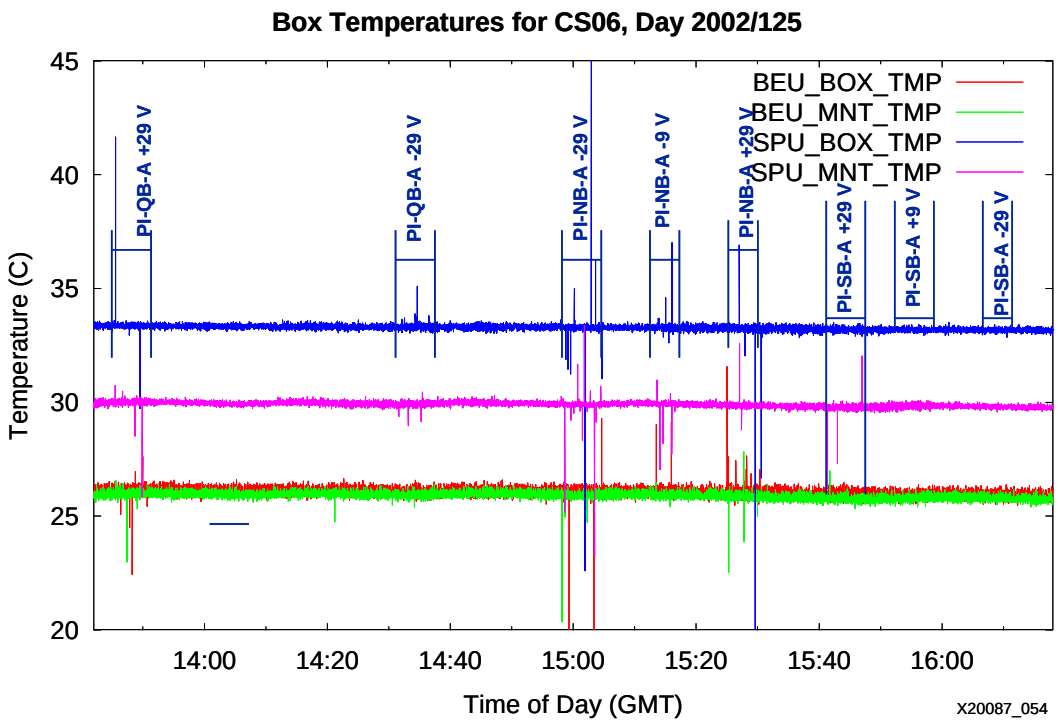

Figure 5-25

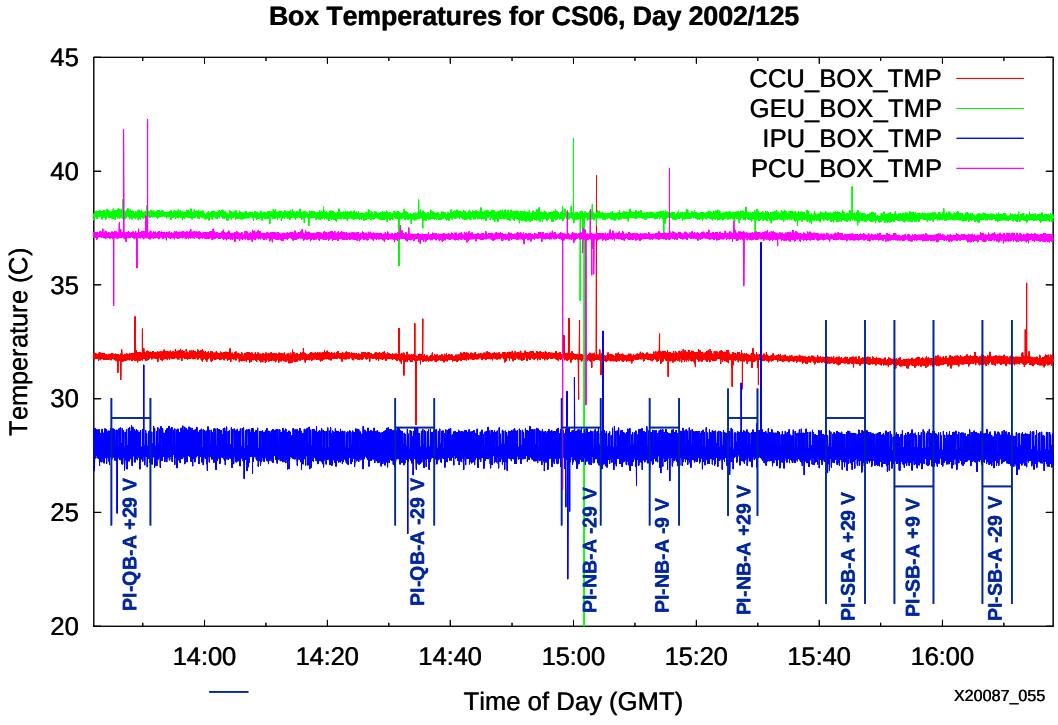

Figure 5-26

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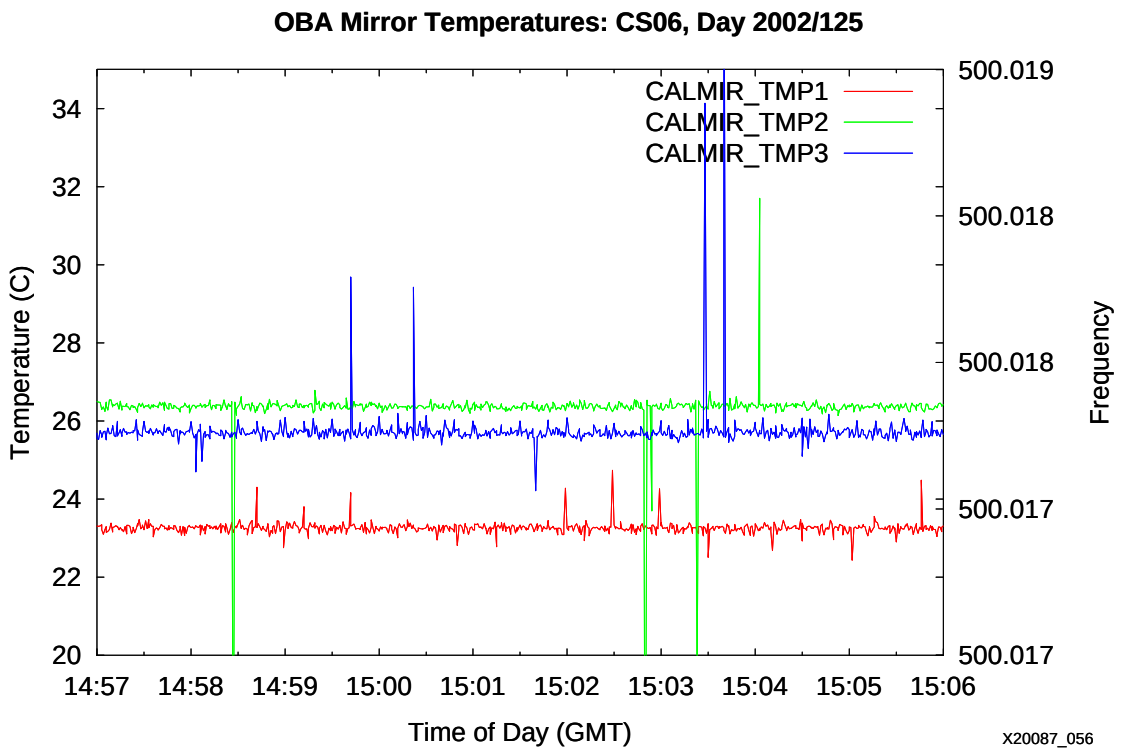

Figure 5-27

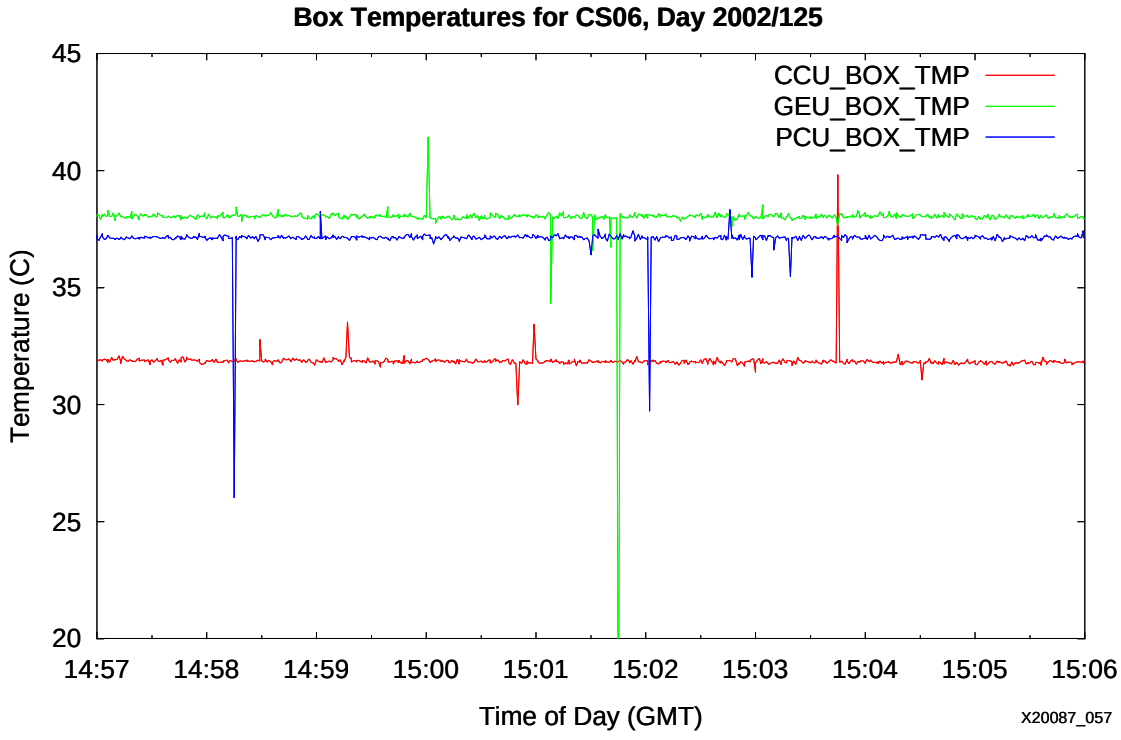

Figure 5-28

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CS06 Data Sheets Review Pass/Fail

Lead-	CS06	Notes
Survival Bus A, Plus leads CS06	Fail	
Quiet Bus A, Plus leads CS06	Fail	
Noisy Bus A, Plus leads CS06	Fail	

EMI/EMC HIRDLS Instrument TEST SUMMARY
Test Procedure TP-LOC-820, NC

Test Paragraph	Test Title	Pass	Fail	Comments
13.12	CS06 Power Lead Spike Susceptibility		X	CDR #AD6496

*CDR = Common Discrepancy Report

TEST SUMMARY

CS06 Conducted Susceptibility: This test is to show that the Instrument will not be susceptible to positive and negative spike interference in parallel from input power to power return of the Instrument.

CDRs

AD6496	Is: Several AD590 and PRT temperature sensors showed susceptibilities during CS06 testing.
#15	Should Be: No susceptibilities should be observed
CS06	Disposition: open
AD6497	Is: During CS06 testing of the Survival Bus the IEGSE survival power shut off at an amplitude of 19.1 V on both positive and negative polarities.
#16	Should Be: The IEGSE power should be available throughout CS06 tests.
CS06	Disposition: open

AD6496
AD590 Temp Sensor Exceedances for CS06
5 May 2002
2002/125-13:30 Through 2002/125-16:16

Summary

- Exceedances were spikes, typically 3-5 seconds long, not noise
  - AD590s and PRTs showed same behavior
  - Exceedances were observed whether inputs were on QB or NB and were independent of polarity.
  - SB was not fully tested, IEGSE powered off at <20V because there was no load on circuit (separate DR AD6497)
  - No Fault Management Responses Occurred as a Result of Temp Sensor Behavior
    - ? Temps Used for Fault Management Are Filtered by IPU S/W

MRB Recommendation to Use Hardware “AS IS”, Continue with Environmental Testing

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EMI/EMC Operators Test Log Time-Line

Date	Day	Test	Log	TimeGMT	Notes
05/05/02	125	CS06		13:44:00	Start @ +29.0 V p Spikes, 10micro-Sec., P1-QB-A, (CS06)
	125	CS06		13:50:00	Stop @ +29.0 V p Spikes, 10micro-Sec., P1-QB-A, (CS06)
05/05/02	125	CS06		14:31:00	Start @ -29.0 V p Spikes, 10micro-Sec., PI-QB-A, (CS06)
05/05/02	125	CS06		14:37:00	Stop @ -29.0 V p Spikes, 10micro-Sec., PI-QB-A, (CS06)
05/05/02	125	CS06		14:58:00	Start @ -29.0 V p Spikes, 10micro-Sec., PI-NB-A, Fault, (CS06)
05/05/02	125	CS06		15:03:00	Stop @ -29.0 V p Spikes, 10micro-Sec., PI-NB-A, Fault, (CS06)
05/05/02	125	CS06		15:12:00	Start @ -9.0 V p Spikes, 10micro-Sec., PI-NB-A, Fault, (CS06)
05/05/02	125	CS06		15:15:00	Stop @ -9.0 V p Spikes, 10micro-Sec., PI-NB-A, Fault, (CS06)
05/05/02	125	CS06		15:25:00	Start @ +29.0 V p Spikes, 10micro-Sec., PI-NB-A, (CS06)
05/05/02	125	CS06		15:30:00	Stop @ +29.0 V p Spikes, 10micro-Sec., PI-NB-A, (CS06)
05/05/02	125	CS06		15:41:00	Start @ +29.0 V p Spikes, 10micro-Sec., PI-SB-A, Fault, glitch, (CS06)
05/05/02	125	CS06		15:48:00	Stop @ +29.0 V p Spikes, 10micro-Sec., PI-SB-A, Fault, glitch, (CS06)
05/05/02	125	CS06		15:53:00	Start @ +29.0 V p Spikes, 10micro-Sec., PI-SB-A, Repeat, Fault, glitch, (CS06)
05/05/02	125	CS06		15:53:00	Stop @ +29.0 V p Spikes, 10micro-Sec., PI-SB-A, Repeat, Fault, glitch, (CS06)
05/05/02	125	CS06		15:55:00	Start @ +9.0 V p Spikes, 10micro-Sec., PI-SB-A,(CS06)
05/05/02	125	CS06		15:57:00	Stop @ +9.0 V p Spikes, 10micro-Sec., PI-SB-A,(CS06)
05/05/02	125	CS06		15:57:00	Start @ +15.0 V p Spikes, 10micro-Sec., PI-SB-A, (CS06)
05/05/02	125	CS06		15:58:00	Stop @ +15.0 V p Spikes, 10micro-Sec., PI-SB-A, (CS06)
05/05/02	125	CS06		16:13:00	Start @ +20.0 V p Spikes, 10micro-Sec., PI-SB-A, (CS06)
05/05/02	125	CS06		16:13:00	Stop @ +20.0 V p Spikes, 10micro-Sec., PI-SB-A, (CS06)
05/05/	12	CS		16:13:0	Start @ -10.0 V p Spikes, 10micro-Sec., PI-SB-A, (CS06)

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Date	Day	Test	Log	TimeGMT	Notes
02	5	06		0	
05/05/02	125	CS06		16:14:00	Stop @ -10.0 V p Spikes, 10micro-Sec., PI-SB-A, (CS06)
05/05/02	125	CS06		16:14:00	Start @ -15.0 V p Spikes, 10micro-Sec., PI-SB-A, (CS06)
05/05/02	125	CS06		13:50:00	Stop @ +29.0 V p Spikes, 10micro-Sec., PI-QB-A, (CS06)
05/05/02	125	CS06		14:31:00	Start @ -29.0 V p Spikes, 10micro-Sec., PI-QB-A, (CS06)
05/05/02	125	CS06		14:37:00	Stop @ -29.0 V p Spikes, 10micro-Sec., PI-QB-A, (CS06)
05/05/02	125	CS06		14:58:00	Start @ -29.0 V p Spikes, 10micro-Sec., PI-NB-A, Fault, (CS06)
05/05/02	125	CS06		15:03:00	Stop @ -29.0 V p Spikes, 10micro-Sec., PI-NB-A, Fault, (CS06)
05/05/02	125	CS06		15:12:00	Start @ -9.0 V p Spikes, 10micro-Sec., PI-NB-A, Fault, (CS06)
05/05/02	125	CS06		15:15:00	Stop @ -9.0 V p Spikes, 10micro-Sec., PI-NB-A, Fault, (CS06)
05/05/02	125	CS06		15:25:00	Start @ +29.0 V p Spikes, 10micro-Sec., PI-NB-A, (CS06)
05/05/02	125	CS06		15:30:00	Stop @ +29.0 V p Spikes, 10micro-Sec., PI-NB-A, (CS06)
05/05/02	125	CS06		15:41:00	Start @ +29.0 V p Spikes, 10micro-Sec., PI-SB-A, Fault, glitch, (CS06)
05/05/02	125	CS06		16:16:00	Stop @ -15.0 V p Spikes, 10micro-Sec., PI-SB-A, (CS06)
05/05/02	125	CS06		16:16:00	Start @ -19.2 V p Spikes, 10micro-Sec., PI-SB-A, (CS06)
05/05/02	125	CS06		16:38:00	Stop @ -19.2 V p Spikes, 10micro-Sec., PI-SB-A, (CS06)
05/05/02	125	CS06		16:38:00	HIRDLS Instrument power down, (CS06)
05/06/02	126	CS06		7:00:00	HIRDLS Instrument power Up, (CS06)

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SECTION 6

DC MAGNETIC FIELD SUSCEPTIBILITY

The component/instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification in the presence of the ambient magnetic field consisting of the earth's field (15 to 50 micro-Tesla), the fields generated by neighboring instruments (3 micro-Tesla maximum) and the field produced by the magnetic torquers of the spacecraft (1,000 micro-Tesla maximum).

Test Procedure

DC Magnetic Field Susceptibility Test (GIRD 10.11.7.2)

The Instrument shall perform normally when exposed to a DC magnetic field of 1000 μTesla (800A/m) for a period of 5 minutes minimum.

A square or circular coil of wire large enough to encircle the Instrument shall be constructed and used to provide the DC magnetic field. The coil shall be calibrated for an 800A/m (1,000 micro-Tesla maximum) field without the Instrument in the field. The source of power for the coil shall be a DC power supply capable of supplying the current necessary to establish the required field.

Use the following formula to design the coil:

H = NI/2R where:
H = magnetic flux density (A/m) = 800 Amp./Meter
N = number of wire turns in the coil, 96 turns.
R = radius of coil (meters), 93 inches (1.2 meter).
I = current (20 amps)

Connect the test setup as shown in **Figure 6-1**. Position the coil such that its plane is parallel with the X, Y or Z axis of the Instrument.

Turn on the coil power supply and adjust the voltage and current control as necessary to provide the current calculated 20.0 Amp.

Monitor the Instrument for evidence of susceptibility as the coil is slowly moved along the axis of the Instrument. Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields. If susceptibility is observed reduce the power supply voltage and current until the Instrument returns to normal operation and record the threshold on the applicable Test Data Sheet at the back of the procedure.

Maintain the susceptibility signal at 800A/m for a minimum of 5 minutes. At the end of the 5 minute period turn the coil power supply off.

Reverse the coil connections at the power supply and repeat test.

Verify that the DC Magnetic Field Susceptibility Test is complete and the results are acceptable.

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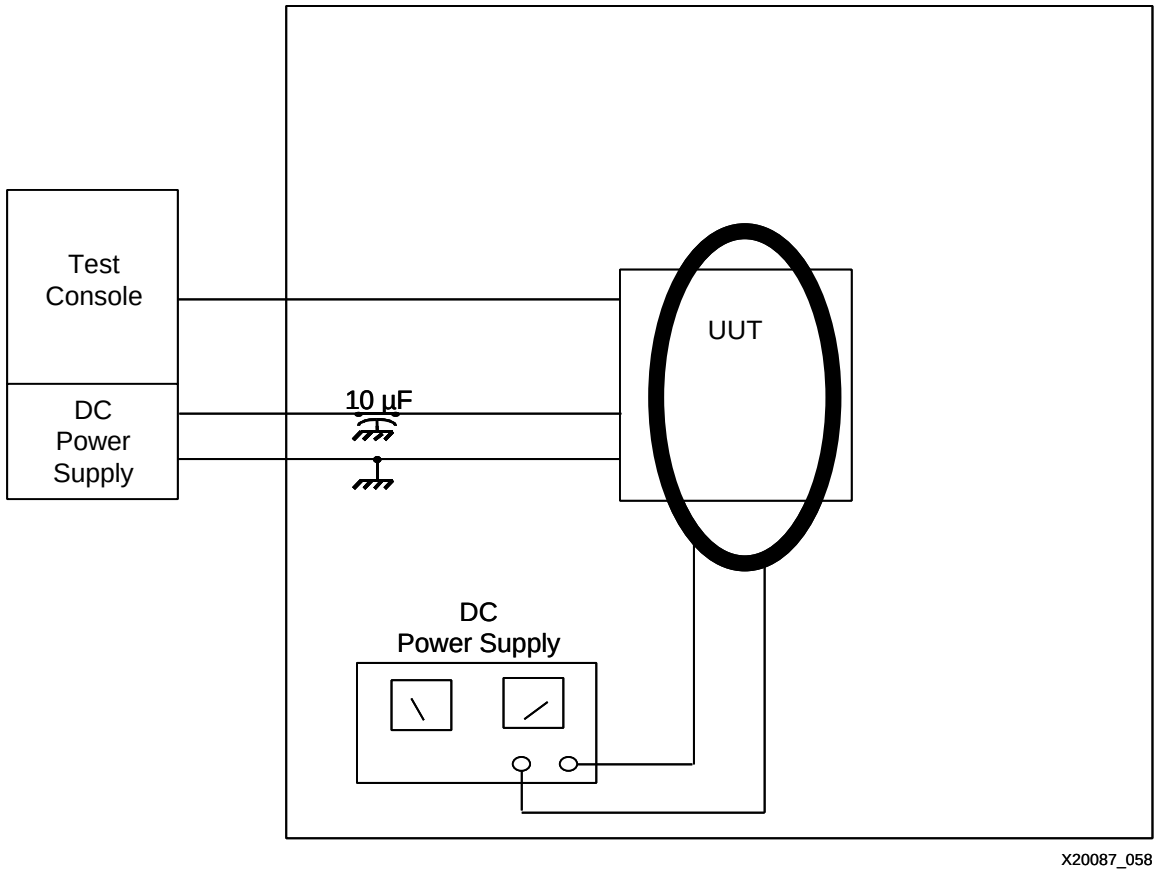

Figure 6-1

The set-up is covered in section A

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Time Line of Test Performed

X-Axis

Date	Day	Test	Log	TimeGMT	Notes
05/05/02	126	RE02	HIOL	23:34:08	Starting power-up for RE02
05/06/02	127	DC MT	ETOL	2:06:00	Start DC Magnetic Test, 20 Amp, + field, Location X1
05/06/02	127	DC MT	ETOL	2:11:00	Stop DC Magnetic Test, 20 Amp, + field, Location X1
05/06/02	127	DC MT	ETOL	2:43:00	Start DC Magnetic Test, 20 Amp, + field, Location X2
05/06/02	127	DC MT	ETOL	2:48:00	Stop DC Magnetic Test, 20 Amp, + field, Location X2
05/06/02	127	DC MT	ETOL	3:06:00	Start DC Magnetic Test, 20 Amp, + field, Location X3
05/06/02	127	DC MT	ETOL	3:07:00	Stop DC Magnetic Test, 20 Amp, + field, Location X3
05/06/02	127	DC MT	ETOL	3:15:00	Start DC Magnetic Test, 20 Amp, - field, Location X3
05/06/02	127	DC MT	ETOL	3:16:00	Stop DC Magnetic Test, 20 Amp, - field, Location X3
05/06/02	127	DC MT	ETOL	3:20:00	Start DC Magnetic Test, 20 Amp, - field, Location X2
05/06/02	127	DC MT	ETOL	3:21:00	Stop DC Magnetic Test, 20 Amp, - field, Location X2
05/06/02	127	DC MT	ETOL	3:23:00	Start DC Magnetic Test, 20 Amp, - field, Location X1
05/06/02	127	DC MT	ETOL	3:24:00	Stop DC Magnetic Test, 20 Amp, - field, Location X1

Y-Axis

Date	Day	Test	Log	TimeGMT	Notes
05/06/02	127	DC MT	ETOL	4:15:00	Start DC Magnetic Test, 20 Amp, + field, Location Y1
05/06/02	127	DC MT	ETOL	4:17:00	Stop DC Magnetic Test, 20 Amp, + field, Location Y1
05/06/02	127	DC MT	ETOL	4:22:00	Start DC Magnetic Test, 20 Amp, + field, Location Y2
05/06/02	127	DC MT	ETOL	4:23:00	Stop DC Magnetic Test, 20 Amp, + field, Location Y2

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Date	Day	Test	Log	TimeGMT	Notes
05/06/02	127	DC MT	ETOL	4:29:00	Start DC Magnetic Test, 20 Amp, + field, Location Y3
05/06/02	127	DC MT	ETOL	4:30:00	Stop DC Magnetic Test, 20 Amp, + field, Location Y3
05/06/02	127	DC MT	ETOL	4:35:00	Start DC Magnetic Test, 20 Amp, - field, Location Y3
05/06/02	127	DC MT	ETOL	4:36:00	Stop DC Magnetic Test, 20 Amp, - field, Location Y3
05/06/02	127	DC MT	ETOL	4:38:00	Start DC Magnetic Test, 20 Amp, - field, Location Y2
05/06/02	127	DC MT	ETOL	4:39:00	Stop DC Magnetic Test, 20 Amp, - field, Location Y2
05/06/02	127	DC MT	ETOL	4:40:00	Start DC Magnetic Test, 20 Amp, - field, Location Y1
05/06/02	127	DC MT	ETOL	4:41:00	Stop DC Magnetic Test, 20 Amp, - field, Location Y1

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Z-Axis

Date	Day	Test	Log	TimeGMT	Notes
05/06/02	127	DC MT	ETOL	6:58:00	Start DC Magnetic Test, 20 Amp, + field, Location Z1
05/07/02	127	DC MT	ETOL	7:00:00	Stop DC Magnetic Test, 20 Amp, + field, Location Z1
05/07/02	127	DC MT	ETOL	7:04:00	Start DC Magnetic Test, 20 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	7:05:00	Stop DC Magnetic Test, 20 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	7:09:00	Start DC Magnetic Test, 20 Amp, + field, Location Z3
05/07/02	127	DC MT	ETOL	7:10:00	Stop DC Magnetic Test, 20 Amp, + field, Location Z3
05/07/02	127	DC MT	ETOL	7:14:00	Start DC Magnetic Test, 20 Amp, - field, Location Z3
05/07/02	127	DC MT	ETOL	7:16:00	Stop DC Magnetic Test, 20 Amp, - field, Location Z3
05/07/02	127	DC MT	ETOL	7:32:00	Start DC Magnetic Test, 20 Amp, - field, Location Z2
05/07/02	127	DC MT	ETOL	7:36:00	Stop DC Magnetic Test, 20 Amp, - field, Location Z2
05/07/02	127	DC MT	ETOL	7:36:00	Start DC Magnetic Test, 5.0 Amp, - field, Location Z3
05/07/02	127	DC MT	ETOL	7:37:02	Stop DC Magnetic Test, 5.0 Amp, - field, Location Z3
05/07/02	127	DC MT	ETOL	7:37:02	Start DC Magnetic Test, 10 Amp, - field, Location Z3
05/07/02	127	DC MT	ETOL	7:37:30	Stop DC Magnetic Test, 10 Amp, - field, Location Z3
05/07/02	127	DC MT	ETOL	7:37:30	Start DC Magnetic Test, 15 Amp, - field, Location Z3
05/07/02	127	DC MT	ETOL	7:37:56	Stop DC Magnetic Test, 15 Amp, - field, Location Z3
05/07/02	127	DC MT	ETOL	7:37:56	Start DC Magnetic Test, 20 Amp, - field, Location Z3
05/07/02	127	DC MT	ETOL	7:38:20	Stop DC Magnetic Test, 20 Amp, - field, Location Z3
05/07/02	127	DC MT	ETOL	7:38:20	Start DC Magnetic Test, 15 Amp, - field, Location Z3
05/07/02	127	DC MT	ETOL	7:38:45	Stop DC Magnetic Test, 15 Amp, - field, Location Z3

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Date	Day	Test	Log	TimeGMT	Notes
05/07/02	127	DC MT	ETOL	7:38:45	Start DC Magnetic Test, 10 Amp, - field, Location Z3
05/07/02	127	DC MT	ETOL	7:39:10	Stop DC Magnetic Test, 10 Amp, - field, Location Z3
05/07/02	127	DC MT	ETOL	7:39:10	Start DC Magnetic Test, 5.0 Amp, - field, Location Z3
05/07/02	127	DC MT	ETOL	7:39:22	Stop DC Magnetic Test, 5.0 Amp, - field, Location Z3
05/07/02	127	DC MT	ETOL	7:39:22	Start DC Magnetic Test, 0.0 Amp, - field, Location Z3
05/07/02	127	DC MT	ETOL	7:39:22	Stop DC Magnetic Test, 0.0 Amp, - field, Location Z3
05/07/02	127	DC MT	ETOL	7:44:00	Start DC Magnetic Test, 20 Amp, - field, Location Z1
05/07/02	127	DC MT	ETOL	7:45:00	Stop DC Magnetic Test, 20 Amp, - field, Location Z1
05/07/02	127	DC MT	ETOL	7:53:00	Start DC Magnetic Test, 20 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	7:54:10	Stop DC Magnetic Test, 20 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	7:54:10	Start DC Magnetic Test, 15 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	7:54:40	Stop DC Magnetic Test, 15 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	7:54:40	Start DC Magnetic Test, 10 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	7:55:00	Stop DC Magnetic Test, 10 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	7:55:00	Start DC Magnetic Test, 5.0 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	7:55:20	Stop DC Magnetic Test, 5.0 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	7:55:20	Start DC Magnetic Test, 0.0 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	7:55:45	Stop DC Magnetic Test, 0.0 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	7:55:45	Start DC Magnetic Test, 5.0 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	7:56:10	Stop DC Magnetic Test, 5.0 Amp, + field, Location Z2

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Date	Day	Test	Log	TimeGMT	Notes
05/07/02	127	DC MT	ETOL	7:56:10	Start DC Magnetic Test, 10 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	7:56:35	Stop DC Magnetic Test, 10 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	7:57:00	Start DC Magnetic Test, 20 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	7:57:20	Stop DC Magnetic Test, 20 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	8:11:44	Start DC Magnetic Test, 1.0 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	8:12:01	Stop DC Magnetic Test, 1.0 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	8:12:01	Start DC Magnetic Test, 2.0 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	8:12:55	Stop DC Magnetic Test, 2.0 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	8:12:55	Start DC Magnetic Test, 1.5 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	8:13:33	Stop DC Magnetic Test, 1.5 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	8:13:33	Start DC Magnetic Test, 1.25 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	8:14:20	Stop DC Magnetic Test, 1.25 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	8:14:20	Start DC Magnetic Test, 1.75 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	8:14:45	Stop DC Magnetic Test, 1.75 Amp, + field, Location Z2, Threshold @ 1.75 Amp.
05/07/02	127	DC MT	ETOL	8:14:45	Start DC Magnetic Test, 0.0 Amp, + field, Location Z2
05/07/02	127	DC MT	ETOL	8:15:30	Stop DC Magnetic Test, 0.0 Amp, + field, Location Z2

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Radiated DC Magnetic Field Susceptibility Data

CRYOTIP_TMP_DO, CRYOTIP_TMP_D1, FPA_TMP_A, FPA_TMP_B, shows no susceptibility to the magnetic field test. The data looks correct and stable. (See **Figure 6-2**.)

EMI/EMC TEST – DCMT

06 May 2002
2002/12 -2:06 through -08:16

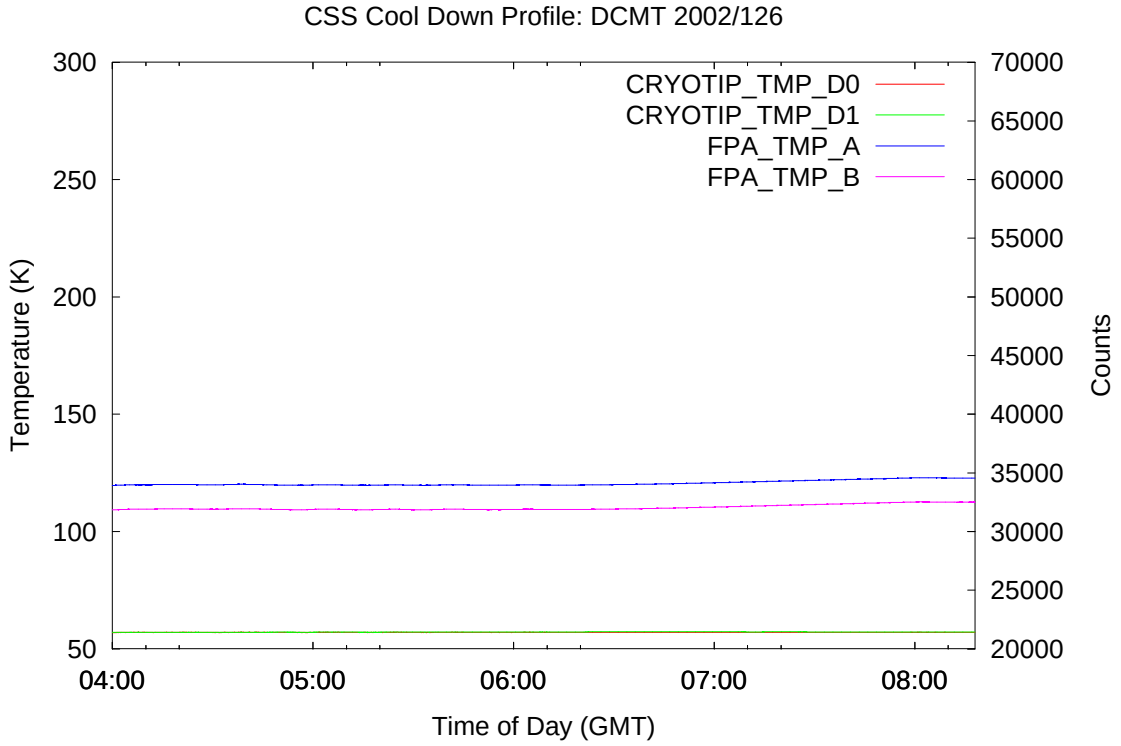

Figure 6-2

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DCMT CSS Warm-Up

CRYOTIP_TMP_DO, CRYOTIP_TMP_D1, FPT_TMP_A, FPT_TMP_B, shows no susceptibility to the magnetic field test. The data looks correct and stable. (See **Figure 6-3**.)

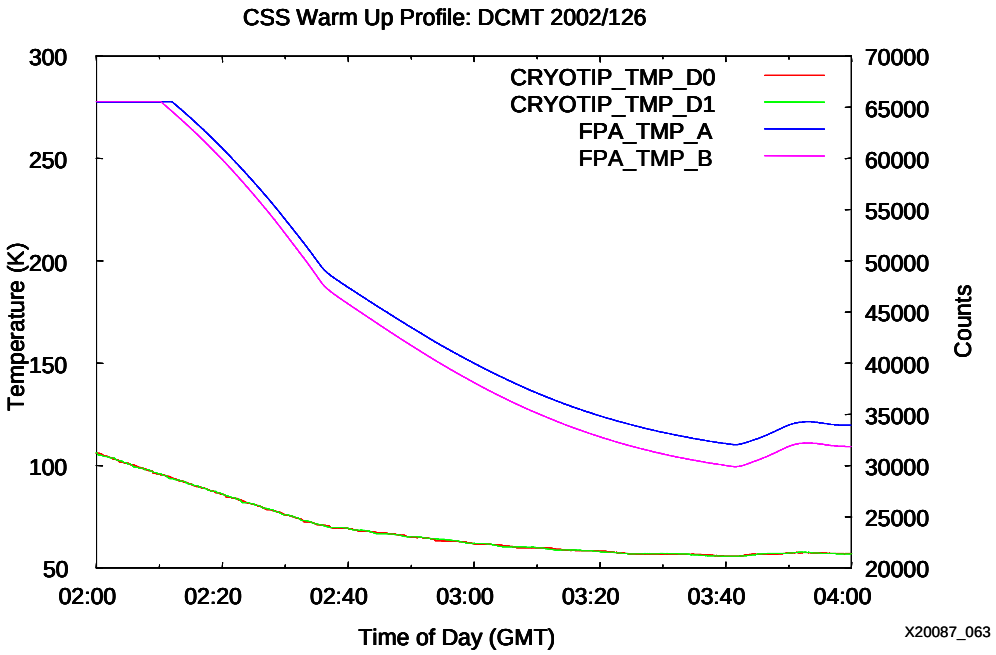

Figure 6-3

Chopper 2002/126

TWS_CHOP_MTR_1, CHOP_MOT_TMP, CHOP_HGS_TMP, CHOP_HGS_TMP, CHOP_HGS_TMP show no susceptibility from the magnetic field testing in X, Y, or Z axis. (See **Figure 6-4**.)

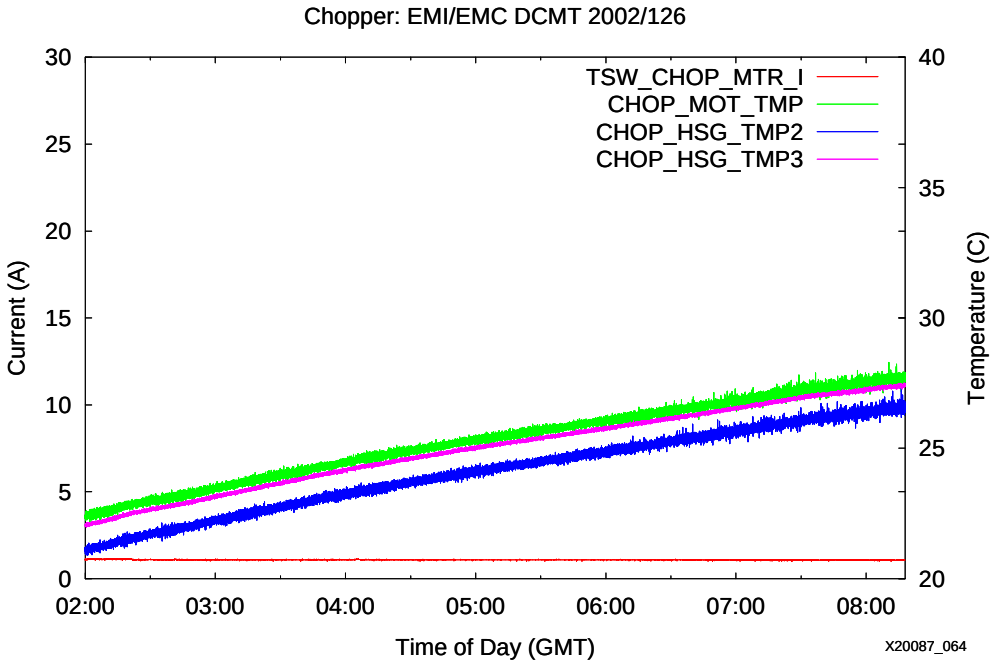

Figure 6-4

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DCMT Archive Integrity & Quiet Bus Current

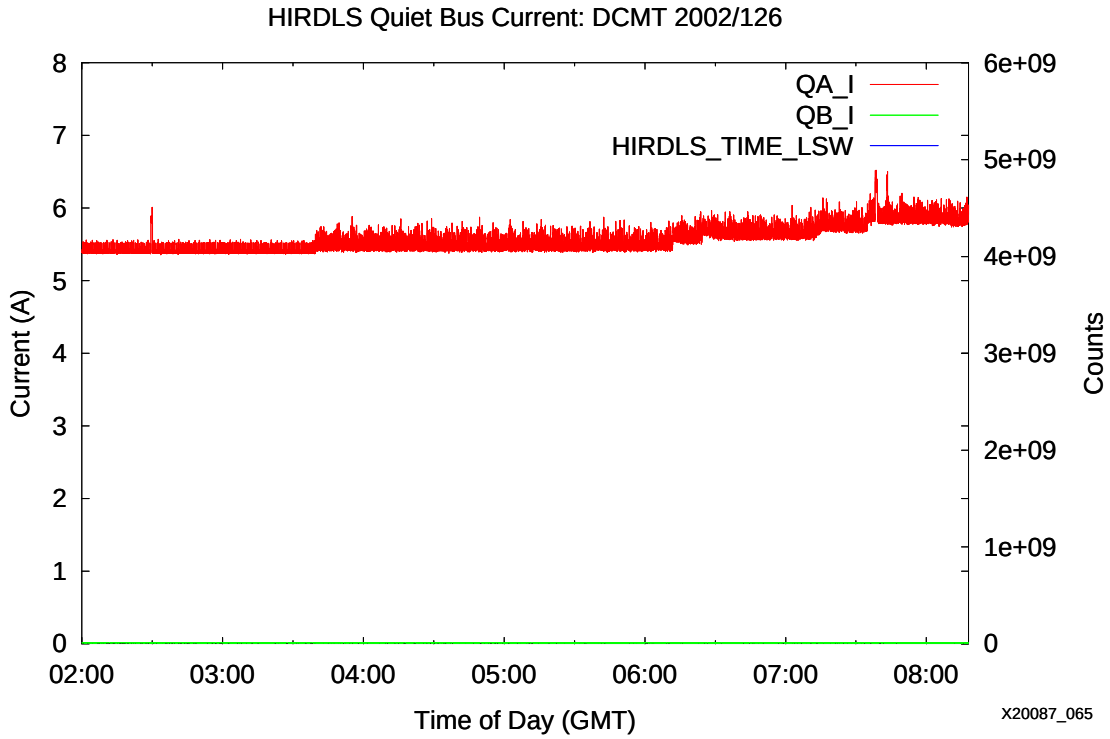

Figure 6-5

Check Time Sequence

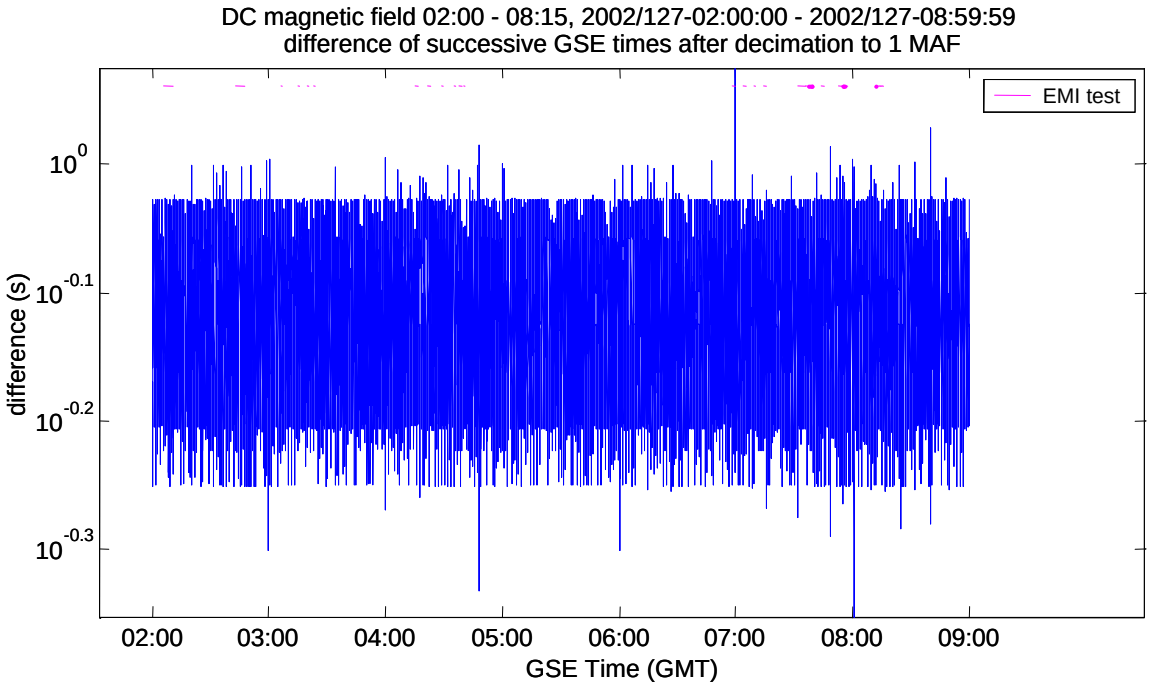

Figure 6-6

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Noise: Primary Encoders

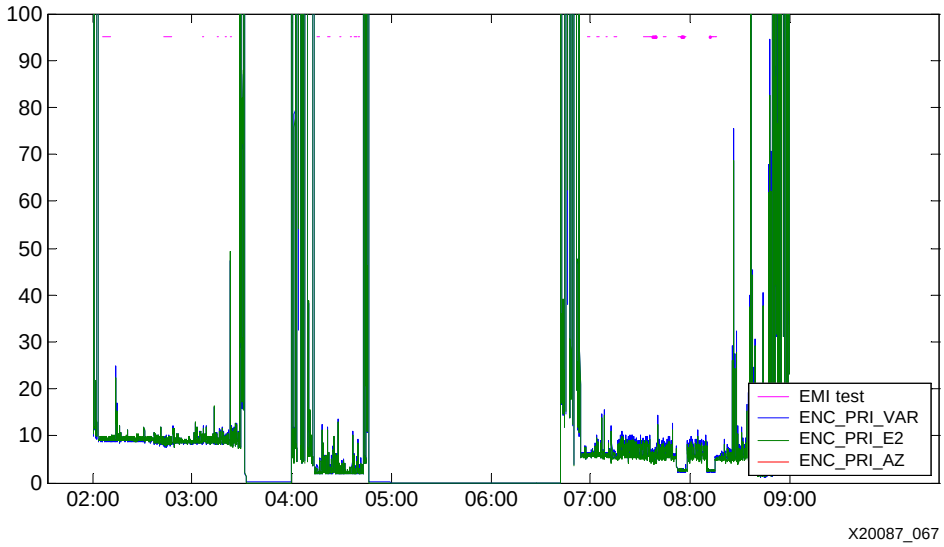

Figure 6-7

Noise: Primary Encoders

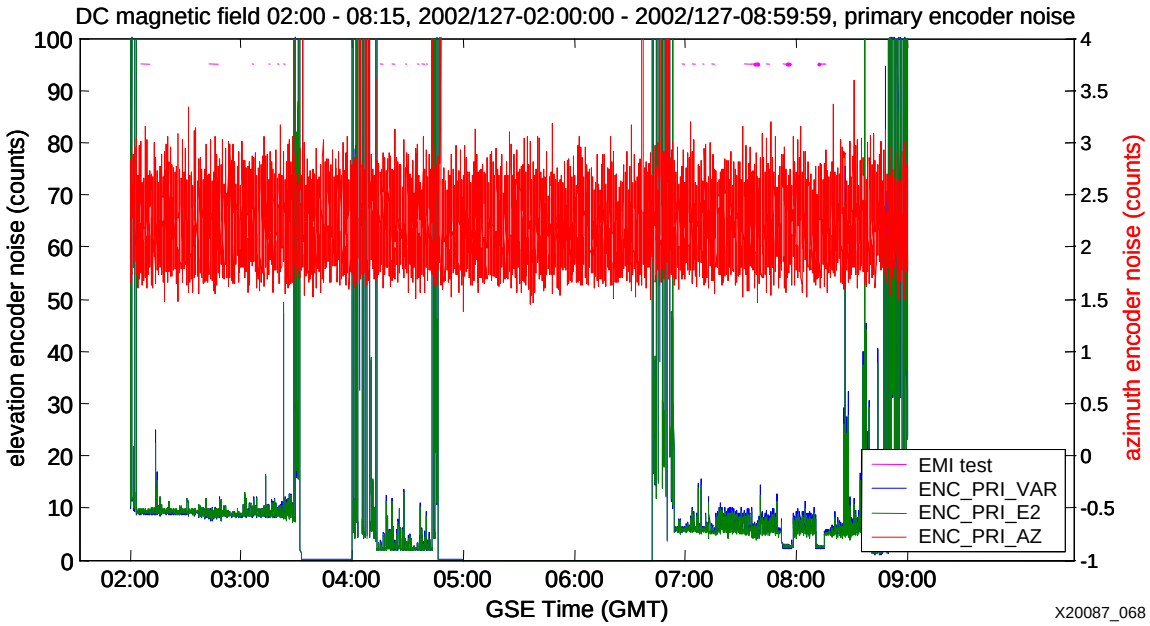

Figure 6-8

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Noise: Primary Encoders (1 of 3)

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing marked in pink) The ENC_PRI_AZ shows noise spikes on signal, this noise is from a source other then magnetic field of the susceptibility test. (See **Figure 6-9**.)

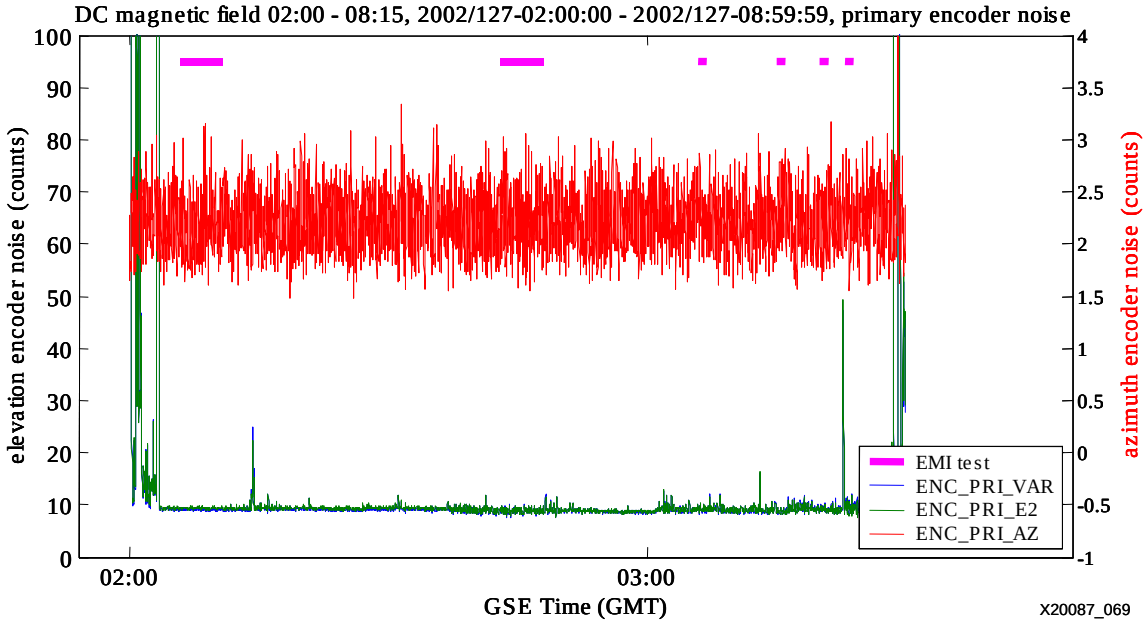

Figure 6-9

Noise: Primary Encoders (2of 3)

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing marked in pink) (See **Figure 6-10**.)

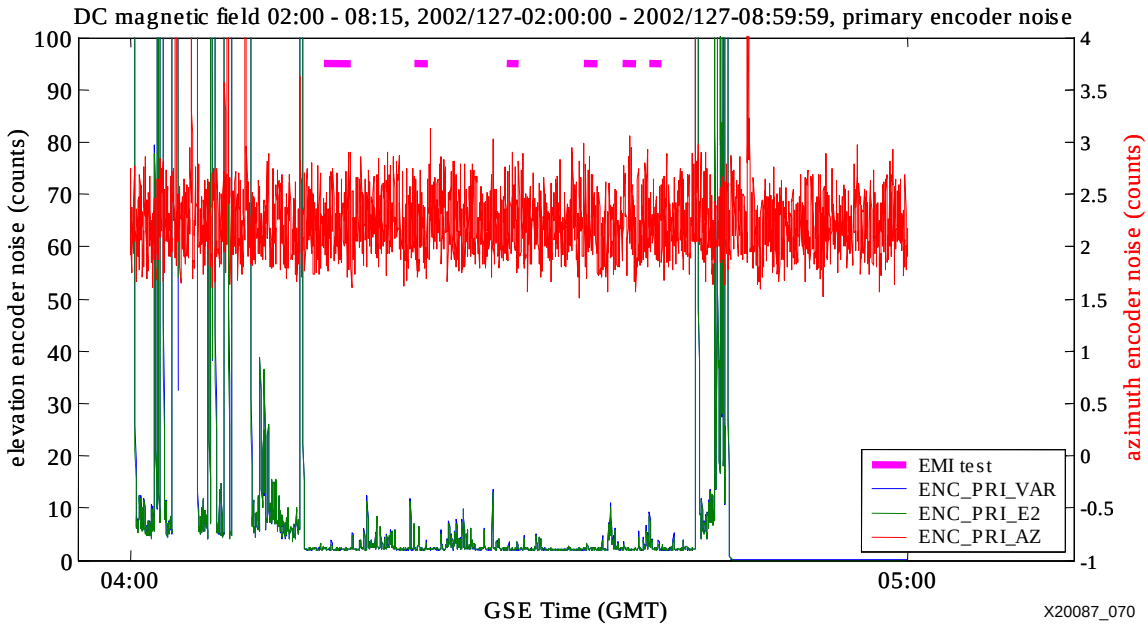

Figure 6-10

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Noise: Primary Encoders (3 of 3)

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing marked in pink) (See **Figure 6-11**.)

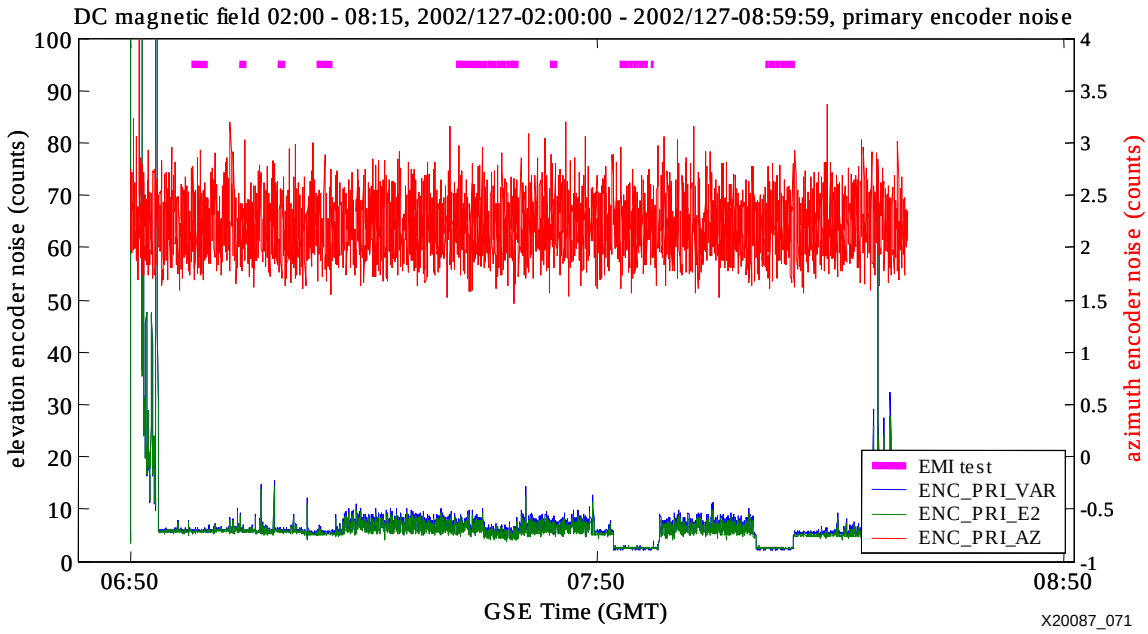

Figure 6-11

Noise: Secondary Encoders

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing marked in pink) (See **Figure 6-12**.)

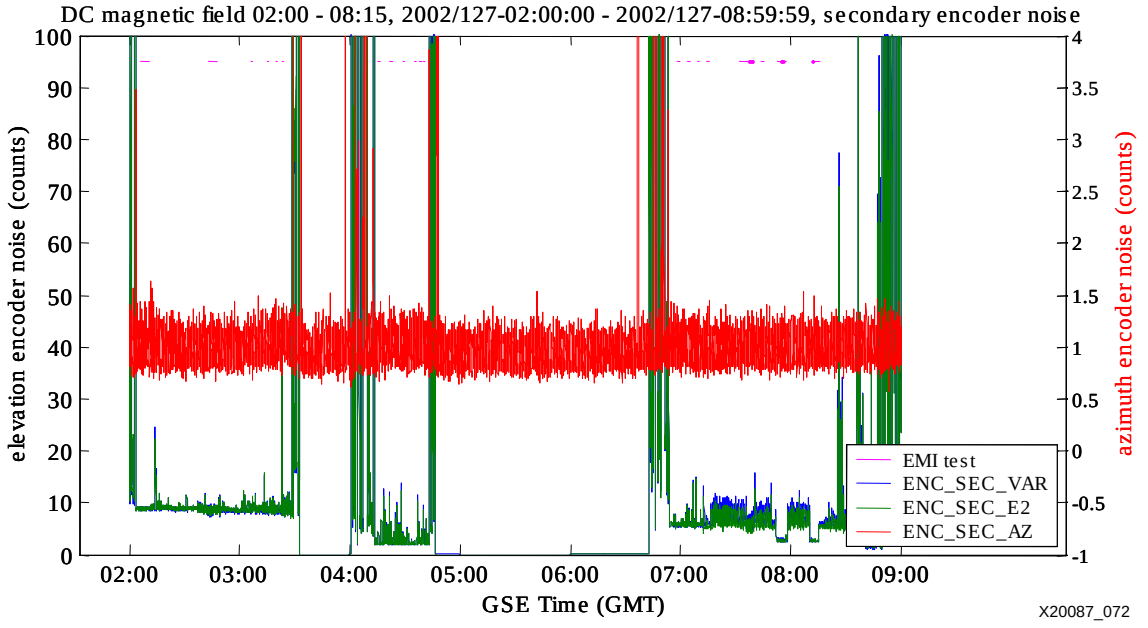

Figure 6-12

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Noise: Secondary Encoders (1 of 3)

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing marked in pink) (See **Figure 6-13**.)

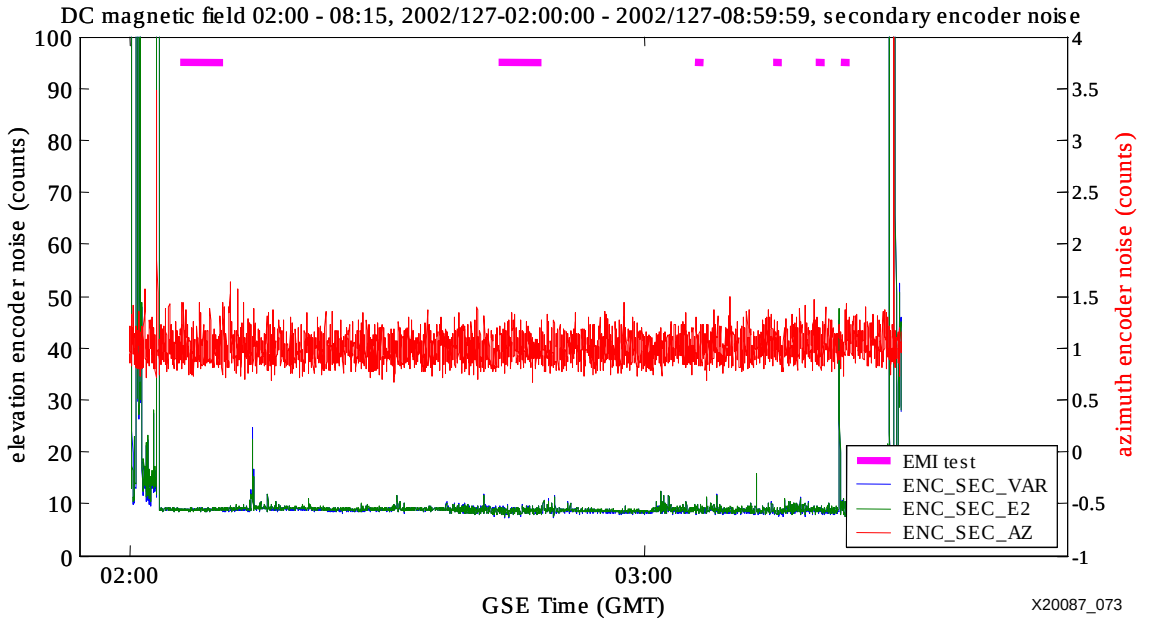

Figure 6-13

Noise: Secondary Encoders (2 of 3)

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing marked in pink) (See **Figure 6-14**.)

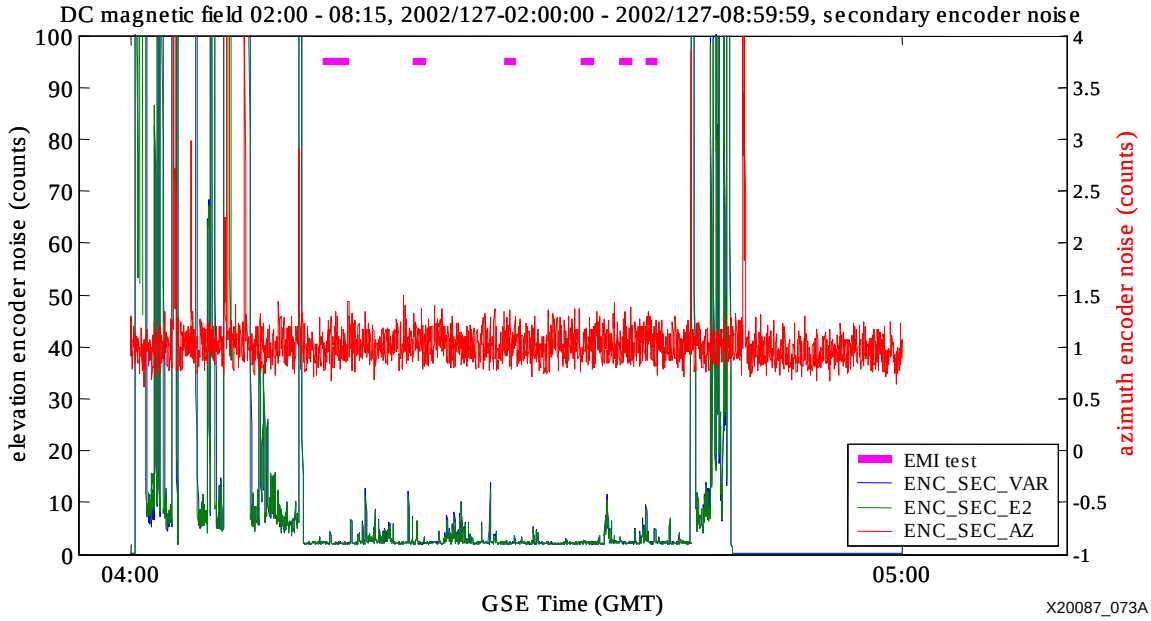

Figure 6-14

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Noise: Secondary Encoders (3 of 3)

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing marked in pink) (See **Figures 6-15** and **6-16**.)

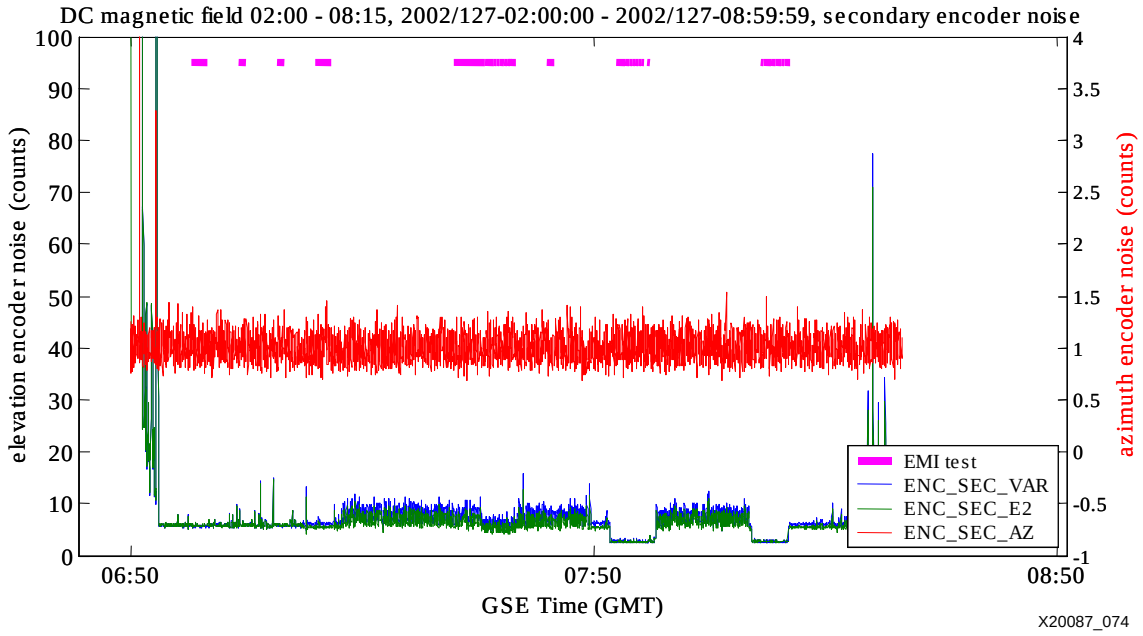

Figure 6-15

Noise: Radiance Channels 1-7

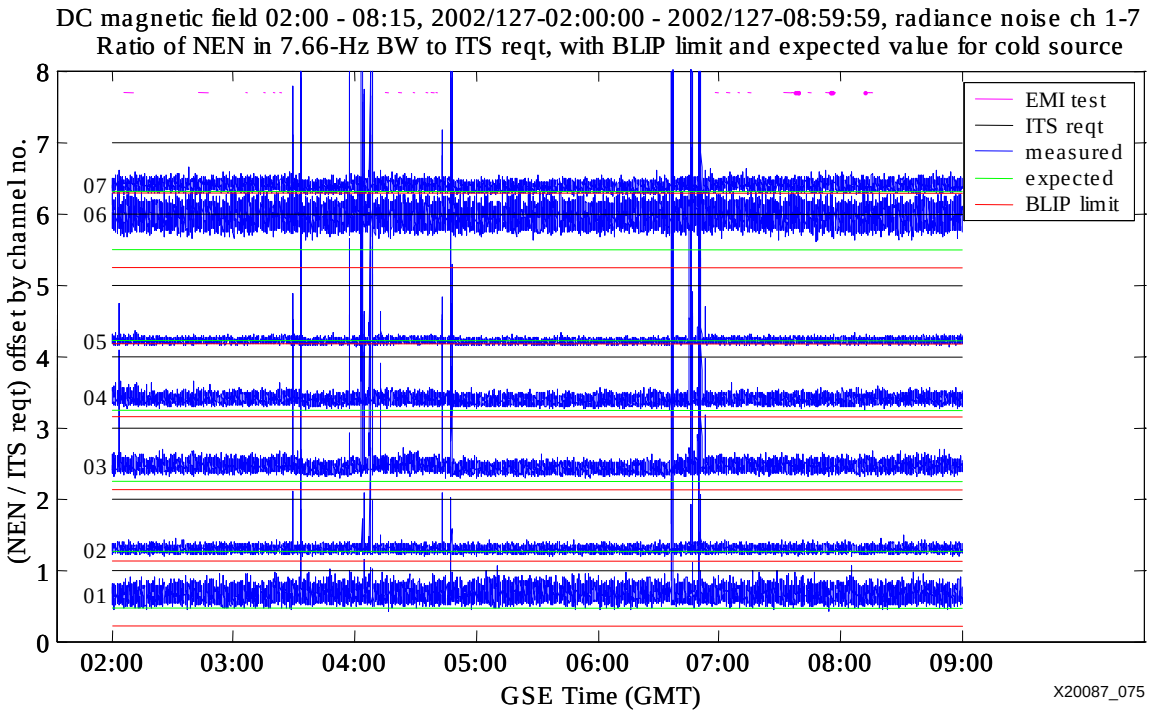

Figure 6-16

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Noise: Radiance Channels 1-7 (2 of 3)

Plot shows that there is no magnetic field susceptibility in the areas of the testing. (area of testing marked in pink) (See **Figures 6-17** and **6-18**.)

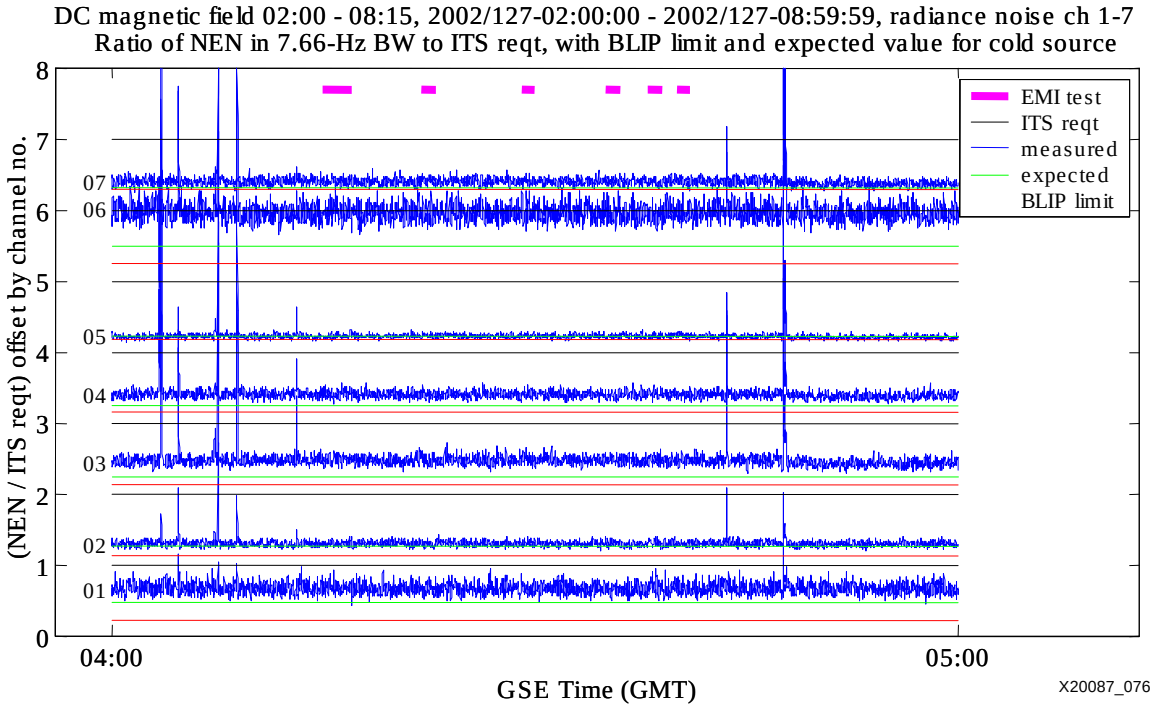

Figure 6-17

Noise: Radiance Channels 1-7 (3 of 3)

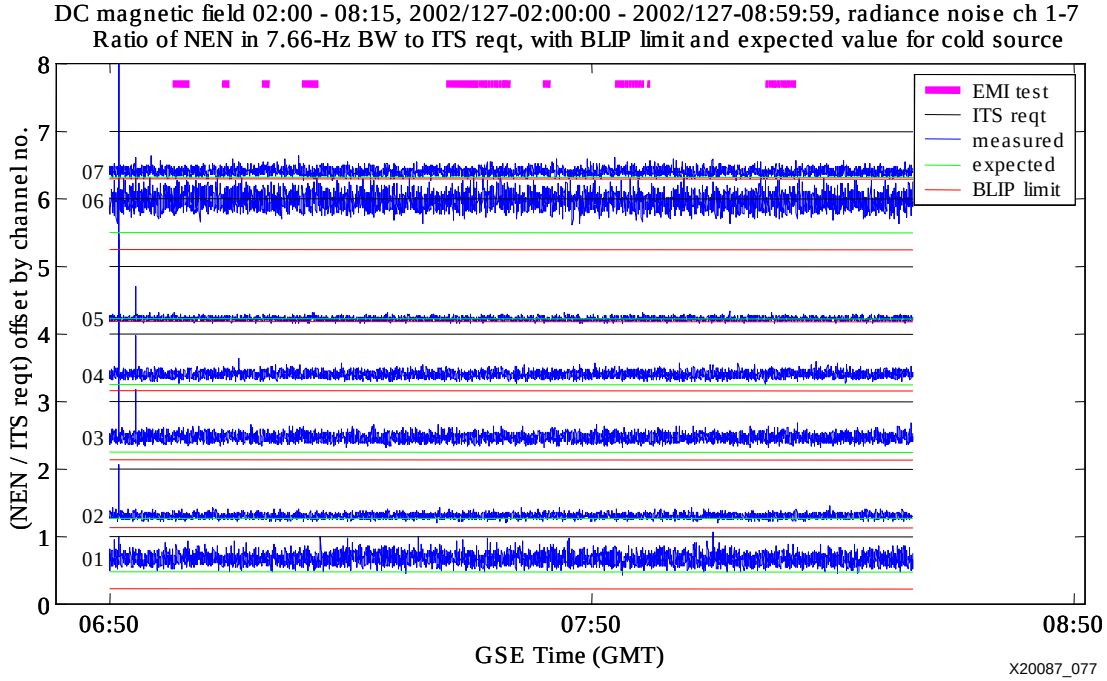

Figure 6-18

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Noise: Radiance Channels 8-14

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing marked in pink) (See **Figures 6-19** and **6-20**.)

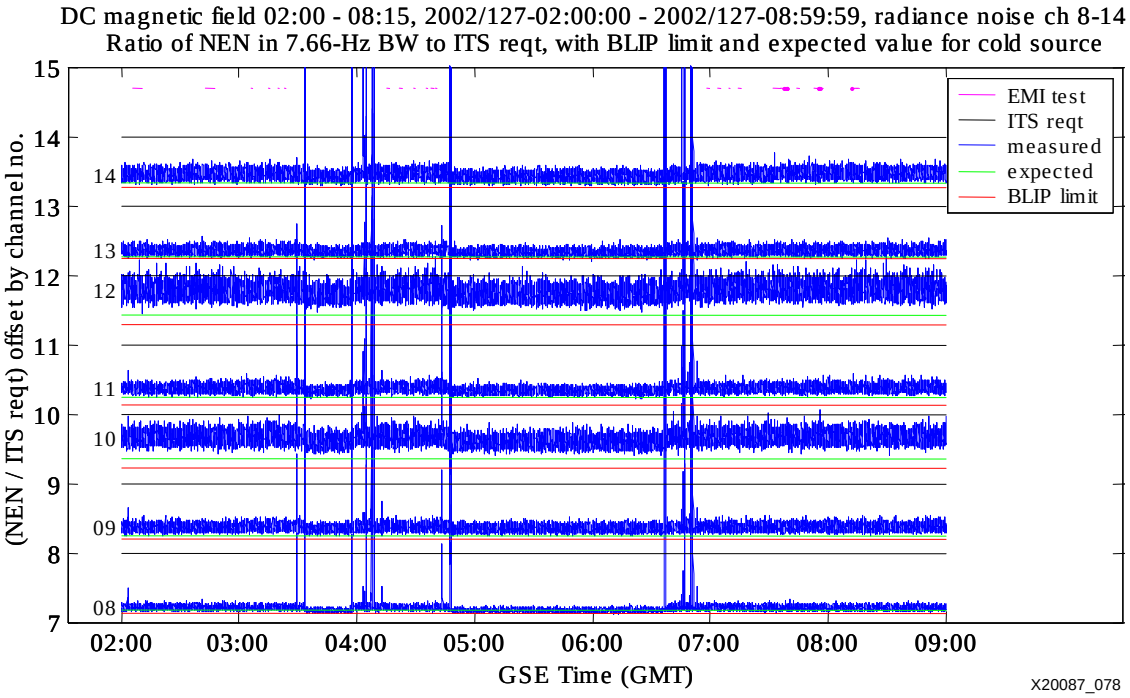

Figure 6-19

Noise: Radiance Channels 8-14 (1 of 3)

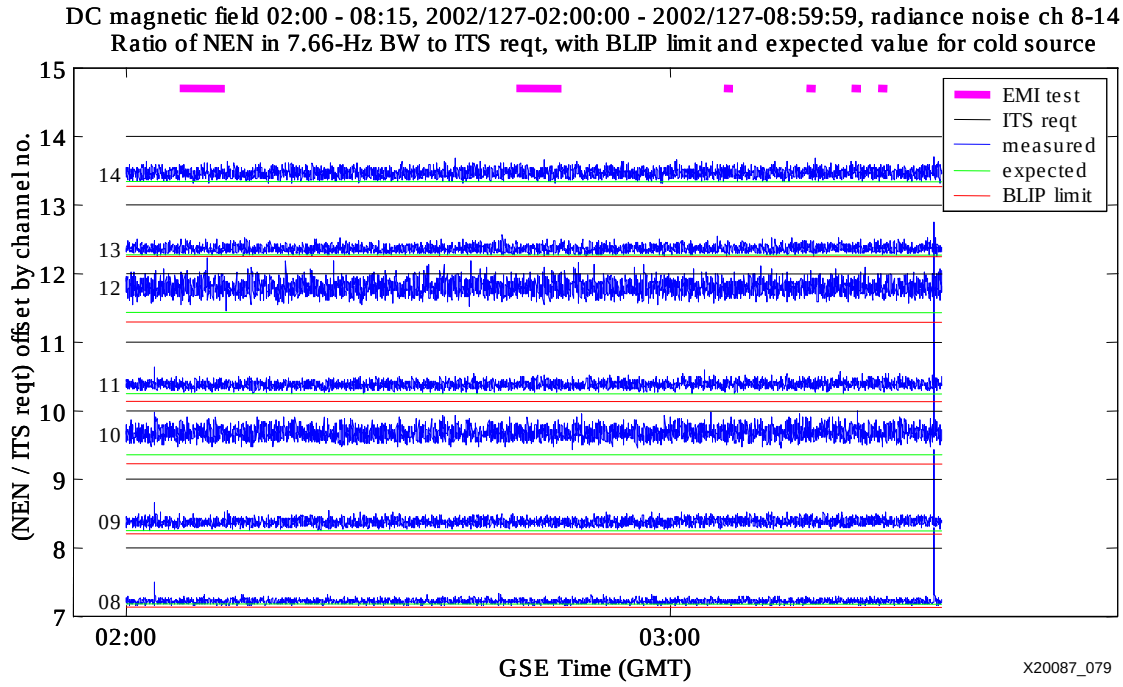

Figure 6-20

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Noise: Radiance Channels 8-14 (2 of 3)

Plot shows that there is no magnetic field susceptibility in areas of testing. (area of testing marked in pink) (See **Figure 6-21**.)

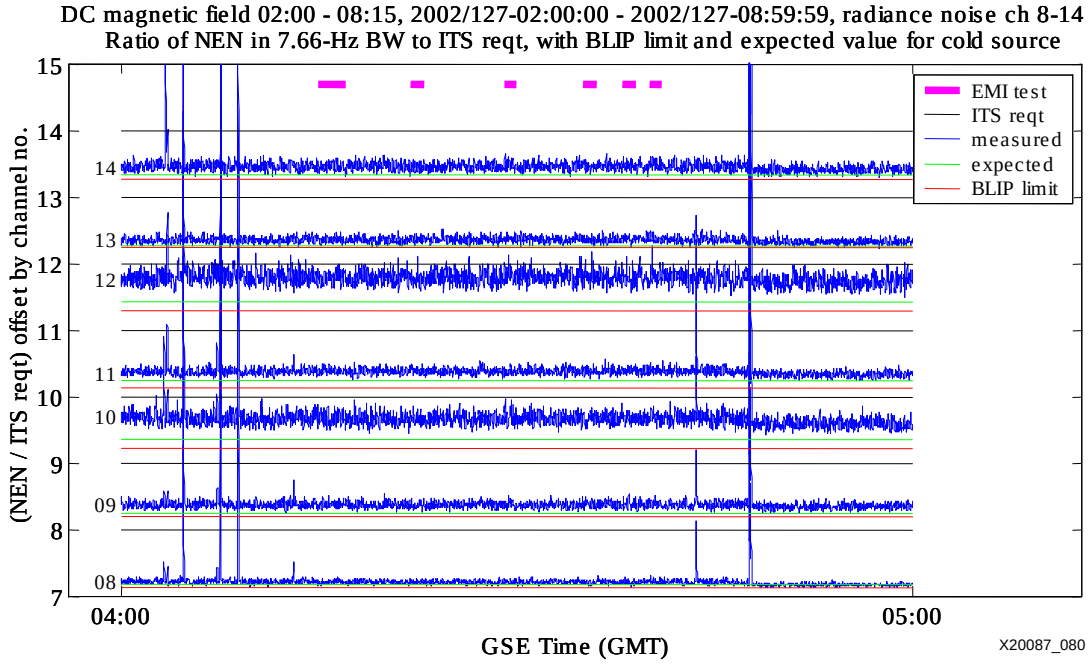

Figure 6-21

Noise: Radiance Channels 8-14 (3 of 3)

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing marked in pink) (See **Figure 6-22**.)

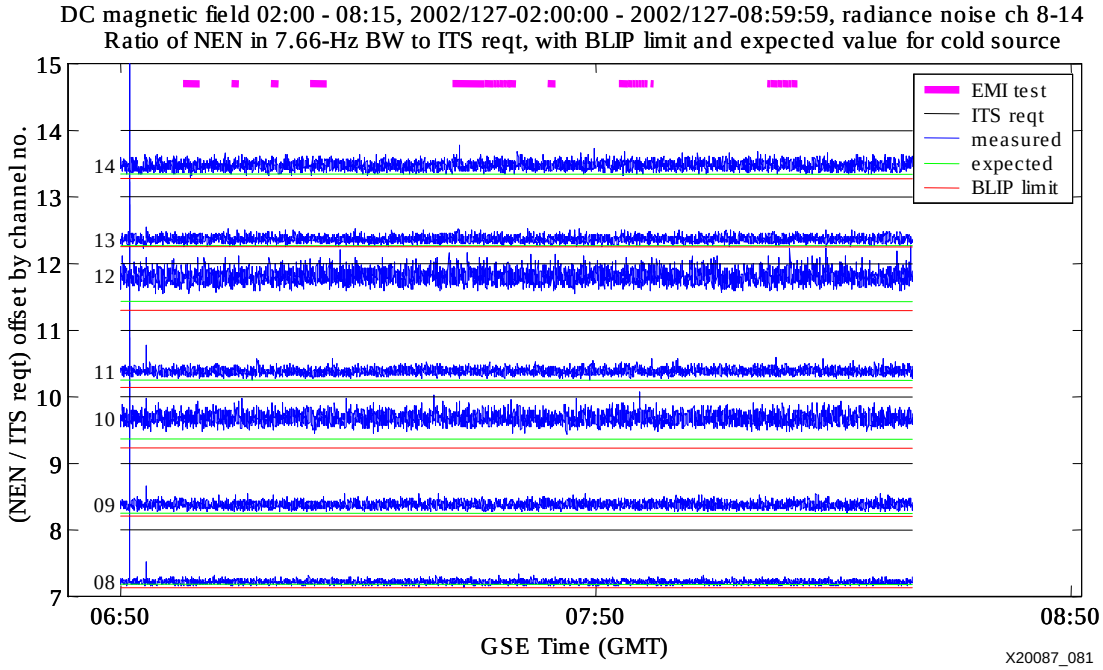

Figure 6-22

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Noise: Radiance Channels 15-21

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing marked in pink) (See **Figure 6-23**.)

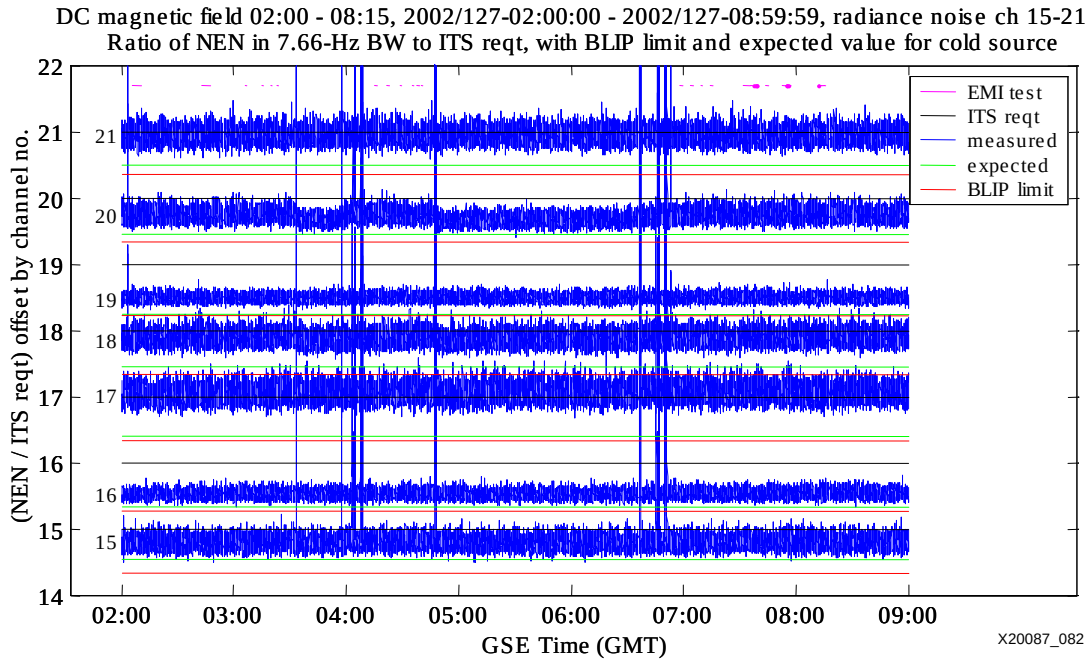

Figure 6-23

Noise: Radiance Channels 15-21 (1 of 3)

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing marked in pink) (See **Figure 6-24**.)

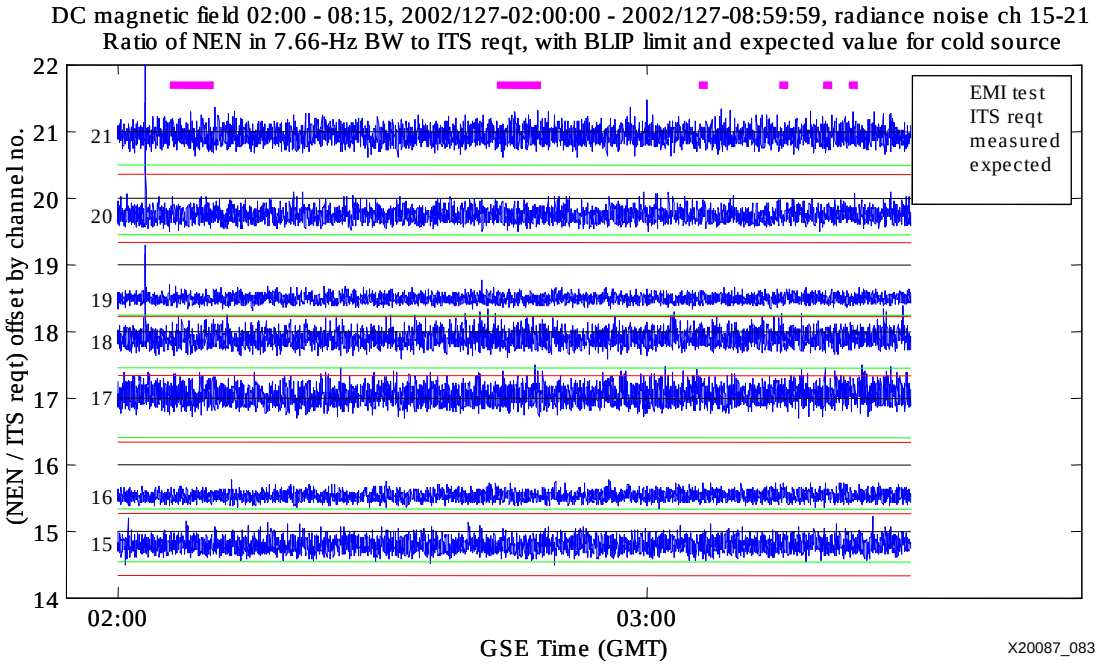

Figure 6-24

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Noise: Radiance Channels 15-21 (3 of 3)

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing marked in pink) (See **Figure 6-25**.)

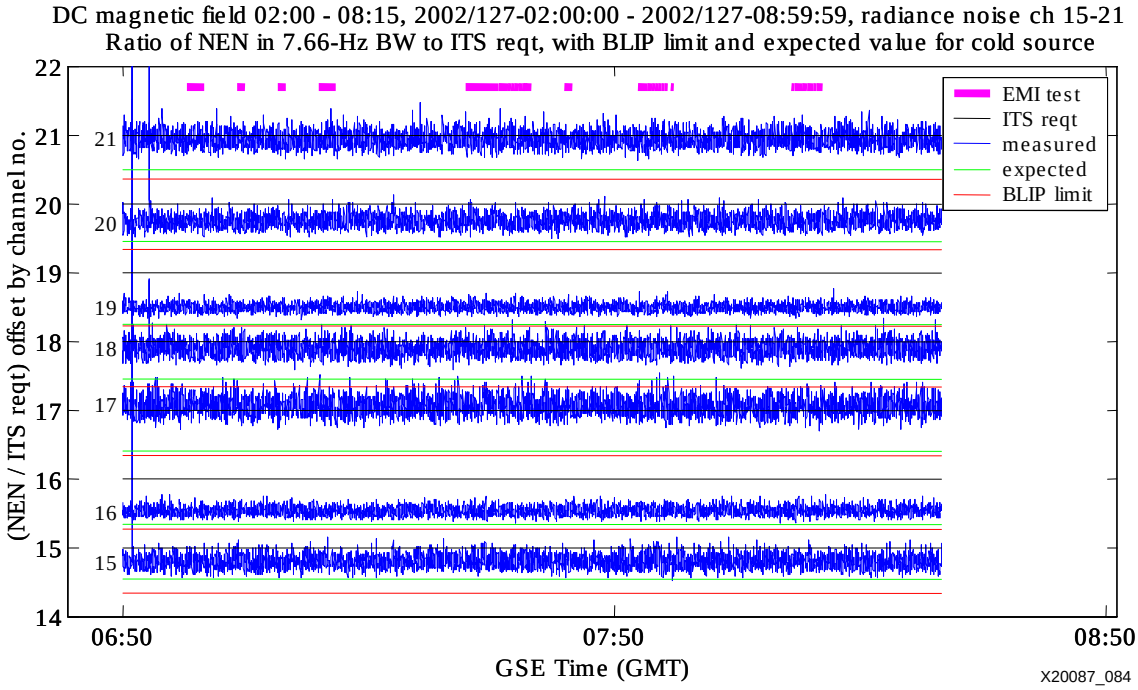

Figure 6-25

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DCMT Box Temps (1 of 3)

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing see time-line for test times) (See **Figure 6-26**.)

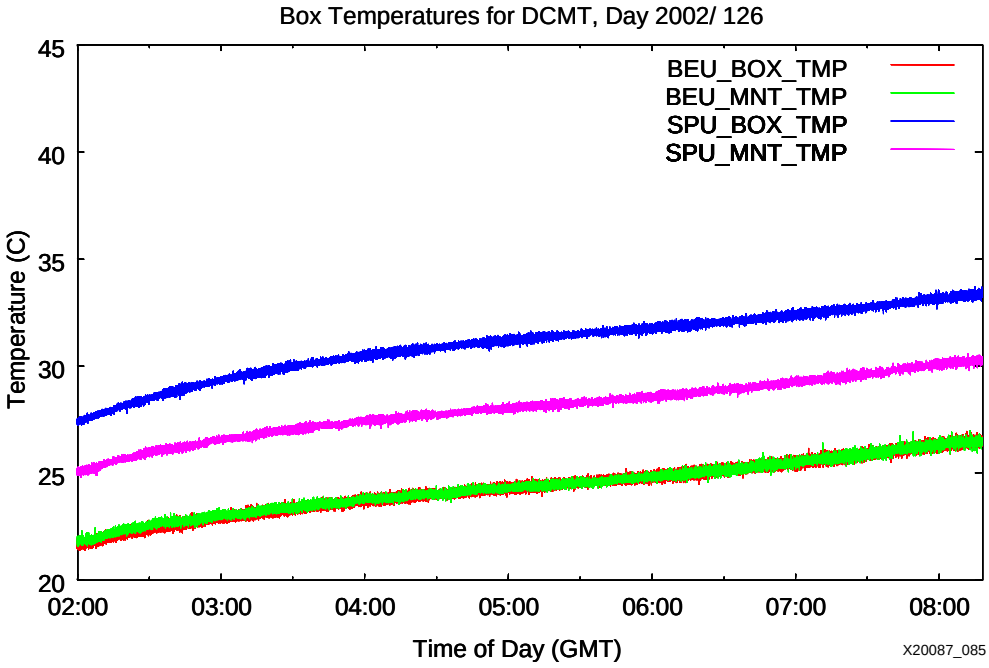

Figure 6-26

DCMT Box Temps (2 of 3)

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing see time-line for test time) The TEU_MNT_TMP shows noise spikes on signal, this noise is from a source other then magnetic field of the susceptibility test. (See **Figure 6-27**.)

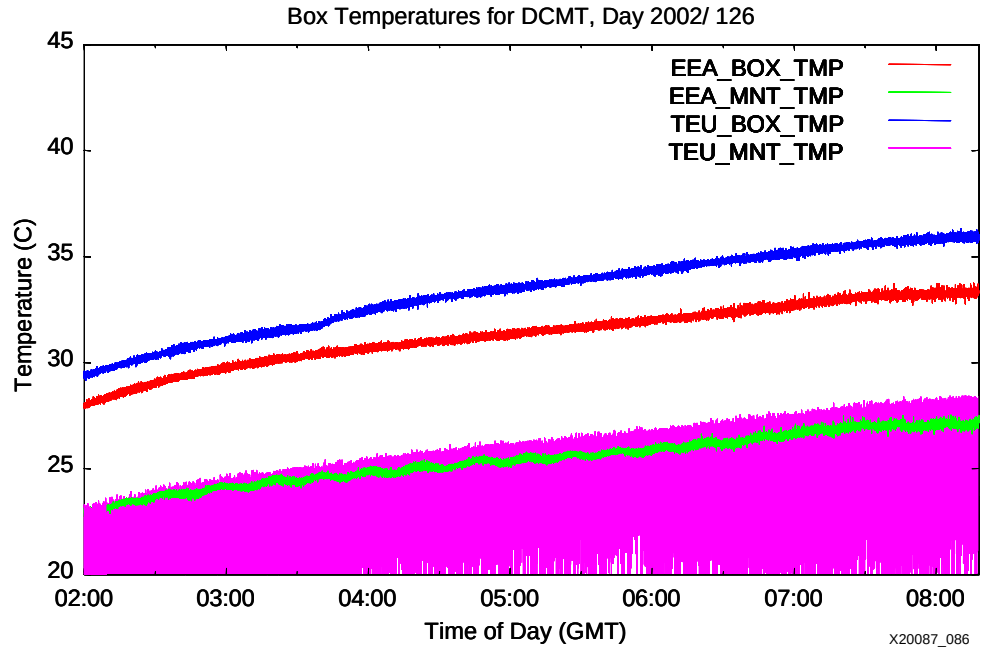

Figure 6-27

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DCMT Box Temps (3 of 3)

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing see time-line for test time) (See **Figure 6-28**.)

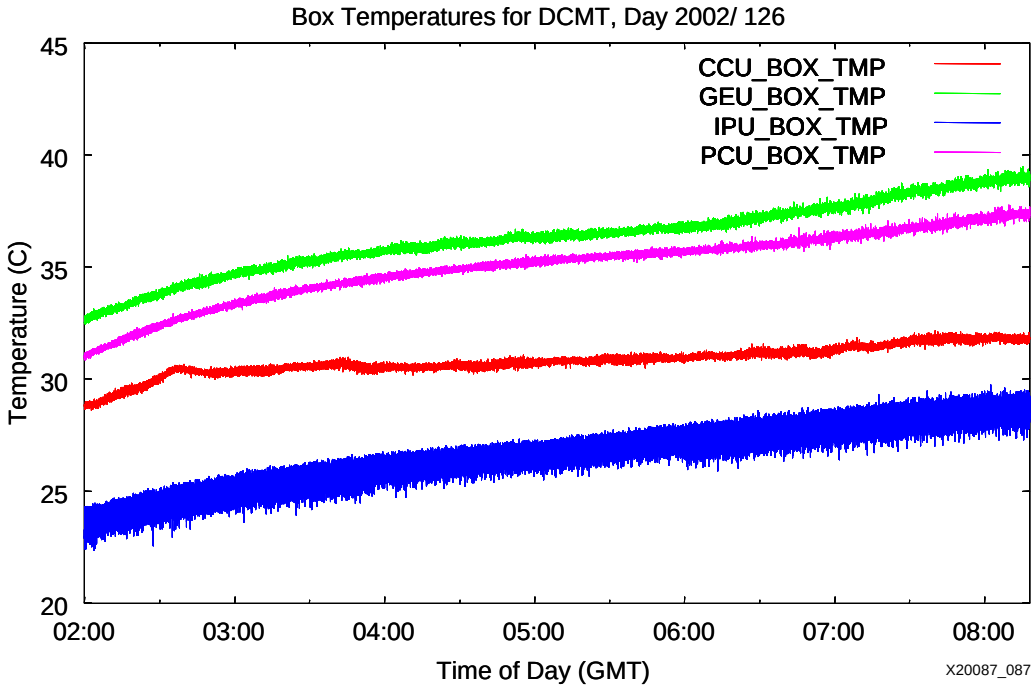

Figure 6-28

DCMT OBA Temperatures (1 of 4)

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing see time-line for test time) (See **Figure 6-29**.)

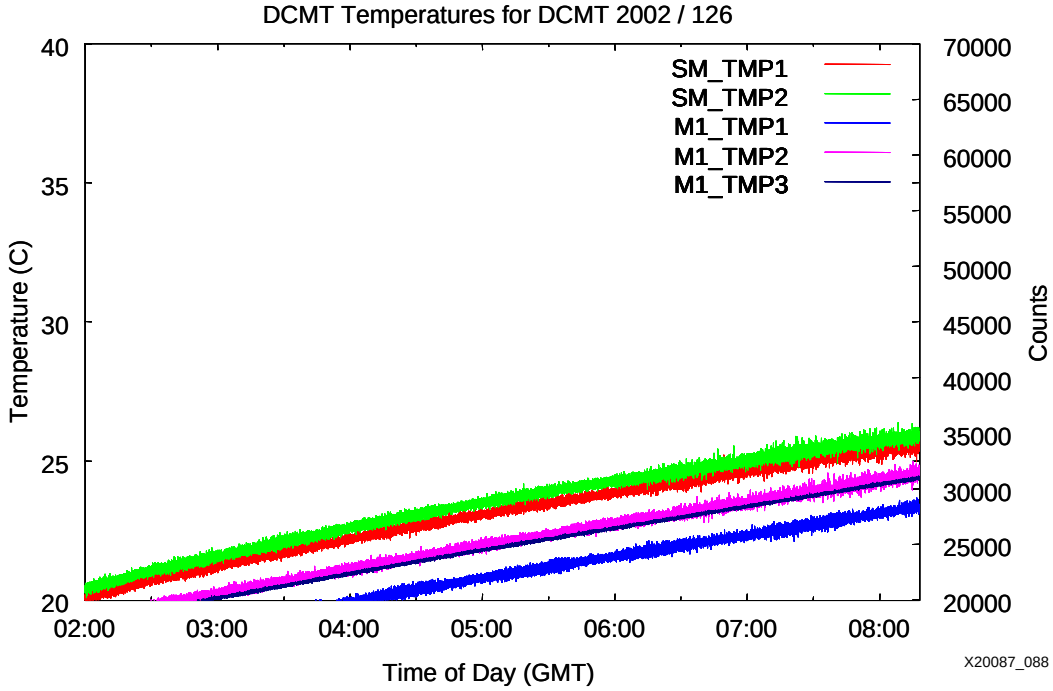

Figure 6-29

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DCMT OBA Temperatures (2 of 4)

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing see time-line for test time) (See **Figure 6-30**.)

The LNS2_TMP3 shows noise spikes on signal, this noise is from a source other then magnetic field of the susceptibility test.

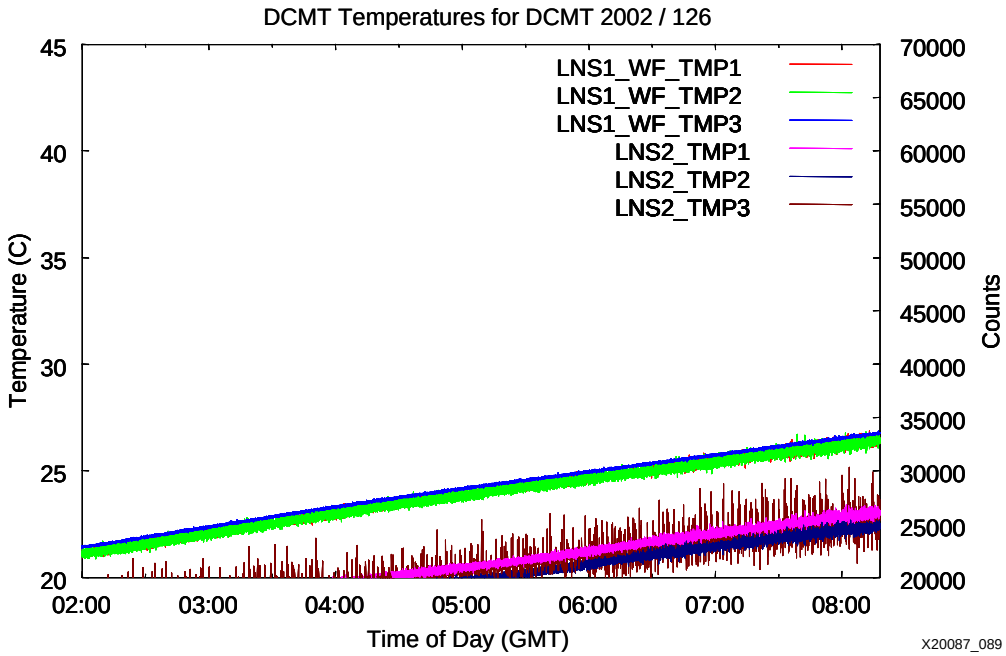

Figure 6-30

DCMT OBA Temperatures (3 of 4)

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing see time-line for test time) (See **Figure 6-31**.)

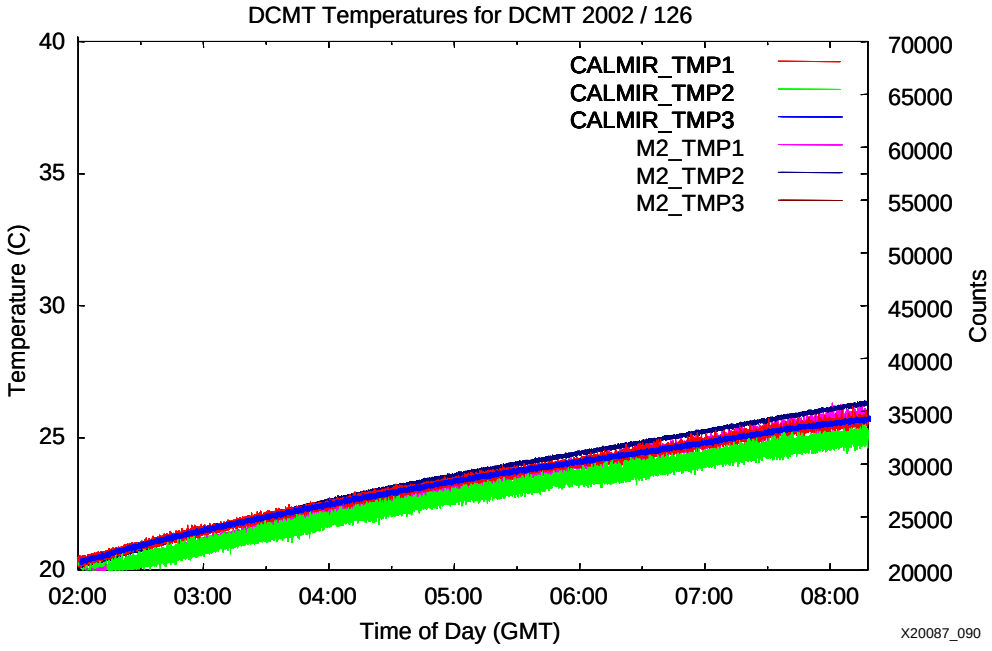

Figure 6-31

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DCMT OBA Temperatures (4 of 4)

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing see time-line for test time) (See **Figure 6-32**.)

The LNSASSY_TMP2 and SPVUMIR_TMP2 shows noise spikes on signal, this noise is from a source other then magnetic field of the susceptibility test.

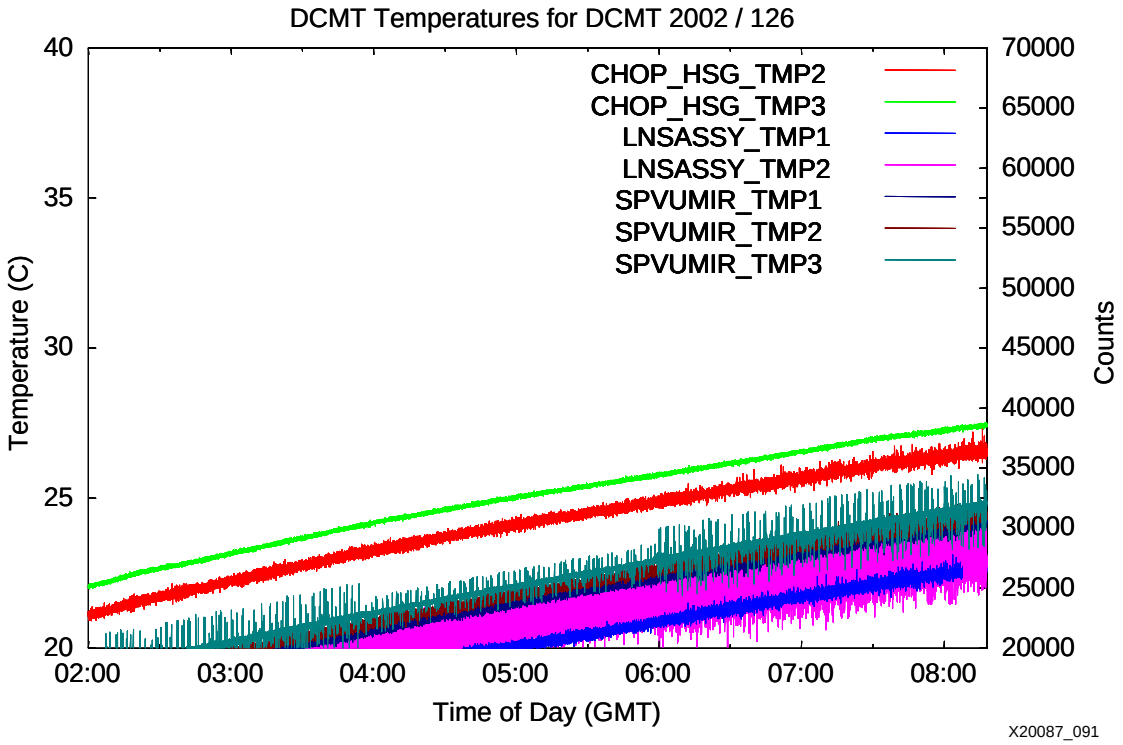

Figure 6-32

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DCMT Gyro Temperatures 2002/126

Plot shows that there is no magnetic field susceptibility in the areas of testing. (area of testing see time-line for test time) (See **Figure 6-33**.)

The GRY0_TMP, GRY1_TMP, GRY2_TMP, GRY3_TMP shows noise spikes on signal starting at 06:15:00, this noise is from a source other then magnetic field of the susceptibility test. The noises started at about 06:15:00, the magnetic field did not start until 06:58:00.

CONCLUSIONS: The tests did not exhibit any failures during the DC Magnetic Field Susceptibility tests. After further analysis of the test data plots, no failed parameters noted on plots to indicate susceptibility by DC magnetic field.

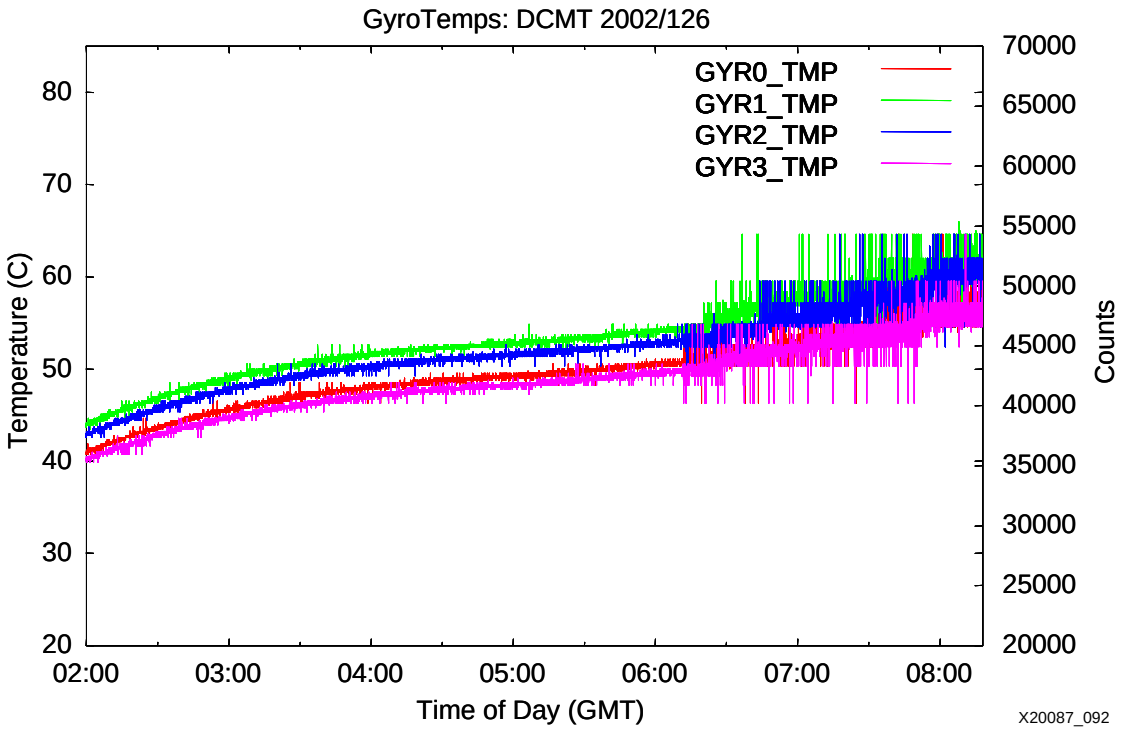

Figure 6-33

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SECTION A, TEST NOTES/SET-UP NOTES/RED LINE CHANGES

HIRDLS Lateral Coil Frame Fixture (SK14182) Assembly Procedure

Equipment:
Rope
Tools

Inspection to witness all operations

1. Conduct briefing of operations to be performed, personnel roles, and safety precautions.

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2. Using four people, position the coil frame in desired location then lift the coil frame to vertical position by pivoting on bottom edge. **CAUTION:** The coil frame weighs approx 140 lbs. Do not lift near critical hardware or allow to stand without at least two people supporting ends.

3. Position the caster side support near one side of coil frame. Install caster side support to coil frame.

4. Position the opposite caster side support. Then install the caster side support.

5. Verify the all the restraining rods and nuts are snug. Verify proper motion and stability of assembly. Verify operation complete.

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HIRDLS Vertical Coil Frame Fixture (SK14182) Assembly Procedure

Equipment:

- 2 carts
- 2 Ladders
- Rope
- Tools

Inspection to witness all operations

1. Conduct briefing of operations to be performed, personnel roles, and safety precautions. Establish area where frame is to be assembled and precautions and keepout areas around the test specimen.

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2. Using a minimum of 4 people carefully raise one side frame (approx 150 lbs). Then position and carefully raise the other side frame.

3. While supporting the side frames, install front crossbeam with diagonals (approx 40 lbs). Then install back crossbeam with diagonals. Tighten all bolts and nuts. **CAUTION:** The side frames must be supported with adequate personnel during this operation to prevent them from possibly falling over.

4. Lift one side of frame and set on 6 inch blocks. Install casters with swivel locks on the bottom of side frame beam on the raised side, then lift side slightly, remove blocks, and set on casters. Repeat for other side of frame.

5. Install cable assemblies and 3 overhead pulley support beams (approx 27 lbs each) as a unit. Tighten all bolts and nuts.

6. Install 4 pulleys to the side beams. Attach with 3 bolts each. Tighten all bolts and nuts.

7. Position 2 carts supporting coil frame and counterweight under support frame. Make sure cables are routed properly, then connect cable assembly to 4 corners of the coil frame.

8. Using one person at each corner carefully lift coil frame (approx 140 lbs) until the counterweight can be attached, then attach counterweight. Slowly lower the coil frame until it's weight is supported by cables.

9. Verify all nuts and bolts and installed and tightened. Verify that cables are run properly. Verify free motion of the coil frame up and down. Then tie ropes to secure coil frame in upper position.

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10. Make sure that wheel locks are off and swivel locks are in the desired position on the casters. Using a minimum of 4 people carefully move the frame into test position around the test specimen. Lock all caster wheels. Carefully remove the ropes securing the coil frame and lower frame to the desired test position. Secure area, power up coil, and run test series. .

    _____ Engr A 616071A QA 5/6/02

11. Repeat step 10 for other two positions.

12. Verify power is removed from coil. Raise coil frame to upper position and secure at each corner with ropes. Unlock wheels and move frame to a convenient location away from test specimen. .

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Red Line Change **TP-LOC-820**

DC Magnetics Coil Assembly

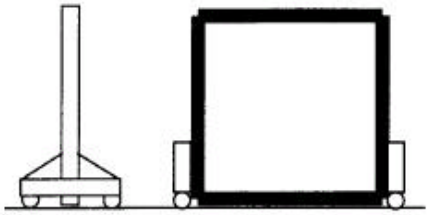

Figure 1
Note: Perform with Instrument power Off

13.9.3.1 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point B, lower down to support Instrument on block.

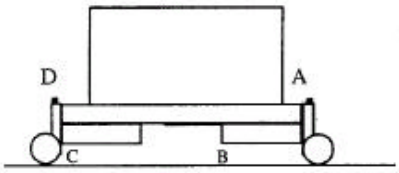

Figure 1

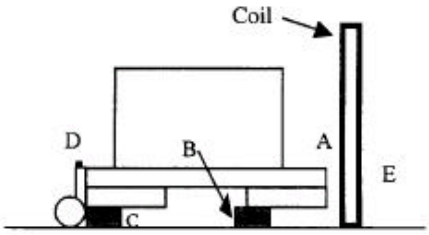

Figure 2

13.9.3.2 With handtruck, lift instrument cart end D, up 7 inch. Place 6 inch block under frame of Instrument support cart at point C, lower down to support Instrument on block.

13.9.3.3 Slide coil assembly under Instrument support cart.

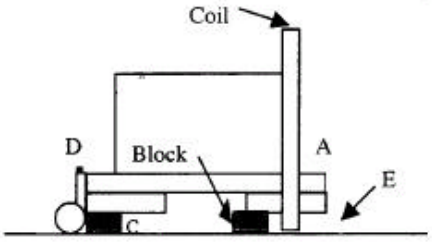

Figure 3

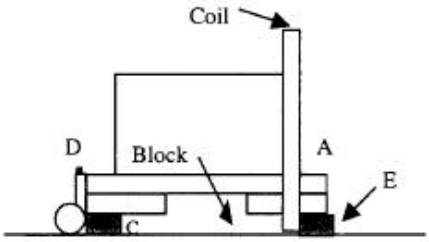

Figure 4

13.9.3.4 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point E, lower down to support Instrument on block.

13.9.3.5 Position coil at point X1 and perform DC magnetic field test. Move coil to X2, X3 and perform test.

Red Line Change **TP-LOC-820**

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MAY 06 2002

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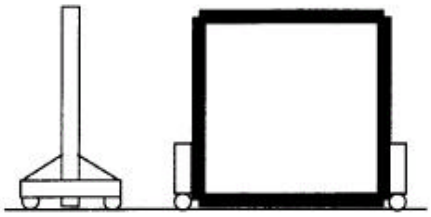
DC Magnetics Coil Assembly

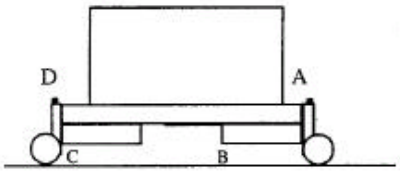


X20087_093

Figure 1

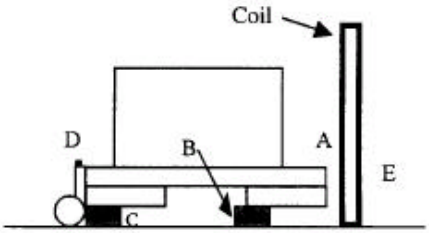
Note: Perform with Instrument power Off

13.9.3.1 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point B, lower down to support Instrument on block.



X20087_094

Figure 1

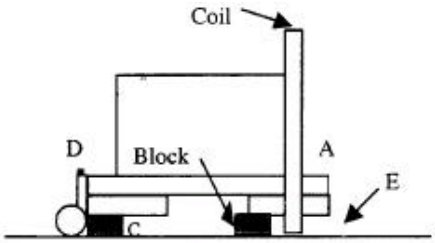


X20087_095

Figure 2

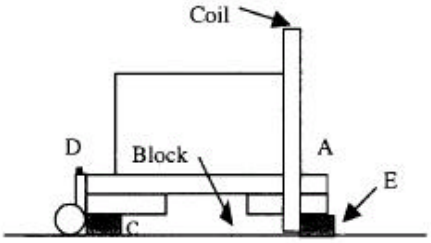
13.9.3.2 With handtruck, lift instrument cart end D, up 7 inch. Place 6 inch block under frame of Instrument support cart at point C, lower down to support Instrument on block.

13.9.3.3 Slide coil assembly under Instrument support cart.



X20087_096

Figure 3



X20087_097

Figure 4

13.9.3.4 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point E, lower down to support Instrument on block.

13.9.3.5 Position coil at point X1 and perform DC magnetic field test. Move coil to X2, X3 and perform test.

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Red Line Change TP-LOC-820

13.9.3.6 Move coil back to block E when test is complete.

13.9.3.7 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point E, lower down to support Instrument on block.

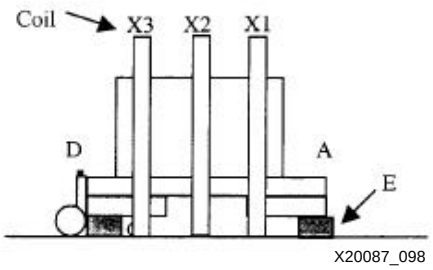

Figure 5

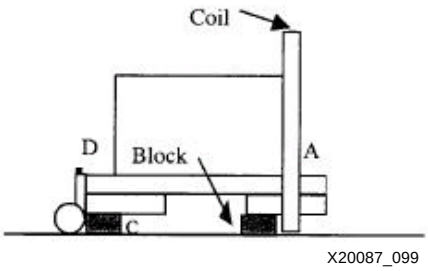

Figure 6

13.9.3.8 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point B, lower down to support Instrument on block.

13.9.3.9 Move coil off of Instrument.

Y-Axis DC Magnetic Field Test

13.9.3.10 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point B, lower down to support Instrument on block.

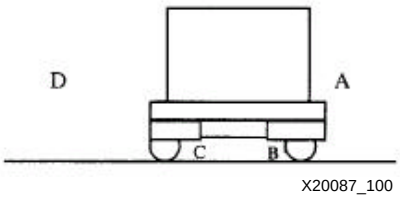

Figure 7

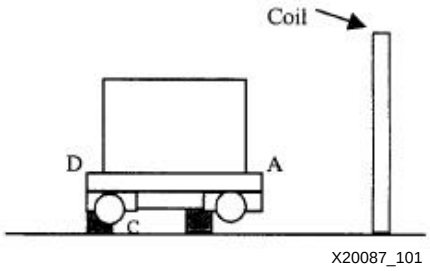

Figure 8

13.9.3.11 With handtruck, lift instrument cart end D, up 7 inch. Place 6 inch block under frame of Instrument support cart at point C, lower down to support Instrument block.

13.9.3.12 Slide coil assembly under Instrument support cart.

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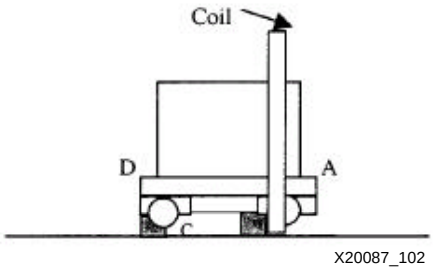

Figure 9

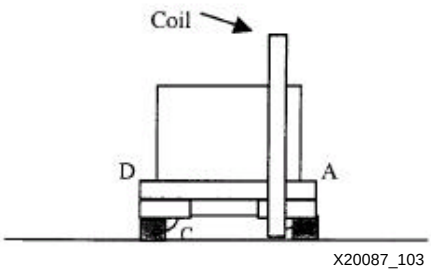

Figure 10

13.9.3.13 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point E, lower down to support Instrument on block.

13.9.3.14 Position coil at point X1 and perform DC magnetic field test. Move coil to X2, X3 and perform test.

13.9.3.15 Move coil back to block E when test is complete.

13.9.3.16 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point E, lower down to support Instrument on block.

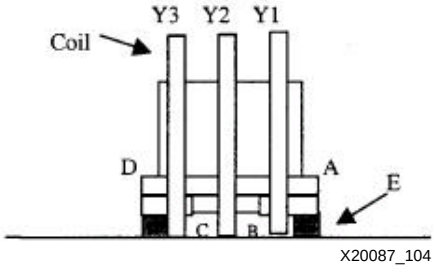

Figure 11

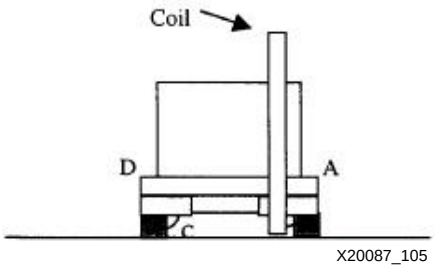

Figure 12

13.9.3.17 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point B, lower down to support Instrument on block.

13.9.3.18 Move coil off of Instrument.

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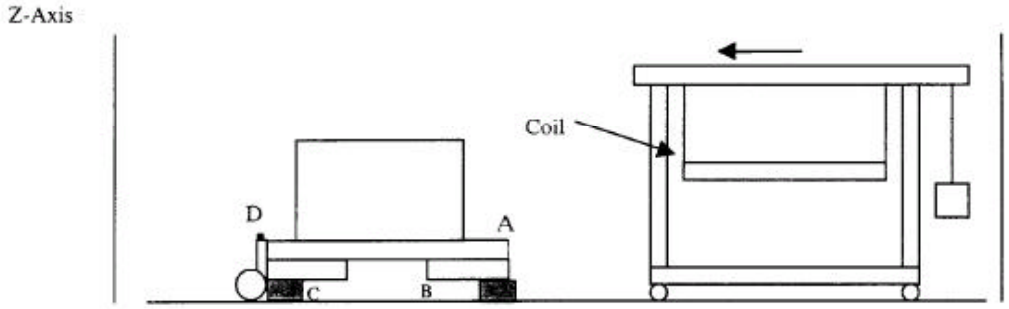
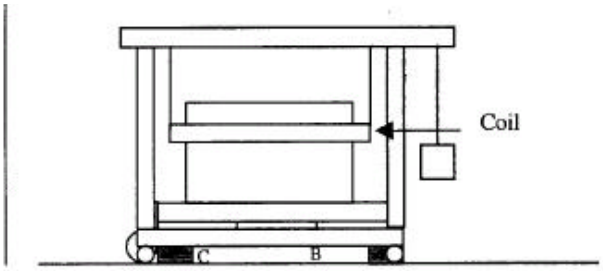


X20087_106

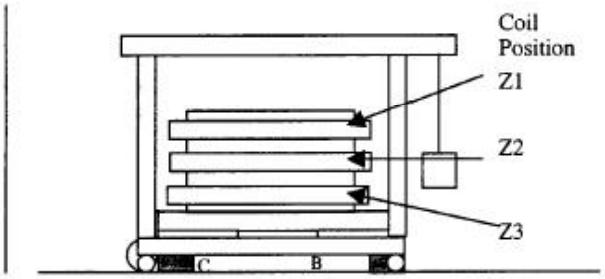
13.9.3.19 With Instrument up on blocks. Raise the coil in support cage to top most position and tie in place.

13.9.3.20 Move Coil and Cage assembly over the Instrument. Slowly lower the coil down over Instrument. Do not hit Instrument with coil. Position coil at locations Z1, Z2, Z3.



X20087_107

13.9.3.21 Position coil at point Z1 and perform DC magnetic field test. Move coil to Z2, Z3 and perform test.



X20087_108

13.9.3.22 At end of test, lift coil to top and tie up coil. Slide coil assembly off and away from instrument.

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04/25/2002 QE-4 J16786 5/6/02

TP-LOC-820 Rev. NC

RED LINE CHANGES

13.8.8 Set frequency to 480 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for 10 min..

13.8.9 Set frequency to 495 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for 10 min..

13.8.10 Set frequency to 505 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for 10 min..

13.8.11 Set frequency to 520 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for 10 min..

13.8.12 Verify that the RS01 test is complete and the results are acceptable.

Test Engineering David Cho Date 5/3/02

Quality Engineering REVIEWED TEST LOG Date 5/3/02 QE-4 J16786

HIRDLS Lateral Coil Frame Fixture (SK14182) Assembly Procedure

Equipment:
Rope
Tools

Inspection to witness all operations

1. Conduct briefing of operations to be performed, personnel roles, and safety precautions.

David O. King Engr A 686894 QA
5-6-2002 MAY 06

2. Using four people, position the coil frame in desired location then lift the coil frame to vertical position by pivoting on bottom edge. **CAUTION:** The coil frame weighs approx 140 lbs. Do not lift near critical hardware or allow to stand without at least two people supporting ends.

3. Position the caster side support near one side of coil frame. Install caster side support to coil frame.

4. Position the opposite caster side support. Then install the caster side support.

5. Verify the all the restraining rods and nuts are snug. Verify proper motion and stability of assembly. Verify operation complete.

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5-6-2002 MAY 06 2002

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SECTION 7

DC MAGNETIC DIPOLE MOMENT TEST

From the GIRD

Radiated DC Magnetic Field Emissions (GIRD 10.11.5.2)

The residual magnetic dipole moment of a component/instrument shall be less than 0.5 A-m^2.

Magnetic Fields Documentation

The instrument provider shall measure the intensity and direction of the magnetic field produced by the instrument. These data shall be documented in the ICD. Analysis may be substituted for measurement with the approval of the respective GSFC EOS project.

Unit of magnetic flux density is the Gauss or Oersted. 1 gauss is said to have a flux density of one line per square centimeter. The conversion from Milli-Gauss or Millie-Oersted to Ampere $Meters^2$ is through enu's. In the CGS unit one emu is equal to 4pi micro-Gauss (1.256637×10^{-5} G). In the SI unit one emu is equal to 0.001 $A \cdot M^2$ (Ampere $Meter^2$). The conversion factor Is 1.256637×10^2 Gauss/Ampere $Meter^2$.

From EMI Test Procedure

DC Magnetic Dipole Moment (GIRD 10.11.5.2)

The residual magnetic dipole moment of the Instrument shall be less than 0.5 A-m^2 with the instrument operating in the Mission mode. Ambient measurements shall be performed in the shielded chamber with the Instrument moved to one side. This is necessary so that the Instrument will be out of range of the magnetometer. Measurements shall be performed at four equally spaced locations around the Instrument.

Connect the test setup shown in **Figure 7-1**. Turn the magnetometer on and allow a minimum of 15 minutes for warm-up and stabilization.

Mark on the floor around the Instrument the four locations where the magnetometer will be placed to measure the Instrument magnetic dipole moment.

Move the Instrument to one side of the chamber so that it is out of range of the magnetometer.

Measure the ambient magnetic dipole moment at each of the locations identified in paragraph 13.7.3.

Move the Instrument back to the center of the chamber.

Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test.

Measure the operating magnetic dipole moment at each of the locations identified in paragraph 13.7.3. Record the measurements on the applicable Test Data Sheet at the back of the test procedure.

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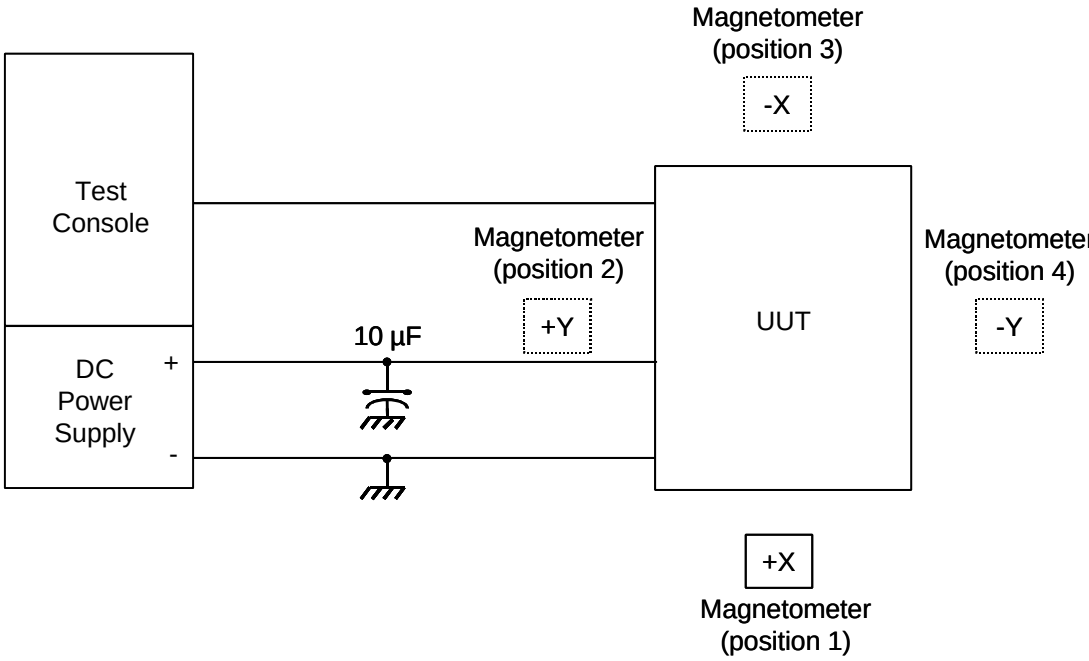

Figure 7-1

From the EMI/EMC Test Flash Report

Test Paragraph	Test Title	Pass	Fail	Comments
13.7	DC Magnetic Dipole Moment	X		

Data

The data taken off the data sheet and the operator's logbook of the test is listed in the next section. The data is in milli-Gauss (mG) and nano-Tasla (nT).

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Test Data Sheet	DC Magnetic Dipole Moment	
	Paragraph 13.9	Date of Test
Part No. 1A27800	CCA/Serial No. 01	Test Technician
Notes:		

Magnetometer Position	Test Completed	Measurement (milli-Gauss)	Pass	Fail	Comments
Position 1		-208.42	X		90.0 cm off floor
Position 2		143.01	X		90.0 cm off floor
Position 3		-182.37	X		90.0 cm off floor
Position 4		-466.57	X		90.0 cm off floor
Position 1		-240.96	X		143.0 cm off floor
Position 2		32.93	X		143.0 cm off floor
Position 3		-187.03	X		143.0 cm off floor
Position 4		-446.72	X		143.0 cm off floor

Magnetic Dipole Test Instrument power On, IEGSE & Vacuum pump On				5/7/2002
Instrument Position	Off Floor	X Reading	Y Reading	Z Reading
	cm	mG's	mG's	mG's
#1 +X	90	25.62	-230.33	151.74
#2 +Y	90	336.44	-65.22	111.95
#3 -X	90	27.22	253.64	289.46
#4 -Y	90	-235.4	12.6	219.05

Magnetic Dipole Test Instrument power On, IEGSE & Vacuum pump On				5/7/2002
Instrument Position	Off Floor	X Reading	Y Reading	Z Reading
	cm	mG's	mG's	mG's
#1 +X	143	-6.92	-210.77	152.52
#2 +Y	143	226.36	-35.35	218.59
#3 -X	143	22.56	235.6	257.88
#4 -Y	143	-215.55	-7.07	-258.52

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Magnetic Dipole Test Instrument power Off, IEGSE & Vacuum pump Off				5/7/2002
Instrument Position	Off Floor	X Reading	Y Reading	Z Reading
	cm	mG's	mG's	mG's
#1 +X	90	230.62	-24.41	223.64
#2 +Y	90	28.1	-235.77	139.85
#3 -X	90	-235.65	1.75	218.06
#4 -Y	90	30.61	258.03	287.09

Magnetic Dipole Test Instrument power Off, IEGSE & Vacuum pump Off				5/7/2002
Instrument Position	Off Floor	X Reading	Y Reading	Z Reading
	cm	mG's	mG's	mG's
+X	143	322.9	-42.01	53.47
+Y	143	-22.27	-208.87	151.58
-X	143	-217.03	-27.61	252.92
-Y	143	43.81	234.69	257.44

Magnetic Moment After test was over	ran Tasla			5/7/2002
Instrument Position		X Reading	Y Reading	Z Reading
		nT	nT	nT
#1	+X	23,405	-1,627	24,920
#2	+Y	19,548	-3,128	19,370
#3	-X	20,960	-2,882	16,988
#4	-Y	23,113	157	23,325

Magnetic Moment After test was over	ran milli-Gauss			5/7/2002
Instrument Position		X Reading	Y Reading	Z Reading
		mG	mG	mG
#1	+X	234.04	-16.24	149.24
#2	+Y	193.43	-29.28	193.90
#3	-X	209.59	-28.44	170.40
#4	-Y	231.17	1.59	1.58

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Magnetic Moment Before test started		ran Talsa	No equip. in room	5/7/2002
Instrument Position		X Reading	Y Reading	Z Reading
		nT	nT	nT
#1	+X	22750	-5,640	23,180
#2	+Y	20,388	-5,398	20,412
#3	-X	20,368	-4,583	17,995
#4	-Y	23,204	-2,491	20,782

The data was converted from Gauss to Ampere Meter^2 to show that the magnetic field generated by the HIRDLS Instrument was not in excess of the specified required by the Gird of 0.5 Ampere Meter^2.

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Magnetic Dipole Moment Test Data					
Axis	**Height**	**Instr. Moment milli-Gauss**	**Ambient Moment milli-Gauss**	**Corrected milli-Gauss**	**Corrected milli-Gauss**
X axis	**Test data, all equipment On**				
#1 +X	90	2.5620E-02	2.3404E+02	-2.34014380E+02	-234.014
#2 +Y	90	3.3644E-01	1.9343E+02	-1.93093560E+02	-193.094
#3 -X	90	2.7220E-02	2.0959E+02	-2.09562780E+02	-209.563
#4 -Y	90	-2.3540E-01	2.3117E+02	-2.31405400E+02	-231.405
X axis	**Test data, all equipment Off**				
#1 +X	90	2.3062E+02	2.3404E+02	-3.42000000E+00	-3.42
#2 +Y	90	2.8100E+01	1.9343E+02	-1.65330000E+02	-165.33
#3 -X	90	-2.3565E+02	2.0959E+02	-4.45240000E+02	-445.24
#4 -Y	90	3.0610E+01	2.3117E+02	-2.00560000E+02	-200.56
Y axis	**Test data, all equipment On**				
#1 +X	90	-2.3033E+02	2.3404E+02	-4.64370000E+02	-464.37
#2 +Y	90	-6.5220E+01	1.9343E+02	-2.58650000E+02	-258.65
#3 -X	90	2.5364E+02	2.0959E+02	4.40500000E+01	44.05
#4 -Y	90	1.2600E+01	2.3117E+02	-2.18570000E+02	-218.57
Y axis	**Test data, all equipment Off**				
#1 +X	90	-2.4410E+01	2.3404E+02	-2.58450000E+02	-258.45
#2 +Y	90	-2.3577E+02	1.9343E+02	-4.29200000E+02	-429.20
#3 -X	90	1.7500E+00	2.0959E+02	-2.07840000E+02	-207.84
#4 -Y	90	2.5803E+02	2.3117E+02	2.68600000E+01	26.86
Z axis	**Test data, all equipment On**				
#1 +X	90	1.5174E+02	2.3404E+02	-8.23000000E+01	-82.30
#2 +Y	90	1.1195E+02	1.9343E+02	-8.14800000E+01	-81.48
#3 -X	90	2.8946E+02	2.0959E+02	7.98700000E+01	79.87
#4 -Y	90	2.1905E+02	2.3117E+02	-1.21200000E+01	-12.12
Z axis	**Test data, all equipment Off**				
#1 +X	90	2.2364E+02	2.3404E+02	-1.04000000E+01	-10.40
#2 +Y	90	1.3985E+02	1.9343E+02	-5.35800000E+01	-53.58
#3 -X	90	2.1806E+02	2.0959E+02	8.47000000E+00	8.47
#4 -Y	90	2.8709E+02	2.3117E+02	5.59200000E+01	55.92

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Magnetic Dipole Moment Test Data					
Axis	**Height**	**Instr. Moment milli-Gauss**	**Ambient Moment milli-Gauss**	**Corrected milli-Gauss**	**Corrected milli-Gauss**
X axis	**Test data, all equipment On**				
#1 +X	143	-6.9200E+00	2.3404E+02	-2.40960000E+02	-240.960
#2 +Y	143	2.2636E+02	1.9343E+02	3.29300000E+01	32.930
#3 -X	143	2.2560E+01	2.0959E+02	-1.87030000E+02	-187.030
#4 -Y	143	-2.1555E+02	2.3117E+02	-4.46720000E+02	-446.720
X axis	**Test data, all equipment Off**				
#1 +X	143	3.2290E+02	2.3404E+02	8.88600000E+01	88.86
#2 +Y	143	-2.2270E+01	1.9343E+02	-2.15700000E+02	-215.70
#3 -X	143	-2.1703E+02	2.0959E+02	-4.26620000E+02	-426.62
#4 -Y	143	4.3810E+01	2.3117E+02	-1.87360000E+02	-187.36
Y axis	**Test data, all equipment On**				
#1 +X	143	-2.1077E+02	2.3404E+02	-4.44810000E+02	-444.81
#2 +Y	143	-3.5350E+01	1.9343E+02	-2.28780000E+02	-228.78
#3 -X	143	2.3560E+02	2.0959E+02	2.60100000E+01	26.01
#4 -Y	143	-7.0700E+00	2.3117E+02	-2.38240000E+02	-238.24
Y axis	**Test data, all equipment Off**				
#1 +X	143	-4.2010E+01	2.3404E+02	-2.76050000E+02	-276.05
#2 +Y	143	-2.0887E+02	1.9343E+02	-4.02300000E+02	-402.30
#3 -X	143	-2.7610E+01	2.0959E+02	-2.37200000E+02	-237.20
#4 -Y	143	2.3469E+02	2.3117E+02	3.52000000E+00	3.52
Z axis	**Test data, all equipment On**				
#1 +X	143	152.52	2.3404E+02	-8.15200000E+01	-81.52
#2 +Y	143	218.59	1.9343E+02	2.51600000E+01	25.16
#3 -X	143	257.88	2.0959E+02	4.82900000E+01	48.29
#4 -Y	143	-258.52	2.3117E+02	-4.89690000E+02	-489.69
Z axis	**Test data, all equipment Off**				
#1 +X	143	53.47	2.3404E+02	-1.80570000E+02	-180.57
#2 +Y	143	151.58	1.9343E+02	-4.18500000E+01	-41.85
#3 -X	143	252.92	2.0959E+02	4.33300000E+01	43.33
#4 -Y	143	257.44	2.3117E+02	2.62700000E+01	26.27

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Magnetic Dipole Moment Test Data					
Axis	**Height**	**Gauss**		**AM^2**	**AM^2**
X axis	**Test data, all equipment On, Corrected**				
#1 +X	90	-0.234014	1.25663700E+02	-1.86222736E-03	-0.00186223
#2 +Y	90	-0.193094	1.25663700E+02	-1.53658980E-03	-0.001537
#3 -X	90	-0.209563	1.25663700E+02	-1.66764770E-03	-0.001668
#4 -Y	90	-0.231405	1.25663700E+02	-1.84146575E-03	-0.001841
Y axis	**Test data, all equipment On, Corrected**				
#1 +X	90	-0.464370	1.25663700E+02	-3.69533923E-03	-0.003695
#2 +Y	90	-0.258650	1.25663700E+02	-2.05827140E-03	-0.002058
#3 -X	90	0.044050	1.25663700E+02	3.50538779E-04	0.000351
#4 -Y	90	-0.218570	1.25663700E+02	-1.73932488E-03	-0.001739
Z axis	**Test data, all equipment On, Corrected**				
#1 +X	90	-0.082300	1.25663700E+02	-6.54922623E-04	-0.000655
#2 +Y	90	-0.081480	1.25663700E+02	-6.48397270E-04	-0.000648
#3 -X	90	0.079870	1.25663700E+02	6.35585296E-04	0.000636
#4 -Y	90	-0.012120	1.25663700E+02	-9.64479002E-05	-0.000096
X axis	**Test data, all equipment On, Corrected**				
#1 +X	143	-0.240960	1.25663700E+02	-1.91749885E-03	-0.001917
#2 +Y	143	0.032930	1.25663700E+02	2.62048627E-04	0.000262
#3 -X	143	-0.187030	1.25663700E+02	-1.48833752E-03	-0.001488
#4 -Y	143	-0.446720	1.25663700E+02	-3.55488498E-03	-0.003555
Y axis	**Test data, all equipment On, Corrected**				
#1 +X	143	-0.444810	1.25663700E+02	-3.53968568E-03	-0.003540
#2 +Y	143	-0.228780	1.25663700E+02	-1.82057348E-03	-0.001821
#3 -X	143	0.026010	1.25663700E+02	2.06981014E-04	0.000207
#4 -Y	143	-0.238240	1.25663700E+02	-1.89585377E-03	-0.001896
Z axis	**Test data, all equipment On, Corrected**				
#1 +X	143	-0.081520	1.25663700E+02	-6.48715580E-04	-0.000649
#2 +Y	143	0.025160	1.25663700E+02	2.00216928E-04	0.000200
#3 -X	143	0.048290	1.25663700E+02	3.84279629E-04	0.000384
#4 -Y	143	-0.489690	1.25663700E+02	-3.89682939E-03	-0.003897

Conclusions: From the data the tests did not show any magnetic fields that where above the specification called out in the GIRD. The magnetic fields data was taken from two heights and four locations around the HIRDLS Instrument. After the collecting of the magnetic data, the HIRDLS Instrument was removed from the room with all its support equipment. A background test of the test cell was performed. After further analysis of the test data, no failed parameters were noted.

No DR's where generated in this section of the test.

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SECTION 8
EMI/EMC HIRDLS INSTRUMENT TEST SUMMARY

Test Procedure TP-LOC-820, NC

Test Title	Pass	Fail	Comments
CS01 Audio Frequency Conducted Susceptibility 30 Hz to 50 KHz		X	CDR #AD6494, AD6487, AD6491
CS02 Radio Frequency (RF) Conducted Susceptibility 50 KHz to 400 MHz		X	CDR #AD6495, AD6490
RS03 Radiated Susceptibility Electric Field, 14 KHz to 18 GHz		X	CDR #AD6464, #AD7313, AD7366
RS01 AC Magnetic Field Radiated Susceptibility 30 Hz to 200 KHz		X	CDR #AD6471
CS06 Power Lead Spike Susceptibility		X	CDR #AD6496, AD6491, AD6497
DC Magnetic Field Susceptibility	X		
Magnetic Dipole Moment	X		
Non-EMI related problems		X	CDR #AD6416, AD6417, AD6418, AD6491, AD6516

*CDR = COMMON DISCREPANCY REPORT

Test Summary and Conclusions

CS01

The test data after analysis shows that the radiance data was acceptable, the Instrument failed CE01 see CDR's. CDR #AD6494, AD590 temperature sensors showed susceptibility during QB, NB and SB tests during CS01. CDR #AD6487, Unexpected loss of QB-A power, accompanied by CCU overstroke during CS01 testing. Power dropped off line at 3.92 KHz, QBA . CDR #AD6491, the GYRO heaters not able to heat gyro assembly to operational temperature in free air.

Failed test.

CS02

The test data after analysis shows that the radiance data was acceptable, the Instrument failed CE03 see CDR's. CDR #AD6490, IPU reset during CS02. CDR #6495, AD590 temperature sensors showed susceptibility during QB, NB and SB tests CS02.

Failed test.

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RS03

Passed test, CDR #AD6464, Observed Minor Frame (MiF) data packet drop outs during EMI RS03 testing. No item on Flight hardware--IGSE-reporting incorrectly. CDR # AD7313, Chopper AD590 temperature sensors showed susceptibility during QB, NB and SB tests RS03. CDR #AD7366, RS03 out of specification, During testing, susceptibility was noted at 45.75 MHz.

Failed test.

RS01

CDR #AD6471Focal Plane temperature dropped by 0.5 Degrees and Compressor stroke reached it maximum during RS01.

Failed test.

CS06

The test data after analysis shows that the radiance data was acceptable, the telemetry data was acceptable, the Instrument failed CE03 see CDR's. CDR #AD6490, IPU reset during CS02. CDR #6495, AD590 temperature sensors showed susceptibility during QB, NB and SB tests CS02.

Failed test.

Radiated DC Magnetic Field Susceptibility

Passed test, no CDR's.

Passed test.

Radiated DC Magnetic Field Emissions and

Passed test, no CDR's.

Passed test.

Magnetic Field Measurement

Passed test, no CDR's.

Passed test.

The one common problem noted on each test was the temperature data as shown in the data plots and reported in CDR’s. The AD590 temperature sensor seams to be susceptible to EMI interference.

The sciences data channels 1-21, appears to be free of EMI susceptibility, the data shows no disturbance or malfunction caused by EMI testing.

The CDR’s cover the Instrument failures / anomalies that need to be addressed and resolved for test closure.

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APPENDIX A

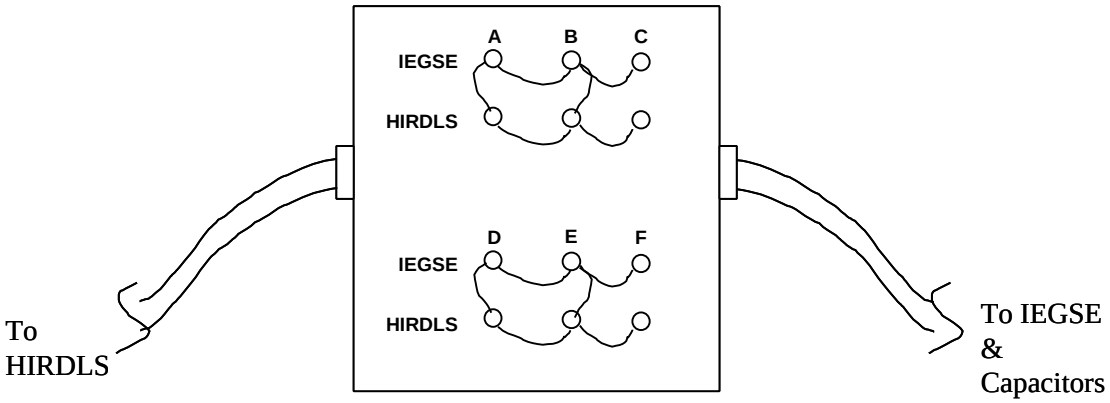
BOB Basic Setup

Before power is applied to the system perform the following steps.

1.0 Cable a BOB in each A-side power bus (Quiet, Noisy, Survival)

2.0 Place a jumper wires on each BOB in the following positions –

From	To
IEGSE-A	IEGSE-B
IEGSE-B	IEGSE-C
IEGSE-D	IEGSE-E
IEGSE-E	IEGSE-F
IEGSE-A	HIRDLS-A
IEGSE-B	HIRDLS-B
IEGSE-D	HIRDLS-D
IEGSE-E	HIRDLS-E



BOB Setup for CS01 (high side):

1.0 Verify that the BOB is in the "Basic Setup" configuration.

2.0 Test conductor to note time in the log and give OK to make connections to instrument.

3.0 Connect the transformer and rheostat wires on the BOB in the following positions (Amplifier output off):

From	To
x-former-A	IEGSE-C
x-former-B	HIRDLS-C
Pot-A	HIRDLS-C
Pot-B	IEGSE-C

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4.0 Set the rheostat to maximum minimum (0 Ohms).

5.0 With the amplifier off remove the jumper wires.

From	To
IEGSE-B	HIRDLS-B
IEGSE-A	HIRDLS-A

6.0 Slowly increase the rheostat resistance to maximum, then remove the rheostat.

From	To
Pot-A	HIRDLS-C
Pot-B	IEGSE-C

7.0 Notify test conductor that re-configuration is complete.

BOB Setup for CS01 (high side) after completion of the test:

8.0 Test conductor to note time in the log and give OK to make connections to instrument.

9.0 Set the rheostat resistance to maximum, then connect to the bob.

From	To
Pot-A	HIRDLS-C
Pot-B	IEGSE-C

10.0 With the amplifier off, slowly reduce the rheostat resistance to minimum (0 Ohms), then connect the following jumper wires.

From	To
IEGSE-B	HIRDLS-B
IEGSE-A	HIRDLS-A

11.0 Disconnect the transformer and rheostat wires on the BOB in the following positions:

From	To
x-former-A	IEGSE-C
x-former-B	HIRDLS-C
Pot-A	HIRDLS-C
Pot-B	IEGSE-C

12.0 Notify test conductor that re-configuration is complete.

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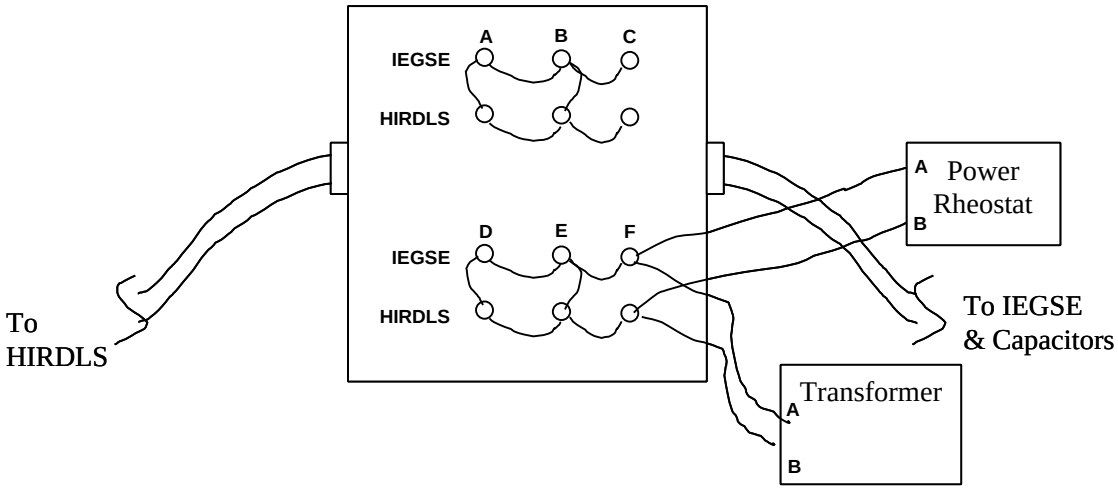

BOB Setup for CS01 (return side):

1.0 Verify that the BOB is in the "Basic Setup" configuration.

2.0 Test conductor to note time in the log and give OK to make connections to instrument.

3.0 Connect the transformer and rheostat wires on the BOB in the following positions (Amplifier output off):

From	To
x-former-A	IEGSE-F
x-former-B	HIRDLS-F
Pot-A	HIRDLS-F
Pot-B	IEGSE-F

4.0 Set the rheostat to maximum minimum (0 Ohms).

5.0 With the amplifier off remove the jumper wires.

From	To
IEGSE-E	HIRDLS-E
IEGSE-F	HIRDLS-F

6.0 Slowly increase the rheostat resistance to maximum, then remove the rheostat.

From	To
Pot-A	HIRDLS-F
Pot-B	IEGSE-F

7.0 Notify test conductor that re-configuration is complete.

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BOB Setup for CS01 (return side) after completion of the test:

8.0 Test conductor to note time in the log and give OK to make connections to instrument.

9.0 Set the rheostat resistance to maximum, then connect to the bob.

From	To
Pot-A	HIRDLS-C
Pot-B	IEGSE-C

10.0 With the amplifier off, slowly reduce the rheostat resistance to minimum (0 Ohms), then connect the following jumper wires.

From	To
IEGSE-E	HIRDLS-E
IEGSE-F	HIRDLS-F

11.0 Disconnect the transformer and rheostat wires on the BOB in the following positions:

From	To
x-former-A	IEGSE-F
x-former-B	HIRDLS-F
Pot-A	HIRDLS-F
Pot-B	IEGSE-F

12.0 Notify test conductor that re-configuration is complete.

PCU "Star Point"	BOB Location (QB Return)	Resistance (Mohms) > 1 Mohm	Capacitance (uF) < 1 uF
1 (28REG Return Star-Point)	BOB LJT Pin 4	OPEN	0.127 uF
2 ("SYS" Return Star-Point)	BOB LJT Pin 4	OPEN	0.127 uF
3 (PCU Chassis)	BOB LJT Pin 4	OPEN	0.127 uF
4 (IPU Common Ground)	BOB LJT Pin 4	OPEN	0.127 uF
1 (28REG Return Star-Point)	BOB LJT Pin 5	OPEN	0.127 uF
2 ("SYS" Return Star-Point)	BOB LJT Pin 5	OPEN	0.127 uF
3 (PCU Chassis)	BOB LJT Pin 5	OPEN	0.128 uF
4 (IPU Common Ground)	BOB LJT Pin 5	OPEN	0.127 uF
1 (28REG Return Star-Point)	BOB LJT Pin 6	OPEN	0.127 uF
2 ("SYS" Return Star-Point)	BOB LJT Pin 6	OPEN	0.127 uF
3 (PCU Chassis)	BOB LJT Pin 6	OPEN	0.127 uF
4 (IPU Common Ground)	BOB LJT Pin 6	OPEN	0.127 uF

3.2.4. Disconnect test cable LJT-F to J101 on the S/C Interface Panel. Enter in Mate/Demate log.

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3.2.5. Disconnect test cable LJT-F to BOB LJT.

3.3. **Quiet Bus B Power Isolation Measurements**

3.3.1. Connect test cable LJT-H to J102 on the S/C Interface Panel. Enter in Mate/Demate log.

3.3.2. Connect test cable LJT-H to BOB LJT.

3.3.3. Measure resistance and capacitance across the locations listed in the following table

PCU "Star Point"	BOB Location (QB Return)	Resistance (Mohms) > 1 Mohm	Capacitance (uF) < 1 uF
1 (28REG Return Star-Point)	BOB LJT Pin 4	OPEN	0.126 nF
2 ("SYS" Return Star-Point)	BOB LJT Pin 4	OPEN	0.126 nF
3 (PCU Chassis)	BOB LJT Pin 4	OPEN	0.127 nF
4 (IPU Common Ground)	BOB LJT Pin 4	OPEN	0.126 nF
1 (28REG Return Star-Point)	BOB LJT Pin 5	OPEN	0.126 nF
2 ("SYS" Return Star-Point)	BOB LJT Pin 5	OPEN	0.126 nF

PCU "Star Point"	BOB Location (QB Return)	Resistance (Mohms) > 1 Mohm	Capacitance (uF) < 1 uF
1 (28REG Return Star-Point)	BOB LJT Pin 4	OPEN	0.83 nF
2 ("SYS" Return Star-Point)	BOB LJT Pin 4	OPEN	0.83 nF
3 (PCU Chassis)	BOB LJT Pin 4	OPEN	0.83 nF
4 (IPU Common Ground)	BOB LJT Pin 4	OPEN	0.83 nF
1 (28REG Return Star-Point)	BOB LJT Pin 5	OPEN	0.83 nF
2 ("SYS" Return Star-Point)	BOB LJT Pin 5	OPEN	0.83 nF
3 (PCU Chassis)	BOB LJT Pin 5	OPEN	0.83 nF
4 (IPU Common Ground)	BOB LJT Pin 5	OPEN	0.83 nF
1 (28REG Return Star-Point)	BOB LJT Pin 6	OPEN	0.83 nF
2 ("SYS" Return Star-Point)	BOB LJT Pin 6	OPEN	0.84 nF
3 (PCU Chassis)	BOB LJT Pin 6	OPEN	0.83 nF
4 (IPU Common Ground)	BOB LJT Pin 6	OPEN	0.83 nF

3.4.4. Disconnect test cable LJT-K to J107 on the S/C Interface Panel. Enter in Mate/Demate log.

3.4.5. Disconnect test cable LJT-K to BOB LJT.

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4 (IPU Common Ground)	BOB LJT Pin 5	OPEN	0.86 nF
1 (28REG Return Star-Point)	BOB LJT Pin 6	OPEN	0.86 nF
2 ("SYS" Return Star-Point)	BOB LJT Pin 6	OPEN	0.86 nF
3 (PCU Chassis)	BOB LJT Pin 6	OPEN	0.86 nF
4 (IPU Common Ground)	BOB LJT Pin 6	OPEN	0.86 nF

3.5.4. Disconnect test cable LJT-M to J110 on the S/C Interface Panel. Enter in Mate/Demate log.

QE→ QA J16706 2/24/02

3.5.5. Disconnect test cable LJT-M to BOB LJT.

3.6. **Secondary Power Grounding and Isolation**

3.6.1. Measure Resistance and Capacitance in the Following table

PCU "Star Point"	Structure	Resistance (Mohms) > 1 Mohm	Capacitance (uF) < 1 uF
1 (28REG Return Star-Point)	Structure	5.80 MΩ/442 KΩ	OPEN
2 ("SYS" Return Star-Point)	Structure	5.80 MΩ	OPEN
3 (PCU Chassis)	Structure	0.2 Ω	OPEN
4 (IPU Common Ground)	Structure	5.12 MΩ	OPEN

3.6.2 See back

3.12. **Secondary Power Grounding and Isolation w/o the CMU**

3.12.1. Measure Resistance and Capacitance in the Following table

PCU "Star Point"	Structure	Resistance (Mohms) > 1 Mohm	Capacitance (uF) < 1 uF
1 (28REG Return Star-Point)	Structure	42.1 KΩ	OPEN
2 ("SYS" Return Star-Point)	Structure	28.43 KΩ	OPEN
3 (PCU Chassis)	Structure	0.3 Ω	OPEN
4 (IPU Common Ground)	Structure	28.78 KΩ	OPEN

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3.13. Reconnect the four grounding links onto the ground studs on the PCU.

3.14. **Survival Bus Power Isolation**

3.14.1. Connect BOB Cable LJT O to J111 on the S/C Interface Panel. Enter in Mate/Demate log. QA QE→ J16786 2/20/02

3.14.2. Connect Cable LJT O to BOB LJT.

3.14.3. Connect BOB Cable LJT Q to J112 on the S/C Interface Panel. Enter in Mate/Demate log. QA QE→ J16786 2/20/02

3.14.4. Connect Cable LJT Q to the ~~Universal~~ BOB. LJT QA 7/20/01 QE→ J16786

3.14.5. Measure resistance between Survival Bus Returns per the following table LJT QA 7/20/01 QE→ J16786 2/20/02

BOB LJT Pin O	~~Universal~~ BOB Pin Q	Resistance (Mohm) >1 Mohm
4	4	OPEN
4	5	OPEN
4	6	OPEN
5	4	OPEN
5	5	OPEN
5	6	OPEN
6	4	OPEN
6	5	OPEN
6	6	OPEN

3.14.6. Measure resistance between Survival Bus Returns and Structure per the following table 2/20/02

BOB Pin	Structure	Resistance (Mohm) >1 Mohm
LJT 4	Structure	OPEN
LJT 5	Structure	OPEN
LJT 6	Structure	OPEN
~~Universal~~ 4	Structure	OPEN

O O O Q

2/20/02

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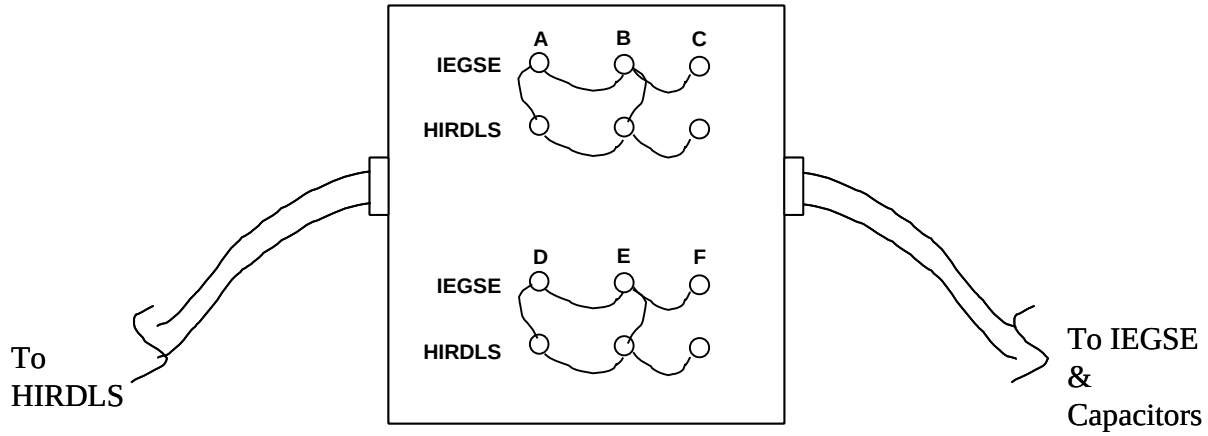
APPENDIX B



BOB Setup for CS02 (high side):

1,0 Verify that the BOB is in the "Basic Setup" configuration.

2.0 Test conductor to note time in the log and give OK to make connections to instrument.

3.0 Connect the injection capacitor wires on the BOB in the following positions:

From	To
Capacitor-A	IEGSE-F

4.0 Verify that the BOB is in the "Basic Setup" configuration.

BOB Setup for CS02 (high side) after completion of the test:

5.0 Test conductor to note time in the log and give OK to make connections to instrument.

6.0 Disconnect the injection capacitor wires on the BOB in the following positions:

From	To
Capacitor-A	IEGSE-F

7.0 Notify test conductor that re-configuration is complete.

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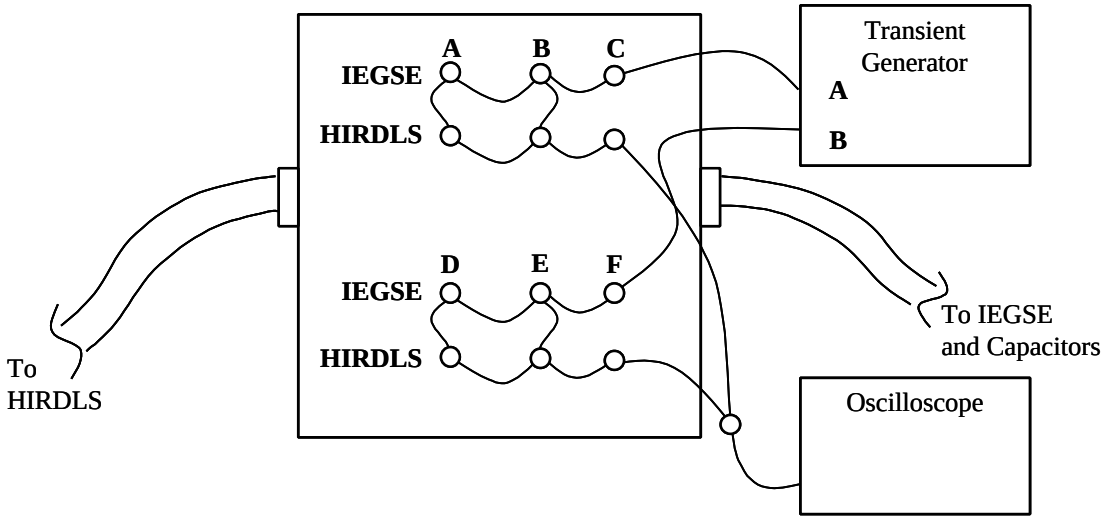
APPENDIX C



BOB Setup for CS06:

1.0 Verify that the BOB is in the "Basic Setup" configuration.

2.0 Test conductor to note time in the log and give OK to make connections to instrument.

3.0 Connect the Transient Generator wires on the BOB in the following positions:

From	To
TG-A	IEGSE-C
TG-B	IEGSE-F

4.0 Connect the oscilloscope leads on the BOB in the following positions:

From	To
Probe (+)	HIRDLS-C
Probe (-)	HIRDLS-F

5.0 Notify test conductor that re-configuration is complete.

BOB Setup for CS06 after completion of the test:

6.0 Test conductor to note time in the log and give OK to make connections to instrument.

7.0 Disconnect the Transient Generator wires on the BOB in the following positions:

From	To
TG-A	IEGSE-C
TG-B	IEGSE-F

8.0 Disconnect the oscilloscope leads on the BOB in the following positions:

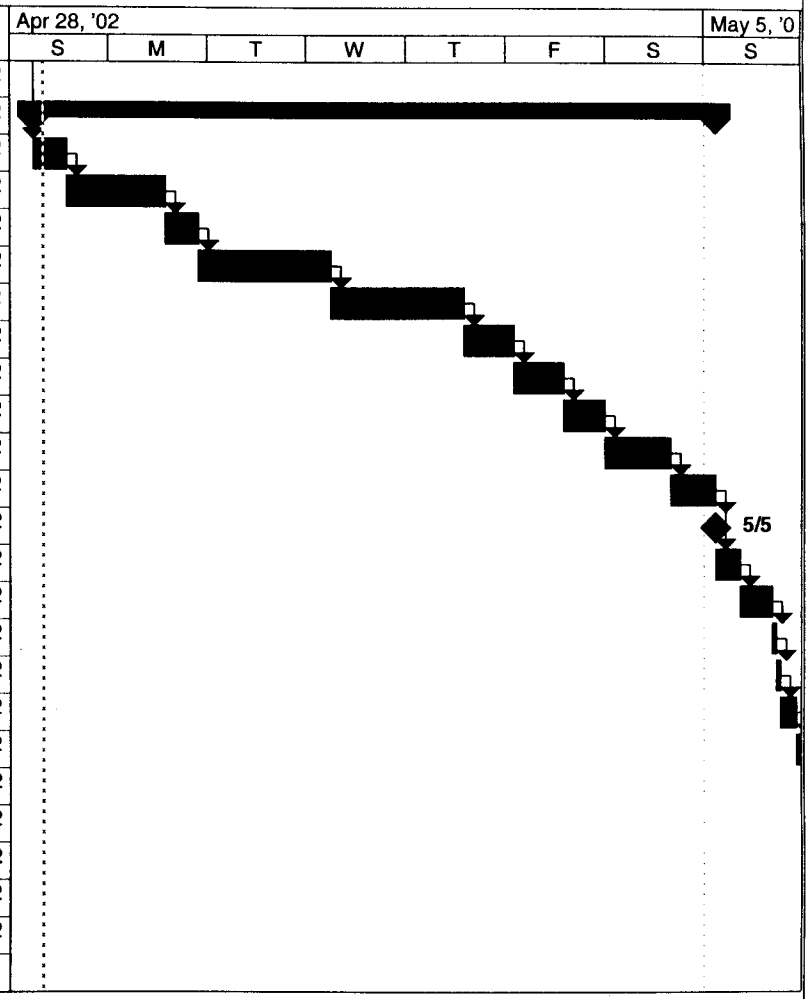
From	To
Probe (+)	HIRDLS-C
Probe (-)	HIRDLS-F

9.0 Notify test conductor that re-configuration is complete.

Use or disclosure of document data is subject to the restriction on the title page of this document.

HRDLS Environmental Test Schedule

ID	Task Name	Duration	Start
26	Stage 4 six packs of GN2 at B/152	0 days	Thu 4/25/02
27	**EMI/EMC Test per TP-LOC-820**	**6.88 days**	**Sun 4/28/02**
28	CE01/CE03 Power line conducted Emissions	8 hrs	Sun 4/28/02
29	RS03 Electric Field Radiated Susceptibility Test	24 hrs	Sun 4/28/02
30	RS01 AC Magnetic Field Radiated Susceptibility Test	8 hrs	Mon 4/29/02
31	CS01/CS02 Audio and Radio Frequancy Conducted Susce	32 hrs	Mon 4/29/02
32	CS06 Power Lead Spike Suseptibility Test	32 hrs	Wed 5/1/02
33	DC Magnetic Dipole Moment	12 hrs	Thu 5/2/02
34	RE02 Electric Field Radiated Emission	12 hrs	Fri 5/3/02
35	RE04 Magnetic Field Radiated Emission	10 hrs	Fri 5/3/02
36	DC Magnetic Field Suseptibility Test	16 hrs	Sat 5/4/02
37	**Data Go**	**11 hrs**	Sat 5/4/02
38	**OK to Break Configuration**	**0 days**	Sun 5/5/02
39	Disconnect Instrument from IGSE	6 hrs	Sun 5/5/02
40	Pack IGSE	8 hrs	Sun 5/5/02
41	Remove CMU Cooler	1 hr	Sun 5/5/02
42	Remove Flexable Vacuum Enclosure	1 hr	Sun 5/5/02
43	Install second cover over instrument	4 hrs	Sun 5/5/02
44	Backfill instrument with GN2	4 hrs	Sun 5/5/02
45	Install transporter hard cover	2 hrs	Mon 5/6/02
46	Transport to B/202	1 day	Mon 5/6/02
47	**IPU, TEU, SMA Repair**	**35 days**	**Tue 5/7/02**
48	Move the Instr from EMI to ATC for IPU,TEU,SMA Repair	35 days	Tue 5/7/02
49	Ok to start Environmental Test	0 days	Mon 6/10/02
50			



Project: ScheduleEMI_VIB_TV
Date: Sun 4/28/02
Michael J. Spier 408-398-3402

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks
External Milestone
External Milestone
External Milestone
External Milestone
External Milestone
External Milestone
External Milestone
External Milestone
External Milestone
External Milestone
Deadline

HRDLS Environmental Test Schedule

ID	Task Name	Duration	Start
26	Stage 4 six packs of GN2 at B/152	0 days	Thu 4/25/02
27	**EMI/EMC Test per TP-LOC-820**	**6.88 days**	**Sat 4/27/02**
28	CE01/CE03 Power line conducted Emissions	8 hrs	Sat 4/27/02
29	RS03 Electric Field Radiated Susceptibility Test	24 hrs	Sun 4/28/02
30	RS01 AC Magnetic Field Radiated Susceptibility Test	8 hrs	Mon 4/29/02
31	CS01/CS02 Audio and Radio Frequancy Conducted Suscep	32 hrs	Mon 4/29/02
32	CS06 Power Lead Spike Suseptibility Test	32 hrs	Tue 4/30/02
33	DC Magnetic Dipole Moment	12 hrs	Thu 5/2/02
34	RE02 Electric Field Radiated Emission	12 hrs	Thu 5/2/02
35	RE04 Magnetic Field Radiated Emission	10 hrs	Fri 5/3/02
36	DC Magnetic Field Suseptibility Test	16 hrs	Fri 5/3/02
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43	Install second cover over instrument	4 hrs	Sun 5/5/02
44	Backfill instrument with GN2	4 hrs	Sun 5/5/02
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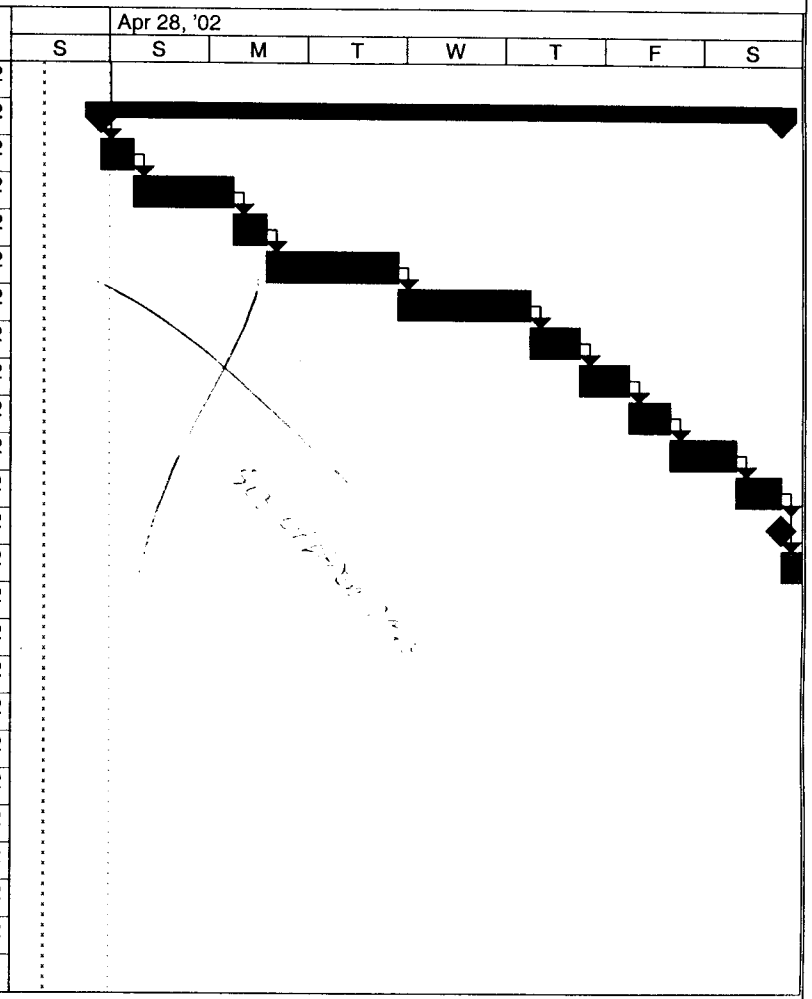

Project: ScheduleEMI_VIB_TV
Date: Sat 4/27/02
Michael J. Spier 408-398-3402

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks

External Milestone
External Milestone
External Milestone
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External Milestone

External Milestone
External Milestone
External Milestone
External Milestone
Deadline

HIRDLS

HIGH RESOLUTION DYNAMICS LIMB SOUNDER

Originator: George Hosmer Date: 25-April-2002

Subject / Title: **EMI/EMC Test Procedure, HIRDLS Instrument**

Contents / Description / Summary:
This procedure outlines the tests to be performed for verification of the functionality of the Unit (DUT).

Keywords: HIRDLS Instrument, EMI/EMC Test Procedure

Purpose: EMI/EMC Test Procedure

Reference:

Approvals

/s/ Don Wilson, RE

/s/ Tim Crews, Systems Engineer

/s/ Althea McField, Quality Engineer

/s/ Talin Kaloustian, Test Engineer

/s/ Syndie Meyer, Contamination Engineer

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Revision Record

Rev	Description	Date	Approved
NC	Original Release	25-April-02	

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1.0 Scope

This document, in conjunction with the Test Plan, describes the procedures to be followed for the EMI/EMC Test to be performed on the flight model of the High Resolution Dynamics Limb Sounder (HIRDLS) Instrument.

As the procedure is performed, the EMI Test Engineer and the Quality Engineer shall sign and date the procedure where indicated after each test is completed.

If a measurement called out in the procedure falls outside the parameters given, the test will be halted and the EMI Test Engineer will be contacted. Upon resolution of the problem, the test will continue from the point in the test procedure agreed upon by the Responsible Equipment Engineer and the Quality Engineer.

With the exception of **Bonding** and **Isolation** measurements, the test operations may be performed in a sequence other than presented in this test procedure to facilitate the test.

2.0 Applicable Documents

The following documents were used during preparation of this test procedure and should be readily available for use during the test. Refer to specific revisions for all applicable documents listed below.

Military Standards

MIL-STD-461C, Part 6	Electromagnetic Emission and Susceptibility Requirements for the Control of Electromagnetic Interference
MIL-STD-462, Notice 3	Test Method Standard for Measurement of Electromagnetic Interference Characteristics
MIL-STD-1541A	Electromagnetic Compatibility Requirements for Space Systems
MIL-STD-5087B (ASG)	Bonding, Electrical, and Lightning Protection for Aerospace Systems Amendment 2

Lockheed Martin Missiles and Space Specifications

Electrostatic Discharge Control	LAC 3250-000001

HIRDLS Documents

GSFC 424-28-21-13	HIRDLS Instrument Technical Specification Document
GSFC 422-11-12-01, Rev. B	General Interface Requirements Document
2A14636	Interface Control Document
TP-LOC-204	HIRDLS Proto-Flight Model Instrument Test Plan
OO-LOC-1023	HIRDLS Instrument test operations order for EMI / EMC test
TP-LOC-819 Rev. B	IEGSE Validation Procedure (Fraser)

3.0 GENERAL REQUIREMENTS

3.1 Facility

All EMI/EMC tests shall be performed in the Organization L3-10 EMI/EMC (a.k.a. Tempest) Test Facility in B152, Sunnyvale, California. During this EMI test the Instrument is to be located in the Room #3 Test Chamber, the Instrument support equipment is to be located outside Room #3 and the EMI test equipment is to be located in the Room #1 Control Room.

3.2 Facility Power Requirements

Facility power requirements shall include 3 each, 115 VAC ± 10%, 60 Hz, 15 amperes, single phase.

3.3 Environmental Conditions

The following environmental (standard laboratory ambient) conditions shall be maintained throughout this procedure:

Ambient Temperature: +65 °F to +85 °F

Relative Humidity: 30% to 80% Maximum

Atmospheric Pressure: 650- 850 torr

3.4 Test Facility Ambient Conditions

Ambient tests shall be performed to demonstrate the Instrument actual radiated and conducted emissions. One ambient test with the STE and Instrument unpowered, and another ambient test with the STE powered and Instrument unpowered should provide the necessary ambient data.

4.0 Contamination Control

The Instrument shall be bagged, with connector and grounding points exposed. At no time during the testing shall the Instrument be removed from the bag. Dust covers shall be placed over all unused connectors. The Instrument shall be purged with clean Dry Nitrogen, per the CCP (PA-HIR-006) throughout the test and all handling.

5.0 Instrument Support and Cooling

A special water-cooled cold plate under the Instrument is used for cooling. A nitrogen gaseous purge is used as a cooling gas to cool the bagged area of the Instrument during test. The bag will have a low positive pressure applied during the testing to keep out particles.

The CMU cryo pump will have an external cooling unit attached and the sensor assembly will have a vacuum pump connected during testing.

6.0 Electrostatic Discharge (ESD) Control

The Instrument is ESD sensitive and requires proper handling and grounding procedures per LAC 3250-000001. When the Instrument is removed from its ESD protective container or other enclosure (with the exception of the nylon bag required for contamination control) all personnel

handling the Instrument shall wear ESD wrist straps and all work surfaces and equipment shall be in conformance with proper ESD protection practices. Note: The HIRDLS Instrument to be grounded at all time when shipping container is open. When Shipping container is closed, ground container when container is stored and grounding is available. Use travelling ground when moving Instrument in closed container if possible.

7.0 Test Equipment

7.1 Special Test Equipment and Cables

The following special test equipment (STE) called out in TP-LOC-819 (Rev B) is required to operate the Instrument. Personnel using the STE shall be proficient in its operation. System interconnect for STE is called in TP-LOC-819 (Rev B).

7.2 Shielded Enclosure Feed-Through Plates

For radiated testing, connections from the Instrument to the Special Test Equipment (STE) shall be made through bulkhead feed-through plates. Connections from the EMI test equipment to antennas and probes shall be made by means of coaxial cables via a feed-through connector panel penetrating the shielded enclosure wall.

7.3 Breakout Cables

Special power breakout cables shall be used for conducted susceptibility and conducted emissions testing where the wire length between the Instrument power connector and the injection point is between two inches and one foot. The power breakout cables shall be connected between the Instrument and the internal STE cable.

7.4 EMI/EMC Test Equipment

The following EMI/EMC test equipment is required to perform the EMI/EMC test. The test equipment listed can be replaced by functionally equivalent equipment under direction of the EMI Test Engineer. Test instrument accuracy will be 10% of the tolerance maximum on the parameter being measured. The tolerances specified include instrumentation inaccuracies up to 10% of the allowable parameter tolerance. All measurements will be made and recorded with instruments or test equipment whose accuracy has been verified in accordance with established industry standards derived from MIL-STD-462A. All instruments used in the performance of the tests described herein shall be inspected for proper calibration as recommended by the manufacturer and as required by EMP No.: 2.91-1, LMMS Calibration System. The test equipment used during the Instrument EMI/EMC test shall be listed on the bottom of the appropriate Test Data Sheet along with the date of calibration. The EMI test engineer or EMI technician shall verify that all instruments are in calibration during their use.

Nomenclature	Manufacturer	Model
Power line Iso. Transformer	(Lab type)	N/A
Signal Generator	Solar	6550-1
Audio Iso. Transformer	Solar	6220-1A
Transient Pulse Generator	Solar	8282-1
Synthesizer	H. P.	3325A
Signal Generator	Fluke	6071A
Signal Generator	H. P.	8672A
Amplifier	Amp. Research	100L
Amplifier	Amp. Research	10W1000
Amplifier	Logimetrics	A600L
Amplifier	Logimetrics	A600S
Amplifier	Logimetrics	A600C
Amplifier	Logimetrics	A600X
Amplifier	Logimetrics	A600U
Field Strength Monitor	Aeritalia	TE3107B
Field Strength Monitor	Holday	HI-3004
Field Strength Monitor	Raham	484
Antenna	EMCO	3301B
Antenna	EMCO	3104P
Antenna	EMCO	3146B
Antenna	Stoddart	93490-1
Antenna	Stoddart	94612-1
Antenna	ElectroMetric	LCA-25
Spectrum Analyzer	H. P.	8566B
Printer	H. P.	Thinkjet
Close Field Probe Set	EMCO	7405

8.0 Safety

At a minimum, the following safety precautions and practices shall be observed to prevent damage to equipment and personnel:

8.1 General Precautions

8.1.1 The Operator shall be familiar with the operating procedures for all test equipment used in this procedure.

8.1.2 Arrange all cables and equipment to prevent accidental contact with any exposed terminal points.

8.1.3 Provide adequate supports on the test cables to relieve any unnecessary strain on the connectors.

8.1.4 Exercise caution when connecting and disconnecting the connectors to avoid damaging the pins and inserts.

8.1.5 Do not permit cable connectors to strike other objects forcefully.

8.1.6 Ensure that all current carrying components are properly grounded.

8.1.7 Examine the test specimen and test aids for damage prior to use and after each application.

8.1.8 The test specimen shall be stored and transported in a padded container.

8.1.9 Protect all electrical connectors with plastic caps when the connectors are unmated.

8.1.10 Examine all mating connectors before attempting to mate them.

8.1.11 Remove any foreign material and look for any damaged pins or sockets.

8.1.12 Ensure that keyways are aligned when mating connectors. Do not force the coupling action if excessive resistance is encountered.

8.1.13 Double check the test setup before power application.

8.1.14 Power shall be removed from cable assemblies and equipment switched off before connecting or disconnecting equipment or cable connectors.

8.1.15 Store the test specimen in a designated cabinet following completion of testing each day. Do not leave the specimen connected to the functional test equipment overnight (unless specified to do so by the test procedure).

8.1.16 Notes, cautions and warnings listed in this procedure shall be observed to prevent injury to personnel or damage to the test specimen or test equipment. Warning signs shall be posted outside the test chamber to prevent access to RF hazard zones. The RF amplifiers connected to the transmitting antennas shall be in standby condition or "OFF" while personnel are in the test chamber. All personnel shall leave the test chamber and all access doors to the test chamber shall be closed before performing any portion of the radiated susceptibility test.

8.2 Industrial Safety

All standard LMMS Industrial Safety precautions shall be observed during test operations with emphasis on safety of personnel and equipment.

9.0 Test Personnel

9.1 EMI Test Engineer

The EMI Test Engineer is responsible for all areas of the EMI testing and maintaining the test log. The EMI Test Engineer shall verify all EMI test setups, record and annotate the test data.

9.2 EMC Engineer

The EMC Engineer shall be present during the EMI tests. Any changes to the EMI test procedures shall be approved by the EMC Engineer and by the Responsible Product Engineer (RPE).
The EMC Engineer shall evaluate the EMI test data, shall provide recommendations for troubleshooting over limit conditions, and shall assist in the disposition of any discrepancies.

9.3 I&T Engineers and Technician

The I&T Engineers and technician will be operation of the IEGSE and support equipment required to operate the HIRDLS Instrument. They will provide Instrument performance test data. Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or mag0netic fields

9.4 Test Technician

The test technician shall operate the test equipment and assist the EMI test engineer in EMI testing related tasks.

9.5 **Responsible Product Engineer (RPE)** The RPE shall ensure that the operation of the Instrument satisfies the requirements of the applicable specifications. Any changes to the EMI test procedures shall be approved by the Responsible Product Engineer (RPE) and by the EMC Engineer.

9.6 **Product Assurance**

The PA representative shall affix his/her stamp in the test procedures and/or operations orders when the requirements in the EMI test procedures are completed.

9.7 **STE Operator**

The STE operator shall monitor the STE for proper operation, and execute the computer program that sets the Instrument in the required operating mode. The STE operator shall notify the EMI test personnel immediately in case he/she detects any out-of-spec condition so that threshold level can be determined.

10.0 Documentation

10.1 **Test Log**

A Test Log shall be maintained during the EMI tests. This log shall document the test setup, start and completion dates of each test, test pass/fail results, and any incidents and/or abnormalities occurring during the tests.

10.2 **Test Equipment Log**

A test equipment log shall be maintained denoting model number, frequency range, serial number, calibration expiration date, and manufacturer of the test equipment used for each test.

10.3 **Discrepancy Logs/Reports**

The EMC Engineer shall generate all EMI discrepancy logs and reports related to EMI failures. The disposition of all discrepancy and EMI failures will be by **HIRDLS MRB.**

11.0 Modes of Operation

The Instrument will be operated in the following modes: Off Mode, Survival Mode, Safe Mode, Idle Mode, Standby Mode. See figure 11-1. Mission mode. Note that Instrument testing will be performed in Mission Mode.

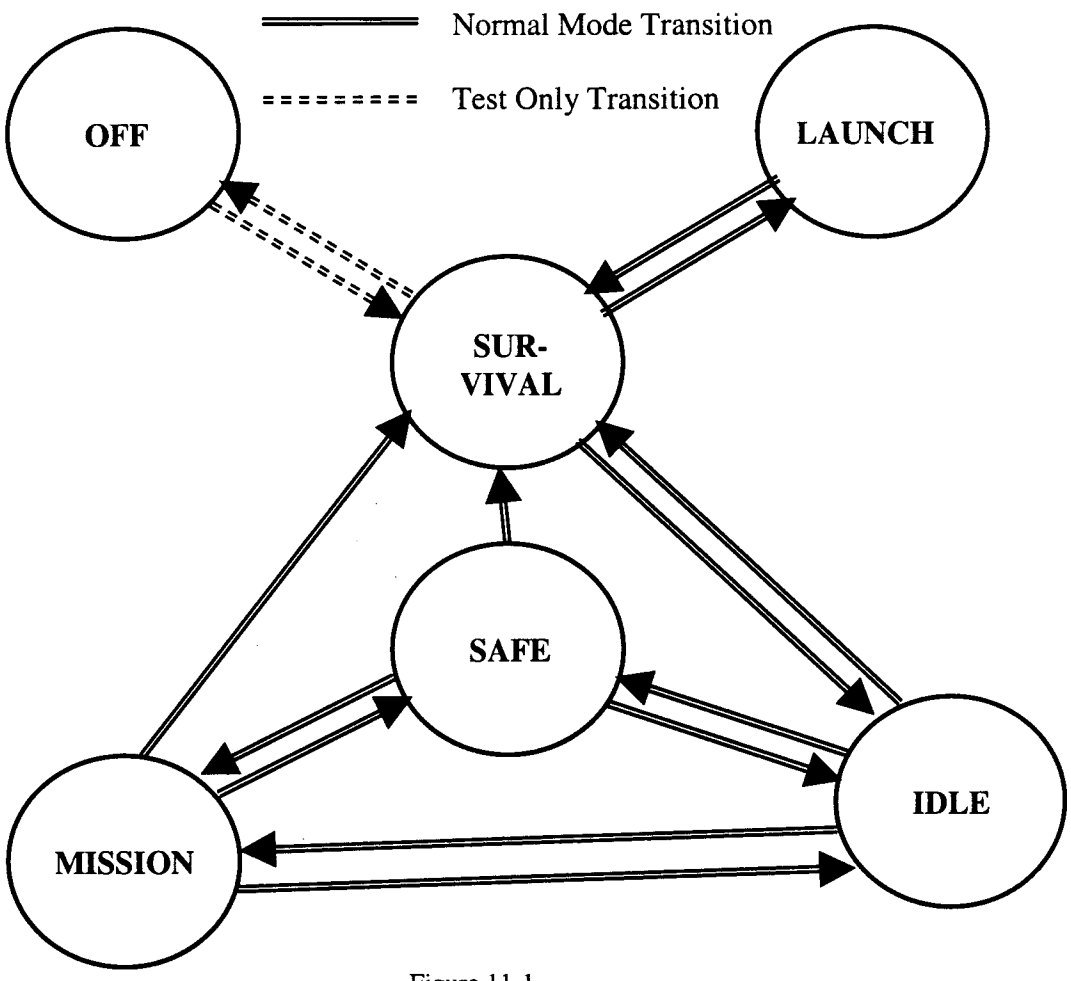

Figure 11-1

12.0 Order of Testing

Bonding measurements, ground connection checks, and isolation measurements shall be performed before connecting cable harness and starting other EMI tests. Other EMI tests may be performed in any order. The EMI test engineer shall determine the testing sequences according to test equipment availability and/or ease of test setup changes.

13.0 Instrument EMI Test Procedure

13.1 Electrical Bonding

13.1.1 The test requirement for all bonding measurements is < 2.5 milliohms. This includes all exterior housings to structure, exterior mounting surfaces to structure, electrical connectors to structure and redundant grounding jumpers of all gimbaled, hinged and jointed interfaces. Refer to Figure 1.

13.1.2 Use a Keithley 580 micro-ohmmeter or equivalent to measure and record the bonding measurements on the applicable Test Data Sheet.

13.1.3 Verify that the bonding test is complete and the results are acceptable.

Test Engineering N/A Date N/A

Quality Engineering N/A Date N/A

Previous taken Per 00-LOC- J10270 4/30/02 QE J16786

13.2 Primary Power Isolation

13.2.1 The test requirement for isolation is > 1 Meg ohm. This includes all primary power and return leads (quiet bus and noisy bus) with respect to chassis.

13.2.2 Use a Fluke multimeter or equivalent to measure and record on the applicable Test Data Sheet the resistance between the test points/connector contacts and chassis ground.

13.2.3 Verify that the Power Isolation test is complete and the results are acceptable.

Test Engineering N/A Date N/A

Quality Engineering N/A Date N/A

Previous taken Per 00-LOC J10270 4/30/02 QE J16786

13.3 Instrument Power On Procedure

Perform the Instrument power on procedure per TP-LOC-819, after performing paragraph 13.4.2 of this procedure.

13.4 CE01/CE03 Powerline Conducted Emissions 30Hz to 20KHz/20KHz to 50MHz

(GIRD 10.11.1)

13.4.1 The requirements for this test are shown in Figures 2A, 2B, and Figure 3. Only narrowband CE01/CE03 measurements will be performed. Narrowband ~~and broadband CE03~~ measurements will be performed. Measurements will be performed on the following power leads:

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PI-SB-A	Primary power input lead (Survival Bus A)	Cable PSA/ connect together wires A, B, C
PR-SB-A	Primary power return lead (Survival Bus A)	Cable PSA/ connect together wires D, E, F
PI-SB-B	Primary power input lead (Survival Bus B)	Cable PSB / connect together wires A, B, C
PR-SB-B	Primary power return lead (Survival Bus B)	Cable PSB / connect together wires D, E, F
PI-NB A	Primary power input lead (Noisy Bus A)	Cable PNA / connect together wires A,B,C
PR-NB A	Primary power return lead (Noisy Bus A)	Cable PNA / connect together wire D,E,F
PI-NB B	Primary power input lead (Noisy Bus B)	Cable PNB / connect together wire A,B,C
PR-NB B	Primary power return lead (Noisy Bus B)	Cable PNB / connect together wire D,E,F
PI-QB A	Primary power input lead (Quiet Bus A)	Cable PQA / connect together wire A,B,C
PR-QB A	Primary power return lead (Quiet Bus A)	Cable PQA / connect together wire D,E,F
PI-QB B	Primary power input lead (Quiet Bus B)	Cable PQB / connect together wire A,B,C
PR-QB B	Primary power return lead (Quiet Bus B)	Cable PQB / connect together wire D,E,F

13.4.2 The spectrum analyzer resolution bandwidth shall be as follows:

Analyzer Resolution Bandwidth		**Frequency Band**
NB Test	~~**BB Test**~~	
10Hz	~~N/A~~	30Hz to 3.5KHz
1KHz	~~N/A~~	3.5KHz to 20KHz
1KHz	~~10KHz~~	20KHz to 2.5MHz
10KHz	~~100KHz~~	2.5MHz to 12MHz
100KHz	~~1MHz~~	12MHz to 50MHz

13.4.3 Verify that the test equipment is setup shown in Figure 4. Turn the EMI test equipment ON and allow a minimum of 15 minutes for warm-up and stabilization.

13.4.4 If not already performed, load the EMI measurement software and open the measurement application.

13.4.5 If not already performed, calibrate the EMI measurement equipment per standard lab practice. Update and save the BWi.

13.4.6 Select Test Library at the EMI Top Level Screen and scroll down to the CE01 test file under the HIRDLS Instrument header.

13.4.7 Print a copy of the test setup and verify that it is correct for the planned test activity. Include a copy of the current probe transfer impedance and limit tables. Verify that the current probe table agrees with the test equipment that will be used to perform the measurements. Verify that the limit table agrees with the limit shown in Figure 2. Make any necessary changes and re-store. Post copies to the test log book.

13.4.8 Clamp the current probe on to one of the power leads listed in paragraph 13.4.1.

13.4.9 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test.

13.4.10 Start the EMI measurement program and follow the instructions on the computer screen.

13.4.11 If any emissions are measured above the limits, turn the Instrument off and perform ambient measurements at the direction of EMI test engineering.

13.4.12 Repeat paragraphs 13.4.8 through 13.4.11 for each power lead listed in paragraph 13.4.1.

13.4.13 Select Test Library at the EMI Top Level Screen and scroll down to the CE03 test file under the HIRDLS Instrument header.

13.4.14 Print a copy of the test setup and verify that it is correct for the planned test activity. Include a copy of the current probe transfer impedance and limit tables. Verify that the current probe table agrees with the test equipment that will be used to perform the measurements. Verify that the limit

EMC TPCN NC-1 TPLOC-820 REV. NC

Paragraph 13.4A

1. Ripple voltage measurements to be performed in parallel with spectrum analyzer measurements. Alternate test points between the measurement setups.

2. Setup oscilloscope (20 MHz or greater bandwidth) with a 10X voltage probe, and HP 7475 potter.

3. Initially set the oscilloscope horizontal rate for 2.0 milliseconds and the vertical scale for 50 millivolts per division. Adjust for best display of ripple data.

4. Allow a minimum of 10 sweeps on the oscilloscope. Obtain a plot of the ripple data and on disk.

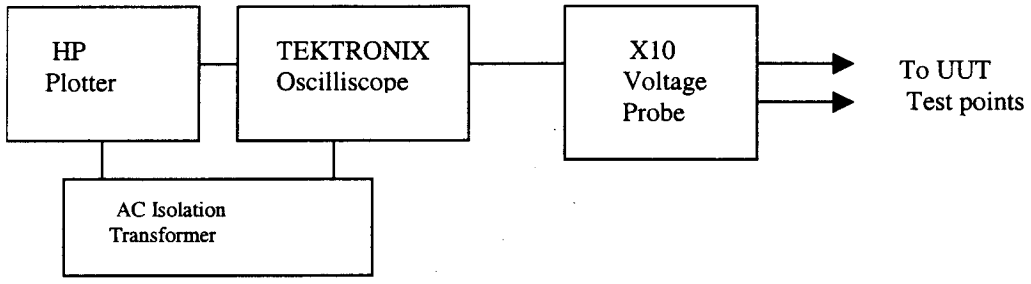

table agrees with the limit shown in Figure 21. Make any necessary changes and re-store. Post copies to the test log book.

~~13.4.15 Clamp the current probe on to one of the power leads listed in paragraph 13.4.1.~~

~~13.4.16 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test.~~

~~13.4.17 Start the EMI measurement program and follow the instructions on the computer screen.~~

~~13.4.18 If any emissions are measured above the limits, turn the Instrument off and perform ambient measurements at the direction of EMI test engineering.~~

~~13.4.19 Repeat paragraphs 13.4.15 through 13.4.18 for each power lead listed in paragraph 13.4.1.~~

TPCN #1 REV N.C. RIPPLE VOLTAGE MEASUREMENT QE→ J16786 OK

13.4.20 Verify that the CE01/CE03 test is complete and the results are acceptable.

Test Engineering _____ Date 4/30/02

Quality Engineering _____ Date 4/30/02 QE→ J16786

WITH DRs AD6417 & AD6419 AD6433 AD6426 REF AD6442

13.5 RE02 Electric Field Radiated Emissions (14KHz to 18GHz) (GIRD 10.11.6)

13.5.1 The requirements for this test are shown in Figures 5 and 6. Both narrowband ~~and broadband~~ emissions will be measured for the entire frequency range.

D→ 686894 DR'S AD6510 AD6511 MAY 06 2002

13.5.2 The spectrum analyzer resolution bandwidth shall be as follows:

Analyzer Resolution Bandwidth		Frequency Band
NB Test	~~BB Test~~	
1KHz	~~10KHz~~	14KHz to 2.5MHz
10KHz	~~100KHz~~	2.5MHz to 30MHz
100KHz	~~1MHz~~	30MHz to 1GHz
1MHz	~~10MHz~~	1GHz to 18GHz

13.5.3 Connect the test setup shown in Figure 7. Turn the EMI test equipment ON and allow a minimum of 15 minutes for warm-up and stabilization.

13.5.4 If not already performed, load the EMI measurement software and open the measurement application.

13.5.5 If not already performed, calibrate the EMI measurement equipment per standard lab practice. Update and save the BWi. Calibration of room with HIRDLS Instrument and IEGSE support equipment switched off.

13.5.6 Perform background check for base line with IEGSE switched on and HIRDLS Instrument switched off.

13.5.7 Perform background check for base line with IEGSE switched on and HIRDLS Instrument switched on.

13.5.8 Select Test Library at the EMI Top Level Screen and scroll down to the RE02 narrowband test file under the HIRDLS Instrument header.

13.5.9 Print a copy of the test setup and verify that it is correct for the planned test activity. Include a copy of the antenna correction factor for each antenna, the gain/loss table and the limit tables. Verify that the antenna correction factor tables and the gain/loss table agree with the test equipment that will be used to perform the measurements. Verify that the limit tables agree with the limit shown in Figure 5. Make any necessary changes and re-store. Post copies to the test log book.

13.5.10 Position the active rod antenna, with appropriate counter poise extension, 1m from the area of the Instrument that is considered the most likely to emit the highest-level electric field emissions.

13.5.11 Turn the antenna ON and close the chamber doors.

13.5.12 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test.

13.5.13 Start the EMI measurement program. Follow the instructions on the computer screen, replacing the test antenna and other equipment for each frequency range. Make sure that linearly polarized antennas are used for both horizontal and vertical polarities.

13.5.14 If any emissions are measured above the limits, turn the Instrument off and perform ambient measurements at the direction of EMI test engineering.

13.5.15 Verify that the RE02 narrowband test is complete and the results are acceptable.

Test Engineering _____ Date _____

Quality Engineering _____ Date _____

DR's AD6510 AD6511

~~13.5.16 Repeat paragraphs 13.5.6 through 13.5.13 for the broadband limit shown in Figure 6.~~

~~13.5.17 Verify that the RE02 broadband test is complete and the results are acceptable.~~

~~Test Engineering _____ Date _____~~

~~Quality Engineering _____ Date _____~~

13.6 RE04 Magnetic Field Radiated Emissions 20 Hz to 50 KHz (GIRD 10.11.5.1)

13.6.1 The requirement for the peak magnetic field radiated emissions measured at7 cm. is shown in Figure 8. The requirement is applicable for the three axes of the test antenna.

13.6.2 The spectrum analyzer resolution bandwidth shall be as follows:

Analyzer Resolution Bandwidth	Frequency Band
10Hz	20Hz to 200Hz

100Hz	200Hz to 20KHz
1KHz	20KHz to 50KHz

13.6.3 Connect the test setup shown in Figure 9. Turn the EMI test equipment ON and allow a minimum of 15 minutes for warm-up and stabilization.

13.6.4 If not already performed, load the EMI measurement software and open the measurement application.

13.6.5 If not already performed, calibrate the EMI measurement equipment per standard lab practice. Update and save the BWi.

13.6.6 Select Test Library at the EMI Top Level Screen and scroll down to the RE04 test file under the HIRDLS Instrument header.

13.6.7 Print a copy of the test setup and verify that it is correct for the planned test activity. Include a copy of the antenna correction factor for each antenna, the gain/loss table and the limit tables. Verify that the antenna correction factor tables and the gain/loss table agree with the test equipment that will be used to perform the measurements. Verify that the limit tables agree with the limit shown in Figure 8. Make any necessary changes and re-store. Post copies to the test log book.

13.6.8 Position the loop antenna 1m from the area of the Instrument that is considered most likely to emit the highest level magnetic field emissions. Start with the vertical parallel polarization. Close the chamber doors.

13.6.9 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test.

13.6.10 Start the EMI measurement program. Follow the instructions on the computer screen.

13.6.11 If any emissions are measured above the limits, turn the Instrument off and perform ambient measurements at the direction of EMI test engineering.

13.6.12 Repeat paragraphs 13.6.8 through 13.6.11 for the vertical perpendicular polarization.

13.6.13 Repeat paragraphs 13.6.8 through 13.6.11 for the horizontal polarization.

13.6.14 Verify that the RE04 test is complete and the results are acceptable.

Test Engineering R. Woodhouse Date 5/6/02

Quality Engineering Date 5/6/02

13.7 DC Magnetic Dipole Moment (GIRD 10.11.5.2)

13.7.1 The residual magnetic dipole moment of the Instrument shall be less than 0.5 A-m^2 with the instrument operating in the Mission mode. Ambient measurements shall be performed in the shielded chamber with the Instrument moved to one side. This is necessary so that the Instrument will be out of range of the magnetometer. Measurements shall be performed at four equally spaced locations around the Instrument.

13.7.2 Connect the test setup shown in Figure 10. Turn the magnetometer on and allow a minimum of 15 minutes for warm-up and stabilization.

13.7.3 Mark on the floor around the Instrument the four locations where the magnetometer will be placed to measure the Instrument magnetic dipole moment.

13.7.4 Move the Instrument to one side of the chamber so that it is out of range of the magnetometer.

13.7.5 Measure the ambient magnetic dipole moment at each of the locations identified in paragraph 13.7.3.

13.7.6 Move the Instrument back to the center of the chamber.

13.7.7 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test.

13.7.8 Measure the operating magnetic dipole moment at each of the locations identified in paragraph 13.7.3. Record the measurements on the applicable Test Data Sheet at the back of the test procedure.

13.7.9 Verify that the DC Magnetic Dipole Moment test is complete and the results are acceptable.

Test Engineering _____ Date _____

Quality Engineering _____ Date _____

13.8 RS01 AC Magnetic Field Radiated Susceptibility Test 30Hz to 200KHz (GIRD 10.11.7.1)

13.8.1 The requirement for this test is shown in Figure 11.

13.8.2 A magnetic field generating coil, capable of producing a magnetic flux density of 5×10^{-5} Tesla/Amp at a point exactly 5 cm from the face of the coil will be used to perform the test. The test coil shall be moved over all accessible areas of the Instrument.

13.8.3 Connect the test set up shown in Figure 12. Turn the EMI test equipment ON and allow a minimum of 15 minutes for warm-up and stabilization.

13.8.4 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test.

13.8.5 Place the magnetic coil on the area of the Instrument that will be tested first. Increase the susceptibility signal to the level indicated in Figure 11 for the start of the frequency sweep (30Hz). Monitor the Instrument for evidence of susceptibility. Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields. If susceptibility is observed reduce the signal level until the Instrument returns to normal operation and record the threshold on the applicable Test Data Sheet.

13.8.6 Sweep the signal up in frequency very slowly as the magnetic coil is moved over the area of the Instrument. Time the frequency sweep such that the coil will have been moved over the entire area of the Instrument at the end of the sweep (200KHz).

13.8.7 Repeat paragraphs 13.8.5 through 13.8.6 for each area of the Instrument to be tested.

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SEE PAGE 19 A

13.8.8 ~~Set frequency to 480 Hz. and move coil over for each area of the Instrument to be tested, see Figure 21.~~

13.8.9 ~~Set frequency to 520 Hz. and move coil over for each area of the Instrument to be tested, see Figure 21.~~

13.8.10 ~~Verify that the RS01 test is complete and the results are acceptable.~~

~~Test Engineering~~ _____ ~~Date~~ _____

~~Quality Engineering~~ _____ ~~Date~~ _____

13.9 DC Magnetic Field Susceptibility Test (GIRD 10.11.7.2)

13.9.1 The Instrument shall perform normally when exposed to a DC magnetic field of 1000 uTesla (800A/m) for a period of 5 ı

13.9.2 A square or circular coil of ADD TO 13.8.8 ıtrument shall be constructed and used to provide the DC mag Thru 13.8.9 ted for an 800A/m field without the Instrument in the field. T Frequencies 480, 495, l be a DC power supply capable of supplying the current necess 505, 520 to run Use the following formula to design the coil: H = NI/2R where: 5 min at AF-1

H = magnetic flux density (A/m) 800 A/m

N = number of wire turns in the coil, 96 Turns

R = radius of coil (meters), 93" (1.2m)

I = current (20 amps)

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13.9.3 Connect the test setup as shown in Figure 13. Position the coil such that it the X, Y or Z axis of the Instrument. SEE Red Lines 13.9.3.1

13.9.4 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors co Mission mode and Instrument telemetry monitoring ready for test.

13.9.5 Turn on the coil power supply and adjust the voltage and current control the current calculated in paragraph 13.9.2.

13.9.6 Monitor the Instrument for evidence of susceptibility as the coil is slowly moved along the axis of the Instrument. Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields. If susceptibility is observed reduce the power supply voltage and current until the Instrument returns to normal operation and record the threshold on the applicable ~~Test Data Sheet~~ Test Log Book at the back of the procedure.

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13.9.7 Maintain the susceptibility signal at 800A/m for a minimum of 5 minutes. At the end of the 5 minute period turn the coil power supply off.

13.9.8 Reverse the coil connections at the power supply and repeat paragraphs 13.9.5 through 13.9.7.

13.9.9 Turn the Instrument OFF and reposition the coil such that its plane is parallel with an axis different than the one used in paragraph 13.9.3.

HIRDLS Lateral Coil Frame Fixture (SK14182) Assembly Procedure

Equipment:
Rope
Tools

Inspection to witness all operations

1. Conduct briefing of operations to be performed, personnel roles, and safety precautions.

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2. Using four people, position the coil frame in desired location then lift the coil frame to vertical position by pivoting on bottom edge. **CAUTION:** The coil frame weighs approx 140 lbs. Do not lift near critical hardware or allow to stand without at least two people supporting ends.

3. Position the caster side support near one side of coil frame. Install caster side support to coil frame.

4. Position the opposite caster side support. Then install the caster side support.

5. Verify the all the restraining rods and nuts are snug. Verify proper motion and stability of assembly. Verify operation complete.

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HIRDLS Vertical Coil Frame Fixture (SK14182) Assembly Procedure

Equipment:

- 2 carts
- 2 Ladders
- Rope
- Tools

Inspection to witness all operations

1. Conduct briefing of operations to be performed, personnel roles, and safety precautions. Establish area where frame is to be assembled and precautions and keepout areas around the test specimen.

   David O. Kuyper Engr A 636894 QA
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2. Using a minimum of 4 people carefully raise one side frame (approx 150 lbs). Then position and carefully raise the other side frame.

3. While supporting the side frames, install front crossbeam with diagonals (approx 40 lbs). Then install back crossbeam with diagonals. Tighten all bolts and nuts. **CAUTION:** The side frames must be supported with adequate personnel during this operation to prevent them from possibly falling over.

4. Lift one side of frame and set on 6 inch blocks. Install casters with swivel locks on the bottom of side frame beam on the raised side, then lift side slightly, remove blocks, and set on casters. Repeat for other side of frame.

5. Install cable assemblies and 3 overhead pulley support beams (approx 27 lbs each) as a unit. Tighten all bolts and nuts.

6. Install 4 pulleys to the side beams. Attach with 3 bolts each. Tighten all bolts and nuts.

7. Position 2 carts supporting coil frame and counterweight under support frame. Make sure cables are routed properly, then connect cable assembly to 4 corners of the coil frame.

8. Using one person at each corner carefully lift coil frame (approx 140 lbs) until the counterweight can be attached, then attach counterweight. Slowly lower the coil frame until it's weight is supported by cables.

9. Verify all nuts and bolts and installed and tightened. Verify that cables are run properly. Verify free motion of the coil frame up and down. Then tie ropes to secure coil frame in upper position.

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10. Make sure that wheel locks are off and swivel locks are in the desired position on the casters. Using a minimum of 4 people carefully move the frame into test position around the test specimen. Lock all caster wheels. Carefully remove the ropes securing the coil frame and lower frame to the desired test position. Secure area, power up coil, and run test series. .

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11. Repeat step 10 for other two positions.

12. Verify power is removed from coil. Raise coil frame to upper position and secure at each corner with ropes. Unlock wheels and move frame to a convenient location away from test specimen. .

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HIRDLS Vertical Coil Frame Fixture (SK14182) Disassembly Procedure

Equipment:
- 2 carts
- 2 Ladders
- Tools

Inspection to Witness all operations

1. Conduct briefing of operations to be performed, personnel roles, and safety precautions.
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2. Place cart centered on both open sides of the frame on which to place counterweight and coil frame.
3. Using one person at each corner of coil frame, lift coil frame (approx 140 lbs) until counterweight is resting on cart. Remove cable assembly from counterweight.
4. Lower coil frame onto the two carts. Remove cable assemblies from the coil frame (4 places).
5. Remove 4 pulleys from the side beams (3 bolts per pulley).
6. Remove 3 overhead pulley support beams (approx 27 lbs each) keeping pulleys and cables installed. Store as a unit.
7. Lift one side of frame and set on 6 inch high blocks. Remove casters and swivel locks on raised side. Lift side of frame, remove blocks, then set back on floor. Lift opposite side of frame and set on 6 inch high blocks. Remove casters and swivel locks. Lift side of frame, remove blocks, then set back on floor.
8. While supporting the side frames, remove front crossbeam with diagonals (approx 40 lbs). Then remove back crossbeam with diagonals. **CAUTION:** The side frames must be supported with adequate personnel during this operation to prevent them from possibly falling over.
9. Using a minimum of 4 people carefully lower one side frame (approx 150 lbs). Then carefully lower the other side frame.

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DC Magnetics Coil Assembly

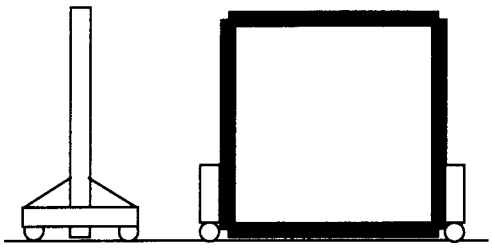

Figure 1
Note: Perform with Instrument power Off

13.9.3.1 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point B, lower down to support Instrument on block.

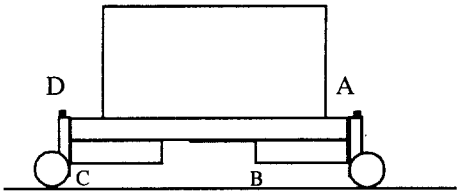

Figure 1

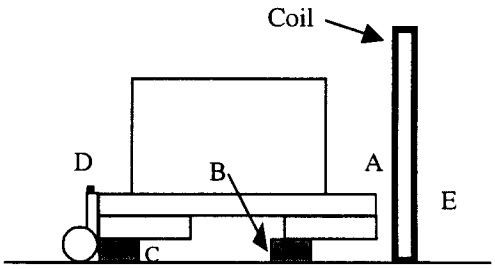

Figure 2

13.9.3.2 With handtruck, lift instrument cart end D, up 7 inch. Place 6 inch block under frame of Instrument support cart at point C, lower down to support Instrument on block.

13.9.3.3 Slide coil assembly under Instrument support cart.

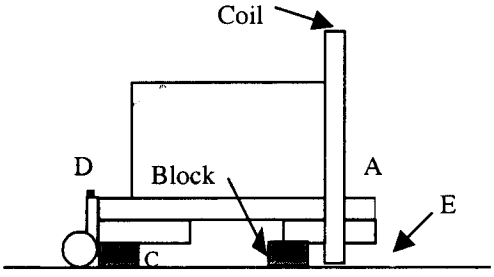

Figure 3

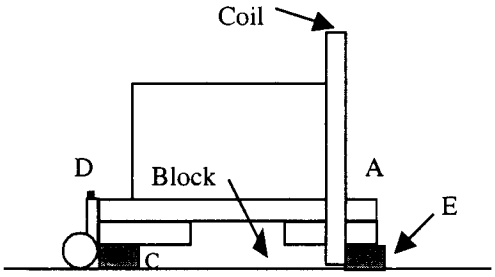

Figure 4

13.9.3.4 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point E, lower down to support Instrument on block.

13.9.3.5 Position coil at point X1 and perform DC magnetic field test. Move coil to X2, X3 and perform test.

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13.9.3.6 Move coil back to block E when test is complete.

13.9.3.7 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point E, lower down to support Instrument on block.

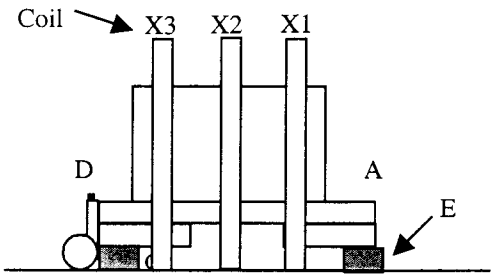

Figure 5

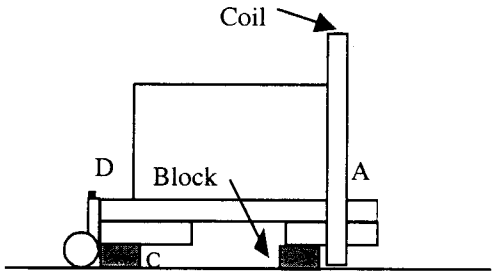

Figure 6

13.9.3.8 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point B, lower down to support Instrument on block.

13.9.3.9 Move coil off of Instrument.

Y-Axis DC Magnetic Field Test

13.9.3.10 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point B, lower down to support Instrument on block.

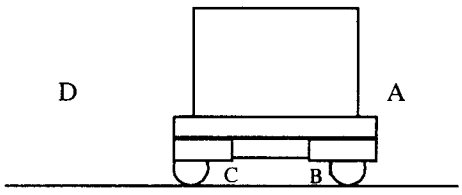

Figure 7

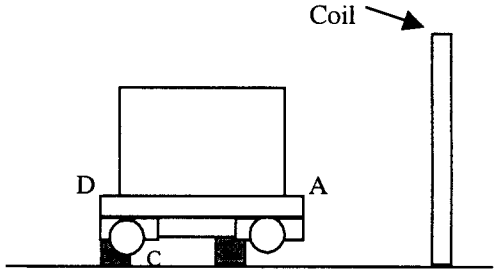

Figure 8

13.9.3.11 With handtruck, lift instrument cart end D, up 7 inch. Place 6 inch block under frame of Instrument support cart at point C, lower down to support Instrument on block.

13.9.3.12 Slide coil assembly under Instrument support cart

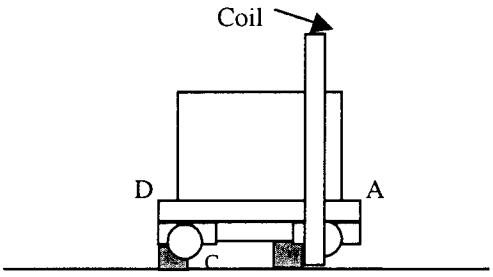

Figure 9

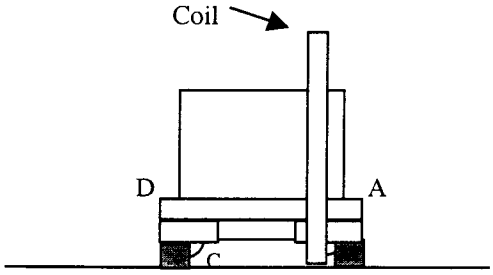

Figure 10

13.9.3.13 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point E, lower down to support Instrument on block.

13.9.3.14 Position coil at point X1 and perform DC magnetic field test. Move coil to X2, X3 and perform test.

13.9.3.15 Move coil back to block E when test is complete.

13.9.3.16 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point E, lower down to support Instrument on block.

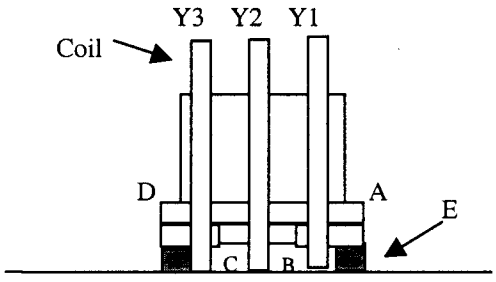

Figure 11

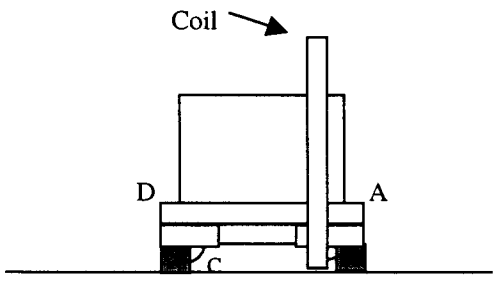

Figure 12

13.9.3.17 With handtruck, lift instrument cart end A, up 7 inch. Place 6 inch block under frame of Instrument support cart at point B, lower down to support Instrument on block.

13.9.3.18 Move coil off of Instrument.

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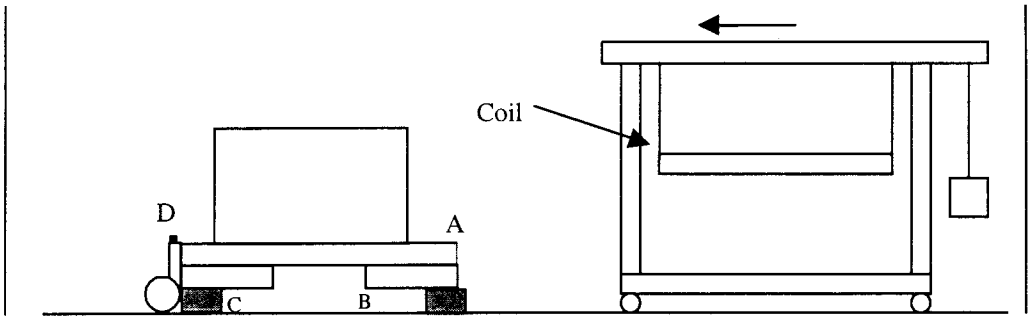
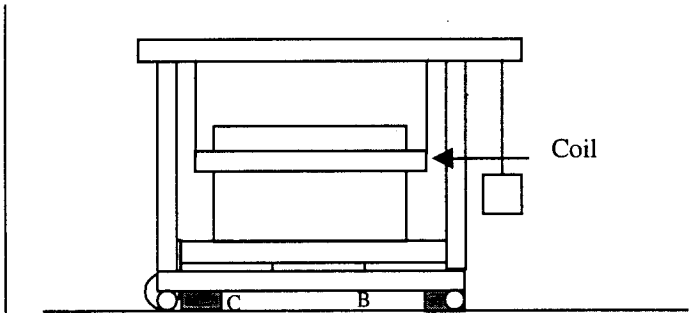
Z-Axis

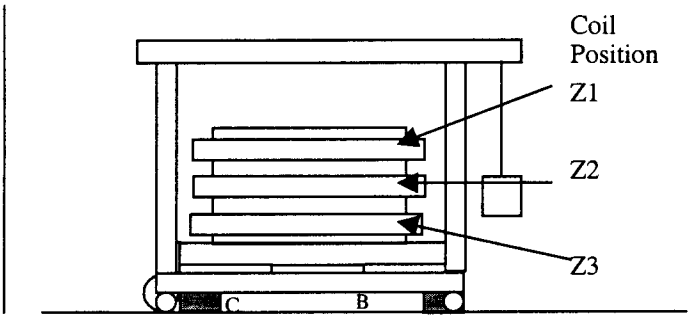


13.9.3.19 With Instrument up on blocks. Raise the coil in support cage to top most position and tie in place.

13.9.3.20 Move Coil and Cage assembly over the Instrument. Slowly lower the coil down over Instrument. Do not hit Instrument with coil. Position coil at locations Z1, Z2, Z3.



13.9.3.21 Position coil at point Z1 and perform DC magnetic field test. Move coil to Z2, Z3 and perform test.



13.9.3.22 At end of test, lift coil to top and tie up coil. Slide coil assembly off and away from instrument.

RED LINE CHANGES

13.8.8 Set frequency to 480 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for 10 min..

13.8.9 Set frequency to 495 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for 10 min..

13.8.10 Set frequency to 505 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for 10 min..

13.8.11 Set frequency to 520 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for 10 min..

13.8.12 Verify that the RS01 test is complete and the results are acceptable.

Test Engineering David Cho Date 5/3/02

Quality Engineering REVIEWED TEST LOG Date 5/3/02 QE→ J16786

RED LINE CHANGES

05/06/02

RED LINE CHANGES

13.8.8 Set frequency to 480 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for 10 min.. QE J16786

13.8.9 Set frequency to 495 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for 10 min. QE J16786

13.8.10 Set frequency to 505 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for 10 min. QE

13.8.11 Set frequency to 520 Hz. and move coil over area AF-1 of Instrument, see Figure 15A, page 21B. Hold coil position for 10 min. QE J16786

13.8.12 Verify that the RS01 test is complete and the results are acceptable.

Test Engineering _____ Date _____

Quality Engineering _____ Date _____

13.9.10 Repeat paragraphs 13.9.4 through 13.9.8.

13.9.11 ~~Turn the Instrument OFF and~~ Reposition the coil such that its plane is parallel with an axis different than the one used in paragraph 13.9.3 and 13.9.9.

13.9.12 Repeat paragraphs 13.9.4 through 13.9.8.

13.9.13 Verify that the DC Magnetic Field Susceptibility Test is complete and the results are acceptable.

Test Engineering _____ Date _____

Quality Engineering _____ Date _____

D 686894 MAY 05 2002 OR AD6464

13.10 RS03 Electric Field Radiated Susceptibility Test 14KHz to 18GHz (GIRD 10.11.8)

13.10.1 The requirement for this test is shown in Figure 14. Linearly polarized antennas will be used in both the horizontal and vertical polarities.

13.10.2 Connect the test setup shown in Figure 15. Turn the EMI equipment ON and allow a minimum of 15 minutes for warm up and stabilization.

Note: Performance of this test requires the use of many different signal generators, amplifiers, antennas and field measuring probes for different frequency ranges. Many different combinations are possible. It is not the intent of this procedure to show every possible combination; therefore Figure 16 is only a generic test setup. It is the responsibility of the EMI/EMC Test Engineer to decide what test equipment will be used for each frequency range.

13.10.3 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test.

13.10.4 Close the chamber door and adjust the susceptibility signal for 2 V/m at 14 KHz with 50%AM at a 1KHz rate. Monitor the Instrument for evidence of susceptibility. Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields. If susceptibility is observed, reduce the signal level until the Instrument returns to normal operation and record the threshold on the applicable Test Data Sheet.

13.10.5 Sweep the signal up in frequency from 14KHz to 2GHz at a rate not to exceed three frequencies per octave in 30 seconds. Maintain a level of 2V/m. Continue to monitor for susceptibility. Make sure that the EMI test equipment (antennas, signal generators, TWTAs, field strength meters) is compatible with each of the frequency ranges.

13.10.6 Sweep the signal up in frequency from 2 GHz to 18 GHz at a rate not to exceed three frequencies per octave in 30 seconds. Maintain a level of 10V/m except as indicated in the table below. Continue to monitor for susceptibility. Make sure that the EMI test equipment (antennas, signal generators, TWTAs, field strength meters) is compatible with each of the frequency ranges.

Sweep Frequency	Level
14 KHz to 2 GHz	2 V/m

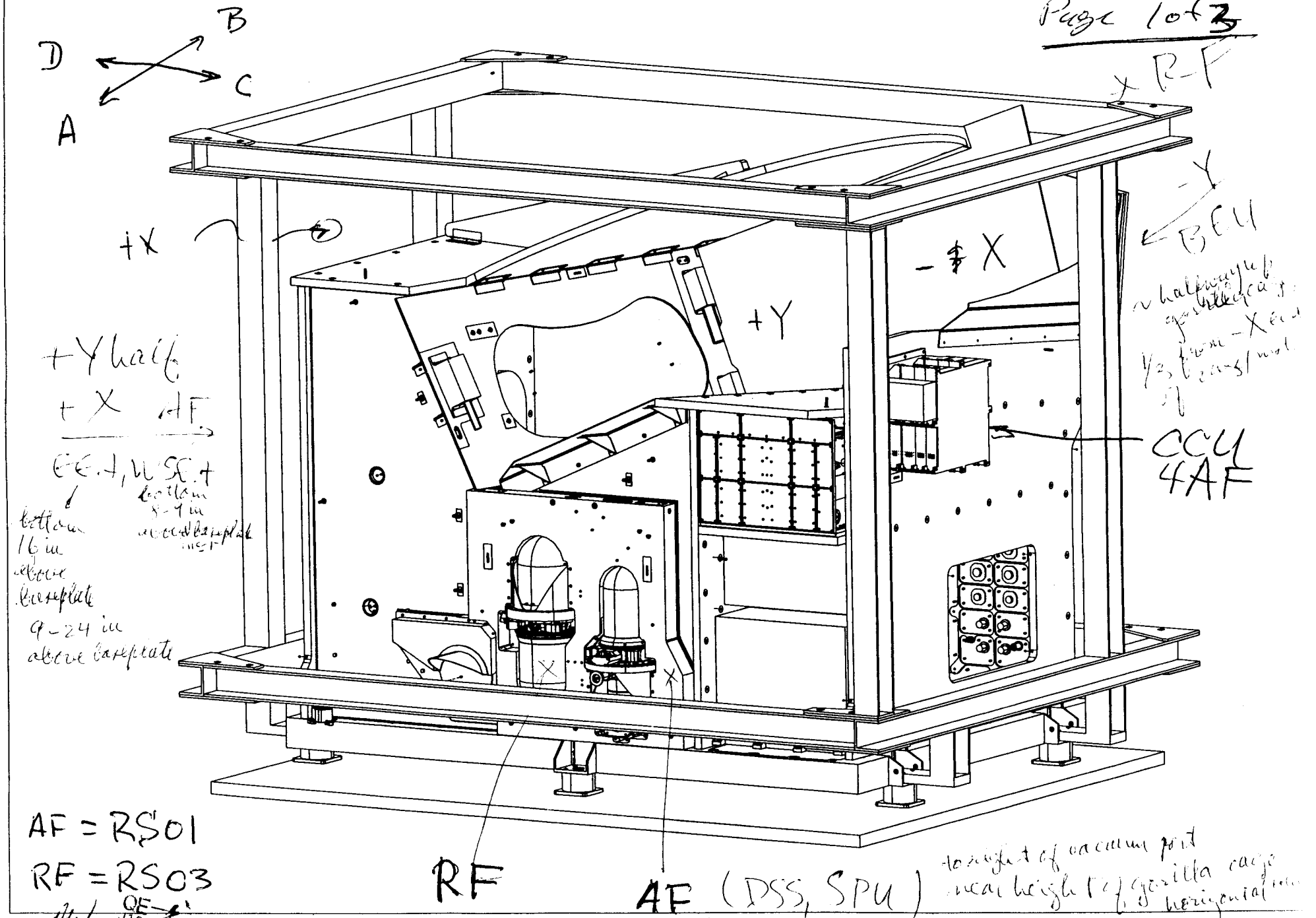
13.10.6.1 Perform RS03 Test on areas noted on FIGURE 15A,

13.10.6.2 Perform RS03 SWEEP ON RF-1 AREA From 14K to 18 GHz. (HIRDLS +Y SIDE)

13.10.6.3 Perform RS03 SWEEP on RF-2 AREA PER FIGURE 15A (HIRDS--Yside)

13.10.6.4 Sweep per RS03 2ND Antenna Position (HIRDLS —X, -Y)

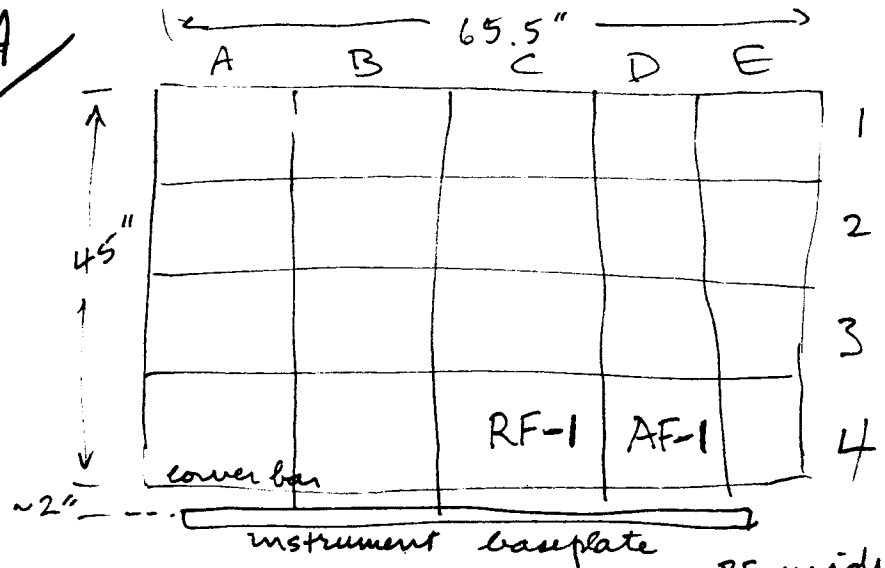
Page 1 of 3



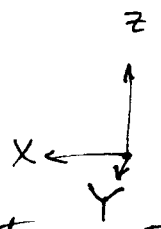
Page 2 of 2

Gorilla cage

A/

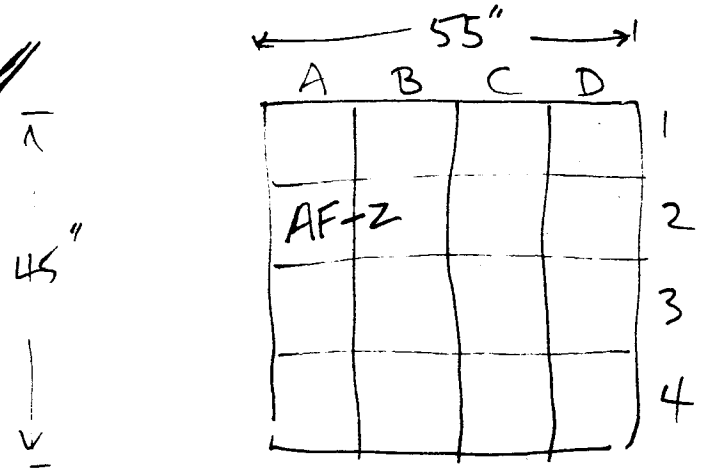


view of +Y side

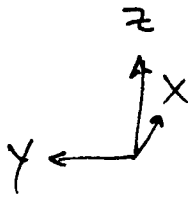


RF: midway between IPU & TEU
AF: DSS-SPU

D/

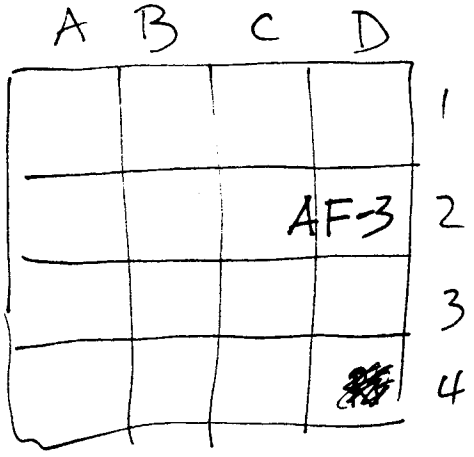


view of −X side

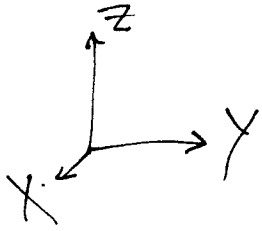


AF: CCU

C/



view of +X side



AF: midway between EEU and WSEA

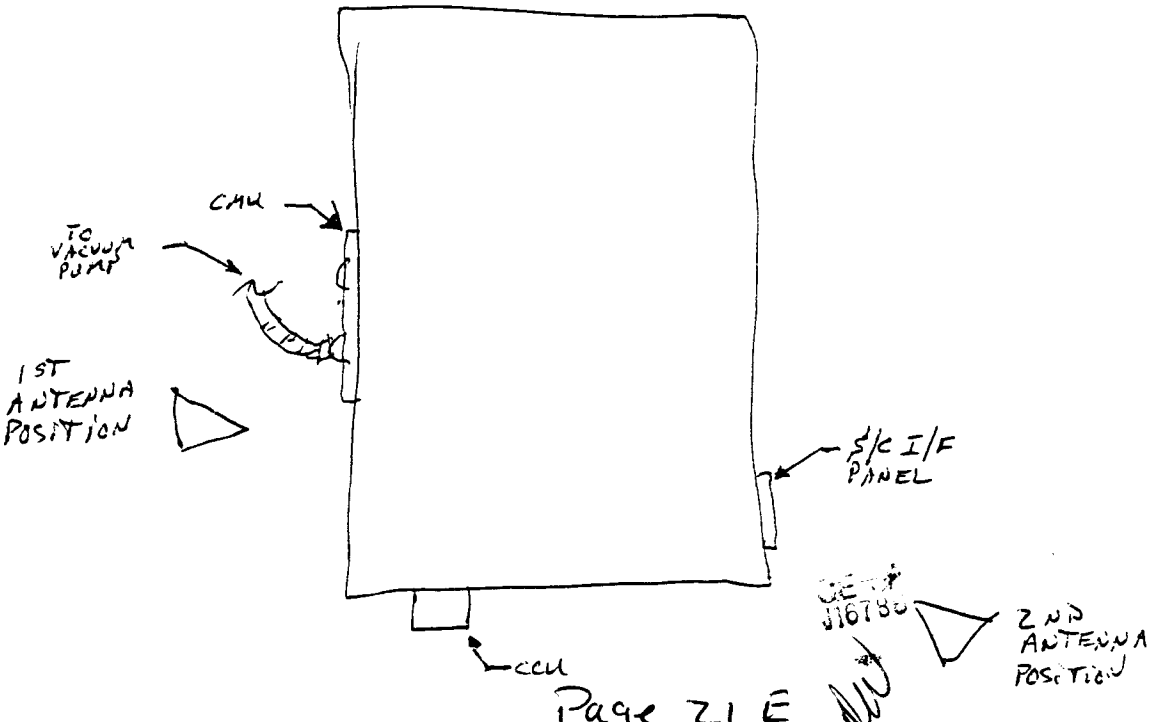
QE J167 55

FIGURE 15A
Page 21 C

RS03 2ND ANTENNA POSITION (HIRDLS -X, -Y)

SWEEP	START	TO	STOP
	14 KHz		20 MHz
	20 MHz		80 MHz
	119 MHz		160 MHz
	180 MHz		190 MHz
	210 MHz		390 MHz
	470 MHz		700 MHz
	1.5 GHz		2 GHz
	2 GHz		18 GHz

NOTES:
1) SAME SWEEP FREQUENCY RANGES FOR BOTH H & V POLARITY
2) STEP PER ~~~ IVAN'S TABLE



2 GHz to 18 GHz	10 V/m
Spacecraft Transmitter Frequence	
2.2875GHz ± 2.0MHz	**20V/m**
8.2125GHz ± 187.5MHz	**20V/m**

QE J16786

13:10.6.1 SEE PAGE 21A

13.10.7 Verify that the RS03 test is complete and the results are acceptable.

Test Engineering _____ Date 5/3/02

Quality Engineering _____ Date 5/3/02 QE J16786

REVIEWED TEST LOG

LESS OK DR #6464 MAY 05 2002

13.11 CS01/CS02 Audio and Radio Frequency Conducted Susceptibility Test 30 Hz to 50KHz/50KHz to 400 MHz (GIRD 10.11.3)

13.11.1 The requirement for this test is shown in Figure 16. The susceptibility signal shall be injected onto the PCU power input lines.

The Quite Bus and Survival Bus is Series injection (CS01) will be used from 30 Hz to 50 KHz and parallel injection, 3 V p-p or 4.0 Amp. p-p max.. Series injection (CS02) will be limited to 3 V p-p (1.07 Vrms) or 1 Watt from a 50 Ohm load, used from 50 KHz to 400 MHz. . As shown in Figure 16.

The Noisy Bus (CS01) susceptibility signal will start at 7 V p-p or 8.0 Amp. p-p max., from 30 Hz. To 2 KHz then ramp down to 3 V p-p or 8.0 Amp. p-p max., at 50 KHz. Series injection (CS02) will be 3 V p-p or 8.0 Amp. p-p max., used from 50 KHz to 400 MHz.

to 400 MHz Hz. As shown in Figure 16.

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D 686894 AD6491 MAY 05 2002

D 686894 AD6494 MAY 05 2002

D 686894 AD6495 MAY 05 2002

13.11.2 The series injection test configuration will apply the signal onto the positive Primary Power Lines and Power Return Lines. The susceptibility tests will be performed on the following:

PI-QB-A	Primary power input lead (Quiet Bus A)	Cable PQA / connect together wire A,B,C
PR-QB-A	Primary power return lead (Quiet Bus A)	Cable PQA / connect together wire D,E,F
PI-QB-B	Primary power input lead (Quiet Bus B)	Cable PQB / connect together wire A,B,C
PR-QB-B	Primary power return lead (Quiet Bus B)	Cable PQB / connect together wire D,E,F
PI-SB-A	Power Input lead (Survival Bus A)	Cable PSA/ connect together wires A, B, C
PR-SB-A	Power Return lead (Survival Bus A)	Cable PSA/ connect together wires D, E, F
PI-SB-B	Power Input lead (Survival Bus B)	Cable PSB / connect together wires A, B, C
PR-SB-B	Power Return lead (Survival Bus B)	Cable PSB / connect together wires D, E, F
PI-NB A	Primary power input lead (Noisy Bus A)	Cable PNA / connect together wires A,B,C
PR-NB A	Primary power return lead (Noisy Bus A)	Cable PNA / connect together wire D,E,F

PI-NB B	Primary power input lead (Noisy Bus B)	Cable PNB / connect together wire A,B,C
PR-NB B	Primary power return lead (Noisy Bus B)	Cable PNB / connect together wire D,E,F

13.11.3 Connect the CS01 setup shown in Figure 17. Begin with series injection for the Quite Bus-A positive power input line. Turn the EMI test equipment ON and allow a minimum of 15 minutes for warm-up and stabilization. SEE FIGURE 17A, PAGE 22A. QE J18575A

13.11.4 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test. MAY 02 2002

13.11.5 Increase the level of the susceptibility signal to 3 V p-p or 4.0 Amp. p-p max. or Injected Signal of 50 Watt max., at 30 Hz. Monitor the Instrument for evidence of susceptibility.

13.11.6 Sweep the susceptibility from 30 Hz to 50 KHz at a rate not to exceed three frequencies per octave in 30 seconds. Continue to monitor the Instrument for evidence of susceptibility. Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields. If susceptibility is observed, reduce the level of the susceptibility signal until the Instrument returns to normal operation and record the signal threshold on the applicable Test Data Sheet. At 50 KHz reduce the signal to zero and turn the Instrument off.

13.11.7 Repeat paragraphs 13.11.3 through 13.11.6 for the Quite Bus-A return lead. SEE PAGE 22C QE J18575A

13.11.8 Repeat paragraphs 13.11.3 through 13.11.6 for the Quite Bus-B positive lead.

13.11.9 Repeat paragraphs 13.11.3 through 13.11.6 for the Quite Bus-B return lead. MAY 02 2002

13.11.10 Repeat paragraphs 13.11.3 through 13.11.6 for the Survival Bus-A positive lead.

13.11.11 Repeat paragraphs 13.11.3 through 13.11.6 for the Survival Bus-A Return lead.

13.11.12 Repeat paragraphs 13.11.3 through 13.11.6 for the Survival Bus-B positive lead.

13.11.13 Repeat paragraphs 13.11.3 through 13.11.6 for the Survival Bus-B Return lead.

13.11.14 Configure the test setup for CS02 parallel injection to inject the susceptibility signal between the positive power input and return lines for the Quite Bus-A. Refer to Figure 18. Turn the EMI test equipment ON and allow a minimum of 15 minutes for warm-up and stabilization. SEE PAGE 22D.

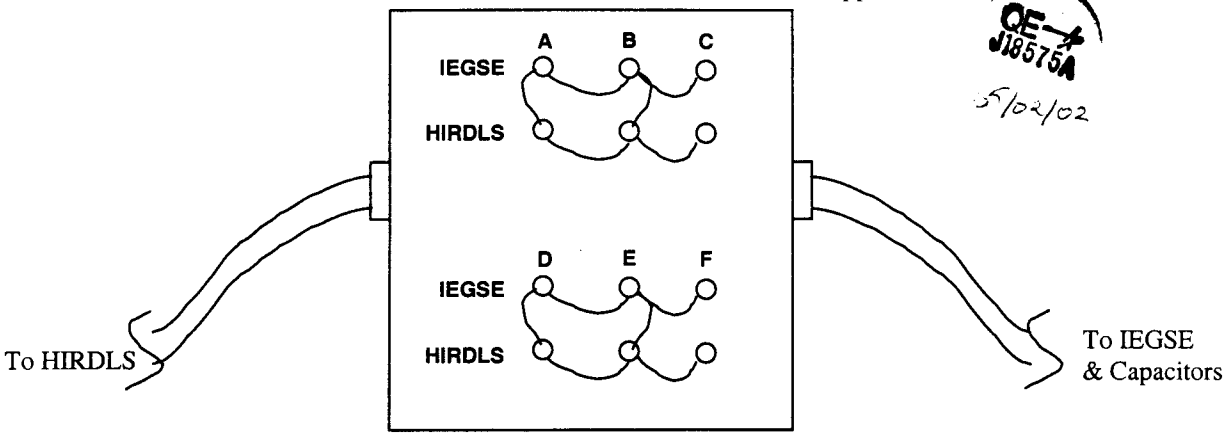
13.11.15 Increase the level of the susceptibility signal to 3 V p-p p or 4.0 Amp. p-p, or 1 watt from a 50 Ohm Source Max. at 50KHz. Monitor the Instrument for evidence of susceptibility. QE J18575A

13.11.16 Sweep the susceptibility from 50 KHz to 400MHz at a rate not to exceed three frequencies per octave in 30 seconds. Continue to monitor the Instrument for evidence of susceptibility. If susceptibility is observed, reduce the level of the susceptibility signal until the Instrument returns to normal operation and record the signal threshold on the applicable Test Data Sheet. At 400 MHz reduce the signal to zero and turn the Instrument off. MAY 02 2002

13.11.17 Repeat paragraphs 13.11.14 through 13.11.16 for the other Quite Bus-A return lead.

13.11.18 Repeat paragraphs 13.11.14 through 13.11.16 for the other Quite Bus-B positive lead.

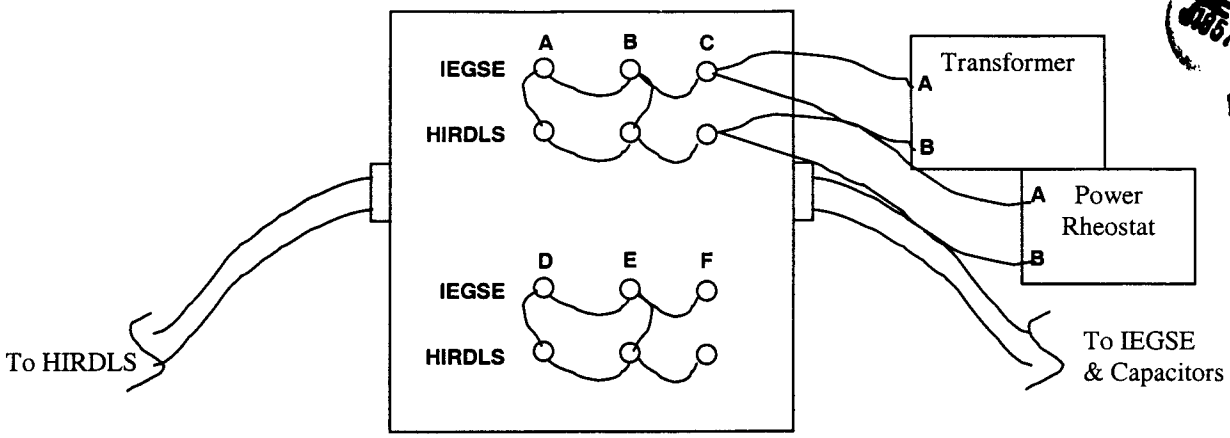
QE-
J18575A
5/02/02



BOB Basic Setup:
Before power is applied to the system perform the following steps.

1.0 Cable a BOB in each A-side power bus (Quiet, Noisy, Survival)
2.0 Place a jumper wires on each BOB in the following positions -

From	To
IEGSE-A	IEGSE-B
IEGSE-B	IEGSE-C
IEGSE-D	IEGSE-E
IEGSE-E	IEGSE-F
IEGSE-A	HIRDLS-A
IEGSE-B	HIRDLS-B
IEGSE-D	HIRDLS-D
IEGSE-E	HIRDLS-E



NOTE: INITIAL SETUP (EACH BUS - A-SIDE)

BOB Setup for CS01 (high side):

1.0 Verify that the BOB is in the "Basic Setup" configuration.

~~2.0 Test conductor to note time in the log and give OK to make connections to instrument~~

3.0 Connect the transformer ~~and rheostat~~ wires on the BOB in the following positions (Amplifier output off) -

From	To
x-former-A	IEGSE-C
x-former-B	HIRDLS-C
~~Pot-A~~	~~HIRDLS-C~~
~~Pot-B~~	~~IEGSE-C~~

~~4.0 Set the rheostat to maximum minimum (0 Ohms)~~

5.0 With the amplifier off remove the jumper wires

From	To
IEGSE-B	HIRDLS-B
IEGSE-A	HIRDLS-A

~~6.0 Slowly increase the rheostat resistance to maximum. Then remove the rheostat~~

~~From~~	~~To~~
~~Pot-A~~	~~HIRDLS-C~~
~~Pot-B~~	~~IEGSE-C~~

7.0 Notify test conductor that re-configuration is complete.

BOB Setup for CS01 (high side) after completion of the test:

8.0 Test conductor to note time in the log and give OK to make connections to instrument.

9.0 Set the rheostat resistance to maximum. Then connect to the bob.

From	To
Pot-A	HIRDLS-C
Pot-B	IEGSE-C

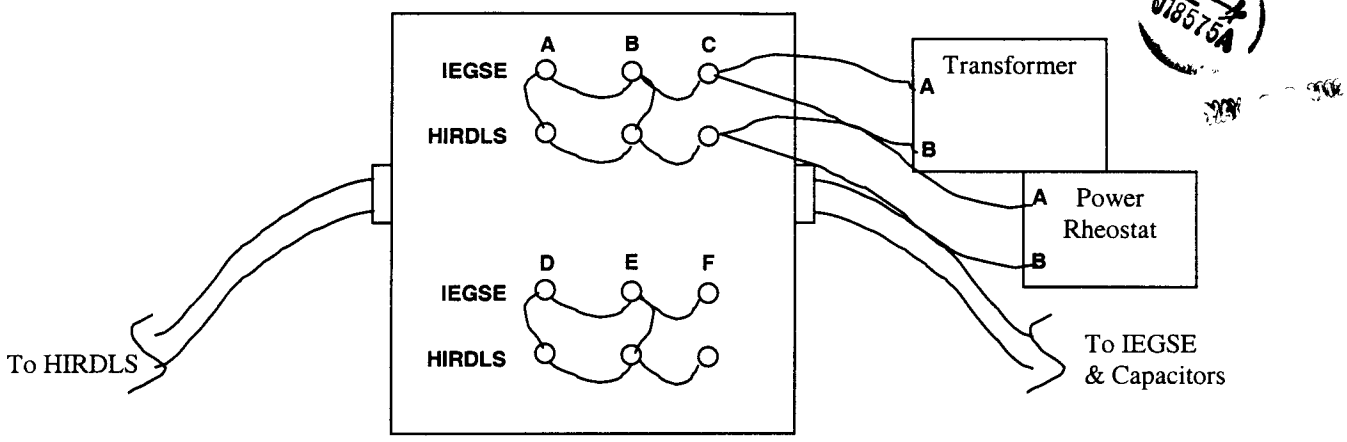
10.0 With the amplifier off, slowly reduce the rheostat resistance to minimum (0 Ohms), then connect the following jumper wires

From	To
IEGSE-B	HIRDLS-B
IEGSE-A	HIRDLS-A

11.0 Disconnect the transformer and rheostat wires on the BOB in the following positions -

From	To
x-former-A	IEGSE-C
x-former-B	HIRDLS-C
Pot-A	HIRDLS-C
Pot-B	IEGSE-C

12.0 Notify test conductor that re-configuration is complete.



BOB Setup for CS01 (high side):

1.0 Verify that the BOB is in the "Basic Setup" configuration.

2.0 Test conductor to note time in the log and give OK to make connections to instrument.

3.0 Connect the transformer and rheostat wires on the BOB in the following positions (Amplifier output off) -

From	To
x-former-A	IEGSE-C
x-former-B	HIRDLS-C
Pot-A	HIRDLS-C
Pot-B	IEGSE-C

4.0 Set the rheostat to maximum minimum (0 Ohms)

5.0 With the amplifier off remove the jumper wires

From	To
IEGSE-B	HIRDLS-B
IEGSE-A	HIRDLS-A

6.0 Slowly increase the rheostat resistance to maximum. Then remove the rheostat

From	To
Pot-A	HIRDLS-C
Pot-B	IEGSE-C

7.0 Notify test conductor that re-configuration is complete.

BOB Setup for CS01 (high side) after completion of the test:

8.0 Test conductor to note time in the log and give OK to make connections to instrument.

9.0 Set the rheostat resistance to maximum. Then connect to the bob.

From	To
Pot-A	HIRDLS-C
Pot-B	IEGSE-C

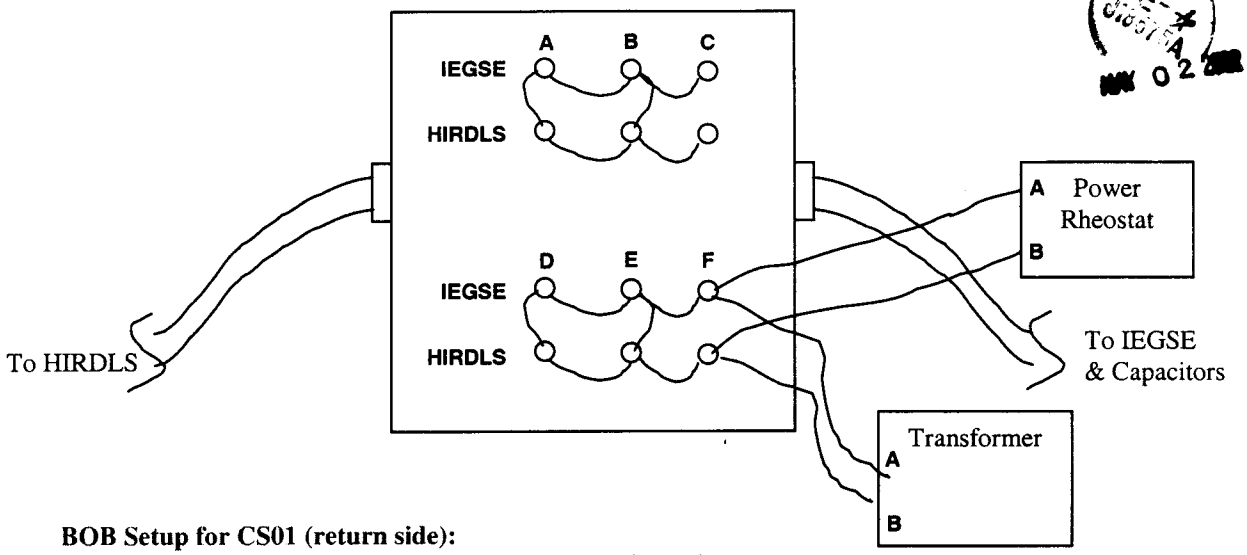
10.0 With the amplifier off, slowly reduce the rheostat resistance to minimum (0 Ohms), then connect the following jumper wires

From	To
IEGSE-B	HIRDLS-B
IEGSE-A	HIRDLS-A

11.0 Disconnect the transformer and rheostat wires on the BOB in the following positions -

From	To
x-former-A	IEGSE-C
x-former-B	HIRDLS-C
Pot-A	HIRDLS-C
Pot-B	IEGSE-C

12.0 Notify test conductor that re-configuration is complete.



BOB Setup for CS01 (return side):

1.0 Verify that the BOB is in the "Basic Setup" configuration.

2.0 Test conductor to note time in the log and give OK to make connections to instrument.

3.0 Connect the transformer and rheostat wires on the BOB in the following positions (Amplifier output off) -

From	To
x-former-A	IEGSE-F
x-former-B	HIRDLS-F
Pot-A	HIRDLS-F
Pot-B	IEGSE-F

4.0 Set the rheostat to maximum minimum (0 Ohms)

5.0 With the amplifier off remove the jumper wires

From	To
IEGSE-E	HIRDLS-E
IEGSE-F	HIRDLS-F

6.0 Slowly increase the rheostat resistance to maximum. Then remove the rheostat

From	To
Pot-A	HIRDLS-F
Pot-B	IEGSE-F

7.0 Notify test conductor that re-configuration is complete.

BOB Setup for CS01 (return side) after completion of the test:

8.0 Test conductor to note time in the log and give OK to make connections to instrument.

9.0 Set the rheostat resistance to maximum. Then connect to the bob.

From	To
Pot-A	HIRDLS-F
Pot-B	IEGSE-F

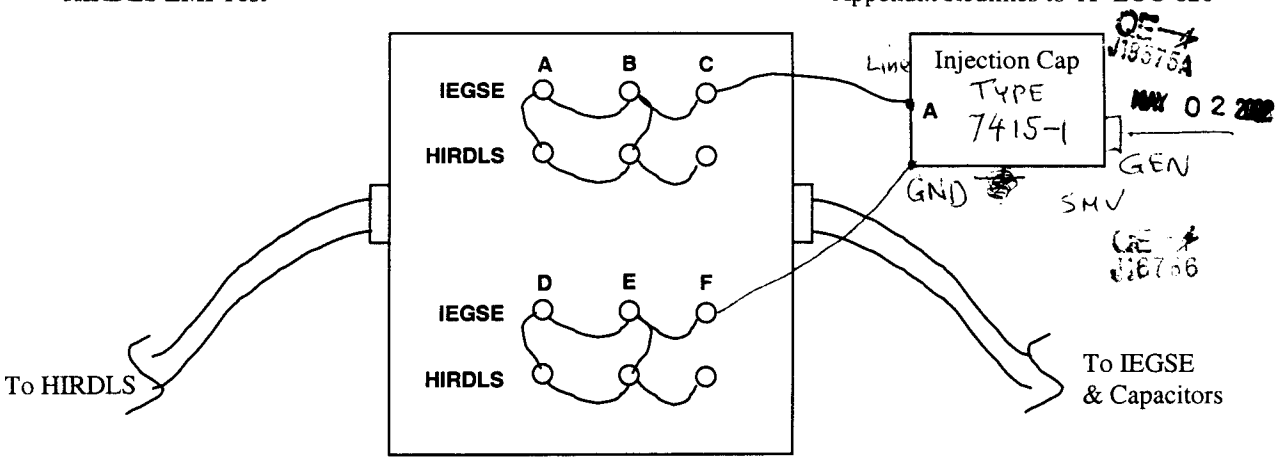
10.0 With the amplifier off, slowly reduce the rheostat resistance to minimum (0 Ohms), then connect the following jumper wires

From	To
IEGSE-E	HIRDLS-E
IEGSE-F	HIRDLS-F

11.0 Disconnect the transformer and rheostat wires on the BOB in the following positions -

From	To
x-former-A	IEGSE-F
x-former-B	HIRDLS-F
Pot-A	HIRDLS-F
Pot-B	IEGSE-F

12.0 Notify test conductor that re-configuration is complete.



BOB Setup for CS02 (high side):

1.0 Verify that the BOB is in the "Basic Setup" configuration.

2.0 Test conductor to note time in the log and give OK to make connections to instrument.

3.0 Connect the injection capacitor wires on the BOB in the following positions -

From	To
Capacitor-A	IEGSE-C

4.0 Notify test conductor that re-configuration is complete.

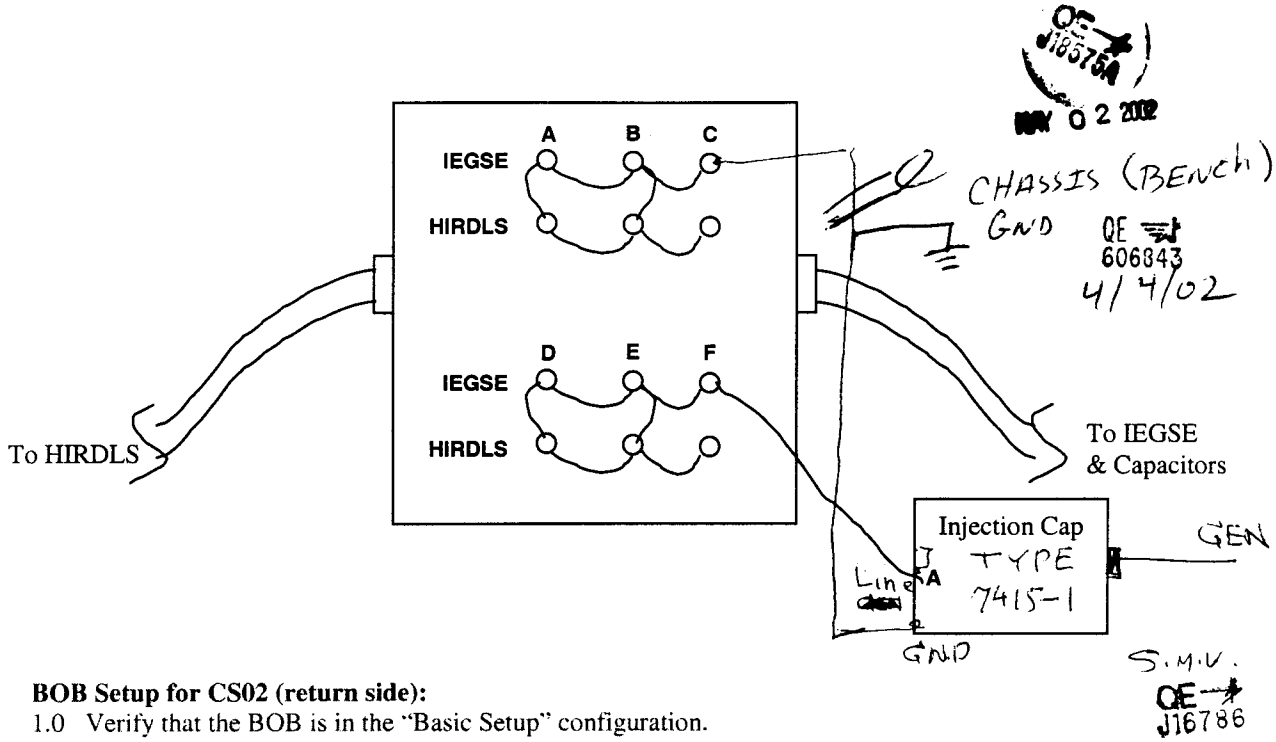
BOB Setup for CS02 (high side) after completion of the test:

5.0 Test conductor to note time in the log and give OK to make connections to instrument.

6.0 Disconnect the injection capacitor wires on the BOB in the following positions -

From	To
Capacitor-A	IEGSE-C

7.0 Notify test conductor that re-configuration is complete.



BOB Setup for CS02 (return side):

1.0 Verify that the BOB is in the "Basic Setup" configuration.

2.0 Test conductor to note time in the log and give OK to make connections to instrument.

3.0 Connect the injection capacitor wires on the BOB in the following positions -

From	To
Capacitor-A	IEGSE-F

4.0 Notify test conductor that re-configuration is complete.

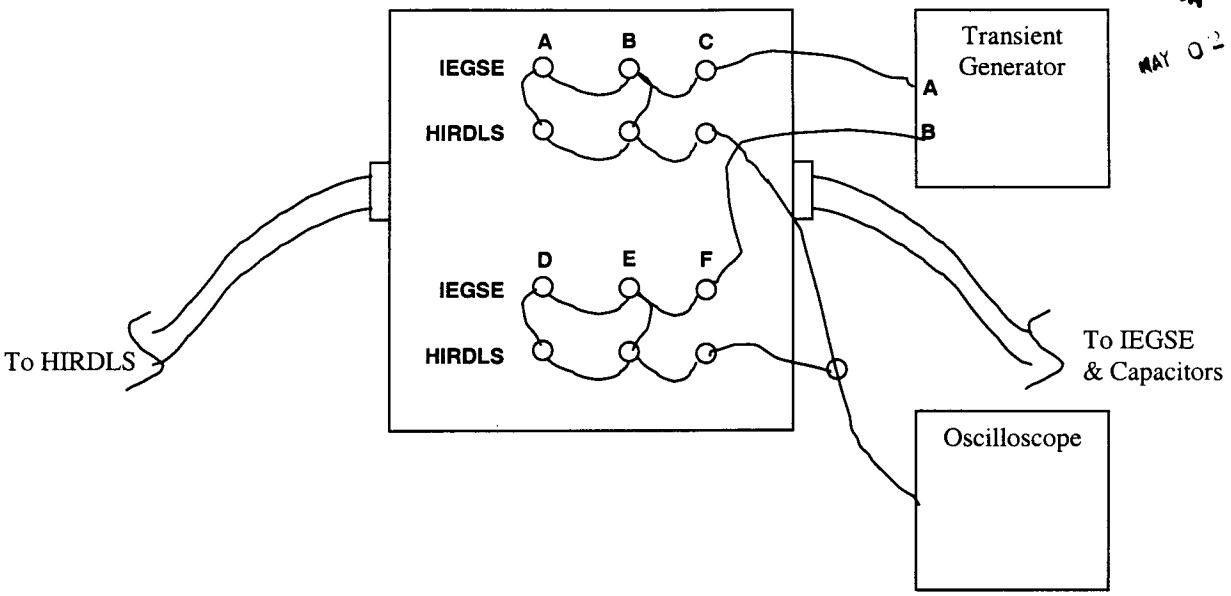
BOB Setup for CS02 (return side) after completion of the test:

5.0 Test conductor to note time in the log and give OK to make connections to instrument.

6.0 Disconnect the injection capacitor wires on the BOB in the following positions -

From	To
Capacitor-A	IEGSE-F

7.0 Notify test conductor that re-configuration is complete.



BOB Setup for CS06:

1.0 Verify that the BOB is in the "Basic Setup" configuration.

2.0 Test conductor to note time in the log and give OK to make connections to instrument.

3.0 Connect the Transient Generator wires on the BOB in the following positions -

From	To
TG-A	IEGSE-C
TG-B	IEGSE-F

4.0 Connect the oscilloscope leads on the BOB in the following positions -

From	To
Probe (+)	HIRDLS-C
Probe (-)	HIRDLS-F

5.0 Notify test conductor that re-configuration is complete.

BOB Setup for CS06 after completion of the test:

6.0 Test conductor to note time in the log and give OK to make connections to instrument.

7.0 Disconnect the Transient Generator wires on the BOB in the following positions -

From	To
TG-A	IEGSE-C
TG-B	IEGSE-F

8.0 Disonnect the oscilloscope leads on the BOB in the following positions -

From	To
Probe (+)	HIRDLS-C
Probe (-)	HIRDLS-F

9.0 Notify test conductor that re-configuration is complete.

13.11.19 Repeat paragraphs 13.11.14 through 13.11.16 for the other Quite Bus-B return lead.

13.11.20 Repeat paragraphs 13.11.14 through 13.11.16 for the Survival Bus-A positive lead.

13.11.21 Repeat paragraphs 13.11.14 through 13.11.16 for the Survival Bus-A return lead.

13.11.22 Repeat paragraphs 13.11.14 through 13.11.16 for the Survival Bus-B positive lead.

13.11.23 Repeat paragraphs 13.11.14 through 13.11.16 for the Survival Bus-B return lead.

13.11.24 Connect the CS01 setup shown in Figure 17. Begin with series injection for the Noisy Bus-A positive power input line. Turn the EMI test equipment ON and allow a minimum of 15 minutes for warm-up and stabilization.

13.11.25 Verify that Instrument is powered up to 29.0 VDC ±0.5 VDC, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test. QE→ J16786

13.11.26 Increase the level of the susceptibility signal to 7 V p-p or ~~1.0~~ 20 Amp p-p Amp. p-p max., at 30 Hz. Monitor the Instrument for evidence of susceptibility.

13.11.27 Sweep the susceptibility from 30 Hz to 2KHz at a rate not to exceed three frequencies per octave in 30 seconds. Continue to monitor the Instrument for evidence of susceptibility. Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields. If susceptibility is observed, reduce the level of the susceptibility signal until the Instrument returns to normal operation and record the signal threshold on the applicable Test Data Sheet. At 2 KHz.

13.11.28 Ramp down the 7 V p-p, 2 KHz to 3 V p-p at 50 KHz, 2KHz at a rate not to exceed three frequencies per octave in 60 seconds.

13.11.29 Sweep the susceptibility from 50 Hz to 400 MHz at a rate not to exceed three frequencies per octave in 30 seconds. Continue to monitor the Instrument for evidence of susceptibility. Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields. If susceptibility is observed, reduce the level of the susceptibility signal until the Instrument returns to normal operation and record the signal threshold on the applicable Test Data Sheet. . At 400 MHz reduce the signal to zero and turn the Instrument off.

13.11.30 Repeat paragraphs 13.11.24 through 13.11.29 for the other Noisy Bus-B positive lead.

13.11.31 Configure the test setup for CE02 to inject the susceptibility signal into the positive power input lines for the Noisy Bus-A. Refer to Figure 18. Turn the EMI test equipment ON and allow a minimum of 15 minutes for warm-up and stabilization. 0.84 amp P-P OR QE→ J16786

13.11.32 Increase the level of the susceptibility signal to 3 V p-p p or 1 watt from a 50 Ohm Source max., at 50KHz. Monitor the Instrument for evidence of susceptibility.

13.11.33 Sweep the susceptibility from 50 KHz to 400MHz at a rate not to exceed three frequencies per octave in 30 seconds. Continue to monitor the Instrument for evidence of susceptibility. If susceptibility is observed, reduce the level of the susceptibility signal until the Instrument returns

to normal operation and record the signal threshold on the applicable Test Data Sheet. At 400 MHz reduce the signal to zero and turn the Instrument off.

13.11.34 Repeat paragraphs 13.11.31 through 13.11.33 except configure the test setup to inject the susceptibility signal between the Noisy Bus-A return power input line.

13.11.35 Repeat paragraphs 13.11.31 through 13.11.33 except configure the test setup to inject the susceptibility signal between the Noisy Bus-B positive power input line.

13.11.36 Repeat paragraphs 13.11.31 through 13.11.33 except configure the test setup to inject the susceptibility signal between the Noisy Bus-B return power input line.

13.11.37 Verify that the CS01 / CS02 test is complete and the results are satisfactory.

Test Engineering Lynn Boyle Date 05/05/02

Quality Engineering Jessica Simone Date 05/07/02

13.12 CS06, Power Lead Spike Susceptibility Test (GIRD 10.11.4)

The requirement for this test is shown in the table below. The susceptibility signal will be injected between the Instrument input power lines. Note: (+29V Power Line)+(+29V Spike Amplitude superimposed on top of power line) = +58V Peak Amplitude .

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13.12.1 Tests will be performed on the following:

	Test Point	Spike Amplitude	Pulse Width	Pulse Repetition Rate
PI-NB A&B PR-NB A&B	Primary power input lead (Noisy Bus A & B)	+29V peak superimposed on top of power line	10u sec	60 pps For 5 Minutes Minimum
PI-NB A&B PR-NB A&B	Primary power input lead (Noisy Bus A & B)	-29V peak superimposed on top of power line	10u sec	60 pps For 5 Minutes Minimum
PI-SB A&B PR-SB A&B	Primary power input lead (Survival Bus A & B)	+29V peak superimposed on top of power line	10u sec	60 pps For 5 Minutes Minimum
PI-SB A&B PR-SB A&B	Primary power input lead (Survival Bus A & B)	-29V peak superimposed on top of power line	10u sec	60 pps For 5 Minutes Minimum
PI-QB A&B PR-QB A&B	Primary power input lead (Quiet Bus A & B)	+29V peak superimposed on top of power line	10u sec	60 pps For 5 Minutes Minimum
PI-QB A&B PR-QB A&B	Primary power input lead (Quiet Bus A & B)	-29V peak superimposed on top of power line	10u sec	60 pps For 5 Minutes Minimum

PI-QB-A	Primary power input lead (Quiet Bus A)	Cable PQA / connect together wire A,B,C
PR-QB-A	Primary power return lead (Quiet Bus A)	Cable PQA / connect together wire D,E,F
PI-QB-B	Primary power input lead (Quiet Bus B)	Cable PQB / connect together wire A,B,C
PR-QB-B	Primary power return lead (Quiet Bus B)	Cable PQB / connect together wire D,E,F

PI-SB-A	Power Input lead (Survival Bus A)	Cable PSA/ connect together wires A, B, C
PR-SB-A	Power Return lead (Survival Bus A)	Cable PSA/ connect together wires D, E, F
PI-SB-B	Power Input lead (Survival Bus B)	Cable PSB / connect together wires A, B, C
PR-SB-B	Power Return lead (Survival Bus B)	Cable PSB / connect together wires D, E, F
PI-NB A	Primary power input lead (Noisy Bus A)	Cable PNA / connect together wires A,B,C
PR-NB A	Primary power return lead (Noisy Bus A)	Cable PNA / connect together wire D,E,F
PI-NB B	Primary power input lead (Noisy Bus B)	Cable PNB / connect together wire A,B,C
PR-NB B	Primary power return lead (Noisy Bus B)	Cable PNB / connect together wire D,E,F

13.12.2 Connect the calibration setup shown in Figure 19. Increase the output of the transient generator to 29 volts peak. Temporarily mark the position of the amplitude control. ~~SEE PAGE 25A~~ dw

13.12.3 Connect the test setup shown in Figure 20 to inject the transient between the Noisy Bus primary power and return leads. Turn the EMI test equipment ON and allow a minimum of 15 minutes for warm-up and stabilization. SEE PAGE 25A. dw CE J18575A 02

13.12.4 Verify that Instrument is powered up to **29.0 VDC ±0.5 VDC**, sensors cold, configured for Mission mode and Instrument telemetry monitoring ready for test.

13.12.5 Increase the transient generator amplitude control to the +29 volt mark. Monitor the Instrument for evidence of susceptibility. Maintain the transient for a minimum of five (5) minutes. Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields. If susceptibility is observed, reduce the level of the susceptibility signal until the Instrument returns to normal operation and record the signal threshold on the applicable Test Data Sheet.

13.12.6 At the end of the five (5) minute period reduce the level of the transient to zero and turn the Instrument off. Turn the Instrument power supply off.

13.12.7 Repeat paragraphs 13.12.4 through 13.12.6 for a –29V peak transient.

13.12.8 Reconfigure the test setup to inject the transient between the Survival Bus primary power input lead and return leads.

13.12.9 Repeat paragraphs 13.12.4 through 13.12.6.

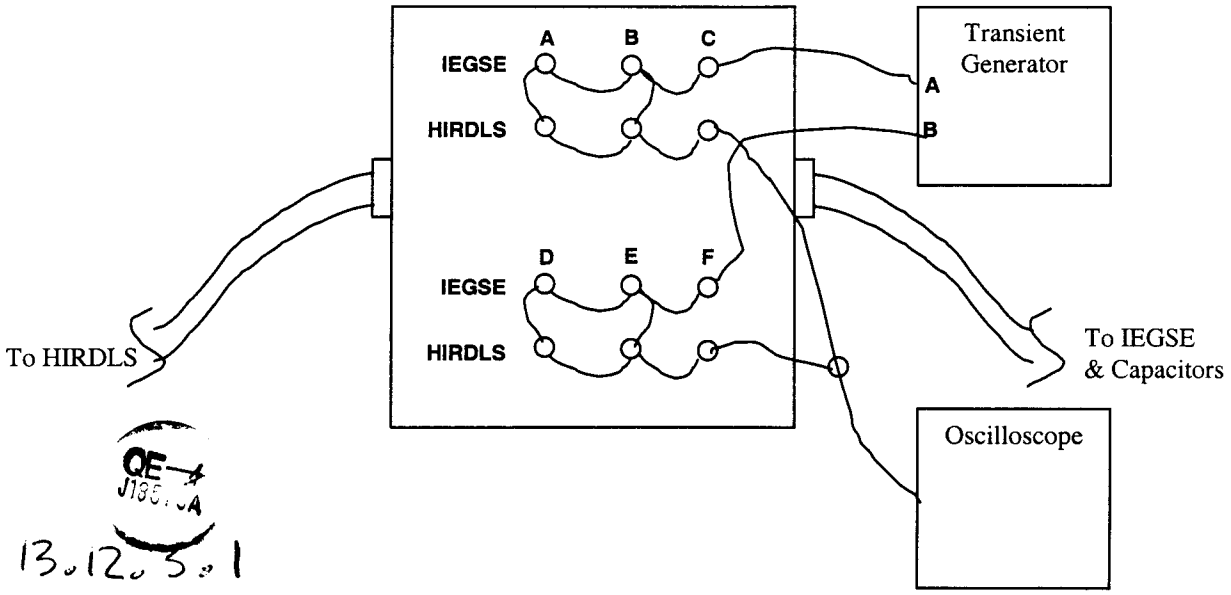
13.12.10 Repeat paragraphs 13.12.7.

13.12.11 Reconfigure the test setup to inject the transient between the Quite Bus return lead and return leads.

13.12.12 Repeat paragraphs 13.12.4 through 13.12.6.

13.12.13 Repeat paragraphs 13.12.7.

13.12.14 Verify that the CS06 test is complete and the results are satisfactory.



QE→ J18575A

13.12.5.1

BOB Setup for CS06:

1.0 Verify that the BOB is in the "Basic Setup" configuration.
2.0 Test conductor to note time in the log and give OK to make connections to instrument.
3.0 Connect the Transient Generator wires on the BOB in the following positions -

From	To
TG-A	IEGSE-C
TG-B	IEGSE-F

4.0 Connect the oscilloscope leads on the BOB in the following positions -

From	To
Probe (+)	HIRDLS-C
Probe (-)	HIRDLS-F

5.0 Notify test conductor that re-configuration is complete.

BOB Setup for CS06 after completion of the test:
6.0 Test conductor to note time in the log and give OK to make connections to instrument.

7.0 Disconnect the Transient Generator wires on the BOB in the following positions -

From	To
TG-A	IEGSE-C
TG-B	IEGSE-F

8.0 Disonnect the oscilloscope leads on the BOB in the following positions -

From	To
Probe (+)	HIRDLS-C
Probe (-)	HIRDLS-F

9.0 Notify test conductor that re-configuration is complete.

QE→ J18575A

MAY 02 2012

Test Engineering _____ Date _____

Quality Engineering _____ Date _____

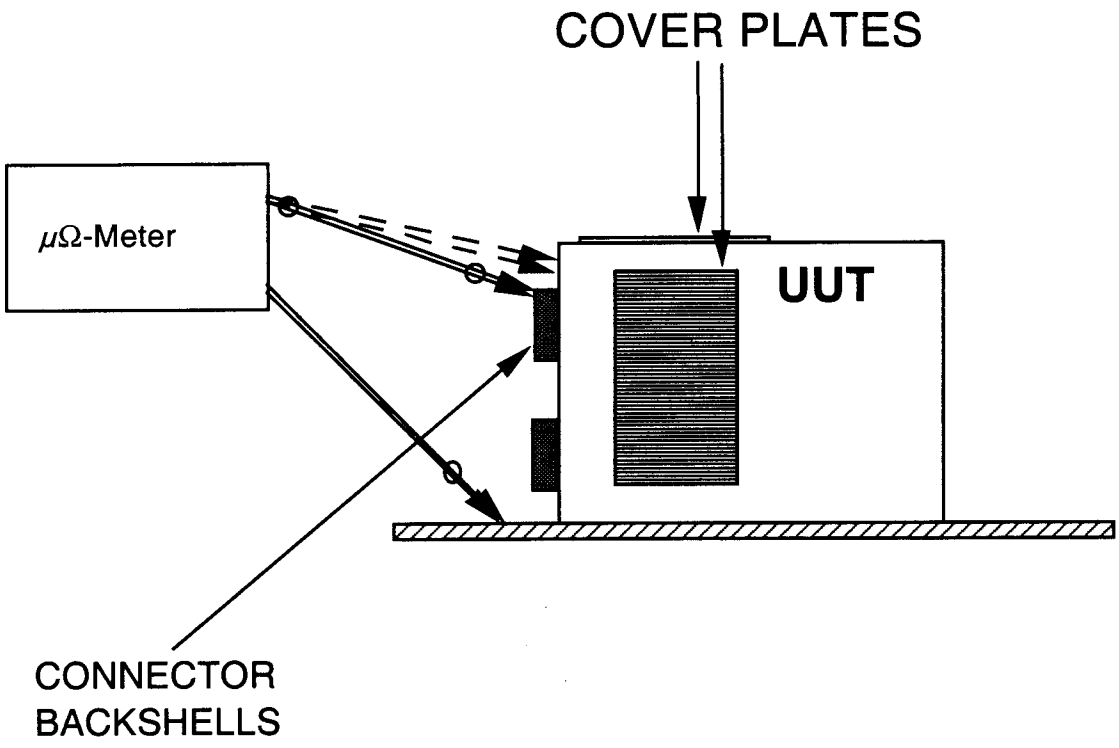


Figure 1
Bonding Test setup

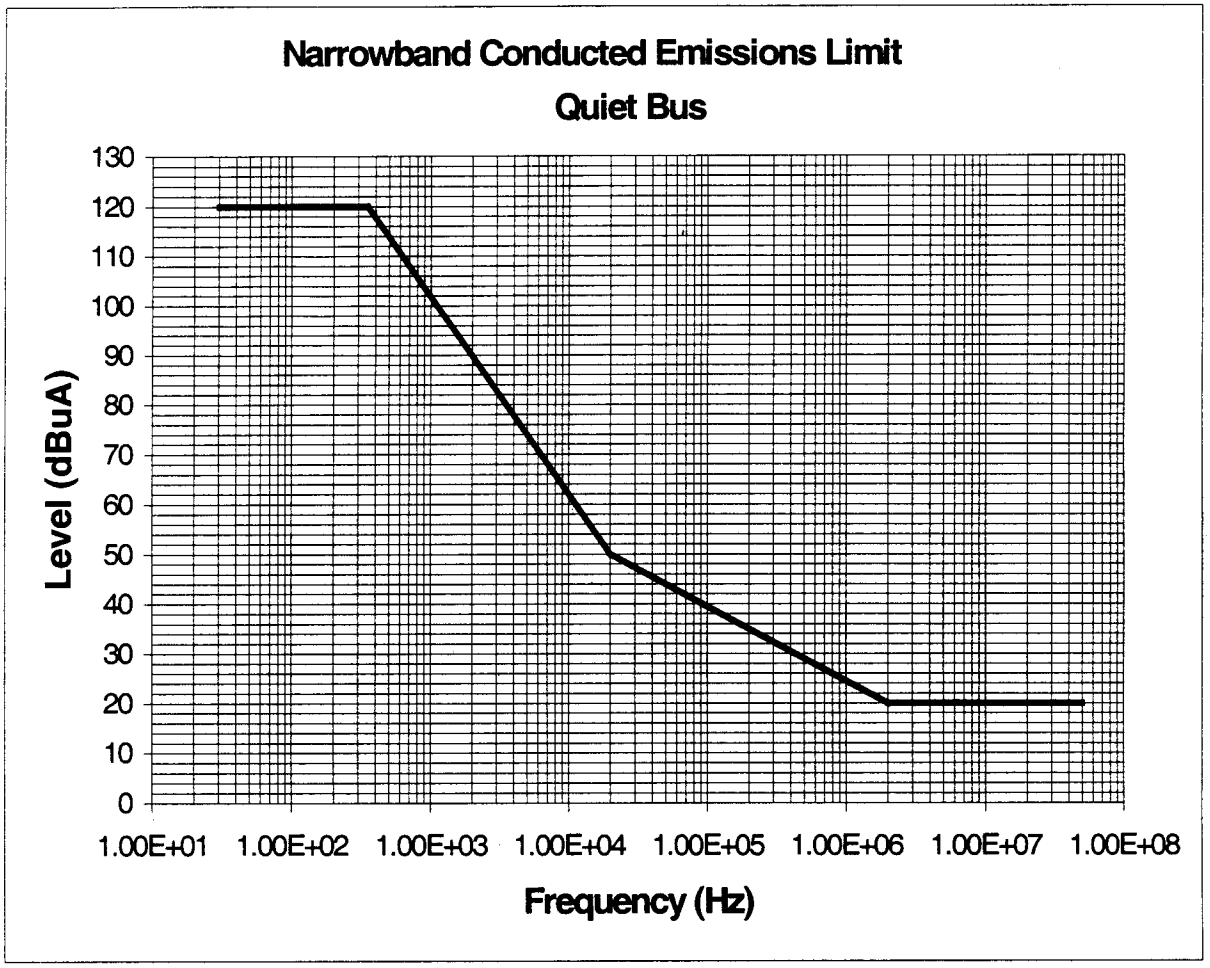


Figure 2 Quiet Bus, Survival Bus, Noisy Bus, CE01/CE03 Narrowband Conducted Emissions Limit

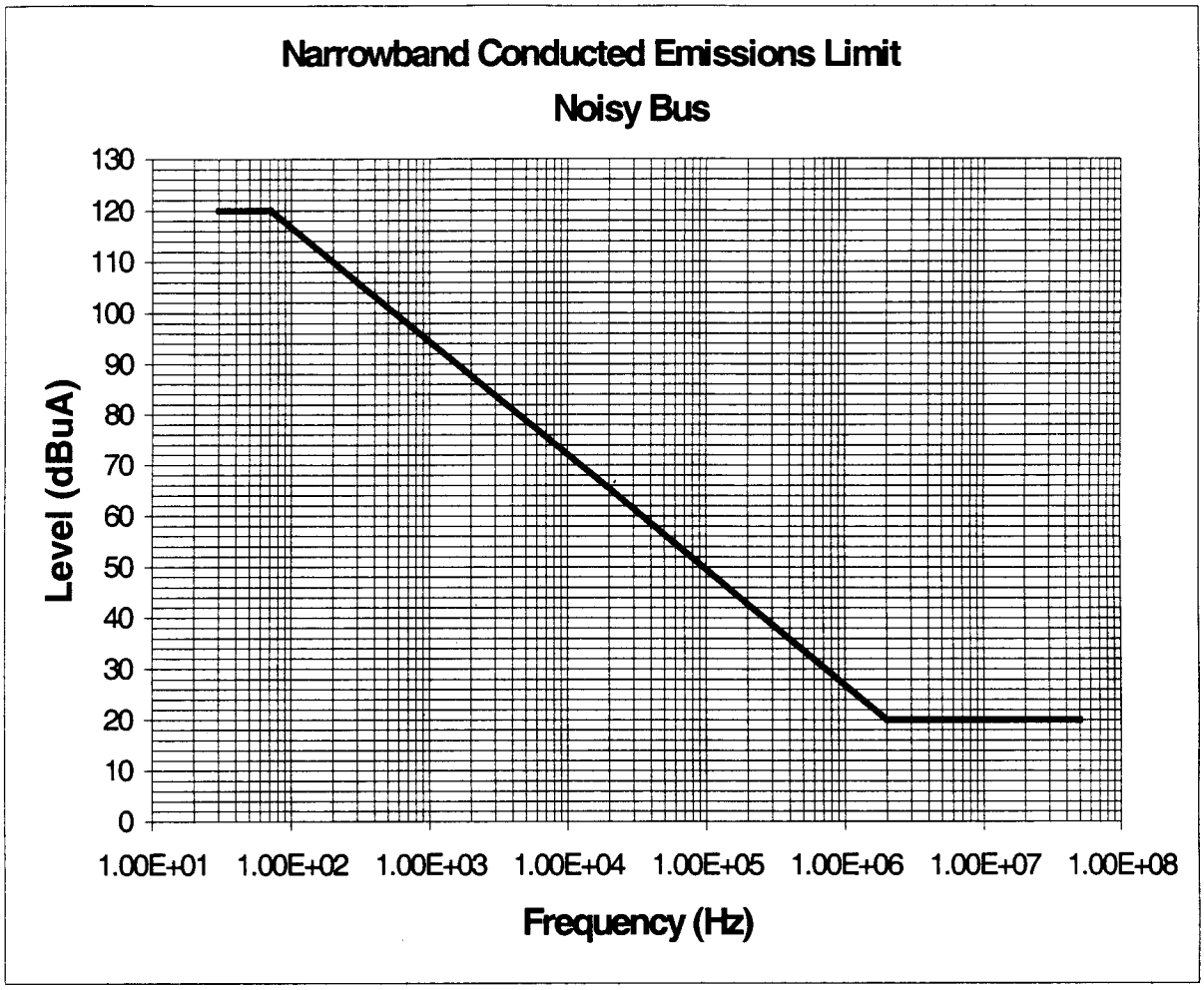


Figure 2B Noisy Bus
CE01/CE03 Narrowband Conducted Emissions Limit

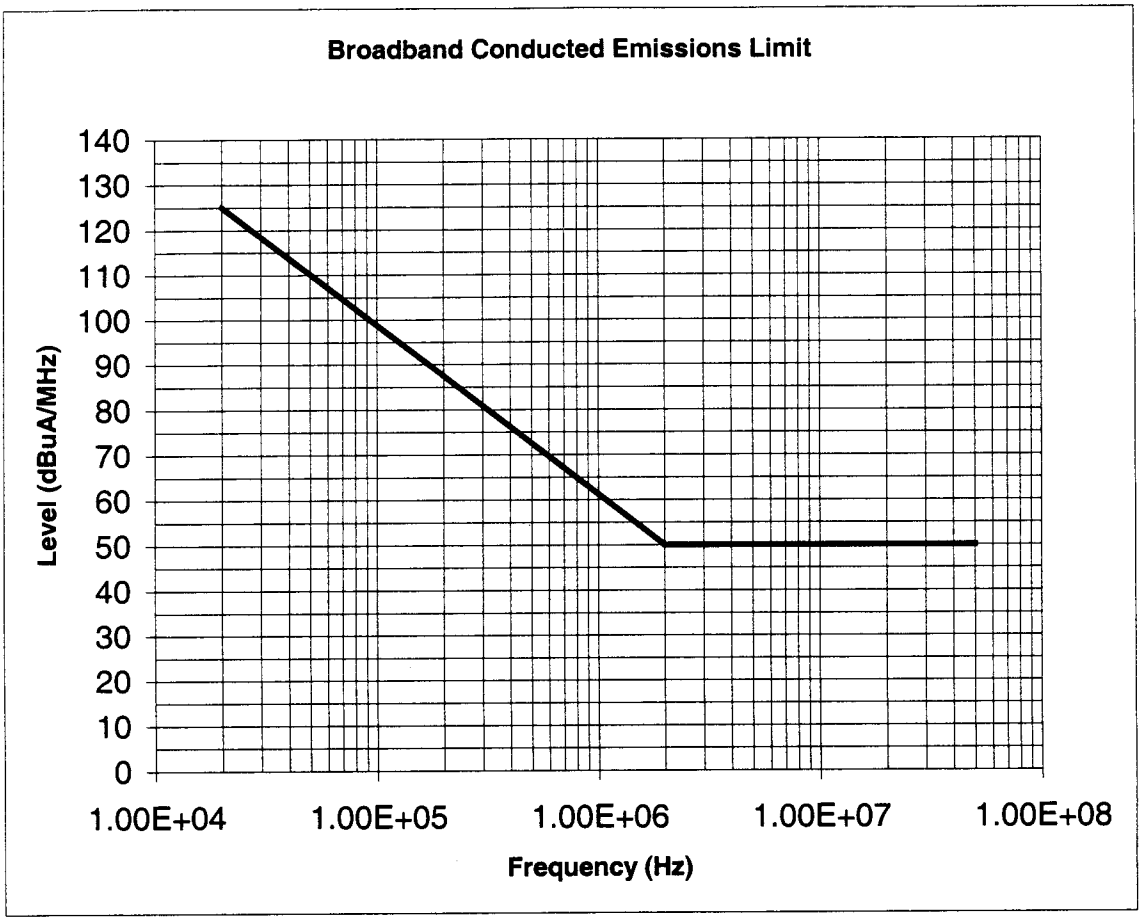


Figure 3
CE03 Broadband Conducted Emissions Limit

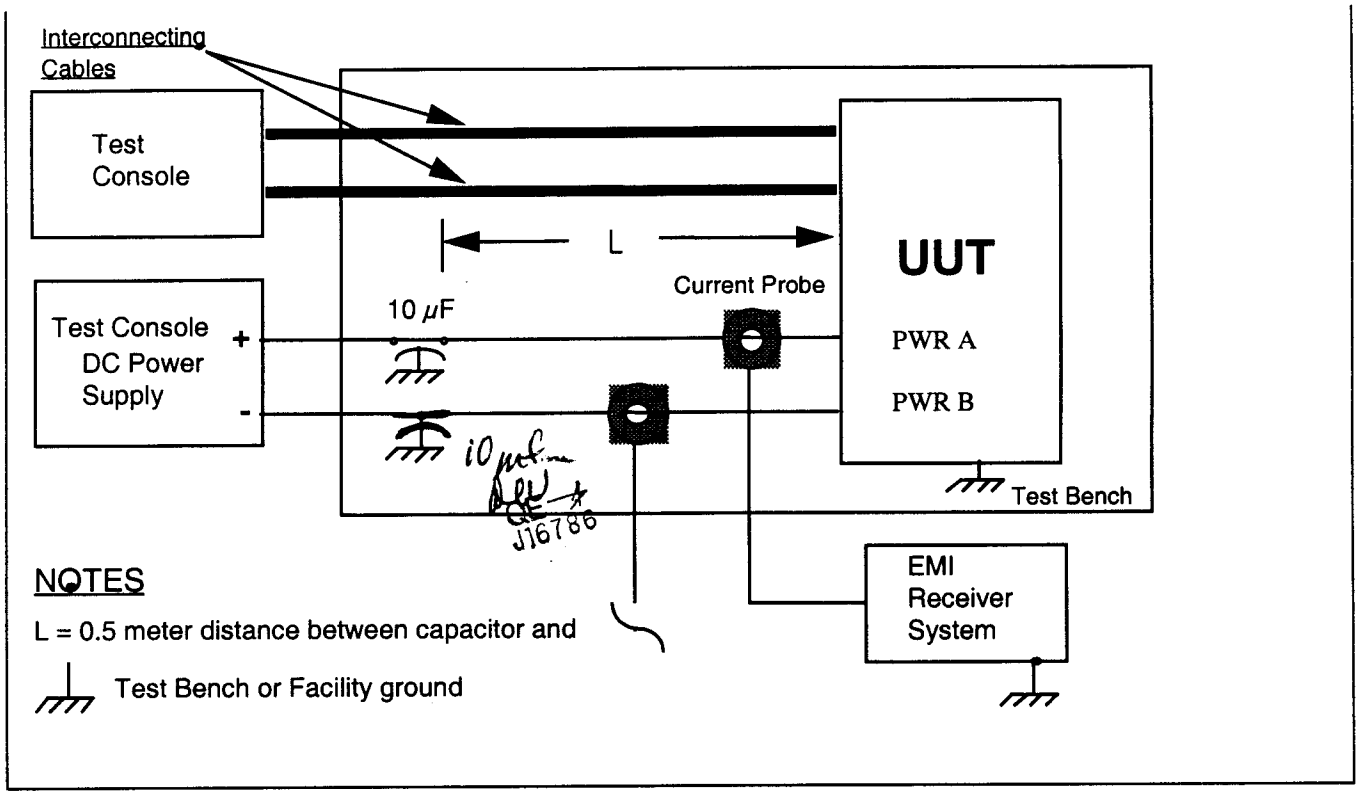


Figure 4
CE01/CE03 Conducted Emissions Test Setup

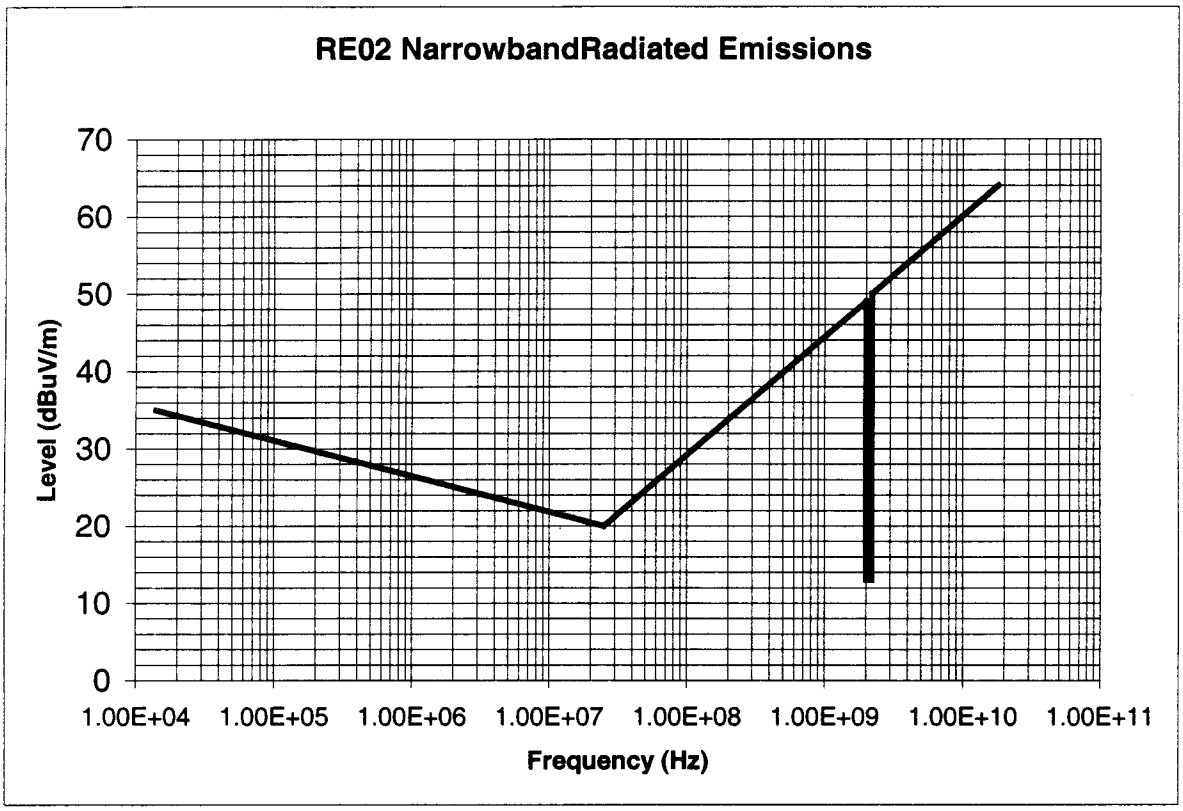


Figure 5
RE02 Narrowband Electric Field Radiated Emissions Limit

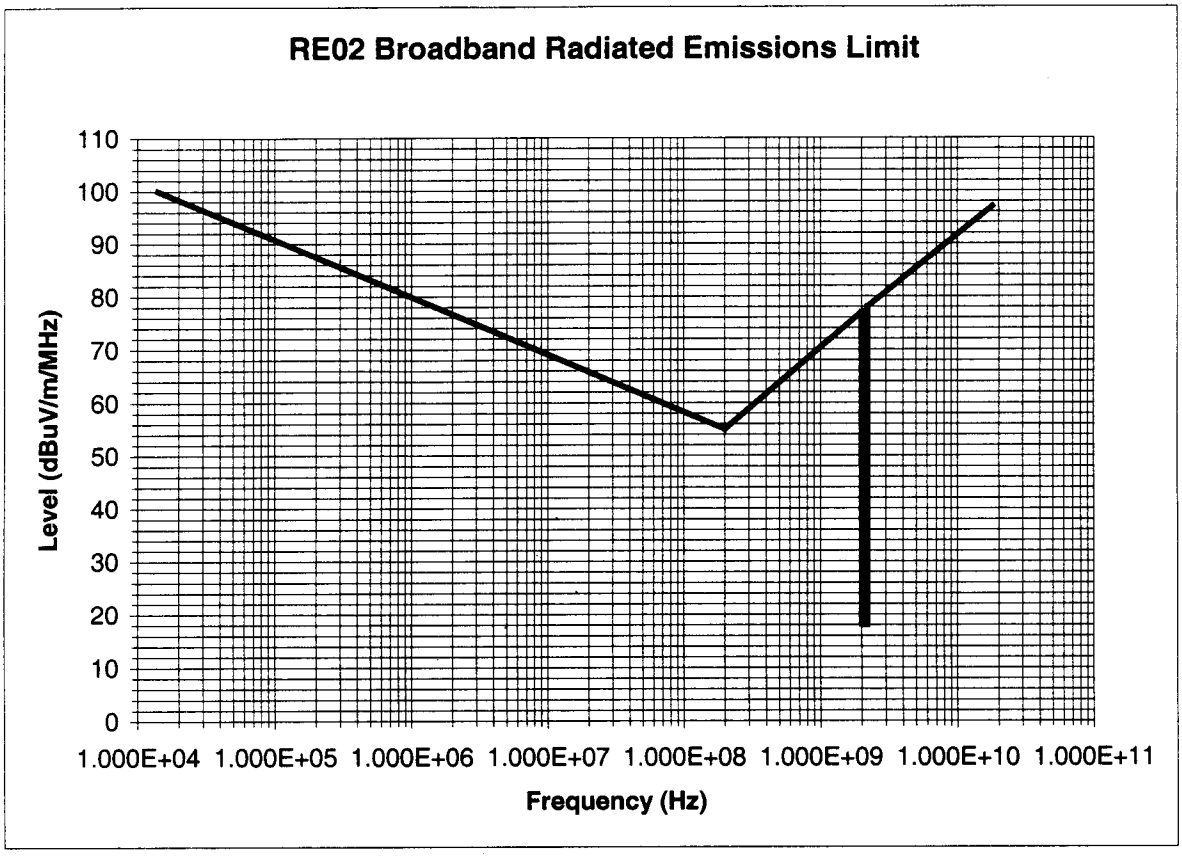


Figure 6
RE02 Broadband Electric Field Radiated Emissions Limit

RE04 Magnetic Field Radiated Emissions Limit

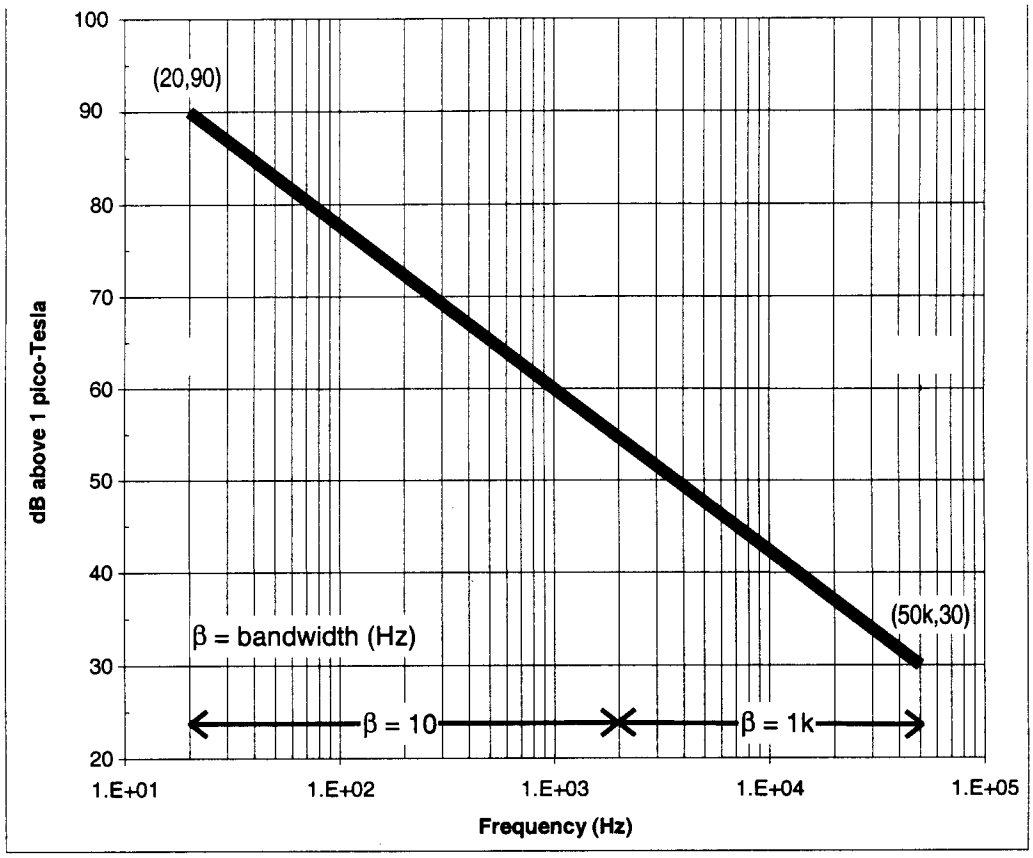
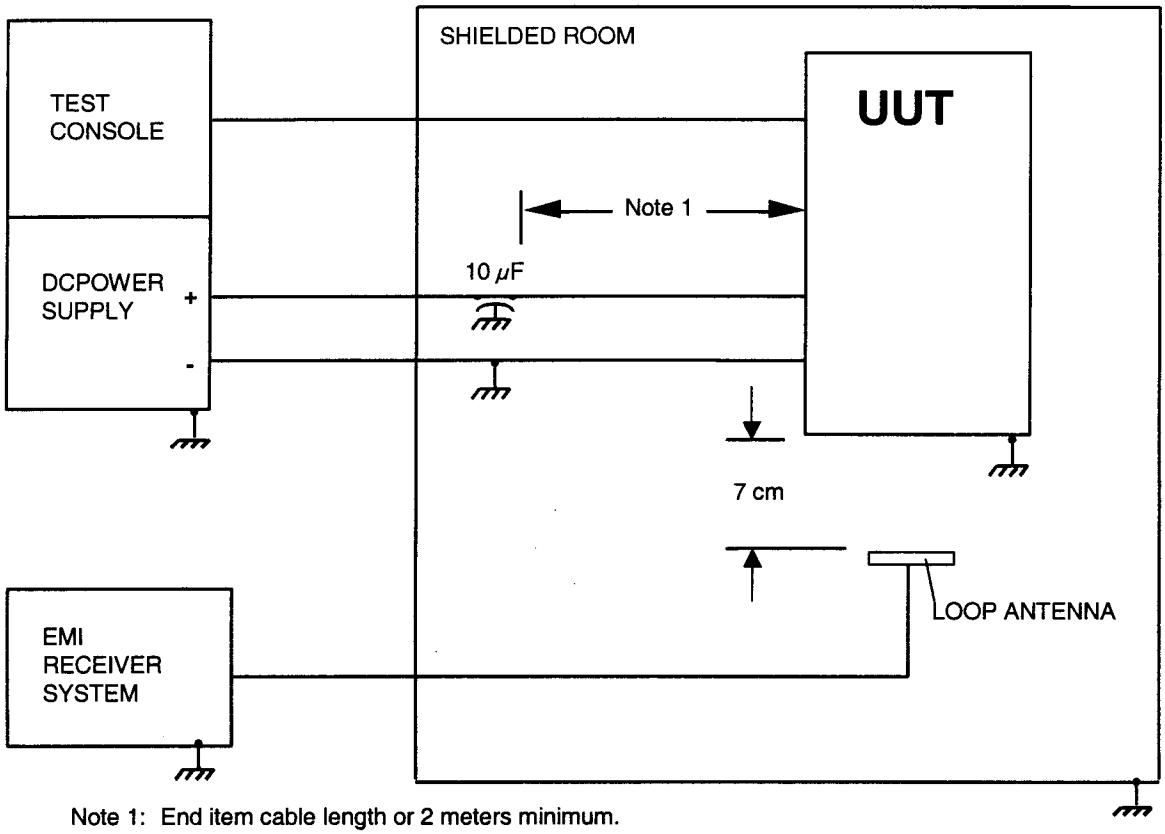
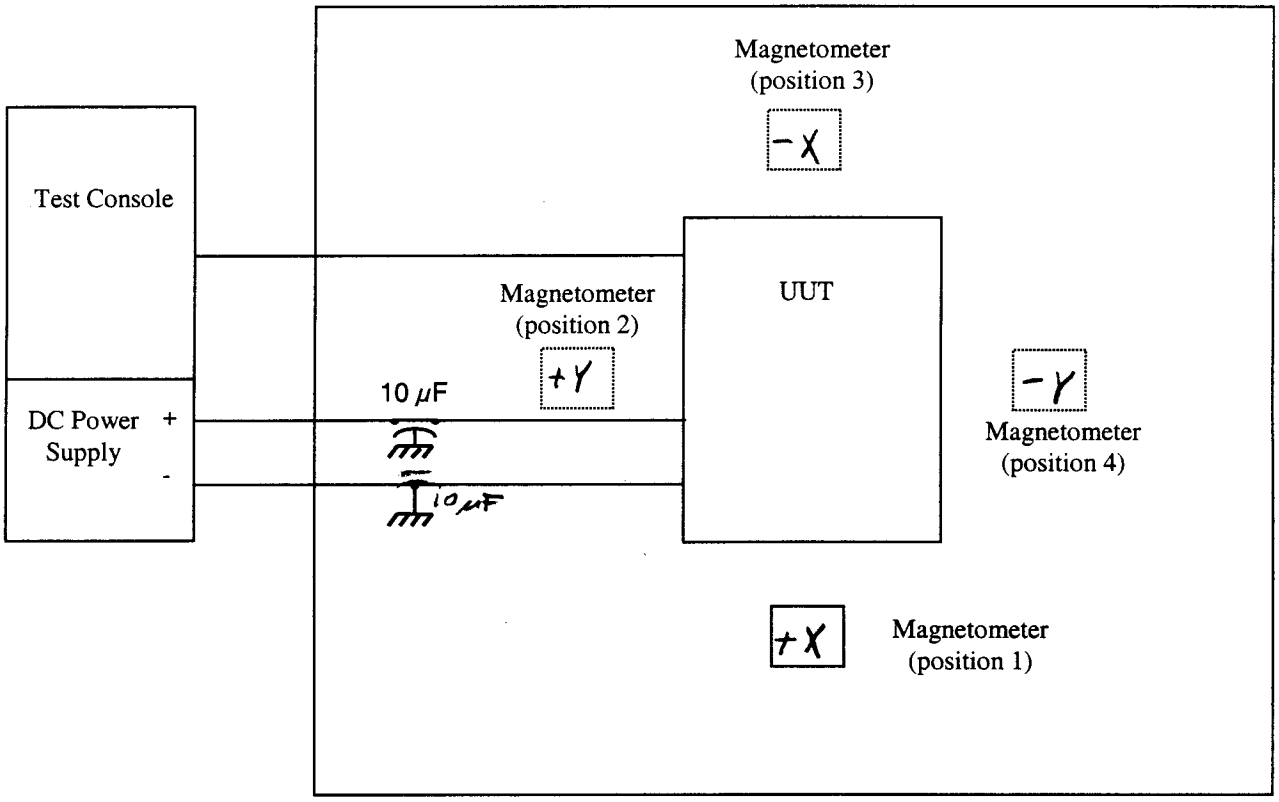


Figure 8
RE04 Magnetic Field Radiated Emissions Test Limit



Note 1: End item cable length or 2 meters minimum.
Cable shielding to simulate actual configuration.
ALL cables must be 5 cm above the ground plane.
UUT bonded to copper bench.

Figure 9
RE04 Magnetic Field Radiated Emissions Test Setup



RED lines
L. Bash 05/9/02

Figure 10
DC Magnetic Dipole Moment Test Setup

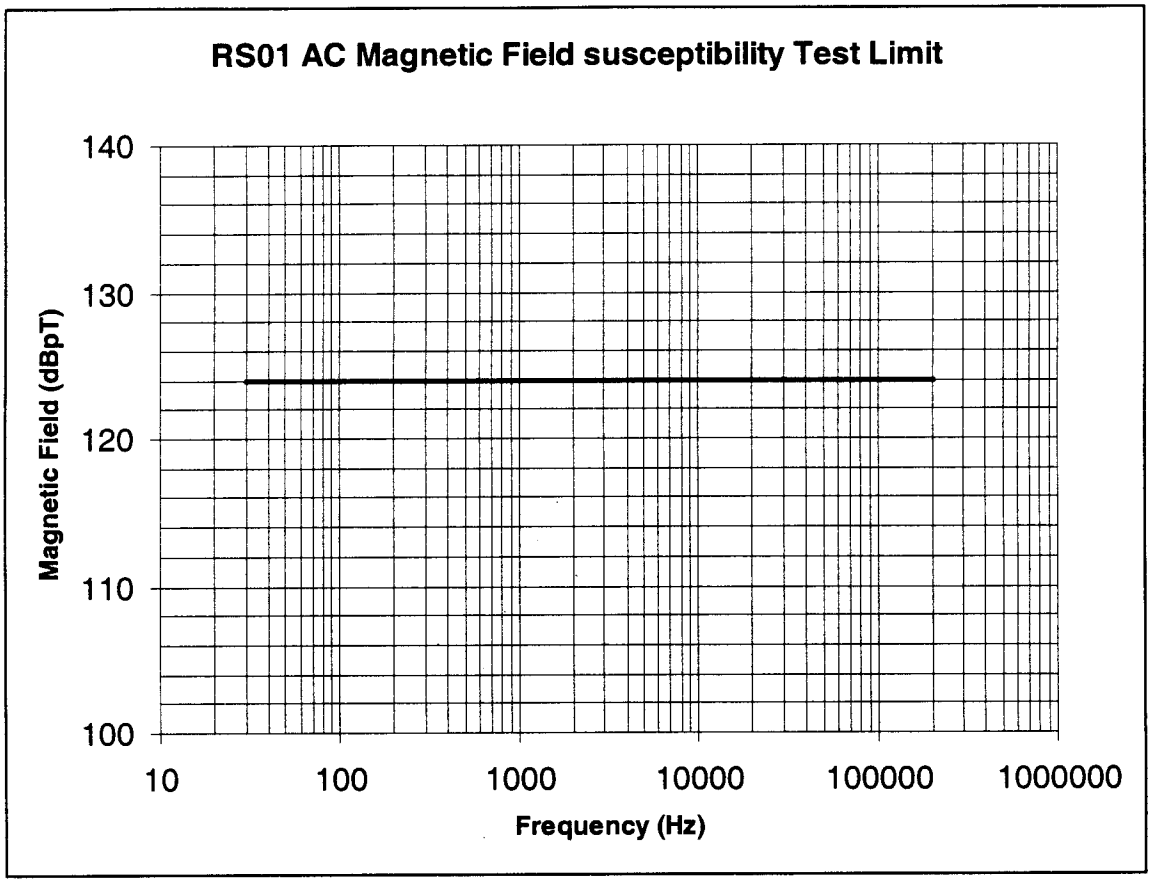
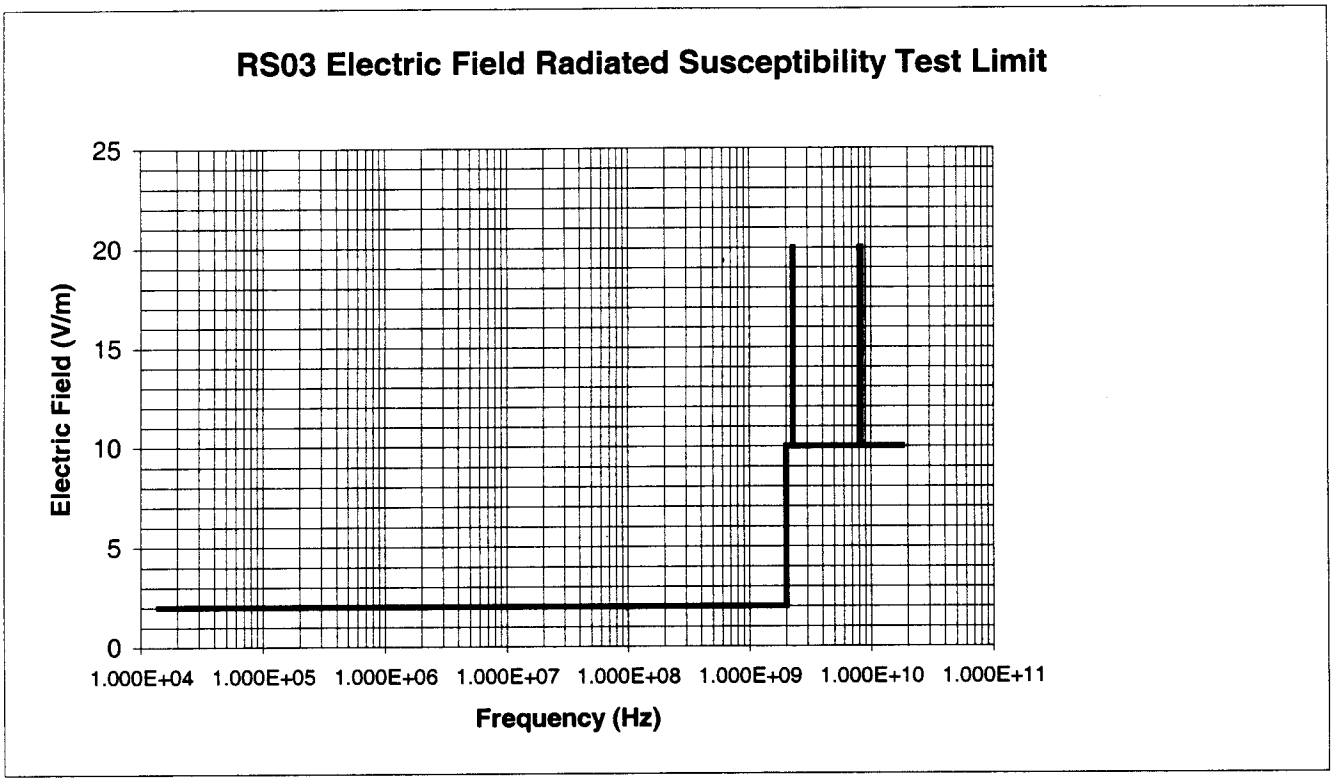


Figure 11
RS01 AC Magnetic Field Radiated Susceptibility Test Limit



Frequency	Electric Field (V/m)	Modulation
14.0KHz	2	50% AM @ 1KHz
2.0GHz	10	50% AM @ 1KHz
2.2855GHz	20	50% AM @ 1KHz
2.2895GHz	20	50% AM @ 1KHz
8.06GHz	20	50% AM @ 1KHz
8.26GHz	20	50% AM @ 1KHz
18.0GHz	10	50% AM @ 1KHz

Figure 14
RS03 Electric Field Radiated Susceptibility Test Limit

TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility (30Hz to 200KHz)

PARAGRAPH 13.8	DATE OF TEST
SIDE "A" AF1 + Y	5/2/02
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
30	124 dBpT		✓		0.1 Hz steps
40	124 dBpT		✓		
50	124 dBpT		✓		
60	124 dBpT		✓		
80	124 dBpT		✓		
100	124 dBpT		✓		
120	124 dBpT		✓		
160	124 dBpT		✓		
200	124 dBpT		✓		
240	124 dBpT		✓		
320	124 dBpT		✓		
400	124 dBpT		✓		change to 1Hz steps
500	124 dBpT		✓		
60	124 dBpT		✓		
800	124 dBpT		✓		
1.0K	124 dBpT		✓		
1.2K	124 dBpT		✓		
1.6K	124 dBpT		✓		
2.0K	124 dBpT		✓		
2.4K	124 dBpT		✓		
3.2K	124 dBpT		✓		
4.0K	124 dBpT		✓		
5.0K	124 dBpT		✓		change to 10Hz steps

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P.Q. 686813 MAY 03 2002

A 686894 MAY 03 2002

TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility (30Hz to 200KHz)

PART NO. . 1A27800	PARAGRAPH 13.8 SIDE AF1	DATE OF TEST 5/2/02
	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
6.0K	124 dBpT		✓		
8.0K	124 dBpT		✓		
10.0K	124 dBpT		✓		
12.0K	124 dBpT		✓		
16.0K	124 dBpT		✓		
20.0K	124 dBpT		✓		
24.0K	124 dBpT		✓		
32.0K	124 dBpT		✓		
40.0K	124 dBpT		✓		
50.0K	124 dBpT		✓		
60.0K	124 dBpT		✓		
80.0K	124 dBpT		✓		
100.0K	124 dBpT		✓		CHANGE TO 100HZ STEP
120.0K	124 dBpT		✓		
160.0K	124 dBpT		✓		
200.0K	124 dBpT		✓		

A 686894 O.K. Less P.Q.C. MAY 03 2002

PQC 686843 MAY 03 2002

A 686894 MAY 03 2002

TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility (30Hz to 200KHz)

PARAGRAPH 13.8	DATE OF TEST
SIDE D AF2 -X	5/2/02
PART NO. . 1A27800 CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
30	124 dBpT		✓		0.1 HZ STEPS
40	124 dBpT		✓		
50	124 dBpT		✓		
60	124 dBpT		✓		
80	124 dBpT		✓		
100	124 dBpT		✓		
120	124 dBpT		✓		
160	124 dBpT		✓		
200	124 dBpT		✓		
240	124 dBpT		✓		
320	124 dBpT		✓		
400	124 dBpT		✓		CHANGE TO 1 HZ Steps
500	124 dBpT		✓		
60	124 dBpT		✓		
800	124 dBpT		✓		
1.0K	124 dBpT		✓		
1.2K	124 dBpT		✓		
1.6K	124 dBpT		✓		
2.0K	124 dBpT		✓		
2.4K	124 dBpT		✓		
3.2K	124 dBpT		✓		
4.0K	124 dBpT		✓		
5.0K	124 dBpT		✓		CHANGE TO 10 HZ Steps

A 686894 MAY 03 2002

O.K. LESS P.Q.C.

PQC 686843 MAY 03 2002

A 686894

TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility (30Hz to 200KHz)

PARAGRAPH 13.8 SIDE D" AF2 - X

DATE OF TEST 5/2/02

PART NO. . 1A27800

CCA/SERIAL NO. 01

TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
6.0K	124 dBpT		✓		
8.0K	124 dBpT		✓		
10.0K	124 dBpT		✓		
12.0K	124 dBpT		✓		
16.0K	124 dBpT		✓		
20.0K	124 dBpT		✓		
24.0K	124 dBpT		✓		
32.0K	124 dBpT		✓		
40.0K	124 dBpT		✓		
50.0K	124 dBpT		✓		
60.0K	124 dBpT		✓		
80.0K	124 dBpT		✓		
100.0K	124 dBpT		✓		CHANGE → 100 HZ Steps
120.0K	124 dBpT		✓		
160.0K	124 dBpT		✓		
200.0K	124 dBpT		✓		

PQC 686843

MAY 03 2002

A 686894 MAY 03 2002

TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility (30Hz to 200KHz)

PARAGRAPH 13.8 SIDE "C" AF3 +X

DATE OF TEST 5/2/02

PART NO. . 1A27800

CCA/SERIAL NO. 01

TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
30	124 dBpT		✓		.1 HZ Steps
40	124 dBpT		✓		
50	124 dBpT		✓		
60	124 dBpT		✓		
80	124 dBpT		✓		
100	124 dBpT		✓		
120	124 dBpT		✓		
160	124 dBpT		✓		
200	124 dBpT		✓		
240	124 dBpT		✓		
320	124 dBpT		✓		
400	124 dBpT		✓		1 HZ Steps
500	124 dBpT		✓		
60	124 dBpT		✓		
800	124 dBpT		✓		
1.0K	124 dBpT		✓		
1.2K	124 dBpT		✓		
1.6K	124 dBpT		✓		
2.0K	124 dBpT		✓		
2.4K	124 dBpT		✓		
3.2K	124 dBpT		✓		
4.0K	124 dBpT		✓		
5.0K	124 dBpT		✓		10 HZ Steps

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility (30Hz to 200KHz)

PARAGRAPH 13.8 — Side "C" AF3 + X

DATE OF TEST 5/2/02

PART NO. . 1A27800

CCA/SERIAL NO. 01

TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
6.0K	124 dBpT		✓		
8.0K	124 dBpT		✓		
10.0K	124 dBpT		✓		
12.0K	124 dBpT		✓		
16.0K	124 dBpT		✓		
20.0K	124 dBpT		✓		
24.0K	124 dBpT		✓		
32.0K	124 dBpT		✓		
40.0K	124 dBpT		✓		
50.0K	124 dBpT		✓		
60.0K	124 dBpT		✓		
80.0K	124 dBpT		✓		
100.0K	124 dBpT		✓		change to 100 Hz steps
120.0K	124 dBpT		✓		
160.0K	124 dBpT		✓		
200.0K	124 dBpT		✓		

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility (30Hz to 200KHz)

PART NO. . 1A27800	PARAGRAPH 13.8 SIDE "B" AF-4 -Y SIDE CCA/SERIAL NO. 01	DATE OF TEST 5-3-02 TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
30	124 dBpT		✓		.1 Hz Steps
40	124 dBpT		✓		
50	124 dBpT		✓		
60	124 dBpT		✓		
80	124 dBpT		✓		
100	124 dBpT		✓		
120	124 dBpT		✓		
160	124 dBpT		✓		
200	124 dBpT		✓		
240	124 dBpT		✓		
320	124 dBpT		✓		
400	124 dBpT		✓		1 Hz Steps
500	124 dBpT		✓		
60	124 dBpT		✓		
800	124 dBpT		✓		
1.0K	124 dBpT		✓		
1.2K	124 dBpT		✓		
1.6K	124 dBpT		✓		
2.0K	124 dBpT		✓		
2.4K	124 dBpT		✓		
3.2K	124 dBpT		✓		
4.0K	124 dBpT		✓		
5.0K	124 dBpT		✓		10Hz Steps

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility (30Hz to 200KHz)

PARAGRAPH 13.8 SIDE "B" AF-4 -Y SIDE

DATE OF TEST 5-3-02

PART NO. . 1A27800

CCA/SERIAL NO. 01

TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
6.0K	124 dBpT		✓		
8.0K	124 dBpT		✓		
10.0K	124 dBpT		✓		
12.0K	124 dBpT		✓		
16.0K	124 dBpT		✓		
20.0K	124 dBpT		✓		
24.0K	124 dBpT		✓		
32.0K	124 dBpT		✓		
40.0K	124 dBpT		✓		
50.0K	124 dBpT		✓		
60.0K	124 dBpT		✓		
80.0K	124 dBpT		✓		
100.0K	124 dBpT		✓		Change to 100 Hz steps
120.0K	124 dBpT		✓		
160.0K	124 dBpT		✓		
200.0K	124 dBpT		✓		

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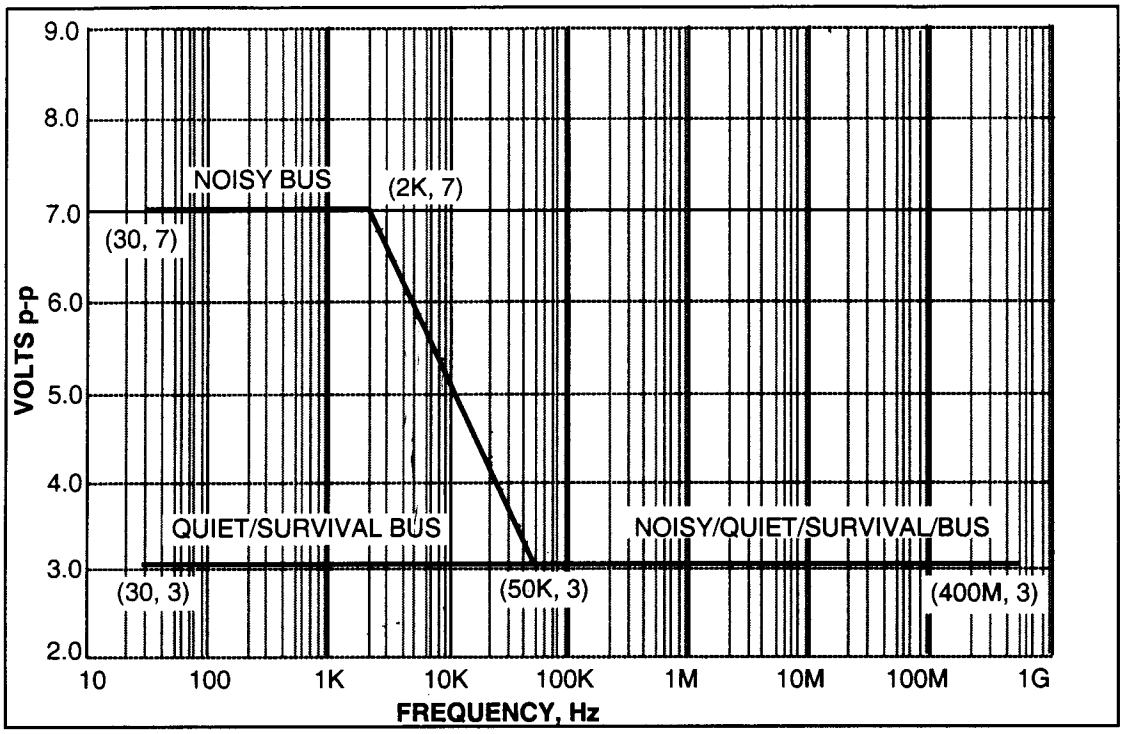


Figure 16
CS01/CS02 Conducted Susceptibility Test Limit

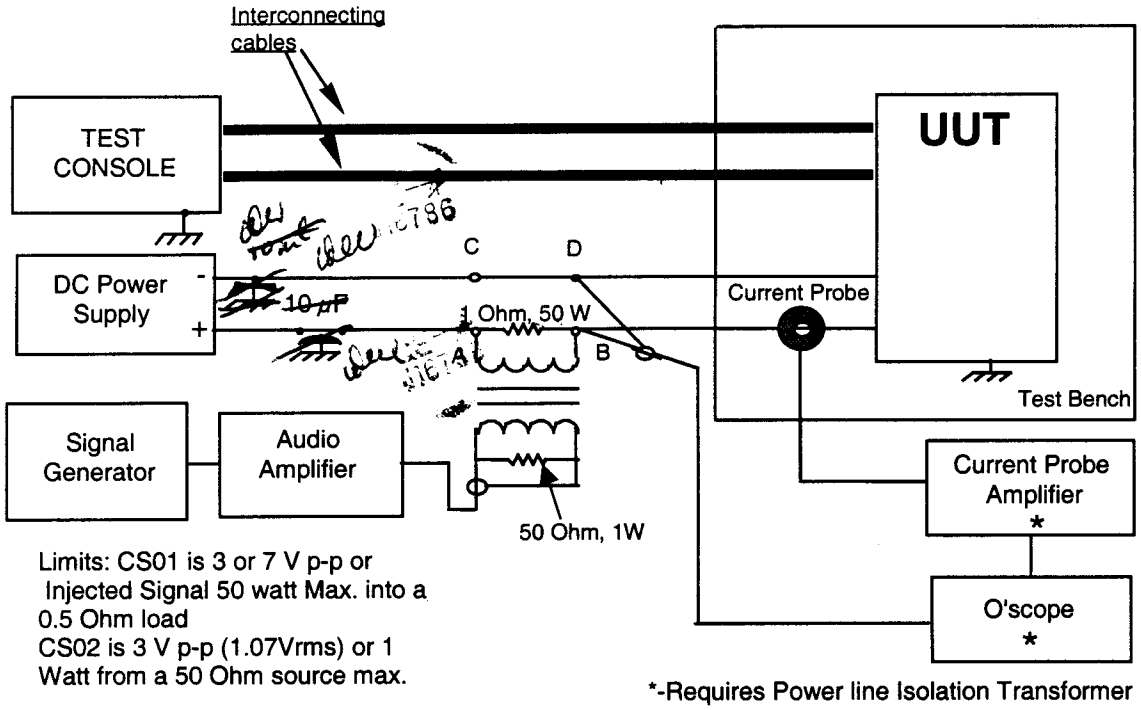


Figure 17
CS01 Audio Frequency Conducted Susceptibility Test Setup

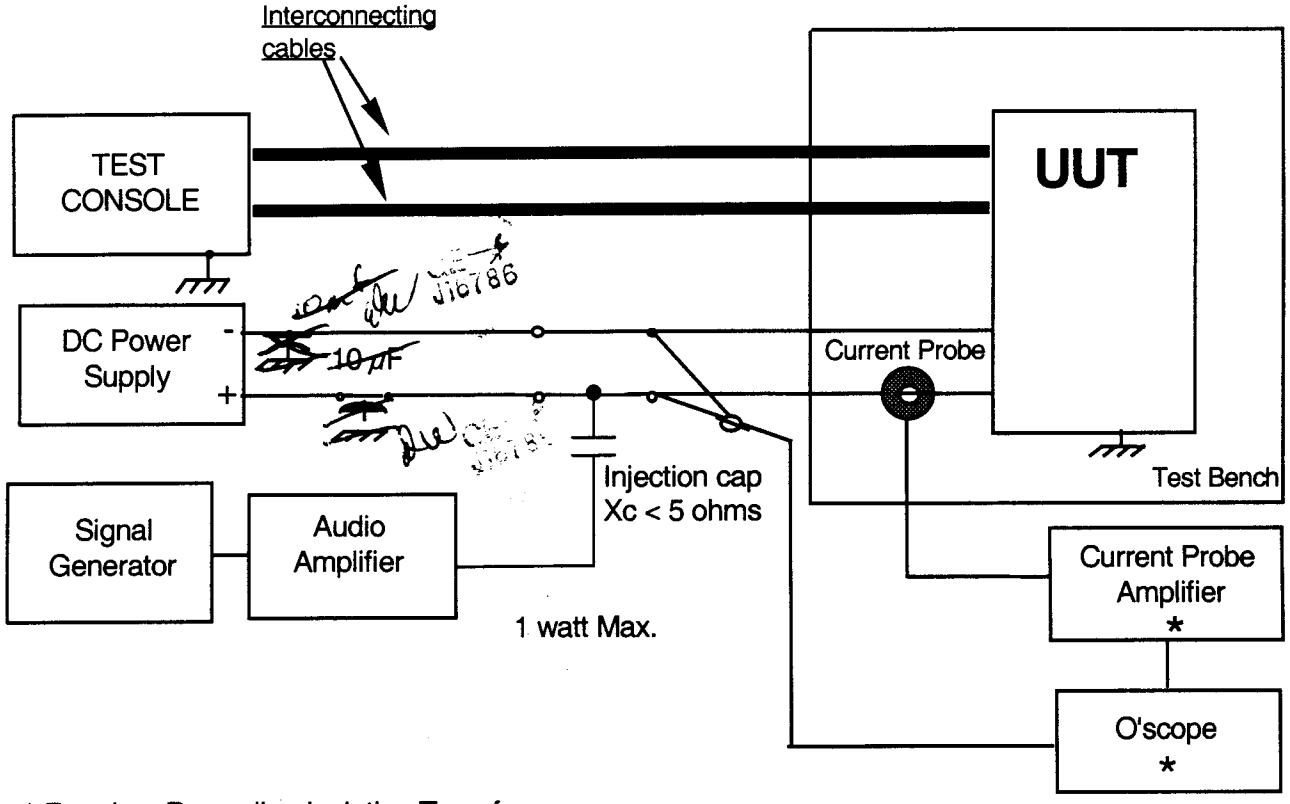


Figure 18
CS02 Radio Frequency Conducted Susceptibility Test Setup

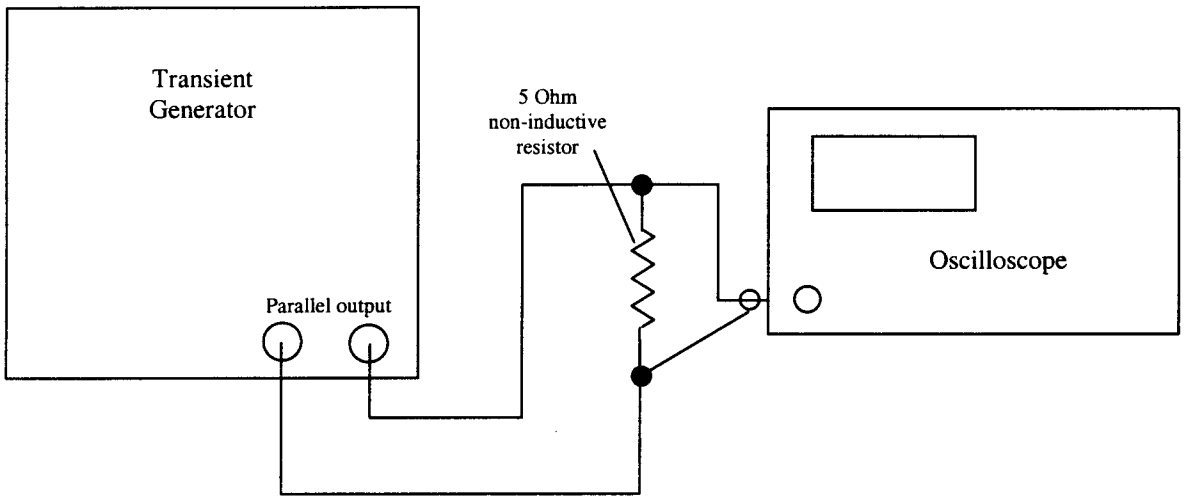
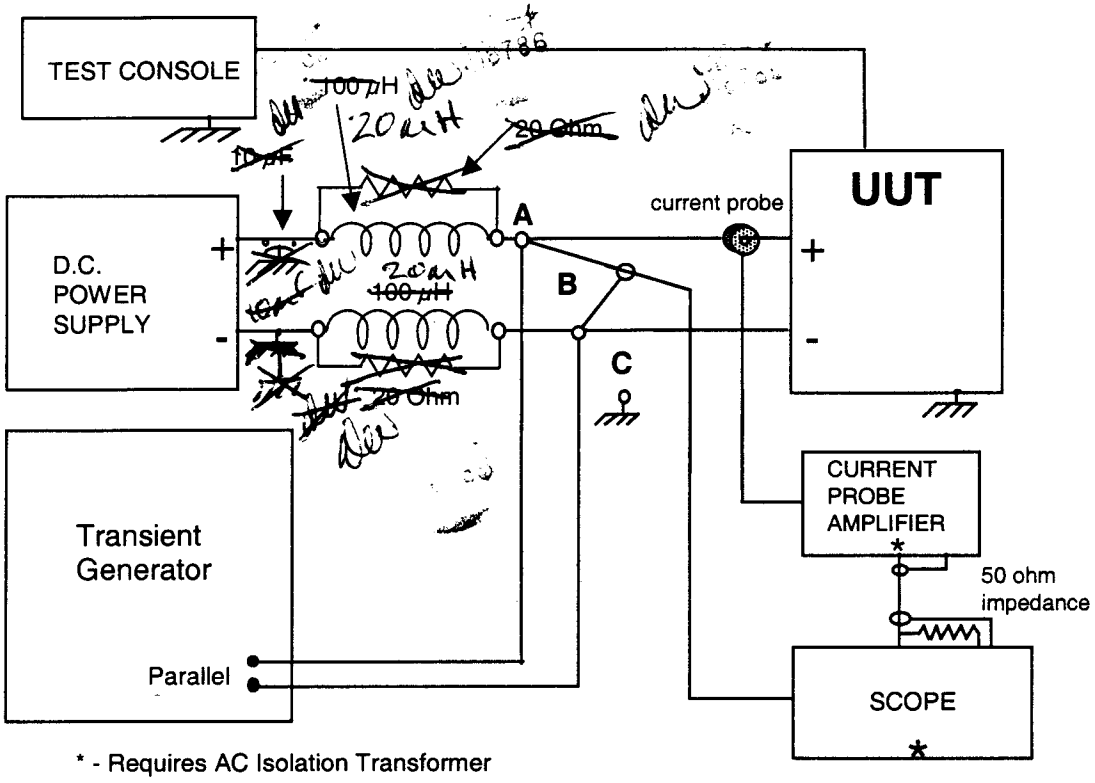


Figure 19
CS06 Power Lead Spike Susceptibility Test Calibration Setup



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QE J19983

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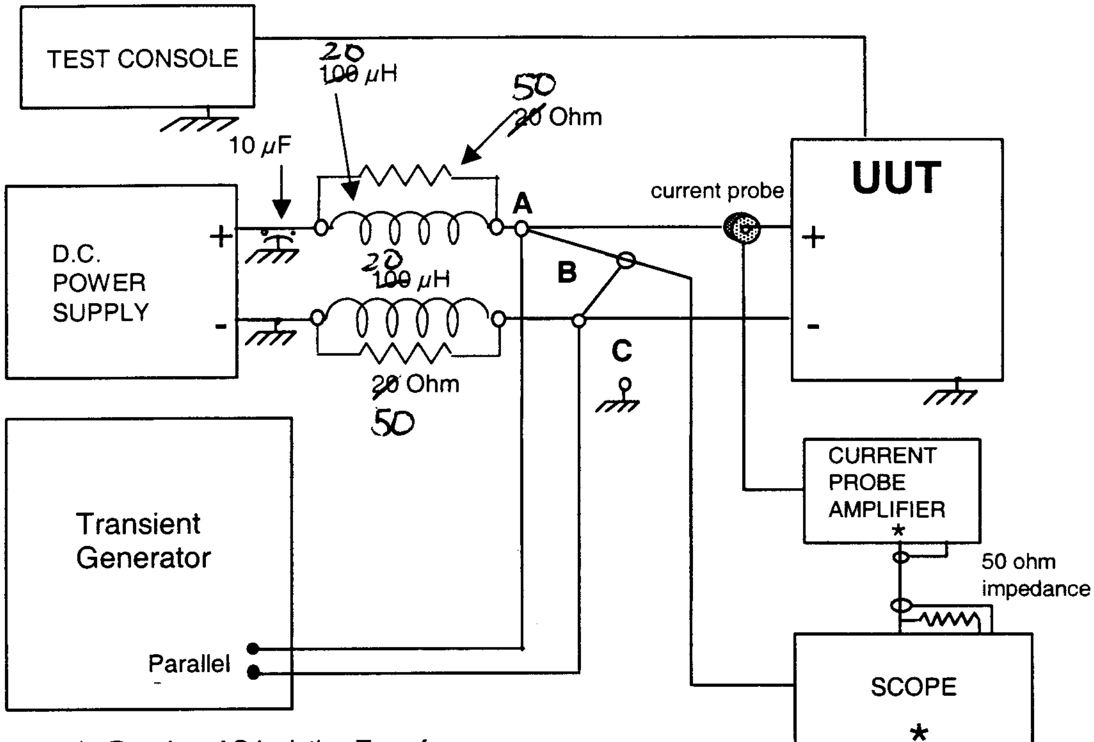
Figure 20
CS06 Power Lead Spike Susceptibility Test Setup



* - Requires AC Isolation Transformer

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Figure 20
CS06 Power Lead Spike Susceptibility Test Setup

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TEST DATA SHEET

Electrical Bonding	
PARAGRAPH 13.4	DATE OF TEST
PART NO. 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: DC resistance between connector back-shell and SC-IF-P/ chassis shall not exceed 2.5 milliohms. All cables disconnected from UUT.

From Conn. Backshell	To SC-IF-P	Resistance (milliohms)	Pass	Fail	Remarks
J107P	Chassis				
J110P	Chassis				
J101P	Chassis				
J102P	Chassis				
J105P	Chassis				
J106P	Chassis				
J111P	Chassis				
J112P	Chassis				
J108	Chassis				
J109	Chassis				
J103	Chassis				
J104	Chassis				

TEST DATA SHEET

Primary Power Isolation

PARAGRAPH 13.2.2	DATE OF TEST
PART NO. 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: The Primary Power Isolation shall be ≥ 1 Megohm

From Connector Contact	To SCIFP / Chassis	Resistance (ohms)	Pass	Fail	Remarks
J107P-A	Chassis				
J107P-B	Chassis				
J107P-C	Chassis				
J107P-D	Chassis				
J107P-E	Chassis				
J107P-F	Chassis				
J110P-A	Chassis				
J110P-B	Chassis				
J110P-C	Chassis				
J110P-D	Chassis				
J110P-E	Chassis				
J110P-F	Chassis				
J101P-A	Chassis				
J101P-B	Chassis				
J101P-C	Chassis				
J101P-D	Chassis				
J101P-E	Chassis				
J101P-F	Chassis				
J102P-A	Chassis				
J102P-B	Chassis				
J102P-C	Chassis				
J102P-D	Chassis				
J102P-E	Chassis				
J102P-F	Chassis				
J111P-A	Chassis				
J111P-B	Chassis				
J111P-C	Chassis				
J111P-D	Chassis				
J111P-E	Chassis				
J111P-F	Chassis				
J112P-A	Chassis				
J112P-B	Chassis				
J112P-C	Chassis				
J112P-D	Chassis				
J112P-E	Chassis				
J112P-F	Chassis				

TEST DATA SHEET

CE01/CE03 Powerline Conducted Emissions

PARAGRAPH 13.4	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

Notes: 5/8/02

Cable/Lead	CE01 Complete	Pass	Fail	~~CE03 Complete~~	~~Pass~~	~~Fail~~	Remarks
PI-SB-A	✓	✓		✓		✓	
PR-SB-A	✓	✓		✓		✓	
PI-SB-B	✓	✓		✓		✓	
PR-SB-B	✓	✓		✓		✓	
PI-NB-A	✓	✓	✓	✓		✓	(CE01 AMBIENT PASS)(CE03 AMBIENT FAIL)
PR-NB-A	✓		✓	✓		✓	(CE01 AMBIENT PASS)(CE03 AMBIENT FAIL)
PI-NB-B	✓		✓	✓		✓	(CE01 AMB PASS)
PR-NB-B	✓		✓	✓		✓	(CE01 AMB PASS)
PI-QB-A	✓		✓	✓ w/AMP		✓ w/AMP	4/29/02 (CE01 AMB PASS)(CE03 AMBIENT FAIL)
PR-QB-A	✓		✓	✓ w/AMP		✓ w/AMP	4/29/02 (CE01 AMB PASS)(CE03 AMBIENT FAIL)
PI-QB-B	✓		✓	✓		✓	(CE01 AMB PASS)
PR-QB-B	✓✓		✓✓	✓		✓	first run Gyro's were off (CE01 AMB PASS) Second run Gyro's ON
PI-NB-A	✓		✓				4/29/02 REPEAT
PR-NB-A	✓		✓				4/29/02 REPEAT
PI-NB-A TO PR-NB-A	✓						RIPPLE VOLTAGE
PI-NB-A TO STRUCTURE	✓						
PI-QB-A TO PR-QB-A	✓						
PI-QB-A TO STRUCTURE	✓						
PI-QB-A TO PR-QB-A	✓						

4/28/02 CE01 ONLY

4/28/02 CE01 ONLY

TEST DATA SHEET

RE02 Electric Field Radiated Emissions
(14KHz to 18GHz)

PARAGRAPH 13.5

DATE OF TEST 5-6-02

PART NO. . 1A27800

CCA/SERIAL NO. 01

TEST TECHNICIAN

NOTES: SIDE A & B TESTED

Antenna/Frequency Range	Scan Complete	Pass	Fail	Comments
Active Rod Antenna 14 KHz – 20MHz			✓	
Biconical Antenna Vertical Polarity 20MHz-200MHz		X EIC	✓	
Biconical Antenna Horizontal Polarity 20MHz-200MHz			✓	
Log periodic antenna Vertical Polarity 200MHz – 1GHz			✓	
Log periodic antenna Horizontal Polarity 200MHz – 1GHz			✓	
Double Ridged Guide Horn Antenna, Vertical Polarity 1GHz-18GHz			✓	
Double Ridged Guide Horn Antenna, Horizontal Polarity 1GHz-18GHz			✓	
DOUBLE RIDGED GUIDE HORN			✓	
HORIZ. 2GHz - 2.4GHz			✓	SIDE A (+Y)
VERT. 2GHz - 2.4GHz			✓	SIDE A (+Y)
HOR. 2GHz - 2.4GHz			✓	SIDE B (-Y)
VERT. 2GHz - 2.4GHz			✓	SIDE B (-Y)

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TEST DATA SHEET

RE04 Magnetic Field Radiated Emissions (20Hz to 50KHz)

	PARAGRAPH 13.6	DATE OF TEST 05-06-02
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES:

Antenna Polarity	Test Completed	Pass	Fail	Comments
Parallel Vertical		✓		
Perpendicular Vertical		✓		
Horizontal				N/A

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility
(30Hz to 200KHz) +Y (AF1)

PART NO. . 1A27800	CCA/SERIAL NO. 01	PARAGRAPH 13.8
		DATE OF TEST 5/2/02
		TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
30	124 dBpT		✓		
40	124 dBpT				
50	124 dBpT				
60	124 dBpT				
80	124 dBpT				
100	124 dBpT				
120	124 dBpT				
160	124 dBpT				
200	124 dBpT				
240	124 dBpT				
320	124 dBpT				
400	124 dBpT				
500	124 dBpT				
60	124 dBpT				
800	124 dBpT				
1.0K	124 dBpT				
1.2K	124 dBpT				
1.6K	124 dBpT				
2.0K	124 dBpT				
2.4K	124 dBpT				
3.2K	124 dBpT				
4.0K	124 dBpT				
5.0K	124 dBpT		✓		

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility
(30Hz to 200KHz) +Y (AF1)

PARAGRAPH 13.8	DATE OF TEST 5/2/02
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
6.0K	124 dBpT		✓		
8.0K	124 dBpT				
10.0K	124 dBpT				
12.0K	124 dBpT				
16.0K	124 dBpT				
20.0K	124 dBpT				
24.0K	124 dBpT				
32.0K	124 dBpT				
40.0K	124 dBpT				
50.0K	124 dBpT				
60.0K	124 dBpT				
80.0K	124 dBpT				
100.0K	124 dBpT				
120.0K	124 dBpT				
160.0K	124 dBpT				
200.0K	124 dBpT		✓		

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility
(30Hz to 200KHz) -X (AF2)

PART NO. . 1A27800	CCA/SERIAL NO. 01	PARAGRAPH 13.8
	TEST TECHNICIAN	DATE OF TEST 5/2/02

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
30	124 dBpT		✓		
40	124 dBpT				
50	124 dBpT				
60	124 dBpT				
80	124 dBpT				
100	124 dBpT				
120	124 dBpT				
160	124 dBpT				
200	124 dBpT				
240	124 dBpT				
320	124 dBpT				
400	124 dBpT				
500	124 dBpT				
60	124 dBpT				
800	124 dBpT				
1.0K	124 dBpT				
1.2K	124 dBpT				
1.6K	124 dBpT				
2.0K	124 dBpT				
2.4K	124 dBpT				
3.2K	124 dBpT				
4.0K	124 dBpT				
5.0K	124 dBpT		✓		

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility
(30Hz to 200KHz) -X (AF2)

PART NO. . 1A27800	CCA/SERIAL NO. 01	PARAGRAPH 13.8
	TEST TECHNICIAN	DATE OF TEST 5/2/02

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
6.0K	124 dBpT		✓		
8.0K	124 dBpT				
10.0K	124 dBpT				
12.0K	124 dBpT				
16.0K	124 dBpT				
20.0K	124 dBpT				
24.0K	124 dBpT				
32.0K	124 dBpT				
40.0K	124 dBpT				
50.0K	124 dBpT				
60.0K	124 dBpT				
80.0K	124 dBpT				
100.0K	124 dBpT				
120.0K	124 dBpT				
160.0K	124 dBpT		✓		
200.0K	124 dBpT			✓	* CDR AD6471 focal plane temp. dropped

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility
(30Hz to 200KHz) +X (AF3)

PART NO. . 1A27800	CCA/SERIAL NO. 01	PARAGRAPH 13.8
		DATE OF TEST 5/3/02
		TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response. malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
30	124 dBpT		✓		
40	124 dBpT				
50	124 dBpT				
60	124 dBpT				
80	124 dBpT				
100	124 dBpT				
120	124 dBpT				
160	124 dBpT				
200	124 dBpT				
240	124 dBpT				
320	124 dBpT				
400	124 dBpT				
500	124 dBpT				
60	124 dBpT				
800	124 dBpT				
1.0K	124 dBpT				
1.2K	124 dBpT				
1.6K	124 dBpT				
2.0K	124 dBpT				
2.4K	124 dBpT				
3.2K	124 dBpT				
4.0K	124 dBpT				
5.0K	124 dBpT		✓		

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility

(30Hz to 200KHz) TX(AF3)

PARAGRAPH 13.8	DATE OF TEST 5/3/02
CCA/SERIAL NO. 01	TEST TECHNICIAN

PART NO. . 1A27800

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
6.0K	124 dBpT		✓		
8.0K	124 dBpT				
10.0K	124 dBpT				
12.0K	124 dBpT				
16.0K	124 dBpT				
20.0K	124 dBpT				
24.0K	124 dBpT				
32.0K	124 dBpT				
40.0K	124 dBpT				
50.0K	124 dBpT				
60.0K	124 dBpT				
80.0K	124 dBpT				
100.0K	124 dBpT				
120.0K	124 dBpT				
160.0K	124 dBpT				
200.0K	124 dBpT		✓		

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility
(30Hz to 200KHz) -Y(AF4)

PART NO. . 1A27800	PARAGRAPH 13.8 CCA/SERIAL NO. 01	DATE OF TEST 5/3/02 TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
30	124 dBpT		✓		
40	124 dBpT				
50	124 dBpT				
60	124 dBpT				
80	124 dBpT				
100	124 dBpT				
120	124 dBpT				
160	124 dBpT				
200	124 dBpT				
240	124 dBpT				
320	124 dBpT				
400	124 dBpT				
500	124 dBpT				
60	124 dBpT				
800	124 dBpT				
1.0K	124 dBpT				
1.2K	124 dBpT				
1.6K	124 dBpT				
2.0K	124 dBpT				
2.4K	124 dBpT				
3.2K	124 dBpT				
4.0K	124 dBpT				
5.0K	124 dBpT		✓		

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TEST DATA SHEET

RS01 AC Magnetic Field Radiated Susceptibility
(30Hz to 200KHz) -4(AF4)

	PARAGRAPH 13.8	DATE OF TEST 5/3/02
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
6.0K	124 dBpT		✓		
8.0K	124 dBpT				
10.0K	124 dBpT				
12.0K	124 dBpT				
16.0K	124 dBpT				
20.0K	124 dBpT				
24.0K	124 dBpT				
32.0K	124 dBpT				
40.0K	124 dBpT				
50.0K	124 dBpT				
60.0K	124 dBpT				
80.0K	124 dBpT				
100.0K	124 dBpT				
120.0K	124 dBpT				
160.0K	124 dBpT				
200.0K	124 dBpT		✓		

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TEST DATA SHEET

RS03 Electric Field Radiated Susceptibility (14KHz to 18GHz)

PART NO. . 1A27800	PARAGRAPH 13.10 SIDE "A"	DATE OF TEST 4-30-02
	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
14.0K	2 V/m		✓		
20.0K	2 V/m		✓		
24.0K	2 V/m		✓		
32.0K	2 V/m		✓		
40.0K	2 V/m		✓		
50.0K	2 V/m		✓		
60.0K	2 V/m		✓		
80.0K	2 V/m		✓		
10.0K	2 V/m		✓		
120.0K	2 V/m		✓		
160.0K	2 V/m		✓		
200.0K	2 V/m		✓		
240.0K	2 V/m		✓		
320.0K	2 V/m		✓		
400.0K	2 V/m		✓		
50.0K	2 V/m		✓		
600.0K	2 V/m		✓		
800.0K	2 V/m		✓		
1.0M	2 V/m		✓		
1.2M	2 V/m		✓		
1.6M	2 V/m		✓		
2.0M	2 V/m		✓		
2.4M	2 V/m		✓		

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RS03 Electric Field Radiated Susceptibility
(14KHz to 18GHz)

PART NO. . 1A27800	PARAGRAPH 13.10 SIDE "A"	DATE OF TEST 4-30-02
	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency (Hz)	Level	Test Complete	Pass		Fail		Comments
			V	H	V	H	
3.2M	2 V/m		✓	✓			
4.0M	2 V/m						
5.0M	2 V/m						
6.0M	2 V/m						
8.0M	2 V/m						
10.0M	2 V/m						
12.0M	2 V/m						
16.0M	2 V/m						
20.0M	2 V/m						
24.0M	2 V/m						
32.0M	2 V/m						
40.0M	2 V/m						
50.0M	2 V/m						
60.0M	2 V/m						
80.0M	2 V/m						
100.0M	2 V/m						
120.0M	2 V/m						
160.0M	2 V/m						
200.0M	2 V/m						
240.0M	2 V/m						
320.0M	2 V/m						
400.0M	2 V/m						
500.0M	2 V/m		✓	✓			

PQC 686843 MAY 03

A 686894

TEST DATA SHEET

RS03 Electric Field Radiated Susceptibility (14KHz to 18GHz)

PARAGRAPH 13.10 Side A	DATE OF TEST 4-30-02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass V	Pass H	Fail V	Fail H	Comments
600.0M	2 V/m		✓	✓			
800.0M	2 V/m		✓	✓			
1.0G	2 V/m		*				* 1091MHz VERT AGC "821" changed @ 9:21:55 TSW FAULT STAT
1.2G	2 V/m		✓	**			** AT 1554 MHz @ 13:32 Instrument Head diagnosed Horizontal Polarity
1.6G	~~2~~ 12 V/m		✓	✓			DR# AD6464
2.0G	10 V/m		✓	✓			MAY 03 2002 686894
2.2855G	20 V/m		✓	✓			
2.2895G	20 V/m		✓	✓			
4.0G	~~2~~ 10 V/m		✓	✓			
5.0G	~~2~~ 10 V/m		✓	✓			
6.0G	~~2~~ 10 V/m		✓	✓			
8.06G	20 V/m		✓	✓			
8.26GHz	20 V/m		✓	✓			
10.0G	2 V/m		✓	✓			
12.0G	10 V/m		✓	✓			
16.0G	10 V/m		✓	✓			
18.0G	10 V/m		✓	✓			

PQC 686843 MAY 03 2002

BFE MAY 03 2002

TEST DATA SHEET

RS03 Electric Field Radiated Susceptibility
(14KHz to 18GHz)

PARAGRAPH 13.10 SIDE B	DATE OF TEST 5-1-02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass	Fail	Comments
14.0K	2 V/m		✓		
20.0K	2 V/m				
24.0K	2 V/m				
32.0K	2 V/m				
40.0K	2 V/m				
50.0K	2 V/m				
60.0K	2 V/m				
80.0K	2 V/m				
10.0K	2 V/m				
120.0K	2 V/m				
160.0K	2 V/m				
200.0K	2 V/m				
240.0K	2 V/m				
320.0K	2 V/m				
400.0K	2 V/m				
50.0K	2 V/m				
600.0K	2 V/m				
800.0K	2 V/m				
1.0M	2 V/m				
1.2M	2 V/m				
1.6M	2 V/m				
2.0M	2 V/m				
2.4M	2 V/m		✓		

PQC 686843 A 686894

MAY 03 2002 MAY 03 2002

TEST DATA SHEET

RS03 Electric Field Radiated Susceptibility (14KHz to 18GHz)

PARAGRAPH 13.10 SIDE B	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency (Hz)	Level	Test Complete	Pass V	Pass H	Fail V	Fail H	Comments
3.2M	2 V/m		✓	✓			
4.0M	2 V/m						
5.0M	2 V/m						
6.0M	2 V/m						
8.0M	2 V/m						
10.0M	2 V/m						
12.0M	2 V/m						
16.0M	2 V/m						
20.0M	2 V/m		✓	✓			
24.0M	2 V/m						
32.0M	2 V/m						
40.0M	2 V/m						
50.0M	2 V/m						
60.0M	2 V/m						
80.0M	2 V/m		✓	✓			
100.0M	2 V/m						
119M ~~120.0M~~	2 V/m						
160.0M	2 V/m		✓	✓			
180M-190M ~~200.0M~~	2 V/m		✓	✓			
210 M 240.0M	2 V/m						
320.0M	2 V/m						
390 M ~~400.0M~~	2 V/m		✓	✓			
470 M 500.0M	2 V/m						
520M	2V/m		✓	✓			

A 686894 MAY 03 2002

PQC 686843

A 686894

MAY 03 2002 MAY 03 2002

TEST DATA SHEET

RS03 Electric Field Radiated Susceptibility (14KHz to 18GHz)

PARAGRAPH 13.10 SIDE B | DATE OF TEST 5-1-02

PART NO. . 1A27800 | CCA/SERIAL NO. 01 | TEST TECHNICIAN

NOTES: Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level	Test Complete	Pass V	Pass H	Fail V	Fail H	Comments
600.0M	2 V/m		✓	✓			
~~800~~ 700.0M	2 V/m		✓	✓			
1.0G	2 V/m		✓	✓			
1.2G	2 V/m		✓	✓			
1.6G	2 V/m		✓	✓			
2.0G	10 V/m		✓	✓			
2.2855G	20 V/m		✓	✓			
2.2895G	20 V/m		✓	✓			
4.0G	~~2~~ 10 V/m		✓	✓			
5.0G	~~2~~ 10 V/m		✓	✓			
6.0G	~~2~~ 10 V/m		✓	X			* 7017 MHz STOPPED SWEEP REQUESTED BY THALES 7720 MHz HIRALS REPORTED a DATA DROPOUT IN TELEMETRY.
8.06G	20 V/m		✓	✓			
8.26GHz	20 V/m		✓	✓			
10.0G	~~2~~ 10 V/m		✓	✓			
12.0G	10 V/m		✓	✓			
16.0G	10 V/m		✓	✓			
18.0G	10 V/m			✓			

PQC 686843 MAY 03

A 686894 MAY 03

A 686894 R/L MAY 04 2002

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to 15KHz 5-0 QE-1 J16786

PARAGRAPH 13.11	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Survival Bus -A Plus Lead
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
30	3.0		✓		
40	3.0				
50	3.0				
60	3.0				
80	3.0				
100	3.0				
120	3.0				
160	3.0				
200	3.0				
240	3.0				
320	3.0				
400	3.0				
500	3.0				
600	3.0				
800	3.0				
1.0K	3.0				
1.2K	3.0				
1.6K	3.0				
2.0K	3.0				
2.4K	3.0				
3.2K	3.0				
4.0K	3.0				
5.0K	3.0		✓		

A 686894 O.K. LESS P.Q.C. PQC 686047 5-4-02 MAY 04 2002

A 686894 MAY 05 2002

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to 50 KHz

PARAGRAPH 13.11	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Survival Bus -A Plus Lead
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
6.0K	3.0		✓		
8.0K	3.0				
10.0K	3.0				
12.0K	3.0				
15.0K	3.0				
20K	3.0				
24K	3.0				
32K	3.0				
40K	3.0				
50K	3.0		✓		

A 686894 R/L MAY 04 2002

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to ~~15~~ 50KHz QE J16786

PARAGRAPH 13.11	DATE OF TEST 5-3-02
PART NO. . 1A27800	CCA/SERIAL NO. 01 A RTN QE J16786 MAY 06 2002 / TEST TECHNICIAN

NOTES: Survival Bus ~~-B Plus~~ Lead
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
30	3.0		✓		
40	3.0		✓		
50	3.0		✓		
60	3.0		✓		
80	3.0		✓		
100	3.0		✓		
120	3.0		✓		
160	3.0		✓		
200	3.0		✓		
240	3.0		✓		
320	3.0		✓		
400	3.0		✓		
500	3.0		✓		
600	3.0		✓		
800	3.0		✓		
1.0K	3.0		✓		
1.2K	3.0		✓		
1.6K	3.0		✓		
2.0K	3.0		✓		
2.4K	3.0		✓		
3.2K	3.0		✓		
4.0K	3.0		✓		
5.0K	3.0		✓		

A 686894 O.K. LESS P.Q.C. PQC 686047 5-4-02 MAY 04 2002

A 686894 MAY 05 2002

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to ~~15~~ 50 KHz

PARAGRAPH 13.11	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01 A RTA GE J16786 MAY 06 2002
	TEST TECHNICIAN

NOTES: Survival Bus ~~B Plus~~ Lead
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
6.0K	3.0		✓		
8.0K	3.0		✓		
10.0K	3.0		✓		
12.0K	3.0		✓		
15.0K	3.0		✓		
20K	3.0		✓		
24K	3.0		✓		
32K	3.0		✓		
40K	3.0		✓		
50K	3.0		✓		

R/C 686894 MAY 2002 GE J16786

686894 O.K. LESS P.O.C. 5-4-02 PQC 586047 MAY 04 2002

686894 MAY 05 2002

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to 15KHz 50 J16786

PARAGRAPH 13.11	DATE OF TEST
CCA/SERIAL NO. 01	TEST TECHNICIAN

PART NO. . 1A27800

NOTES: Quiet Bus A Plus Lead
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
30	3.0		✓		
40	3.0		✓		
50	3.0		✓		
60	3.0		✓		
80	3.0		✓		
100	3.0		✓		
120	3.0		✓		
160	3.0		✓		
200	3.0		✓		
240	3.0		✓		
320	3.0		✓		
400	3.0		✓		
500	3.0		✓		
600	3.0		✓		648 @ current limit of 4Ap-p
800	3.0		✓		
1.0K	3.0		✓		
1.2K	3.0		✓		
1.6K	3.0	@ 1.4K	✓	✓	1.48K susceptible threshold is 1.6 V
2.0K	3.0		✓		
2.4K	3.0		✓		
3.2K	3.0		✓		
4.0K	3.0		✓		3.9K @ 4Ap-p current limit
5.0K	3.0		✓		@ current limit

DR
D AD
686894 648
MAY 04 2002

PQC
686843
5/8/02

A 686894 R/L MAY 04 2002

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to ~~15~~ KHz 50 QE-X 16786

PARAGRAPH 13.11	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Quiet Bus A Plus Lead
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
6.0K	3.0		✓		at current limit
8.0K	3.0		✓		"
10.0K	3.0		✓		2V @ 4A current limit
12.0K	3.0		✓		"
15.0K	3.0		✓		"
20K	3.0		✓		"
24K	3.0		✓		"
32K	3.0		✓		"
40K	3.0		✓		"
50K	3.0			✓	susceptible at 42KHz threshold @ 0V

A 686894 R/L MAY 04 2002

D 686894 MAY 04 2002 DR AD6494

PQC 686843 5/3/02

A 686894 R/C MAY 04 2002

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to 15KHz 50 QE J16786

PARAGRAPH 13.11	DATE OF TEST 5-3-02
PART NO. . 1A27800	CCA/SERIAL NO. 01 A A-JAV QE J16786 MAY 06 2002
	TEST TECHNICIAN

NOTES: Quiet Bus P ~~Plus~~ Lead
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
30	3.0		✓		
40	3.0				
50	3.0				
60	3.0				
80	3.0				
100	3.0				
120	3.0				
160	3.0				
200	3.0				
240	3.0				
320	3.0				
400	3.0				
500	3.0				Current Limit 550 Hz
600	3.0				
800	3.0				
1.0K	3.0				
1.2K	3.0				1246 Hz Current Limit
1.6K	3.0				
2.0K	3.0				
2.4K	3.0				
3.2K	3.0				
4.0K	3.0				
5.0K	3.0		✓		

A 686894 O.K. LESS P.Q.C. 5-4-02 PQO 686047 MAY 04 2002

A R/L 686894 MAY 04 2002

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to 15 KHz

PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN
	PARAGRAPH 13.11	DATE OF TEST

A RTN/QE 116786 MAY 06 2002

NOTES: Quiet Bus ~~& Plus Lead~~
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
6.0K	3.0		✓		
8.0K	3.0		✓		
10.0K	3.0		✓		
12.0K	3.0		✓		
15.0K	3.0		✓		16K 2.4V
20K	3.0		✓		CURRENT LIMIT @ 3296 Hz
24K	3.0			✓	23 Susceptible Threshold 1/2 V
32K	3.0				
40K	3.0		✓		
50K	3.0		✓		CURRENT LIMIT @ 50KHz 1.6V

R/L A 686894 MAY 04 2002

D 686894 MAY 04 2002 DR AD 6494

PQC 686047 5-4-02

A 686894 R/L MAY 04 2002

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to ~~15KHz~~ 50 kHz QE J16756

PARAGRAPH	DATE OF TEST
CCA/SERIAL NO. 01	TEST TECHNICIAN

PART NO. . 1A27800

NOTES: Noisy Bus -A Plus Lead
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
30	7.0		✓		
40	7.0				
50	7.0				
60	7.0				
80	7.0				
100	7.0				
120	7.0				
160	7.0				
200	7.0				
240	7.0				
320	7.0				
400	7.0				
500	7.0				
600	7.0				
800	7.0				
1.0K	7.0				
1.2K	7.0				
1.6K	7.0				
2.0K	7.0				
2.4K	6.9				
3.2K	6.6				
4.0K	6.2 ~~5.8~~ 5.6				
5.0K	5.8 ~~5.8~~ 5.8 5.6		✓		

A 686894 R/L J16756 MAY 04 2002

A 686894 O.K. LESS P.Q.C. PQC 686048 5-4-02 MAY 04 2002

A 686894 R/C MAY 04 2002

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility 30Hz to ~~15~~ 50 KHz

PARAGRAPH 13.11	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Noisy Bus -A Plus Lead

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
6.0K	~~3.0~~ 5.6		✓		
8.0K	~~3.0~~ 5.7		✓		
10.0K	~~3.0~~ 5.5		✓		
12.0K	~~3.0~~ 4.8		✓		
15.0K	~~3.0~~ 4.5			✓	Threshold = 0V 19K susceptible Step Time
20K	4.2		✓		
24K	3.8		✓		
32K	3.4		✓		
40K	3.2		✓		
50K	3.0		✓		

A 686894 R/C MAY 04 2002

D 686894 MAY 04 2002

PQC 686047 5-4-02

CE J16756

A 686894 R/C MAY 04 2002

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to ~~15KHz~~ 50 KHz QE J16733

PARAGRAPH	DATE OF TEST
CCA/SERIAL NO. 01 A RTN Lead QE J16706 MAY 04 2002	TEST TECHNICIAN

PART NO. . 1A27800

NOTES: Noisy Bus ~~B Plus~~ Lead

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
30	7.0		✓		
40	7.0		✓		
50	7.0		✓		
60	7.0		✓		
80	7.0		✓		
100	7.0		✓		
120	7.0		✓		
160	7.0		✓		
200	7.0		✓		
240	7.0		✓		
320	7.0		✓		
400	7.0		✓		
500	7.0		✓		
600	7.0		✓		
800	7.0		✓		
1.0K	7.0		✓		
1.2K	7.0		✓		
1.6K	7.0		✓		
2.0K	7.0		✓		
2.4K	6.9		✓		
3.2K	6.6		✓		
4.0K	~~5.6~~ 6.2		✓		
5.0K	5.8		✓		

A 686894 R/C MAY 04 2002

PQC 686047 MAY 04 2002

A 686894 MAY 04 2002

TEST DATA SHEET

CS01 Audio Frequency Conducted Susceptibility
30Hz to ~~15 KHz~~ 50 kHz

PARAGRAPH 13.11	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Noisy Bus ~~Plus~~ Lead ATN LEAD

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
6.0K	~~3.0~~ 5.6		✓		
8.0K	~~3.0~~ 5.4		✓		
10.0K	~~3.0~~ 5.0		✓		
12.0K	~~3.0~~ 4.8		✓		
15.0K	~~3.0~~ 4.5		✓		
20K	4.2		✓		
24K	3.8			✓	29.7 V susceptible Threshold @ 560mA
32K	3.4		✓		
40K	3.2		✓		
50K	3.0		✓		

616071A 5/5/02

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility 50 ~~15~~KHz to 400MHz

PART NO. . 1A27800	PARAGRAPH 13.11 CCA/SERIAL NO. 01	DATE OF TEST 5-5-02 TEST TECHNICIAN QE-1 J16786 MAY 05 2002

NOTES: Survival Bus -A Plus Lead ~~to~~ RTN LEAD

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
~~15.0K~~ e	~~3.0~~ e				
~~20.0K~~ e	~~3.0~~ e				
~~24.0K~~ e	~~3.0~~ e				
~~32.0K~~ e	~~3.0~~ e				
~~40.0K~~ e	~~3.0~~ e				
50.0K	3.0		✓		
60.0K	3.0		✓		
80.0K	3.0		✓		
100.0K	3.0		✓		
120.0K	3.0		✓		
160.0K	3.0		✓		
200.0K	3.0		✓		
240.0K	3.0		✓		
320.0K	3.0		✓		
400.0K	3.0		✓		
500.0K	3.0		✓		
600.0K	3.0		✓		
800.0K	3.0		✓		
1.0M	3.0		✓		
1.2M	3.0		✓		
1.6M	3.0		✓		
2.0M	3.0		✓		
2.4M	3.0		✓		

QE-1 J16786 MAY 05 2002

A 616071A 5/5/02

PQG 686047 5-4-02 QE-1 J16786

5/5/02

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility
QE→ J16786 50 **15KHz to 400MHz**

PARAGRAPH 13.11	DATE OF TEST 5-5-02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN QE→ J16786 MAY 08 2002

NOTES: Survival Bus- A , Plus Lead to RTN LEAD

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
3.2M	3.0		✓		
4.0M	3.0		✓		
5.0M	3.0		✓		
6.0M	3.0		✓		
8.0M	3.0		✓		
10.0M	3.0		✓		
12.0M	3.0		✓		
16.0M	3.0		✓		
20.0M	3.0		✓		
24.0M	3.0		✓		
32.0M	3.0		✓		
40.0M	3.0		✓		
50.0M	3.0		✓		CURRENT LIMIT 52-56 MHz
60.0M	3.0		✓		
80.0M	3.0		✓		CURRENT LIMIT 76 MHz
100.0M	3.0		✓		
120.0M	3.0		✓		
160.0M	3.0		✓		
200.0M	3.0		✓		
240.0M	3.0		✓		CURRENT LIMIT @ 296-303 MHz
320.0M	3.0		✓		
400.0M	3.0		✓		

POO
886047
5-4-02

A
616077A
5/5/02

A 616077A 5/5/02

QE J16786

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility 50KHz to 400MHz

PART NO. . 1A27800	CCA/SERIAL NO. 01 A	PARAGRAPH 13.11
	TEST TECHNICIAN QE J16786 MAY 06 2002	DATE OF TEST 5-5-02

NOTES: Survival Bus ~~B+ Plus Lead~~ RTN LEAD TO CHASSIS

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
~~15.0K~~	~~3.0~~				
~~20.0K~~	~~3.0~~				
~~24.0K~~	~~3.0~~				
~~32.0K~~	~~3.0~~				
~~40.0K~~	~~3.0~~				
50.0K	3.0		✓		
60.0K	3.0		✓		
80.0K	3.0		✓		
100.0K	3.0		✓		
120.0K	3.0		✓		
160.0K	3.0		✓		
200.0K	3.0		✓		
240.0K	3.0		✓		
320.0K	3.0		✓		
400.0K	3.0		✓		
500.0K	3.0		✓		
600.0K	3.0		✓		
800.0K	3.0		✓		
1.0M	3.0		✓		
1.2M	3.0		✓		
1.6M	3.0		✓		
2.0M	3.0		✓		
2.4M	3.0		✓		

QE J16786 MAY 06 2002

QE J16786 PQQ 886047 5-5-02 A 616077A 5/6/02

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility
QE→ J16786-5D
~~15~~KHz to 400MHz

PARAGRAPH 13.11	DATE OF TEST 5-5-02
PART NO. . 1A27800	CCA/SERIAL NO. 01 A
	TEST TECHNICIAN QE→ J16786

NOTES: Survival Bus ~~B, Plus Lead~~ RTN LEAD TO CHASSIS MAY 06 2002
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
3.2M	3.0		✓		
4.0M	3.0		✓		
5.0M	3.0		✓		
6.0M	3.0		✓		
8.0M	3.0		✓		
10.0M	3.0		✓		
12.0M	3.0		✓		
16.0M	3.0		✓		
20.0M	3.0		✓		
24.0M	3.0		✓		
32.0M	3.0		✓		
40.0M	3.0			✓	46MHZ THRESHOLD @ 10V
50.0M	3.0		✓		
60.0M	3.0		✓		
80.0M	3.0		✓		CURRENT LIMIT @ 75MHZ
100.0M	3.0		✓		
120.0M	3.0		✓		
160.0M	3.0		✓		
200.0M	3.0		✓		
240.0M	3.0		✓		
320.0M	3.0		✓		
400.0M	3.0		✓		

L 6160714 5/5/02

PQO 886047 5-5-02

A 686894 R/L MAY 04 2002

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility 15KHz to 400MHz 50

PARAGRAPH	DATE OF TEST
	5/4/02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN QE J16786 MAY 04 2002

NOTES: Quite Bus -A , Plus Lead to Return

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
~~15.0K~~	~~3.0~~				
~~20.0K~~	~~3.0~~				
~~24.0K~~	~~3.0~~				
~~32.0K~~	~~3.0~~				
~~40.0K~~	~~3.0~~				
50.0K	3.0		✓		CURRENT LIMIT 700mV
60.0K	3.0		✓		CURRENT LIMIT 650mV
80.0K	3.0		✓		CURRENT LIMIT 720mV
100.0K	3.0		✓		CURRENT LIMIT 800mV
120.0K	3.0		✓		CURRENT LIMIT 960mV
160.0K	3.0		✓		CURRENT LIMIT 1.1V
200.0K	3.0		✓		CURRENT LIMIT 1.12V
240.0K	3.0		✓		CURRENT LIMIT 1.28V
320.0K	3.0		✓		CURRENT LIMIT 1.96V
400.0K	3.0		✓		CURRENT LIMIT 2.24V
500.0K	3.0		✓		CURRENT LIMIT 2.64V
600.0K	3.0		✓		3.1V
800.0K	3.0		✓		3.2V
1.0M	3.0		✓		3.2V
1.2M	3.0		✓		3.1V
1.6M	3.0		✓		3.2V
2.0M	3.0		✓		3.2V
2.4M	3.0		✓		2.8V

R/L A 686894 MAY 04 2002

QE J16786

PQC 686047 MAY 04 2002

A 686894 MAY 04 2002

A 686894 R/L

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility
CE — 15KHz to 400MHz
J16786 50

PARAGRAPH	DATE OF TEST
	5/4/02
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Quite Bus -A , Plus Lead + to RTN J16786 MAY 05 2002

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
3.2M	3.0		✓		3.1V
4.0M	3.0		✓		3.1V
5.0M	3.0		✓		3.1V
6.0M	3.0		✓		3.0V
8.0M	3.0		✓		3.1V
10.0M	3.0		✓		3.0V
12.0M	3.0		✓		3.1V
16.0M	3.0		✓		3.0V
20.0M	3.0		✓		3.1V
24.0M	3.0		✓		3.1V
32.0M	3.0		✓		3.0V
40.0M	3.0			✓	39.735MHz, ENCODER GLITCH
50.0M	3.0		✓		50MHz @ 0.5V
60.0M	3.0		✓		2.5V @ 55 MHz 3.0V
80.0M	3.0		✓		
100.0M	3.0		✓		
120.0M	3.0		✓		
160.0M	3.0		✓		
200.0M	3.0		✓		
240.0M	3.0		✓		
320.0M	3.0		✓		
400.0M	3.0		✓		

D 686894 MAY 05 2002

DR AD6495

DR AD 6490 D 686894 MAY 04 2002

POC 647347 MAY 05 2002

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility ~~15~~ 50KHz to 400MHz

PART NO. . 1A27800	PARAGRAPH 13.11	DATE OF TEST 5/4/02
	CCA/SERIAL NO. 01 A RTA MAY 06 2002	TEST TECHNICIAN M. Frazier

NOTES: Quite Bus -~~R~~, ~~Plus~~ Lead to Chassis

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
~~15.0K~~	~~3.0~~ e				
~~20.0K~~ e	~~3.0~~ e				
~~24.0K~~ e	~~3.0~~ e				
~~32.0K~~ e	~~3.0~~ e				
~~40.0K~~ e	~~3.0~~ e				
50.0K	3.0		✓		
60.0K	3.0		✓		
80.0K	3.0		✓		
100.0K	3.0		✓		
120.0K	3.0		✓		
160.0K	3.0		✓		
200.0K	3.0		✓		
240.0K	3.0		✓		
320.0K	3.0		✓		
400.0K	3.0		✓		
500.0K	3.0		✓		
600.0K	3.0		✓		
800.0K	3.0		✓		
1.0M	3.0		✓		
1.2M	3.0		✓		
1.6M	3.0		✓		
2.0M	3.0		✓		
2.4M	3.0		✓		

QE J16786 MAY 2002

POC 647347 MAY 04 2002

QE J16786

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility
CE→ J16786 **15KHz to 400MHz** 50

PARAGRAPH 13.11	DATE OF TEST 5/4/02
PART NO. . 1A27800	CCA/SERIAL NO. 01 A RTA'
	TEST TECHNICIAN M. Frazier CE→ J16786

NOTES: Quite Bus -~~R~~, ~~Plus~~ Lead TO CHASSIS MAY 05 2002

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
3.2M	3.0		✓		
4.0M	3.0		✓		
5.0M	3.0		✓		
6.0M	3.0		✓		
8.0M	3.0		✓		
10.0M	3.0		✓		
12.0M	3.0		✓		
16.0M	3.0		✓		
20.0M	3.0		✓		
24.0M	3.0		✓		
32.0M	3.0		✓		
40.0M	3.0		✓		
50.0M	3.0		✓		
60.0M	3.0		✓		
80.0M	3.0		✓		
100.0M	3.0		✓		
120.0M	3.0		✓		
160.0M	3.0		✓		
200.0M	3.0		✓		
240.0M	3.0		✓		
320.0M	3.0		✓		
400.0M	3.0		✓		

PQC
647347
MAY 0 4 2002

A 616071A RL 5/5/02

QE J16786 MAY 06 2002

50

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility ~~15~~KHz to 400MHz

PART NO. . 1A27800	PARAGRAPH 13.11	DATE OF TEST 5-4-02
	CCA/SERIAL NO. 01	TEST TECHNICIAN M. Frazier

NOTES: Noisy Bus -A , Plus Lead to Return Lead

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
~~15.0K~~ e	~~3.0~~ e				
~~20.0K~~ e	~~3.0~~ e				
~~24.0K~~ e	~~3.0~~ e				
~~32.0K~~ e	~~3.0~~ e				
~~40.0K~~ e	~~3.0~~ e				
50.0K	3.0		✓		
60.0K	3.0		✓		
80.0K	3.0		✓		
100.0K	3.0		✓		
120.0K	3.0		✓		
160.0K	3.0		✓		
200.0K	3.0		✓		
240.0K	3.0		✓		
320.0K	3.0		✓		
400.0K	3.0		✓		
500.0K	3.0		✓		
600.0K	3.0		✓		
800.0K	3.0		✓		
1.0M	3.0		✓		
1.2M	3.0		✓		
1.6M	3.0		✓		
2.0M	3.0		✓		
2.4M	3.0		✓		

QE J16786 MAY 06 2002

QE J16786 PQG 886047 5-4-02

A 616071A 5/5/02

A 616077A R/L 5/5/02

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility
CE-1 15KHz to 400MHz
J16786 50

PARAGRAPH 13.11	DATE OF TEST 5/4/02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN M. Frazier

NOTES: Noisy Bus -A , Plus Lead to Return Lead
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
3.2M	3.0		✓		
4.0M	3.0		✓		
5.0M	3.0		✓		
6.0M	3.0		✓		
8.0M	3.0		✓		
10.0M	3.0		✓		
12.0M	3.0		✓		
16.0M	3.0		✓		
20.0M	3.0		✓		
24.0M	3.0		✓		
32.0M	3.0		✓		
40.0M	3.0		✓		
50.0M	3.0		✓		
60.0M	3.0		✓		
80.0M	3.0		✓		
100.0M	3.0		✓		
120.0M	3.0		✓		
160.0M	3.0		✓		
200.0M	3.0		✓		Current limit @ 206 MHz
240.0M	3.0		✓		Back to Voltage @ 213 MHz
320.0M	3.0		✓		Current limit @ 237 MHz Back to Voltage @ 251 MHz
400.0M	3.0		✓		Current limit @ 292 MHz Back to Voltage @ 300 MHz

PQC 686047 5-5-02

A 616077A 5/5/02

A 616071A 5/5/02 R/C

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility 15KHz to 400MHz

QE-4 J16786 MAY 08 2002 50

PARAGRAPH 13.11	DATE OF TEST 5-4-02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN M. Frazier

NOTES: Noisy Bus ~~B Plus Lead~~ C A RTN to Chassis

Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
~~15.0K~~ e	~~3.0~~ e				
~~20.0K~~ e	~~3.0~~ e				
~~24.0K~~ e	~~3.0~~ e				
~~32.0K~~ e	~~3.0~~ e				
~~40.0K~~ e	~~3.0~~ e				
50.0K	3.0		✓		
60.0K	3.0		✓		
80.0K	3.0		✓		
100.0K	3.0		✓		
120.0K	3.0		✓		
160.0K	3.0		✓		
200.0K	3.0		✓		
240.0K	3.0		✓		
320.0K	3.0		✓		
400.0K	3.0		✓		
500.0K	3.0		✓		
600.0K	3.0		✓		
800.0K	3.0		✓		
1.0M	3.0		✓		
1.2M	3.0		✓		
1.6M	3.0		✓		
2.0M	3.0		✓		
2.4M	3.0		✓		

QE-4 J16786 PO 888047 5-5-02 A 616071A 5/5/02

A 616071A R/L 5/5/02

TEST DATA SHEET

CS02 Radio Frequency Conducted Susceptibility
~~15KHz~~ to 400MHz

PARAGRAPH	DATE OF TEST
	5/4/02
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN M. Frazier

NOTES: Noisy Bus -~~B Plus Lead~~ C RTN to Chassis
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Frequency Hz	Level V p-p	Test Complete	Pass	Fail	Comments
3.2M	3.0		✓		
4.0M	3.0		✓		
5.0M	3.0		✓		
6.0M	3.0		✓		
8.0M	3.0		✓		
10.0M	3.0		✓		
12.0M	3.0		✓		
16.0M	3.0		✓		
20.0M	3.0		✓		
24.0M	3.0		✓		
32.0M	3.0		✓		CURRENT LIMIT @ 33 MHz
40.0M	3.0		✓		
50.0M	3.0		✓		
60.0M	3.0		✓		
80.0M	3.0		✓		
100.0M	3.0		✓		
120.0M	3.0		✓		
160.0M	3.0		✓		
200.0M	3.0		✓		
240.0M	3.0		✓		
320.0M	3.0		✓		
400.0M	3.0		✓		

PQO 686047 5-5-02

A 616071A 5/5/02

TEST DATA SHEET

CS06 Power Lead Spike Susceptibility Test

PARAGRAPH 13.12	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Primary power return lead Quiet Bus -A
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Amplitude	Pulse Width	Pulse Repetition Rate	Test Complete	Pass	Fail
+29 V pk	10 usec	60pps For 5 Minutes Minimum		E I F. (EN)	✓
-29 V pk	10 usec	60pps For 5 Minutes Minimum			✓

D 686894
MAY 05 2002
DR A
AD6496

TEST DATA SHEET

CS06 Power Lead Spike Susceptibility Test

PARAGRAPH 13.12	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Primary power input lead Quiet Bus B
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Amplitude	Pulse Width	Pulse Repetition Rate	Test Complete	Pass	Fail
+29 V pk	10 usec	60pps For 5 Minutes Minimum			
-29 V pk	10 usec	60pps For 5 Minutes Minimum			

A 686894
MAY 05 2002
MAY 05 2002
N/A

TEST DATA SHEET

CS06 Power Lead Spike Susceptibility Test

PARAGRAPH 13.12	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Primary power input lead Survival Bus-A
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Amplitude	Pulse Width	Pulse Repetition Rate	Test Complete	Pass	Fail
+29 V pk	10 usec	60pps For 5 Minutes Minimum			✓
-29 V pk	10 usec	60pps For 5 Minutes Minimum			✓

D 686894
MAY 05 2002
PR AD6496

TEST DATA SHEET

CS06 Power Lead Spike Susceptibility Test

PARAGRAPH 13.12	DATE OF TEST
PART NO. . 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

NOTES: Primary power input lead Survival Bus-B
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Amplitude	Pulse Width	Pulse Repetition Rate	Test Complete	Pass	Fail
+29 V pk	10 usec	60pps For 5 Minutes Minimum			
-29 V pk	10 usec	60pps For 5 Minutes Minimum			

A 686894
MAY 05 2002
N/A

QE
J19953

TEST DATA SHEET

CS06 Power Lead Spike Susceptibility Test

PART NO. . 1A27800	PARAGRAPH 13.12	DATE OF TEST
	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Primary power return lead Noisy Bus-A
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Amplitude	Pulse Width	Pulse Repetition Rate	Test Complete	Pass	Fail
+29 V pk	10 usec	60pps For 5 Minutes Minimum			✓
-29 V pk	10 usec	60pps For 5 Minutes Minimum			✓

D 686894
MAY 05 2002
DR AD 6495

TEST DATA SHEET

CS06 Power Lead Spike Susceptibility Test

PART NO. . 1A27800	PARAGRAPH 13.12	DATE OF TEST
	CCA/SERIAL NO. 01	TEST TECHNICIAN

NOTES: Primary power input lead Noisy Bus-B
Verify that the Instrument shall not exhibit any undesired response, malfunction or performance degradation beyond the tolerances allowed by its specification when it is subjected to electric or magnetic fields.

Amplitude	Pulse Width	Pulse Repetition Rate	Test Complete	Pass	Fail
+29 V pk	10 usec	60pps For 5 Minutes Minimum			
-29 V pk	10 usec	60pps For 5 Minutes Minimum			

A 686894
MAY 05 2002
MAY 05 2002

Common Test Equipment

Page _____ of _____

Nomenclature	Manufacturer	Model	Serial	Tag No.	Calib. Due Date	TE
Power line Iso. Transformer	(Lab type)	N/A				
Signal Generator	Solar	6550-1				
Audio Iso. Transformer	Solar	6220-1A				
Transient Pulse Generator	Solar	8282-1				
Synthesizer	H. P.	3325A		M137238	5-10-02	
Signal Generator	Fluke	6071A				
Signal Generator	H. P.	8672A				
Amplifier	Amp. Research	100L		LMSC 98996	CNR	
Amplifier	Amp. Research	10W1000				
Amplifier	Logimetrics	A600L				
Amplifier	Logimetrics	A600S				
Amplifier	Logimetrics	A600C				
Amplifier	Logimetrics	A600X				
Amplifier	Logimetrics	A600U				
Field Strength Monitor	Aeritalia	TE3107B				
Field Strength Monitor	Holday	HI-3004				
Field Strength Monitor	Raham	484				
Antenna	EMCO	3301B				
Antenna	EMCO	3104P				
Antenna	EMCO	3146B				
Antenna	Stoddart	93490-1				
Antenna	Stoddart	94612-1				
Antenna	ElectroMetric	LCA-25				
Spectrum Analyzer	H. P.	8566B		M2177[illegible]	8/30/02	
Printer	H. P.	Thinkjet				
Close Field Probe Set	EMCO	7405				
CURRENT PROBE	FAIRCHILD	PCL-10	MS OL	—	CNR	

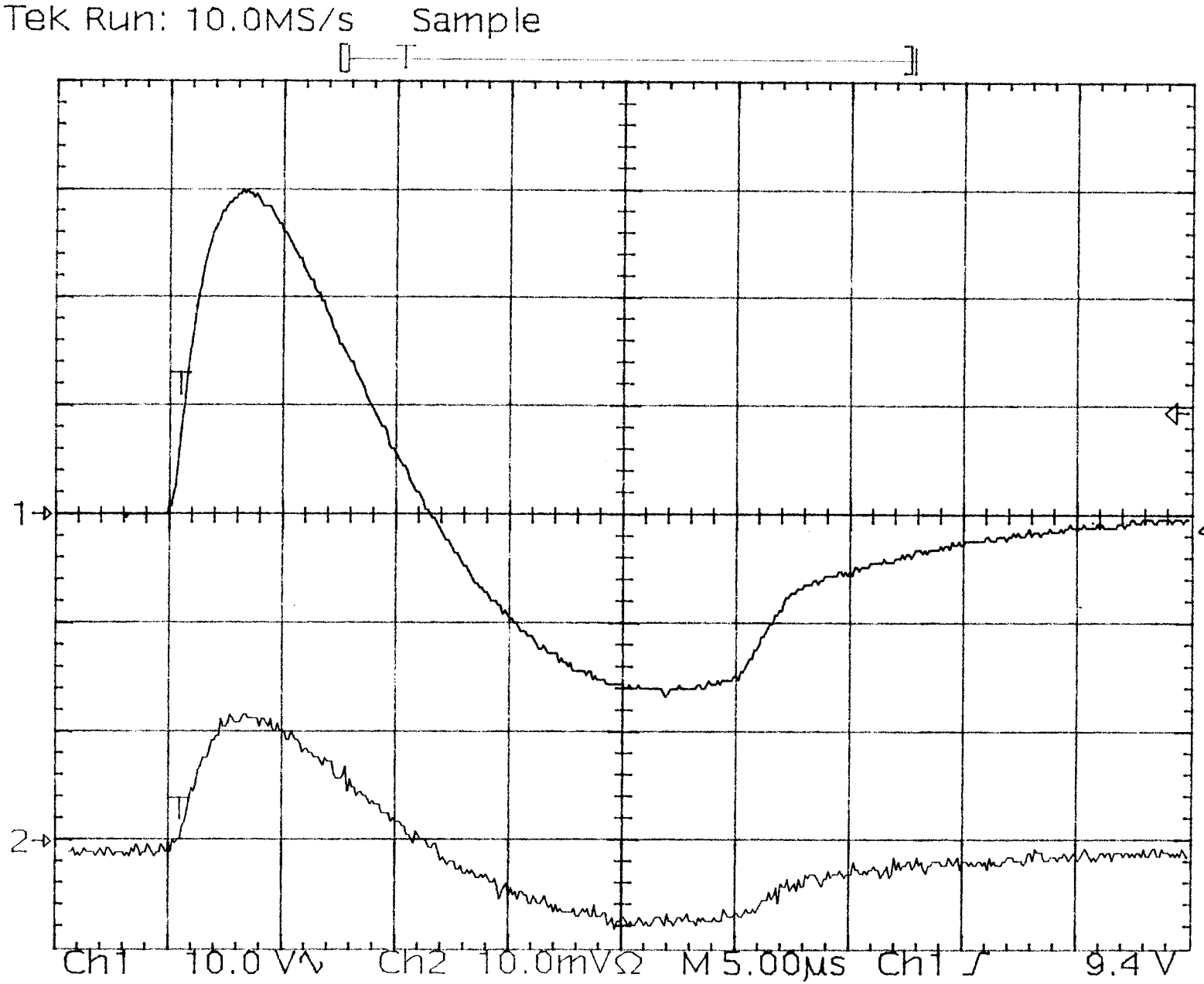
Attach additional sheets as needed.

Common Test Equipment

Page _____ of _____

Nomenclature	Manufacturer	Model	Serial	Tag No.	Calib.Due Date	TE
CURRENT PROBE	EMPIRE	CP105	GH-1	—	CNR	WP
OSCILLOSCOPE	TEKTRONIX	TDS 520C	—	LP 015828	6-13-03	WP
Amplifier	McIntosh	MC2500	—	M 202617	CNR	WP.
Amplifier	AILTECH	15100	—	LMSC 113892	CWR	WP
OSCILLOSCOPE	TEKTRONIX	5410	—	LP 016264	8-16-02	WP
Current Probe AMP	TEKTRONIX	AM503	—	MSL 097053	9-6-02	WP
SCOPE PROBE	TEKTRONIX	P6137	—	—	—	
CURRENT PROBE AMP	TEKTRONIX	AM503	—		9-6-02	
CURRENT PROBE AMP POWER MODULE	TEKTRONIX	TM501	—	MSL 097053	—	
RFI TRANSIENT GENERATOR	SOLAR ELECTRONICS	6254-5S	—	M122244	—	
TRIAXIAL MAGNETOMETER	WALKER SCIENTIFIC	FGM-5DTAA		NASA C806057	12-27-02	DSK

Attach additional sheets as needed.



FOR:
CS06

C1 Ampl
29.6 V
Unstable
histogram

Calibration
Plot
Across 5Ω

VOLTAGE

5A/DIV.

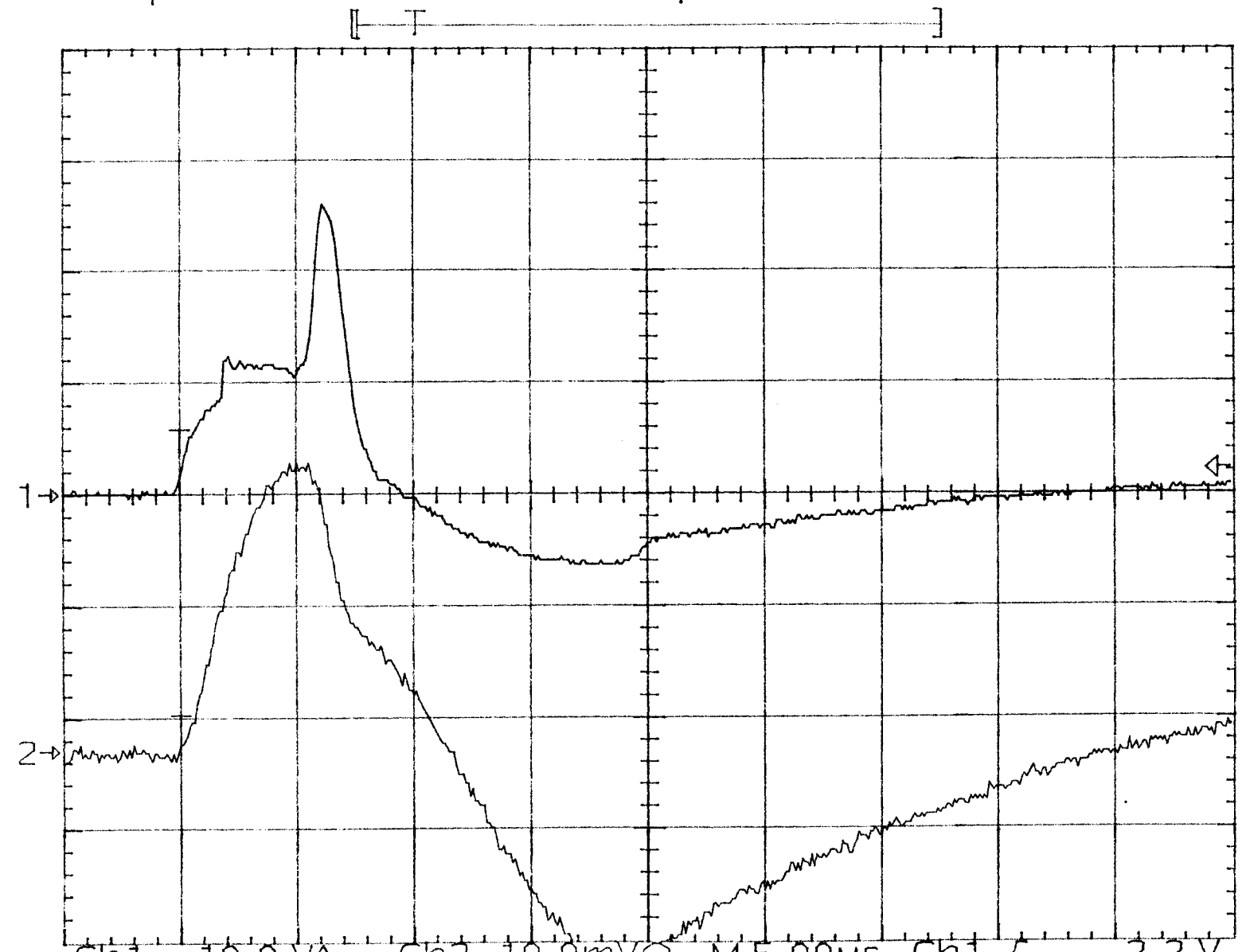
CURRENT

5 May 2002
05:07:21

PQ0
686047
4-5-02
5

A
686894

MAY 05 2002



C1 Ampl
11.6 V
Unstable
histogram

CSO6
Quiet Bus
+29 V Injection

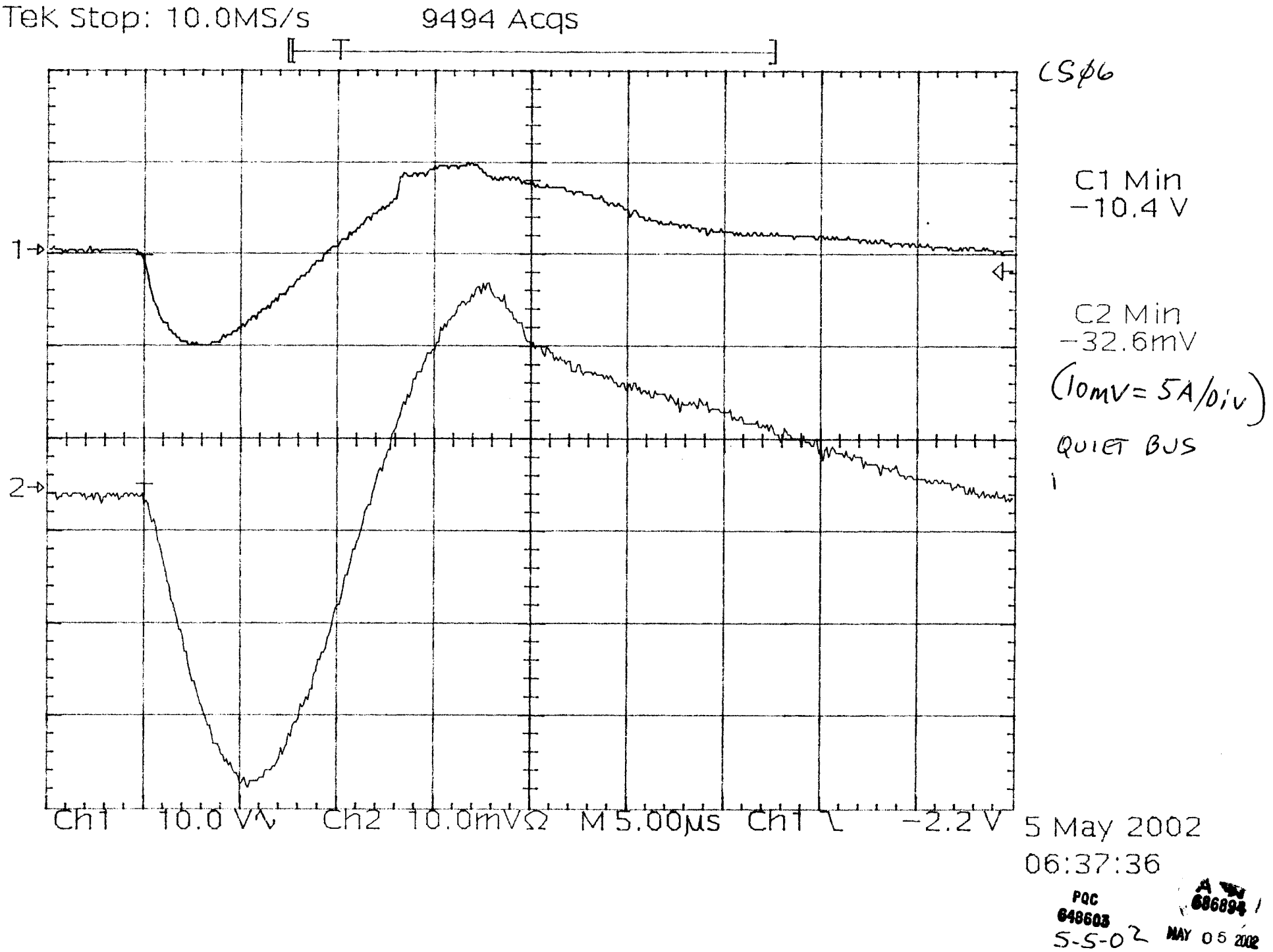
Current
5A/DIV

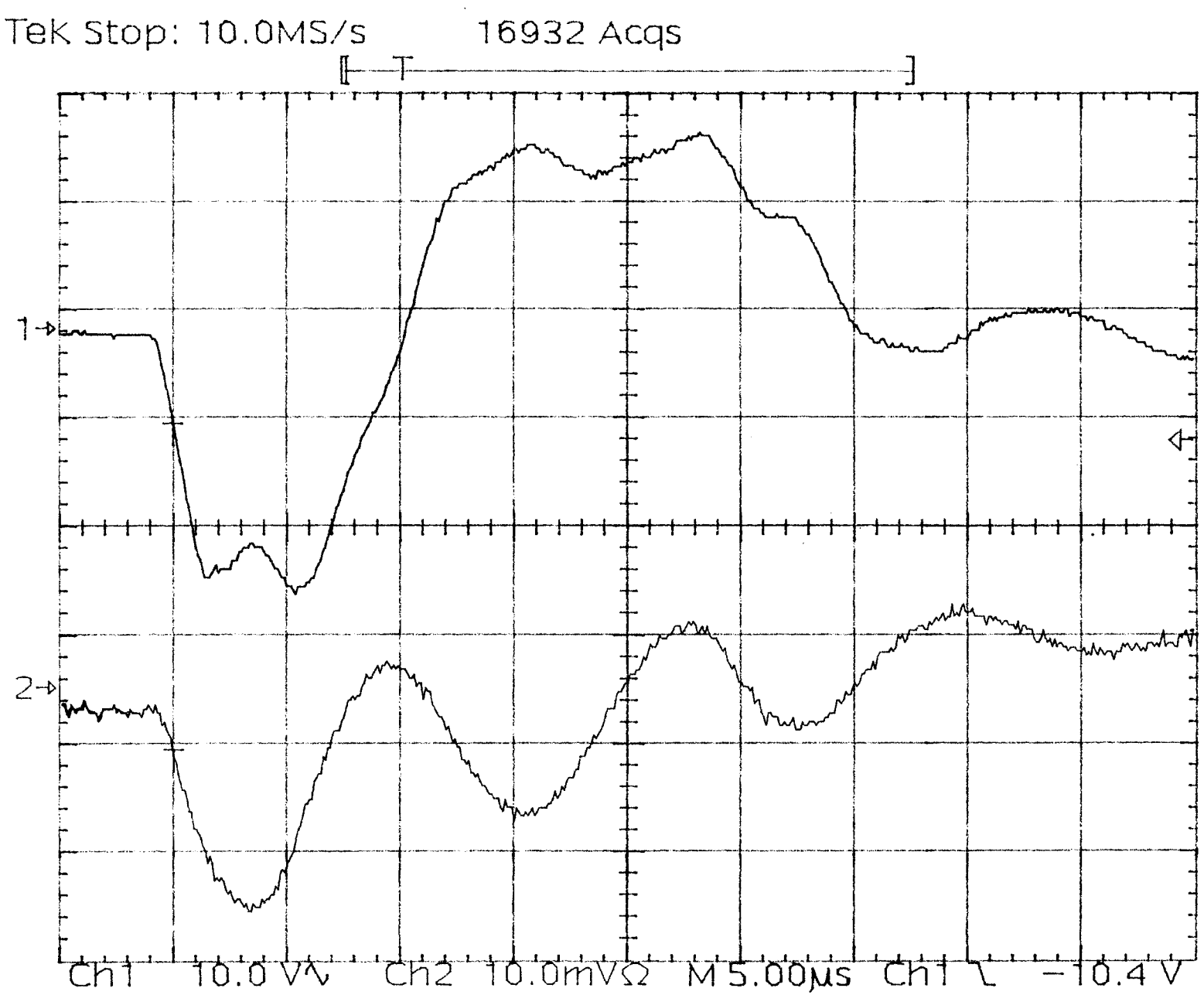
5 May 2002
05:57:26

PQC
686047
4-5-02
5

A TW
686894

MAY 05 2002


Tek Stop: 10.0MS/s 9494 Acqs
CSϕ6
C1 Min
−10.4 V
C2 Min
−32.6mV
(10mV = 5A/div)
QUIET BUS
1→
2→
Ch1 10.0 V Ch2 10.0mV Ω M 5.00µs Ch1 −2.2 V
5 May 2002
06:37:36
PQC
648603
5-5-02
A
686894
MAY 05 2002



CSØ6

C1 Min
−24.6 V

C2 Min
−20.8mV
(10mV = 5A/DIV)

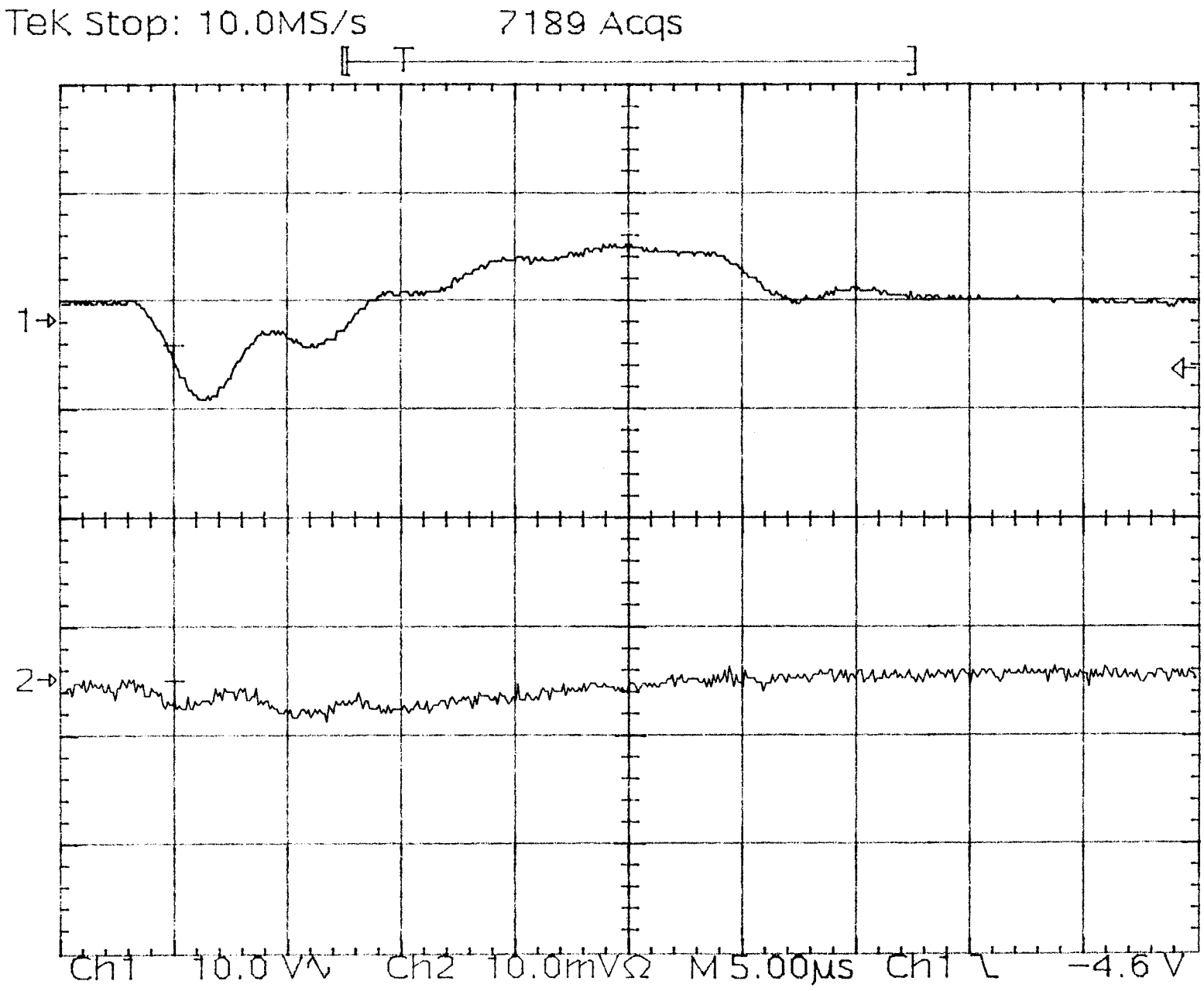
~~Noisy~~ BUS

−29V INJECTION

5 May 2002
07:06:28

PQC
648603
MAY 05 2002

686894
MAY 05 2002



CS #6

NOISY BUS ~~-20 V~~ AC
-10 V INTERNAL

C1 Min
−7.4 V

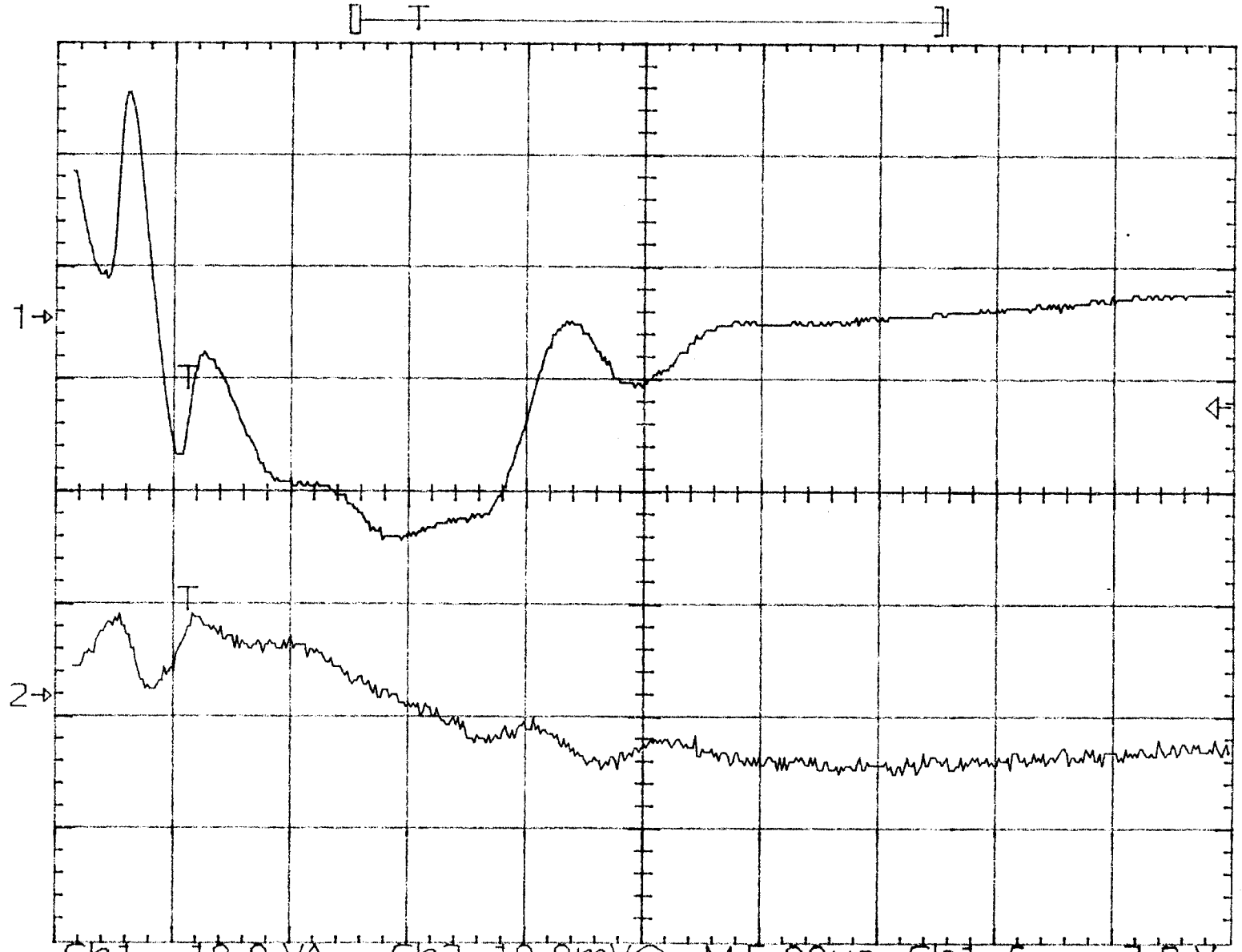
C2 Min
−4.0mV

(10mV = 5A/DIV)

5 May 2002
07:16:11

PQC
648603
MAY 05 2002

A
686894
MAY 05 2002



CS06
Noisy Bus
+29V Injection

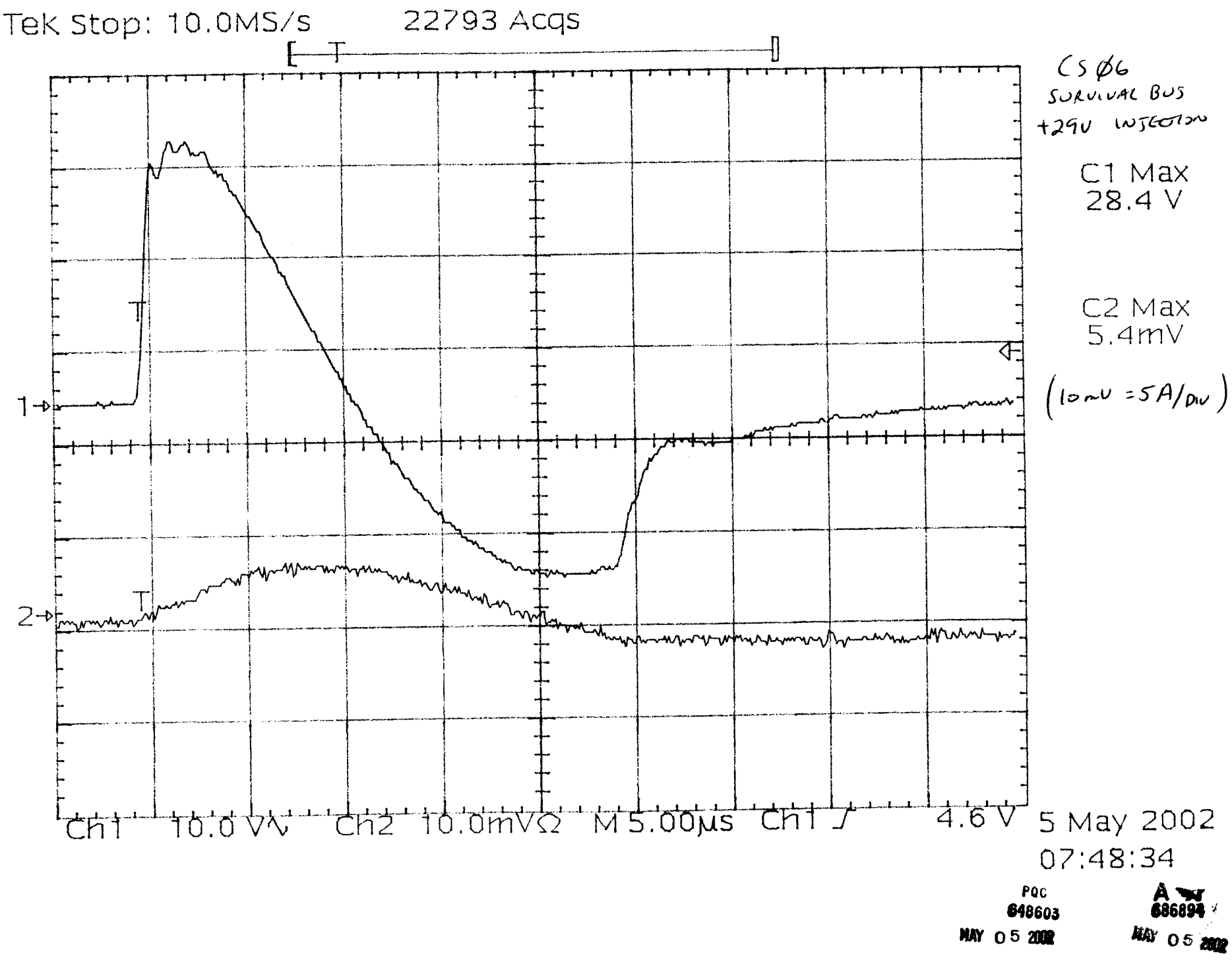
C1 Max
20.2 V

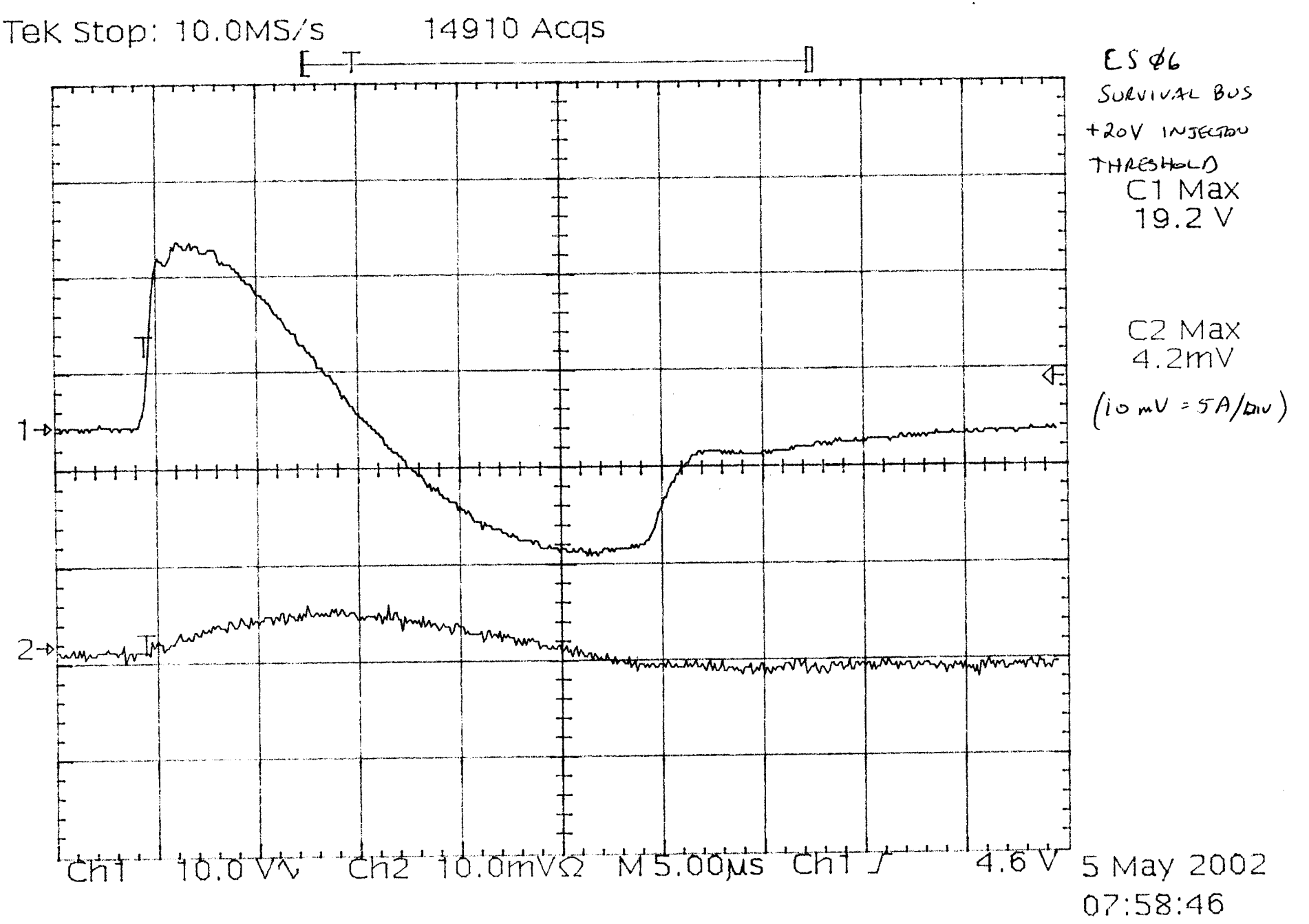
C2 Max
7.4mV

(10mV = 5A/div)

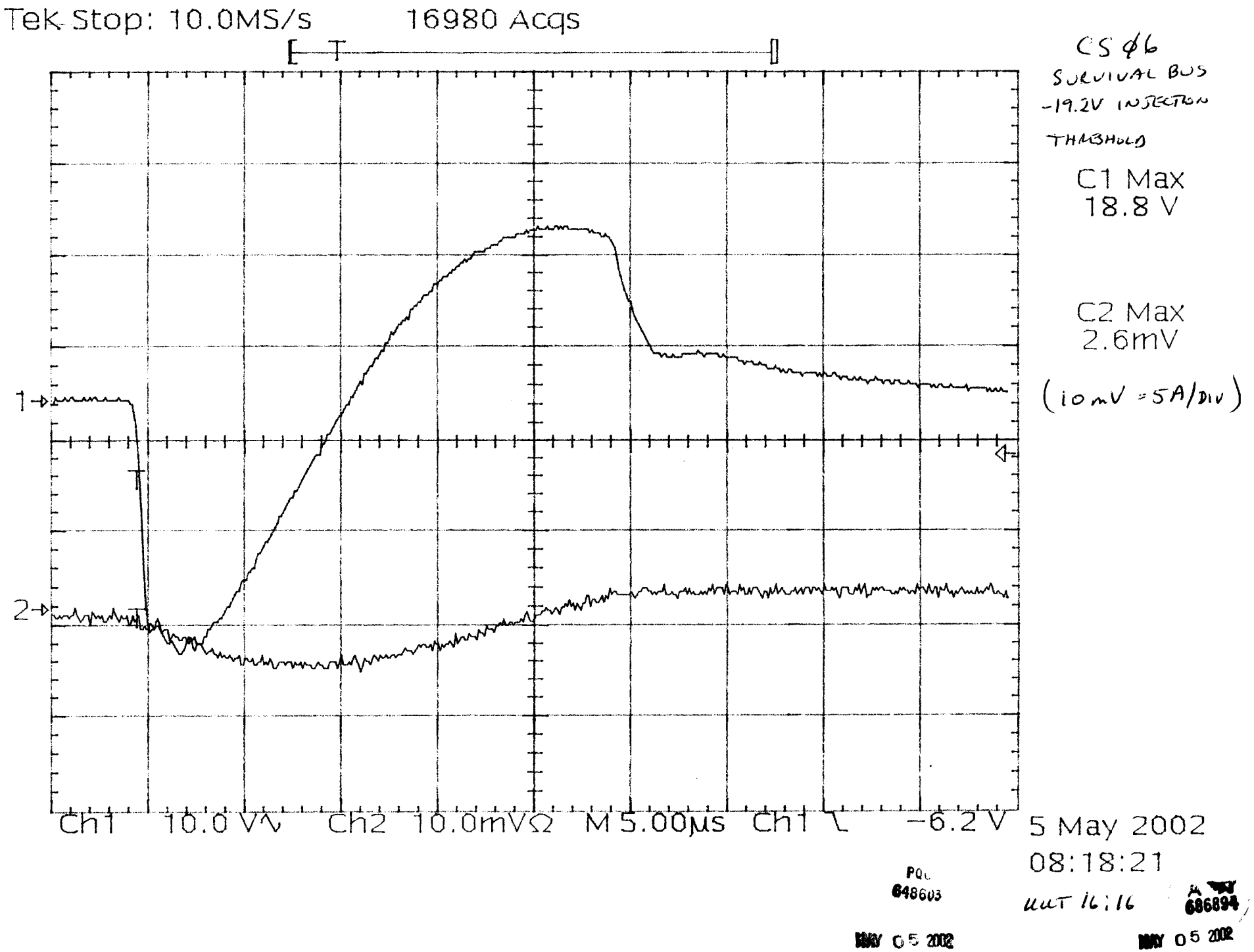
5 May 2002
07:30:39

FOC
648603
MAY 05 2002
A
686894
MAY 05 2002


Tek Stop: 10.0MS/s 22793 Acqs
CS Ø6
SURVIVAL BUS
+29V INJECTION
C1 Max
28.4 V
C2 Max
5.4mV
(10mV = 5A/DIV)
1
2
Ch1 10.0 V
Ch2 10.0mV
M 5.00µs Ch1
4.6 V
5 May 2002
07:48:34
PQC
648603
MAY 05 2002
A
686894
MAY 05 2002



PQC
648603
MAY 05 2002
686894
MAY 05 2002


Tek Stop: 10.0MS/s 16980 Acqs
CS #6
SURVIVAL BUS
-19.2V INJECTION
THRESHOLD
C1 Max
18.8 V
C2 Max
2.6mV
(10mV = 5A/DIV)
1
2
Ch1 10.0 V Ch2 10.0mVΩ M 5.00µs Ch1 -6.2 V
5 May 2002
08:18:21
MET 16:16
PQL
648603
MAY 05 2002
686894
MAY 05 2002

TEST DATA SHEET

RE02 Electric Field Radiated Emissions
(14KHz to 18GHz)

PARAGRAPH 13.5

DATE OF TEST 5-6-02

PART NO. . 1A27800

CCA/SERIAL NO. 01

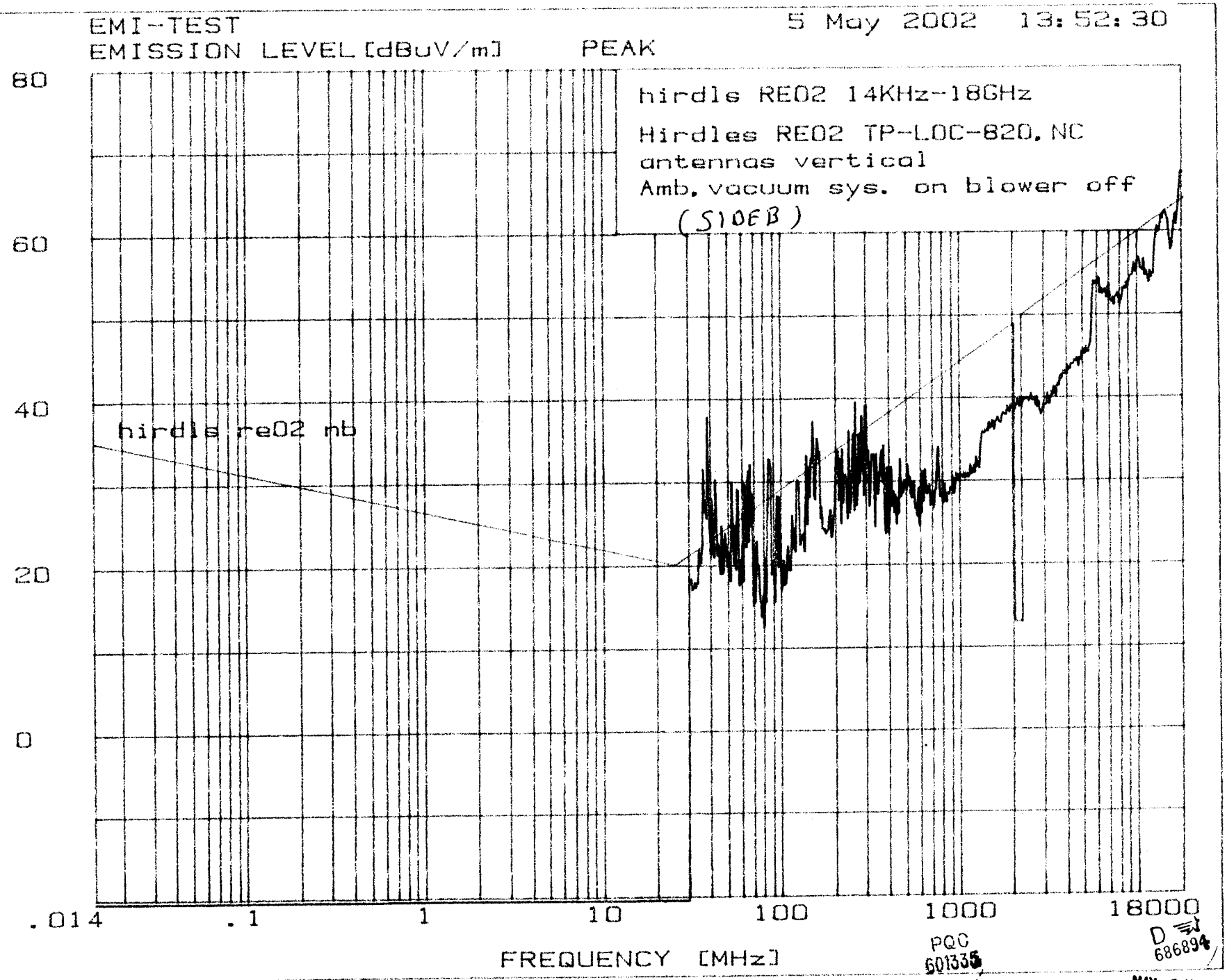
TEST TECHNICIAN

NOTES: SIDE A & B TESTED

Antenna/Frequency Range	Scan Complete	Pass	Fail	Comments
Active Rod Antenna 14 KHz – 20MHz			✓	
Biconical Antenna Vertical Polarity 20MHz-200MHz		X FIC	✓	
Biconical Antenna Horizontal Polarity 20MHz-200MHz			✓	
Log periodic antenna Vertical Polarity 200MHz – 1GHz			✓	
Log periodic antenna Horizontal Polarity 200MHz – 1GHz			✓	
Double Ridged Guide Horn Antenna, Vertical Polarity 1GHz-18GHz			✓	
Double Ridged Guide Horn Antenna, Horizontal Polarity 1GHz-18GHz			✓	
DOUBLE RIDGED GUIDE HORN			✓	
HORIZ. 2GHz – 2.4GHz			✓	SIDE A (+Y)
VERT. 2GHz – 2.4GHz			✓	SIDE A (+Y)
HOR. 2GHz – 2.4GHz			✓	SIDE B (-Y)
VERT 2GHz – 2.4GHz			✓	SIDE B (-Y)

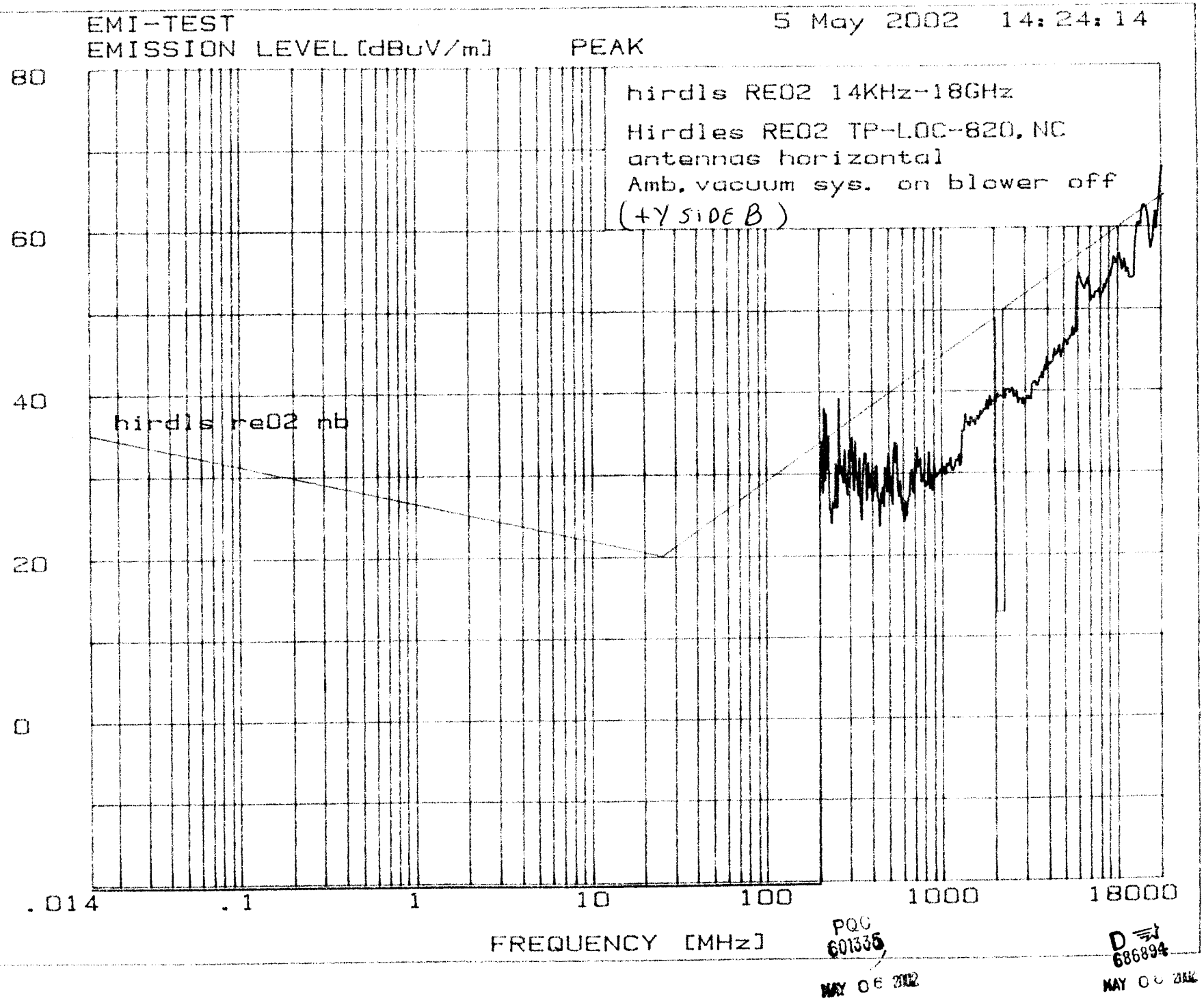
D# 686694 MAY 06 2002

PQC 601336 MAY 06 2002



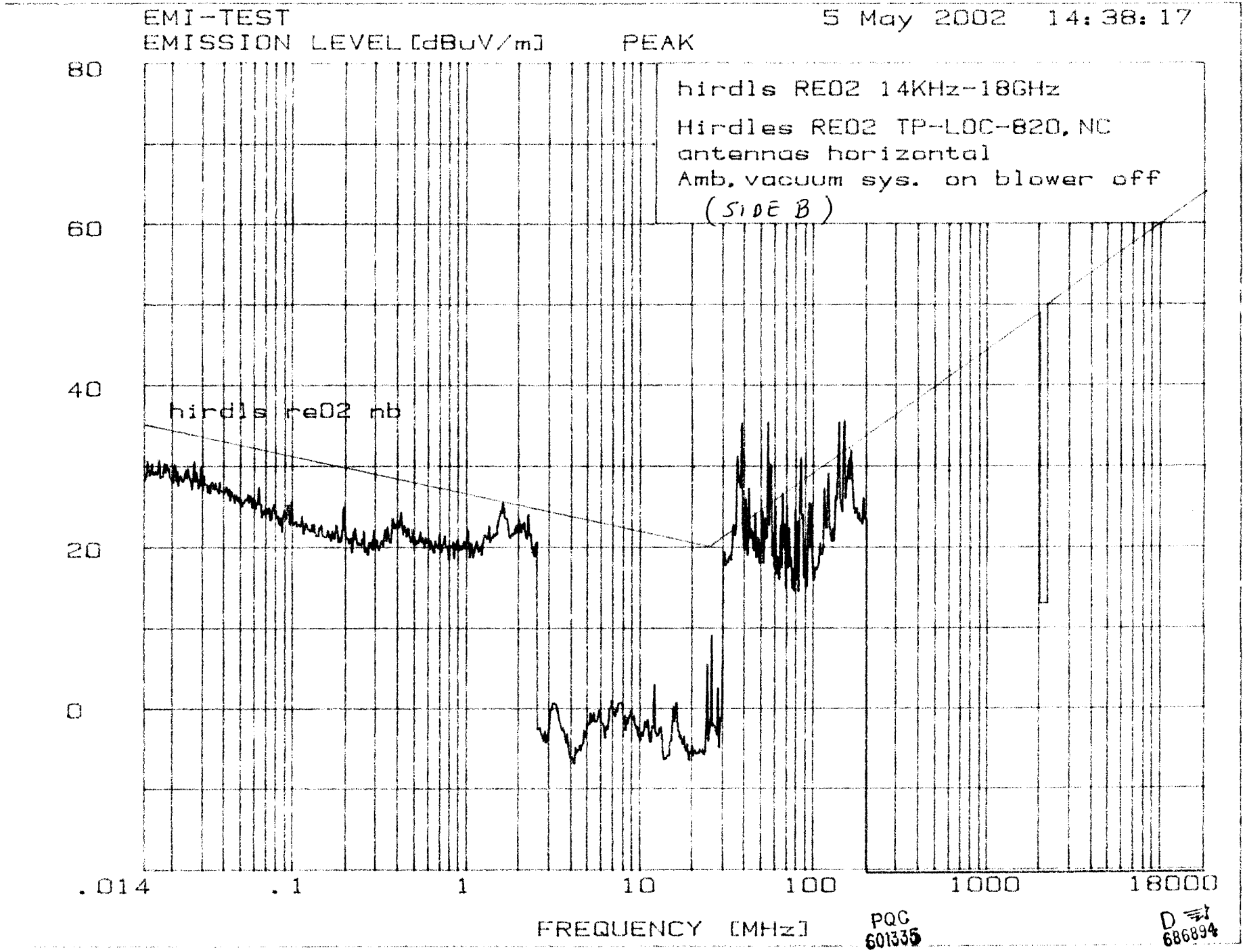
PQC 601335 MAY 06 2002

D 686894 MAY 06 2002



PQC 601335 MAY 06 2002

D 686894 MAY 06 2002



PQC 601335

MAY 06 2002

D 686894

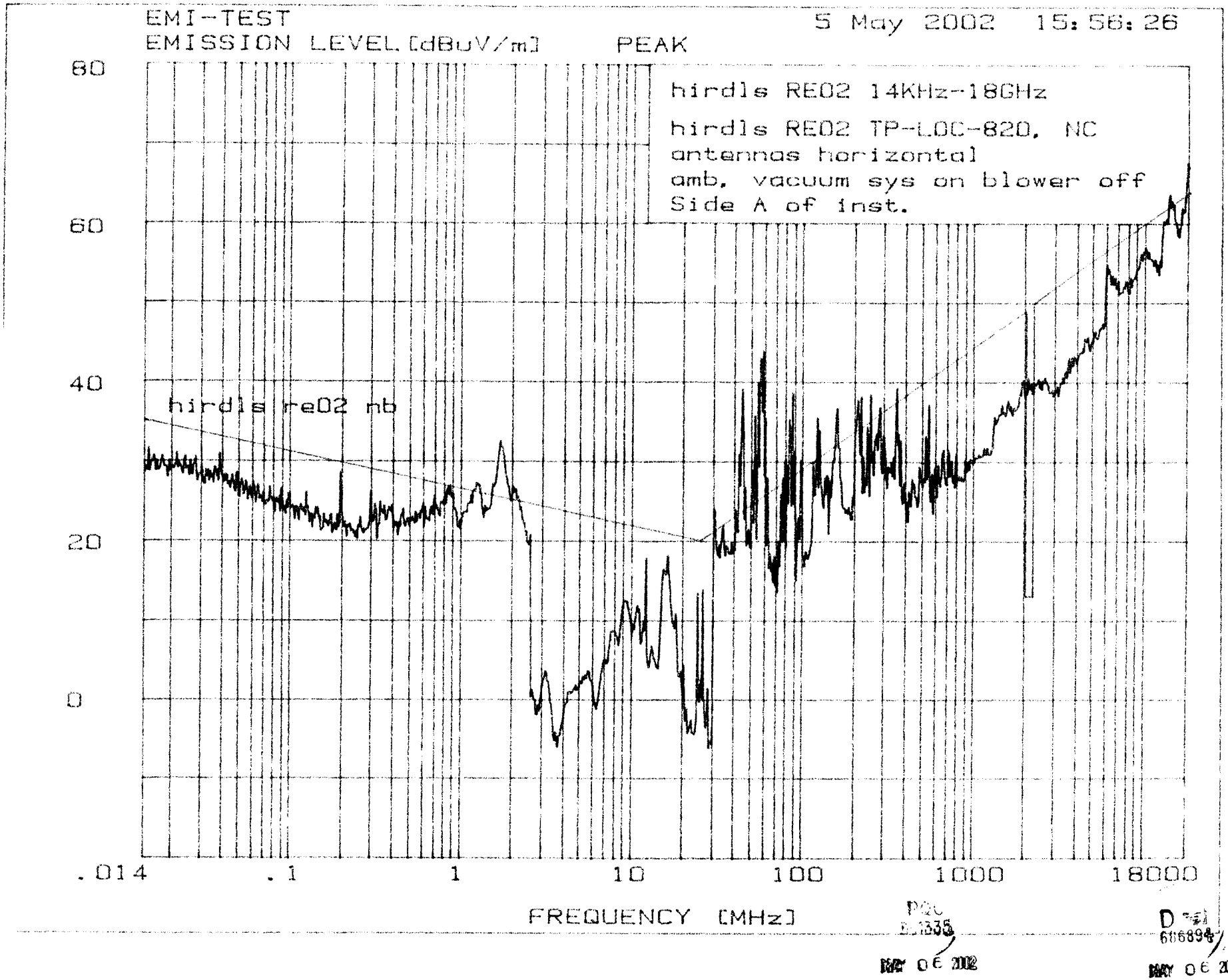
MAY 06 2002

EMI-TEST 5 May 2002 14:38:17

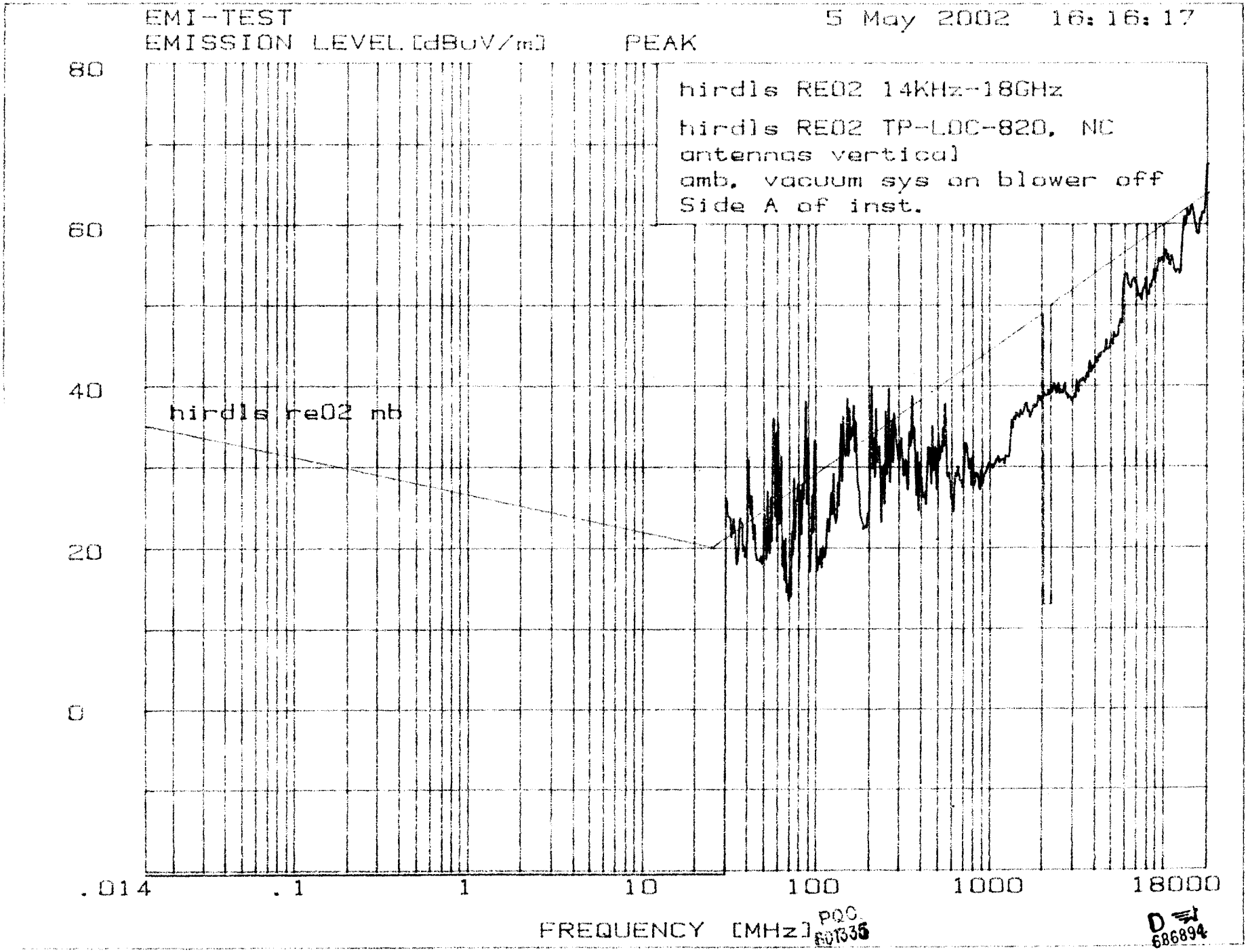
1. hirdls emi test
   1.7 hirdls RE02 14KHz-18GHz ver2

Peaks above 0 dBuV/m
peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuV/m)	DELTA
1	149.33	35.7	35.7
2	54.29	35.5	35.5
3	139.19	35.4	35.4
4	38.21	35.3	35.3
5	162.46	32	32.0
6	83.93	31.1	31.1
7	55.84	30.3	30.3
8	120.95	29.1	29.1
9	42.16	27.3	27.3
10	66.09	26.7	26.7
11	40.42	26	26.0
12	93.92	25.5	25.5
13	1.618	25.4	25.4
14	59.9	25.1	25.1
15	69.92	25.1	25.1
16	78.23	24.6	24.6
17	50.61	24.4	24.4
18	80.46	23.2	23.2
19	25.78	9.2	9.2
20	24.37	5.5	5.5
21	12.07	3	3.0
22	16.21	.7	.7



PAC
MAY 06 2002
MAY 06 2002



PQC 601335

D 686894

MAY 06 2002

MAY 06 2002

EMI-TEST 5 May 2002 16:16:17

1. hirdls emi test
   1.3 hirdls RE02 14KHz-18GHz

Ambient, Vertical Polarity

Peaks above 0 dBuV/m
peak criteria = 6 dB

Vacuum Syst. ON
Blower OFF
Side "A"

PEAK#	FREQ (MHz)	(dBuV/m)	DELTA
1	206.3	40	40.0
2	258.32	39.7	39.7
3	351.9	38.8	38.8
4	149.33	38.6	38.6
5	86.32	38.2	38.2
6	544.02	37.9	37.9
7	162.46	37.7	37.7
8	218.23	37.3	37.3
9	247.65	36.9	36.9
10	277.12	36.7	36.7
11	55.84	36.1	36.1
12	59.9	35.5	35.5
13	137.25	35.4	35.4
14	459.6	35.2	35.2
15	58.24	34.4	34.4
16	88.78	33.5	33.5
17	96.59	33.5	33.5
18	62.48	31.5	31.5
19	40.42	31	31.0
20	124.39	29.2	29.2
21	73.96	28.7	28.7
22	78.23	27.9	27.9
23	52.05	27.1	27.1
24	30.09	26.2	26.2

PQC
601335

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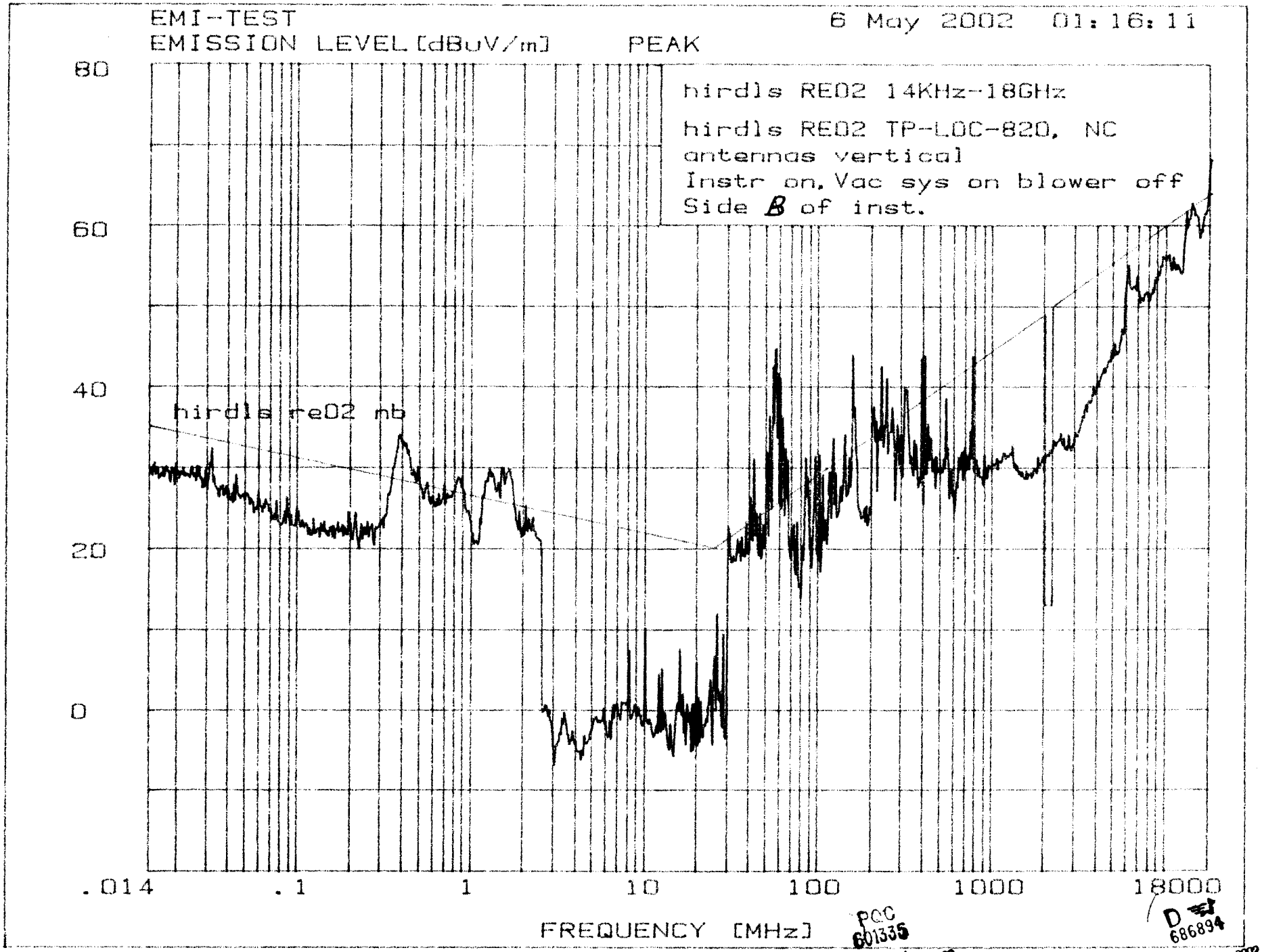
686894

MAY 06 2002



FCC 601335 MAY 06 2002
D 686894 MAY 06 2002

EMI-TEST 6 May 2002 01:16:11

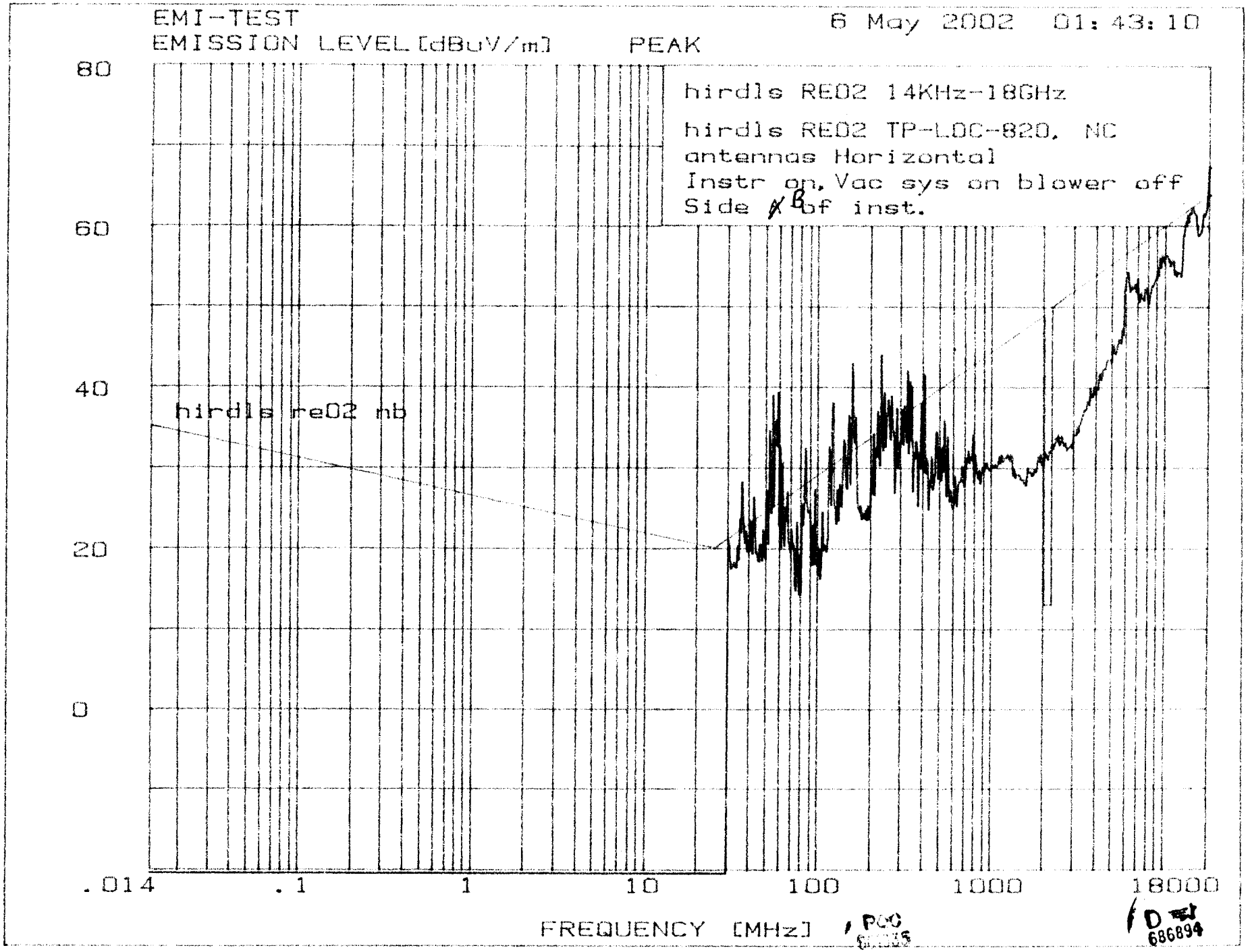
1. hirdls emi test
   1.3 hirdls RE02 14KHz-18GHz

Peaks above 0 dB of Limit Line #1
peak criteria = 6 dB

hirdls RE02 14KHz-18GHz
Antennas vertical
Instr on, Vac sys on, blower off
Side B of Inst.

PEAK#	FREQ (MHz)	(dBuV/m)	DELTA
1	.3859	34.1	5.8
2	1.487	30.1	4.5
3	42.16	31.2	7.8
4	49.9	32.1	7.6
5	52.05	36.4	11.6
6	54.29	42.6	17.5
7	56.63	44.8	19.4
8	58.24	41.7	16.2
9	59.9	41	15.3
10	61.61	36.4	10.5
11	64.26	32.5	6.3
12	83.93	31.3	3.3
13	95.24	31.6	2.8
14	100.75	31.7	2.5
15	120.95	33.8	3.4
16	141.16	34.2	2.8
17	155.76	44	11.9
18	206.3	37.6	3.7
19	227.63	42.6	8.0
20	244.2	41.1	6.1
21	310.09	40	3.4
22	388.28	43.6	5.5
23	405	43.9	5.5
24	762.23	43.9	1.3

D 686894



FCC 686894

MAY 06 2002

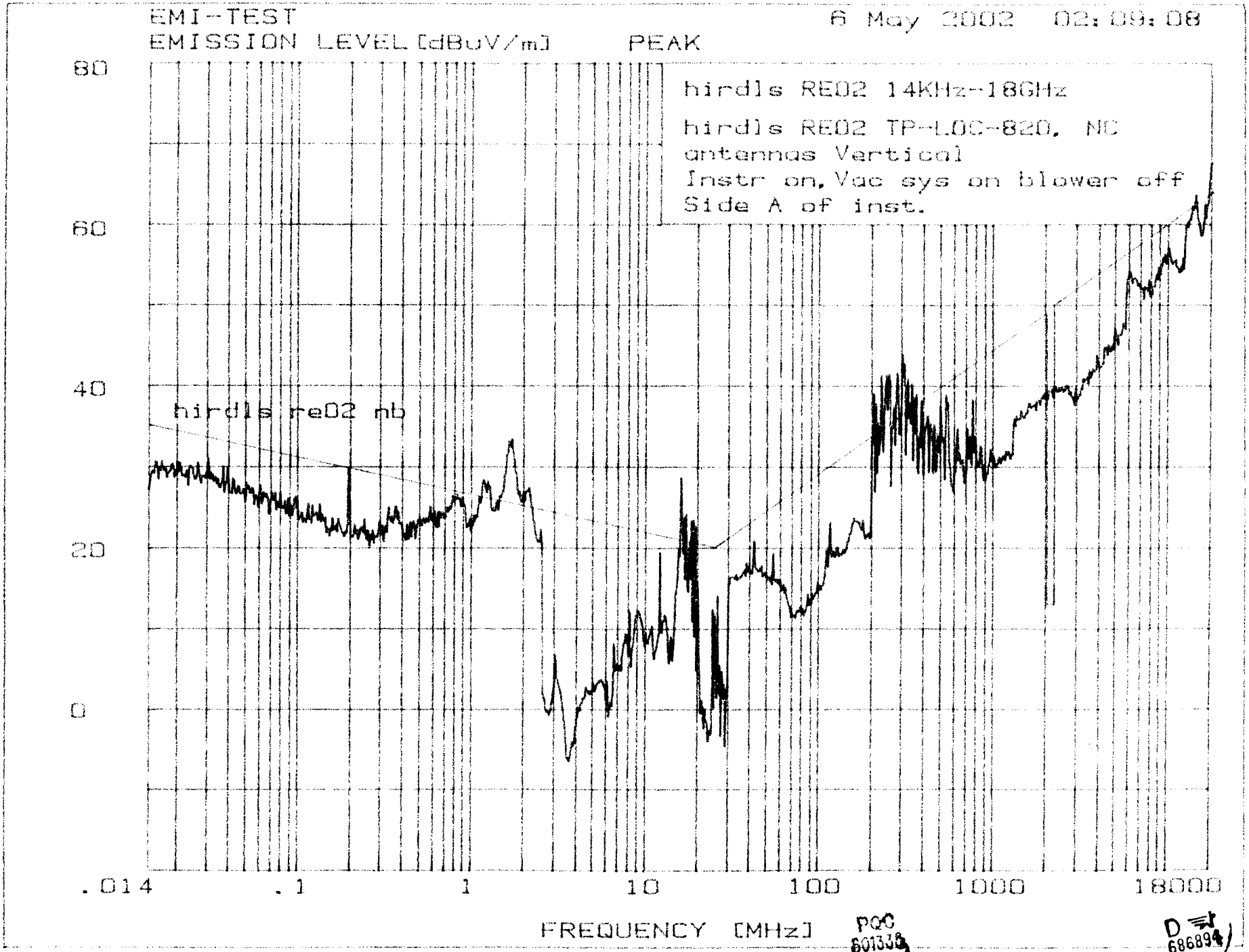
MAY 06 2002

1. hirdls emi test
   1.3 hirdls RE02 14KHz-18GHz

Peaks above 0 dB of Limit Line #1
peak criteria = 6 dB

hirdls RE02 14kHz-18GHz
Antennas Horizontal
Instr on, Vac sys on blower off
Side B of inst.

PEAK#	FREQ (MHz)	(dBuV/m)	DELTA
1	36.12	28.4	6.0
2	42.16	26.5	3.1
3	50.61	27.2	2.6
4	52.05	34.7	9.9
5	54.29	39	13.9
6	58.24	39.4	13.9
7	59.9	32.8	7.1
8	61.61	30.8	4.9
9	66.09	27.1	.7
10	83.93	32.5	4.5
11	114.33	32.7	2.7
12	120.95	38.1	7.7
13	139.19	33.6	2.3
14	149.33	36.7	4.9
15	155.76	43.1	11.0
16	206.3	34.4	.5
17	218.23	37.2	2.9
18	227.63	44.1	9.5
19	237.43	39.4	4.6
20	261.97	39	3.5
21	281.04	37.5	1.5
22	323.45	42.1	5.2
23	332.67	40.8	3.7
24	342.15	40.3	3.0
25	405	41.6	3.2



PQC 601338 MAY 06 2002

D 686894 MAY 06 2002

EMI-TEST

TEST SETUP TABLE

Library File : hirdls RE02 14KHz-18GHz ver2

```
Display Title     : hirdls RE02 14KHz-18GHz
Units Label       : dBuV/m
Disp Ref Lvl (dB): 80
Test Type         : PEAK
Freq Uncert.  (%): .5
Min Swp Time/Oct  : 6

Range 1 of 5
  Start Freq(MHz): .014
  Stop Freq (MHz): 2.5
  Transducer      : ACTIVE ROD 3301B S/N 2793
  Gain/Loss       : NONE
  SA Input        : RIGHT
  Presel/Input3   : BYPASS
  Quasi-Peak Bw   : BYPASS
  SA Res Bw  (Hz): 1000
  Video Bw   (Hz): 10000
  Ref. Lvl (dBuV): 100
  Int Atten  (dB): 10
  Presel Atten    : 0
  Ext Atten  (dB): 0
  # Setups        : 1
  # Sweeps/Setup  : 1
  Msg,Sub,Cont    : MESSAGE
         Line #1  : Connect active rod antenna to
         Line #2  : spectrum analyzer

Range 2 of 5
  Stop Freq (MHz): 30
  Transducer      : ACTIVE ROD 3301B S/N 2793
  Gain/Loss       : NONE
  SA Input        : RIGHT
  Presel/Input3   : BYPASS
  Quasi-Peak Bw   : BYPASS
  SA Res Bw  (Hz): 10000
  Video Bw   (Hz): 100000
  Ref. Lvl (dBuV): 100
  Int Atten  (dB): 10
  Presel Atten    : 0
  Ext Atten  (dB): 0
  # Setups        : 1
  # Sweeps/Setup  : 1
  Msg,Sub,Cont    : CONTINUE

Range 3 of 5
  Stop Freq (MHz): 200
  Transducer      : BICON 3104 S/N 3606
  Gain/Loss       : HP8447D +20'Coax
  SA Input        : RIGHT
  Presel/Input3   : BYPASS
  Quasi-Peak Bw   : BYPASS
  SA Res Bw  (Hz): 100000
  Video Bw   (Hz): 1.E+6
  Ref. Lvl (dBuV): 100
  Int Atten  (dB): 10
  Presel Atten    : 0
```

```
  Ext Atten  (dB): 0
  # Setups       : 1
  # Sweeps/Setup : 1
  Msg,Sub,Cont   : MESSAGE
         Line #1 : Connect Bicon and 8447D to
         Line #2 : spectrum analyzer

Range 4 of 5
  Stop Freq (MHz): 1300
  Transducer     : LOG PERIODIC ANT. SN 1331
  Gain/Loss      : HP8447D +20'Coax
  SA Input       : RIGHT
  Presel/Input3  : BYPASS
  Quasi-Peak Bw  : BYPASS
  SA Res Bw  (Hz): 100000
  Video Bw   (Hz): 300000
  Ref. Lvl (dBuV): 100
  Int Atten  (dB): 10
  Presel Atten   : 0
  Ext Atten  (dB): 0
  # Setups       : 1
  # Sweeps/Setup : 1
  Msg,Sub,Cont   : MESSAGE
         Line #1 : Connect log periodic
         Line #2 : and 8447d to analyzer

Range 5 of 5
  Stop Freq (MHz): 18000
  Transducer     : HORN 3115 9002-3360
  Gain/Loss      : HP-8349B PRE-AMP+CL
  SA Input       : RIGHT
  Presel/Input3  : BYPASS
  Quasi-Peak Bw  : BYPASS
  SA Res Bw  (Hz): 100000
  Video Bw   (Hz): 300000
  Ref. Lvl (dBuV): 100
  Int Atten  (dB): 10
  Presel Atten   : 0
  Ext Atten  (dB): 0
  # Setups       : 1
  # Sweeps/Setup : 1
  Msg,Sub,Cont   : MESSAGE
         Line #1 : Connect 3115 horn and 8349B
         Line #2 : to spectrum analyzer

Limit #1 Label   : hirdls re02 nb
Limit #2 Label   : NONE
Limit #3 Label   : NONE

------------ Test Setup Table Notes --------
```

[redacted] "INFORMATION ONLY"

MAY 06 2002

EMI-TEST 6 May 2002 Cumulative

1. hirdls emi test
   1.3 hirdls RE02 14KHz-18GHz

Peaks above 0 dB of Limit Line #1
peak criteria = 6 dB

hirdls RE02 14KHz-18GHz
antennas vertical
Instr on, vac sys on blower off
Scale 10 dB/div

PEAK#	FREQ (MHz)	(dBuV/m)	DELTA
1	.1966	29.8	.1
2	1.711	33.5	8.2
3	15.99	28.7	7.9
4	17.15	24.2	3.5
5	18.4	23.4	2.8
6	18.92	23.5	3.0
7	19.46	22.9	2.4
8	206.3	39.2	5.3
9	212.18	37.9	3.8
10	227.63	41.4	6.8
11	251.16	41.5	6.3
12	281.04	41.7	5.7
13	301.5	44	7.6
14	323.45	40.9	4.0
15	361.93	39	1.4
16	388.28	38.2	.1

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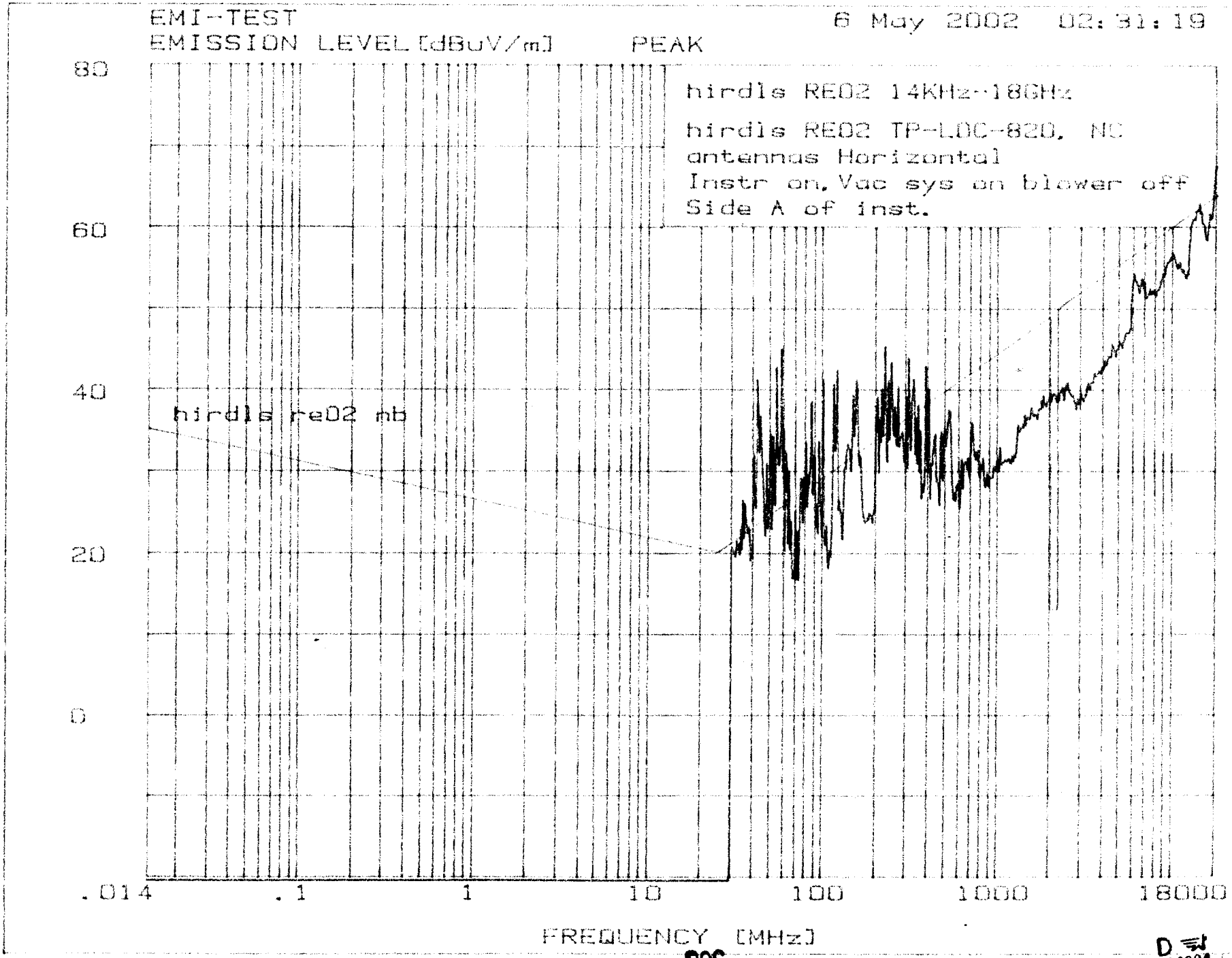
MAY 06 2002



PQC 601336 MAY 06 2002
D 686894 MAY 06 2002

EMI-TEST 6 May 2002 02:31:19

1. hirdls emi test
   1.3 hirdls RE02 14KHz-18GHz

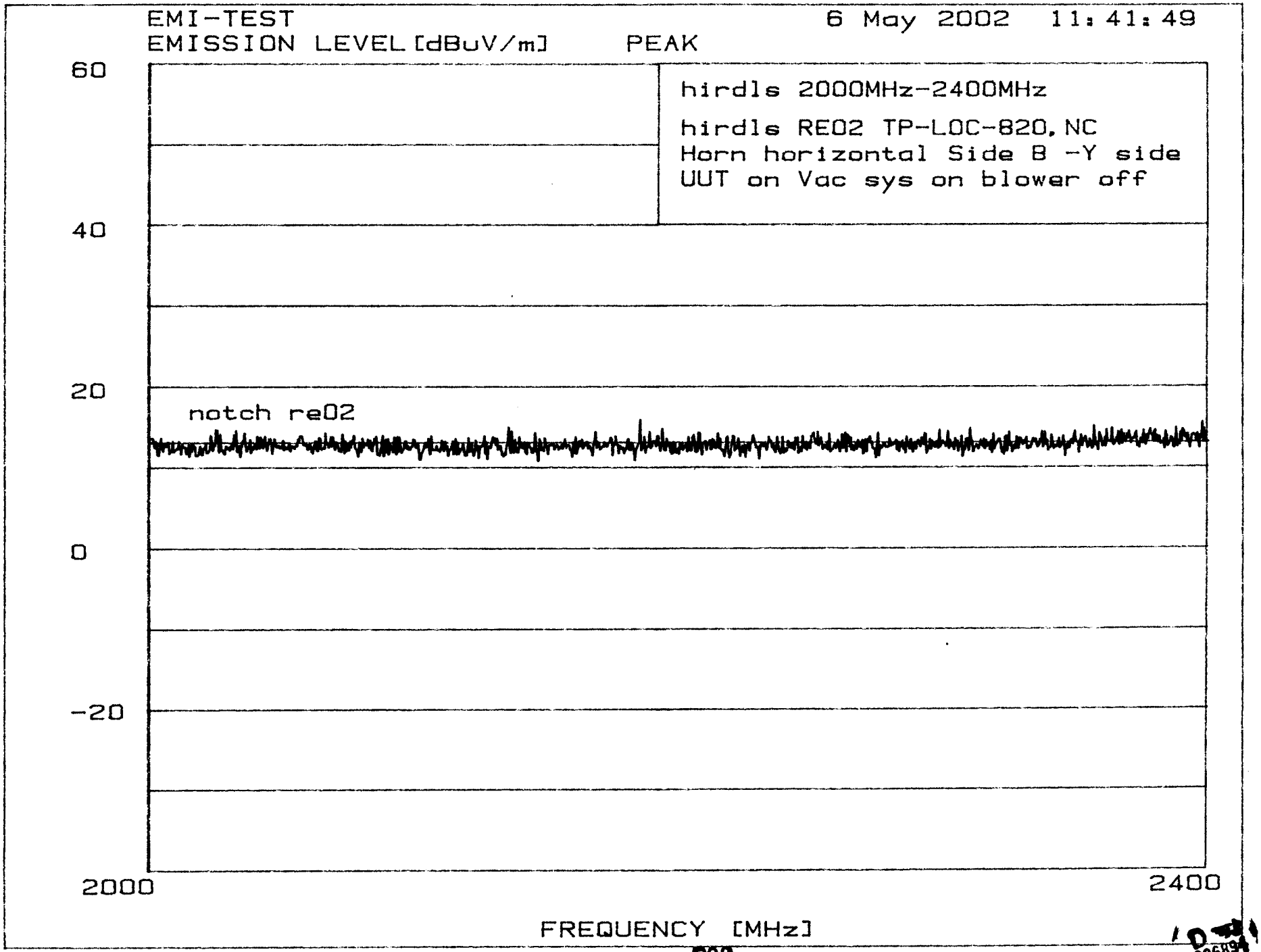
Peaks above 0 dB of Limit Line #1
peak criteria = 6 dB

hirdls RE02 14KHz-18GHz
Antenna: Horizontal
Instr on, Vac sys on blower off
Side A of Inst.

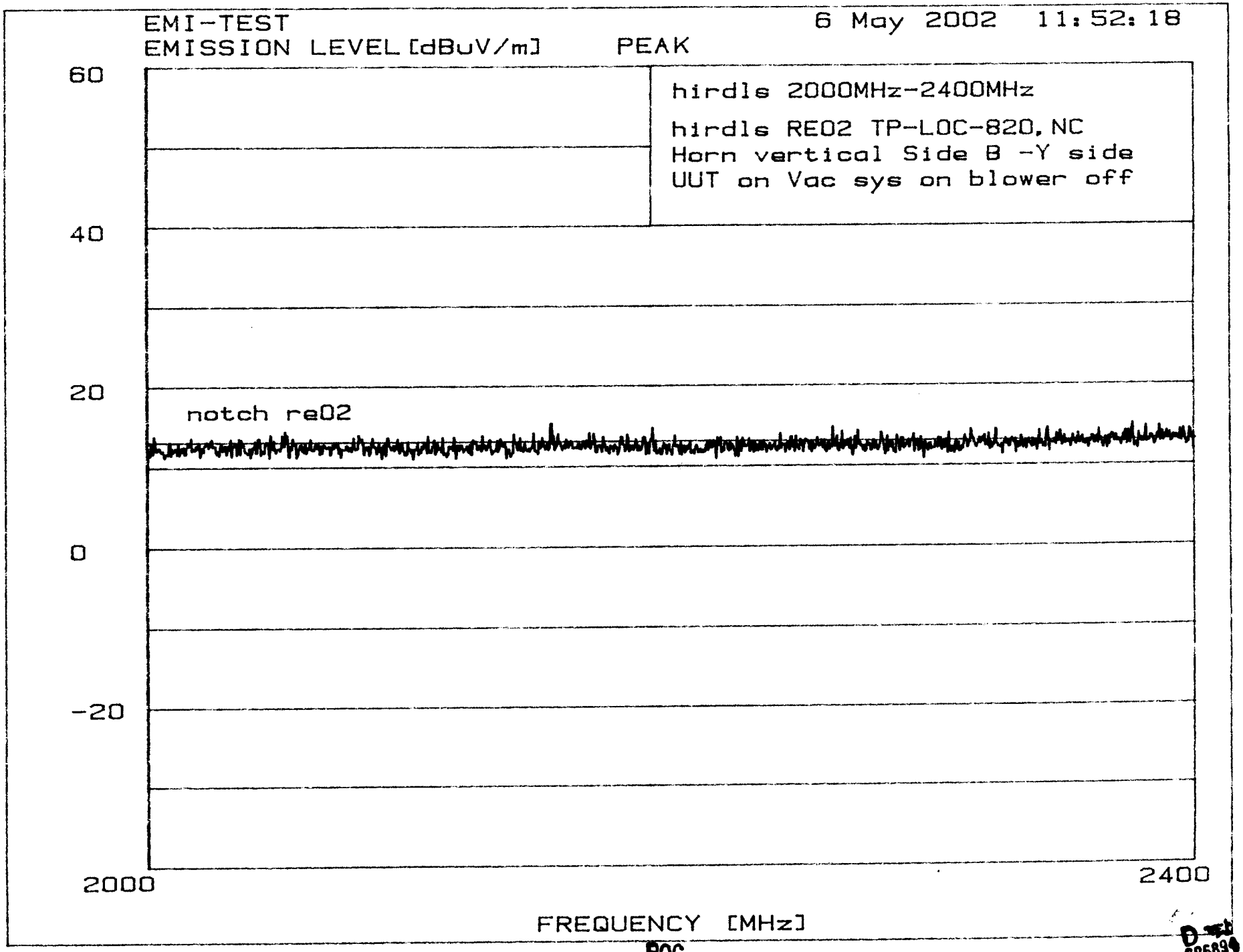
PEAK#	FREQ (MHz)	(dBuV/m)	DELTA
1	35.12	26.5	4.3
2	40.42	32.2	9.1
3	42.16	41.3	17.9
4	47.84	31	6.8
5	50.61	34.6	10.0
6	52.05	34.4	9.6
7	54.29	42.9	17.8
8	58.24	45.2	19.7
9	61.61	32.6	6.7
10	64.26	30.2	4.0
11	80.46	33.6	5.9
12	86.32	38.7	10.5
13	95.24	33.8	5.0
14	100.75	41.3	12.1
15	115.95	40.8	10.7
16	120.95	42.5	12.1
17	155.76	41.3	9.2
18	206.3	39.2	5.3
19	227.63	45.5	10.9
20	237.43	41.3	6.5
21	247.65	43.5	8.4
22	269.44	40.4	4.7
23	301.5	39.2	2.8
24	310.09	44.1	7.5
25	332.67	41.3	4.2
26	351.9	38.3	.8
27	388.28	43	4.9
28	405	40.2	1.8

PQC 601335

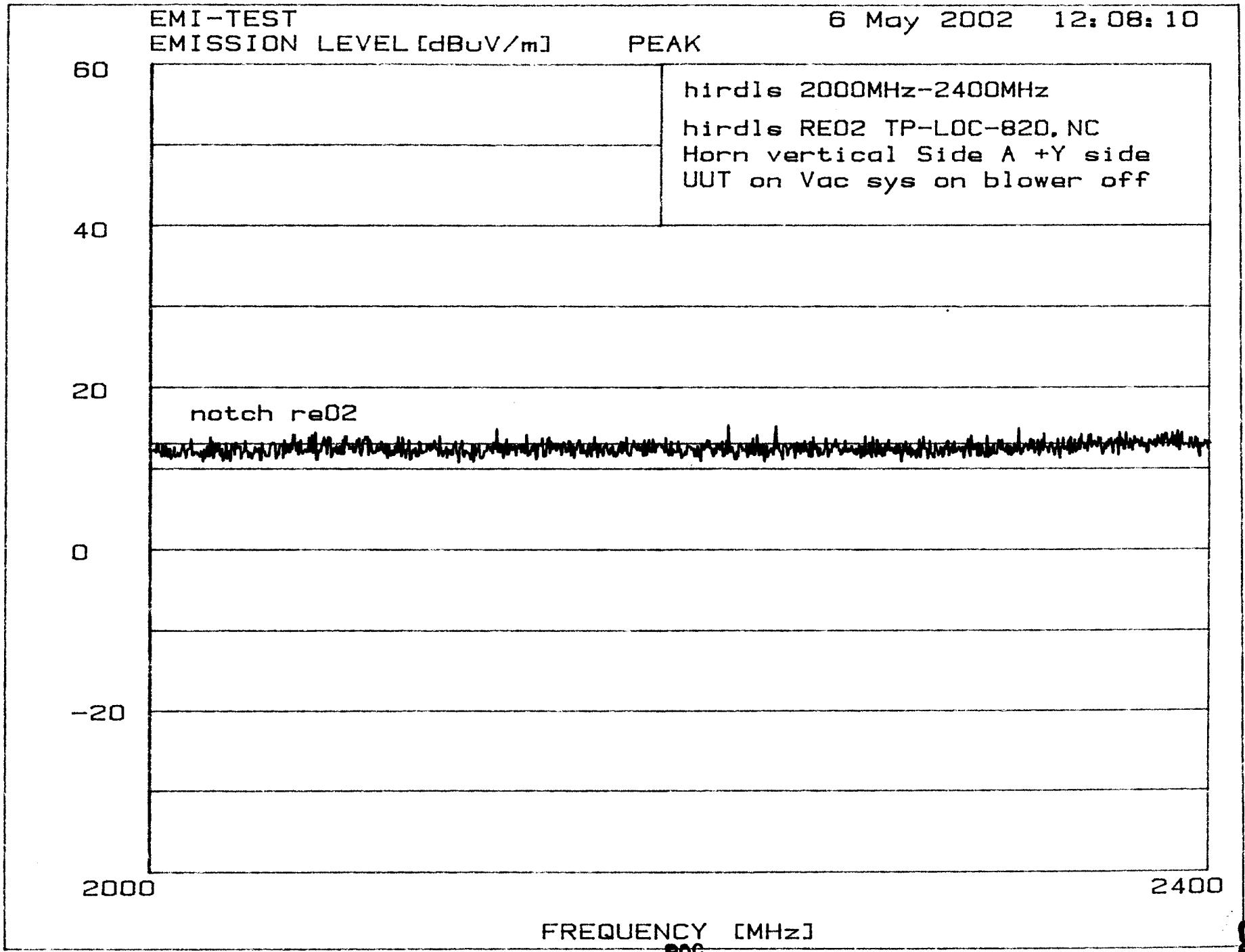
D 696894



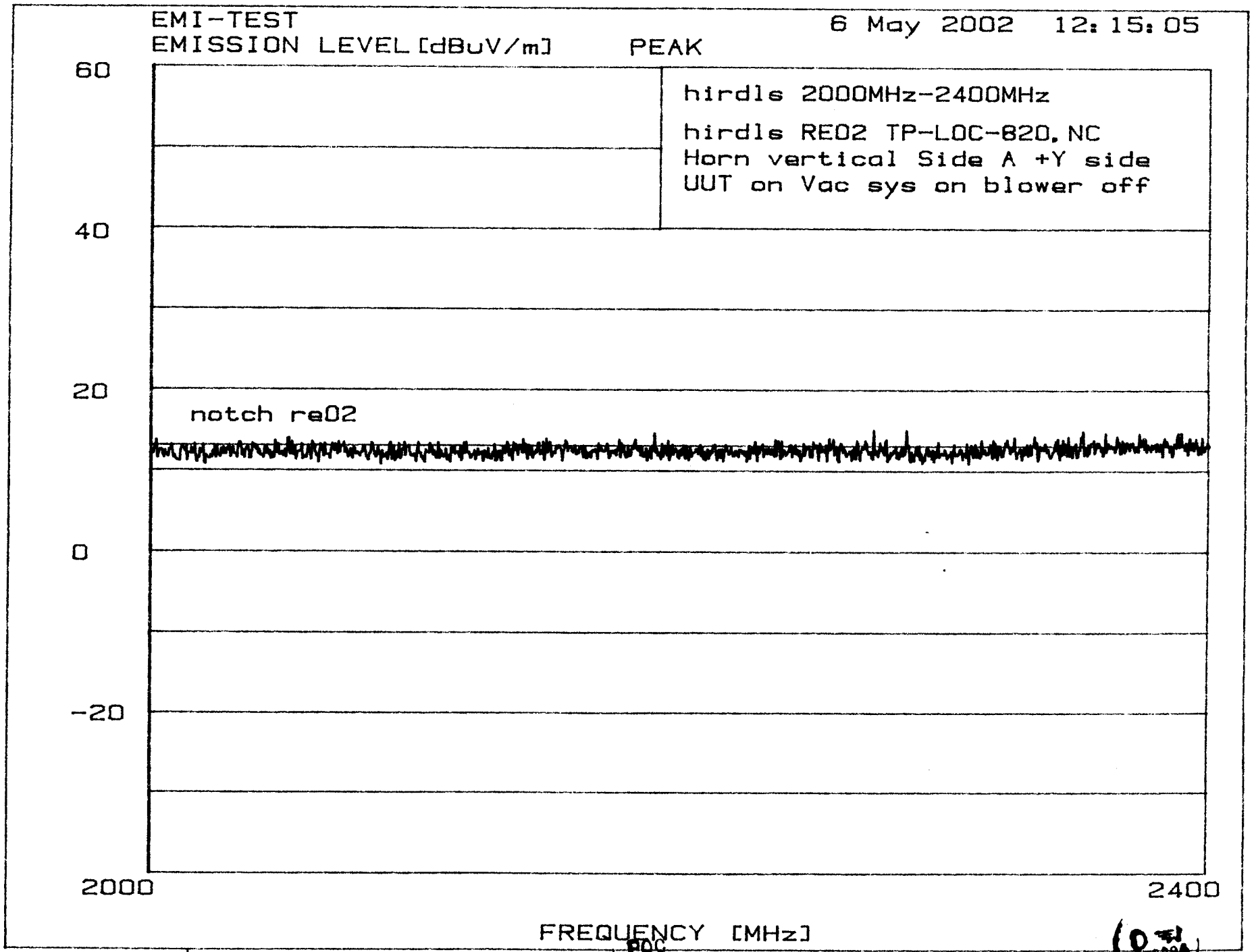
PQC 601335 06 2002
D 686894 06 2002



PQC
601338
MAY 06 2002
MAY 06 2002
D
68689



PQC 601336 MAY 06 2002
D 686894 MAY 06 2002



FCC 601335 MAY 06 2002
D 686894 MAY 06 2002

TEST DATA SHEET

RE04 Magnetic Field Radiated Emissions (20Hz to 50KHz)

PART NO. . 1A27800	CCA/SERIAL NO. 01	PARAGRAPH 13.6
TEST TECHNICIAN	DATE OF TEST 05-06-02	

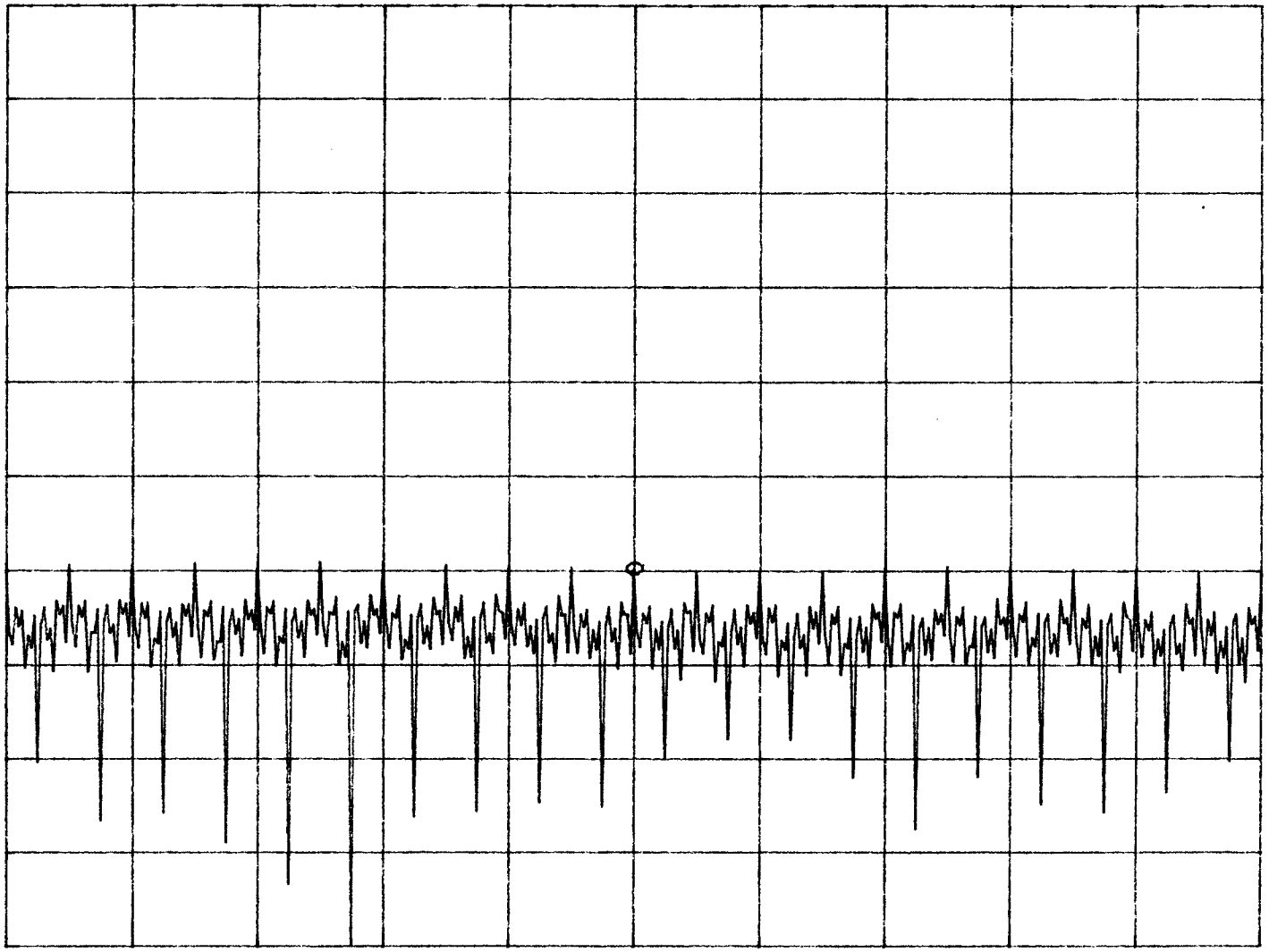
NOTES:

Antenna Polarity	Test Completed	Pass	Fail	Comments
Parallel Vertical		✓		
Perpendicular Vertical		✓		
Horizontal				N/A

PQC 601335 MAY 06 2002
A SH 686894 MAY 06 2002

REF LEVEL /DIV MARKER 160.000Hz
0.000dBm 10.000dB MAG (A) −59.735dBm

HIROLS REQ#4 20 TO 300 HZ
TP-LOC-820 NC
LOOP PERTURBATION TO SIDE B (-Y AXIS)
INSTRON, V_{AC} SYS ON, BLOWER OFF

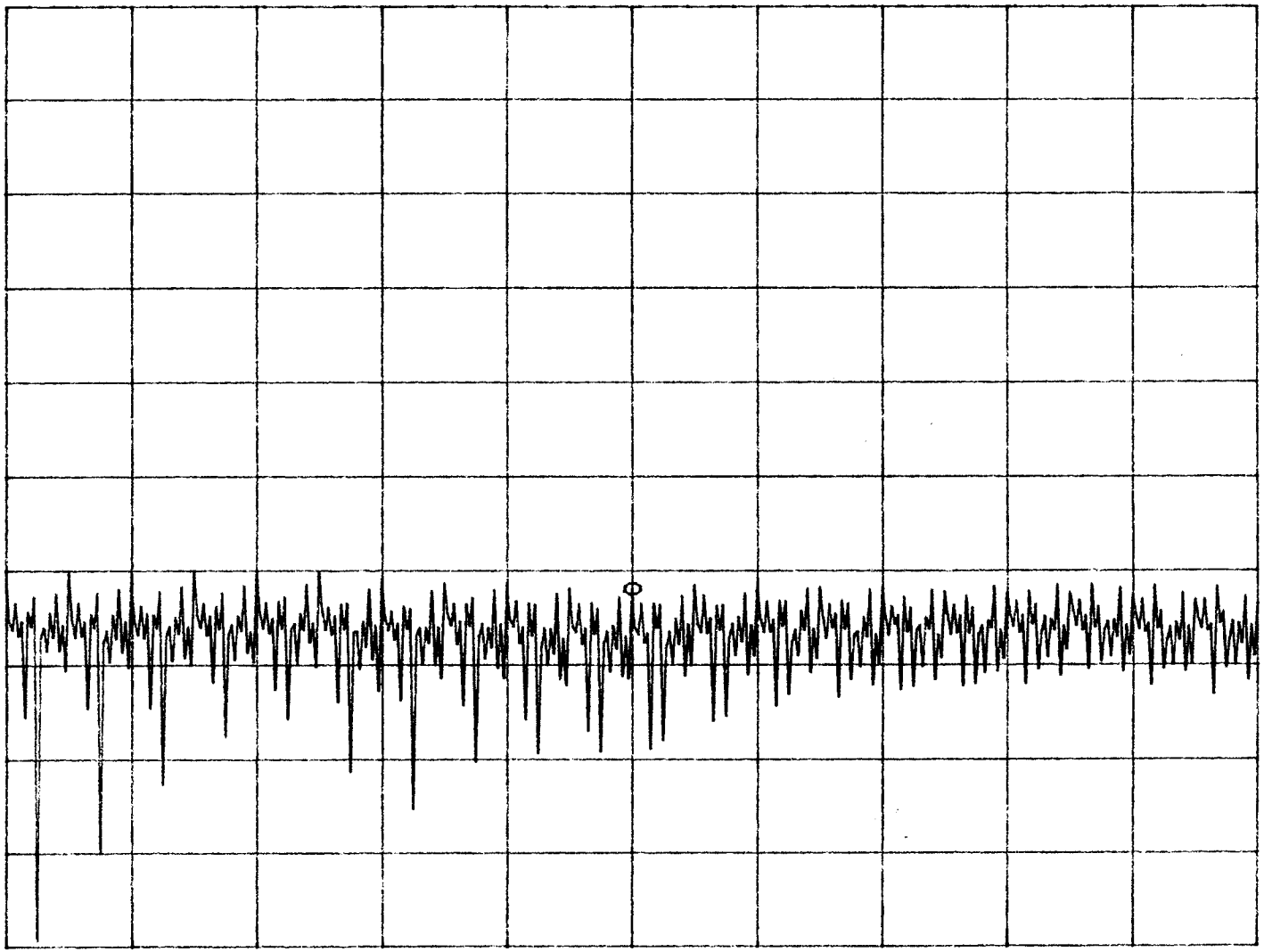


START 20.000Hz STOP 300.000Hz
AMPTD −11.0dBm

PQC 601335
MAY 06 2002
A 606894
MAY 06 2002

REF LEVEL /DIV MARKER 160.000Hz
0.000dBm 10.000dB MAG (A) −61.884dBm

HIROLS REØ4 20 TO 300Hz
TP-LOC - 820 NC
LOOP PARALLEL TO SIDE B (-Y AXIS)
INSTRON, VAC SYS ON, BLOWER OFF



START 20.000Hz STOP 300.000Hz
AMPTD −11.0dBm

PQC 601336
MAY 06 2002

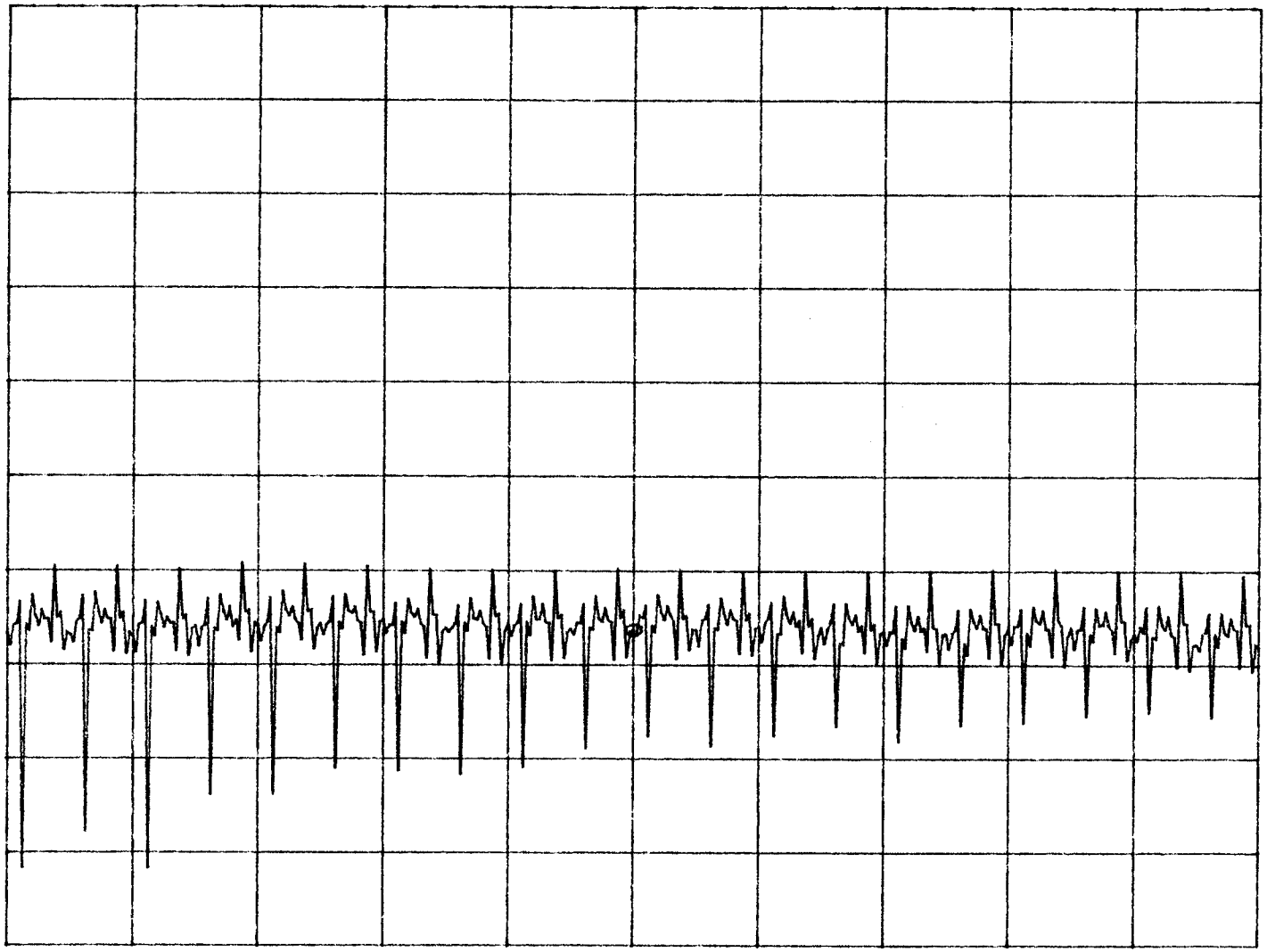
A 686894
MAY 06 2002

REF LEVEL 0.000dBm

/DIV 10.000dB

MARKER 160.000Hz
MAG (A) −66.257dBm

HIRDLS REQ#4 20 TO 300Hz
TP-LOC-820 NC
LOOP PERPENDICULAR TO SIDE A (+Y AXIS
INSTRON, V_{AC} SYS ON, BLOWER OFF



START 20.000Hz

STOP 300.000Hz

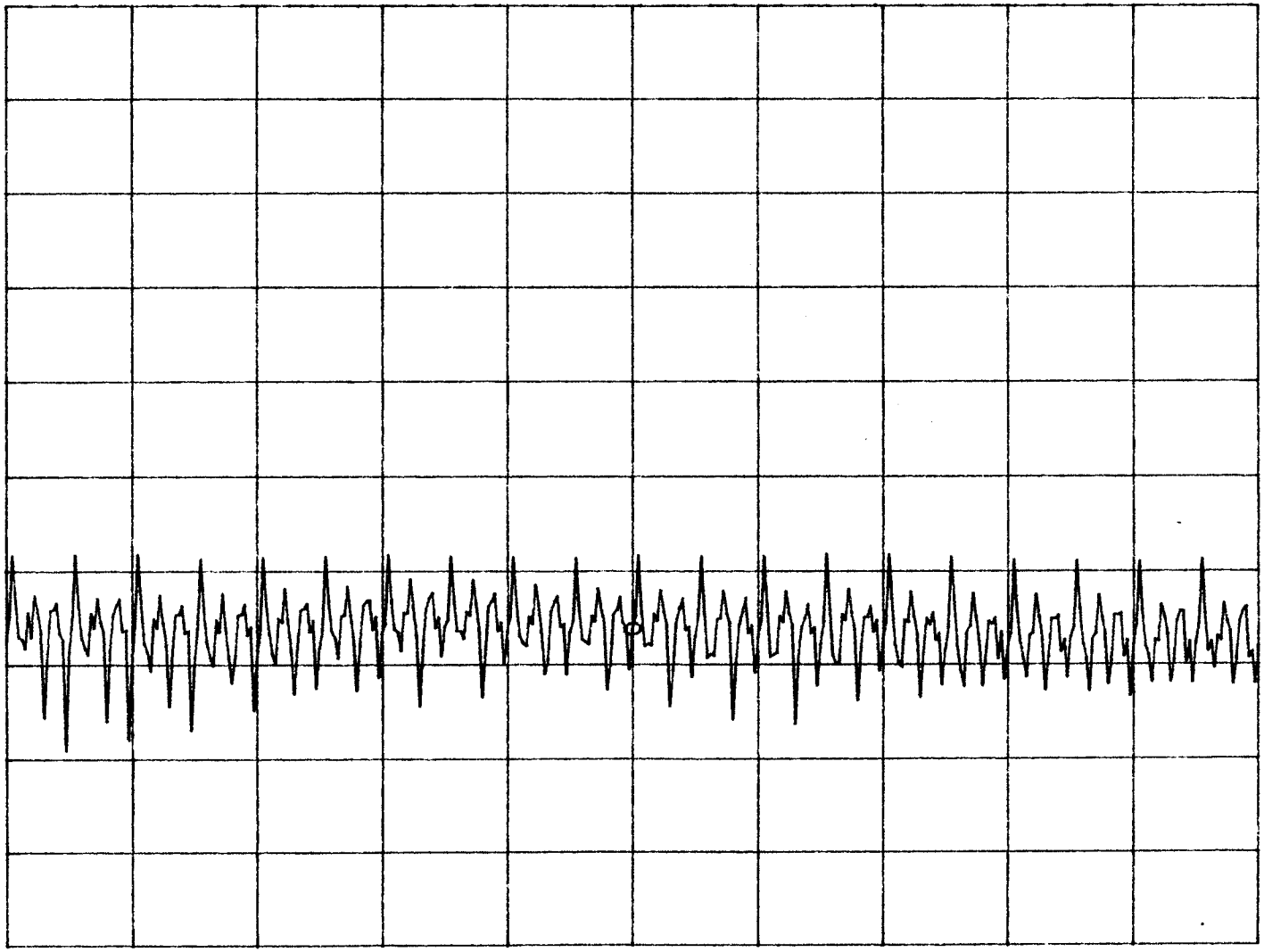
AMPTD −11.0dBm

PQC 601336
NOV 06 2002

A 686894
NOV 06 2002

REF LEVEL /DIV MARKER 160.000Hz
0.000dBm 10.000dB MAG (A) −66.179dBm

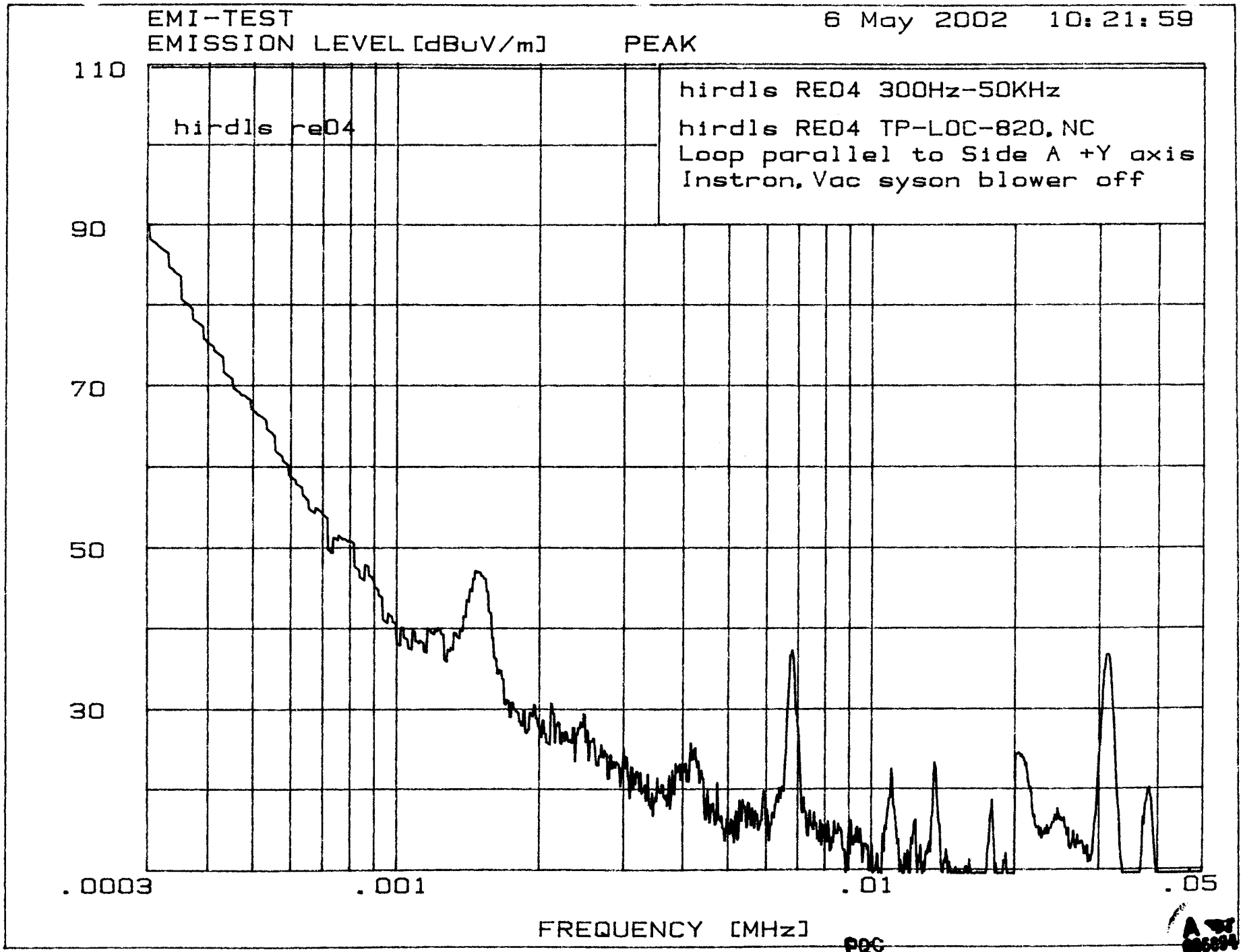
HIRDLS Req 4 20 TO 300 Hz
TP-LOC-820 NC
LOOP PARALLEL TO SIDE A (+Y AXIS)
INSTRON, V_{AC} 54.90N, Blower off



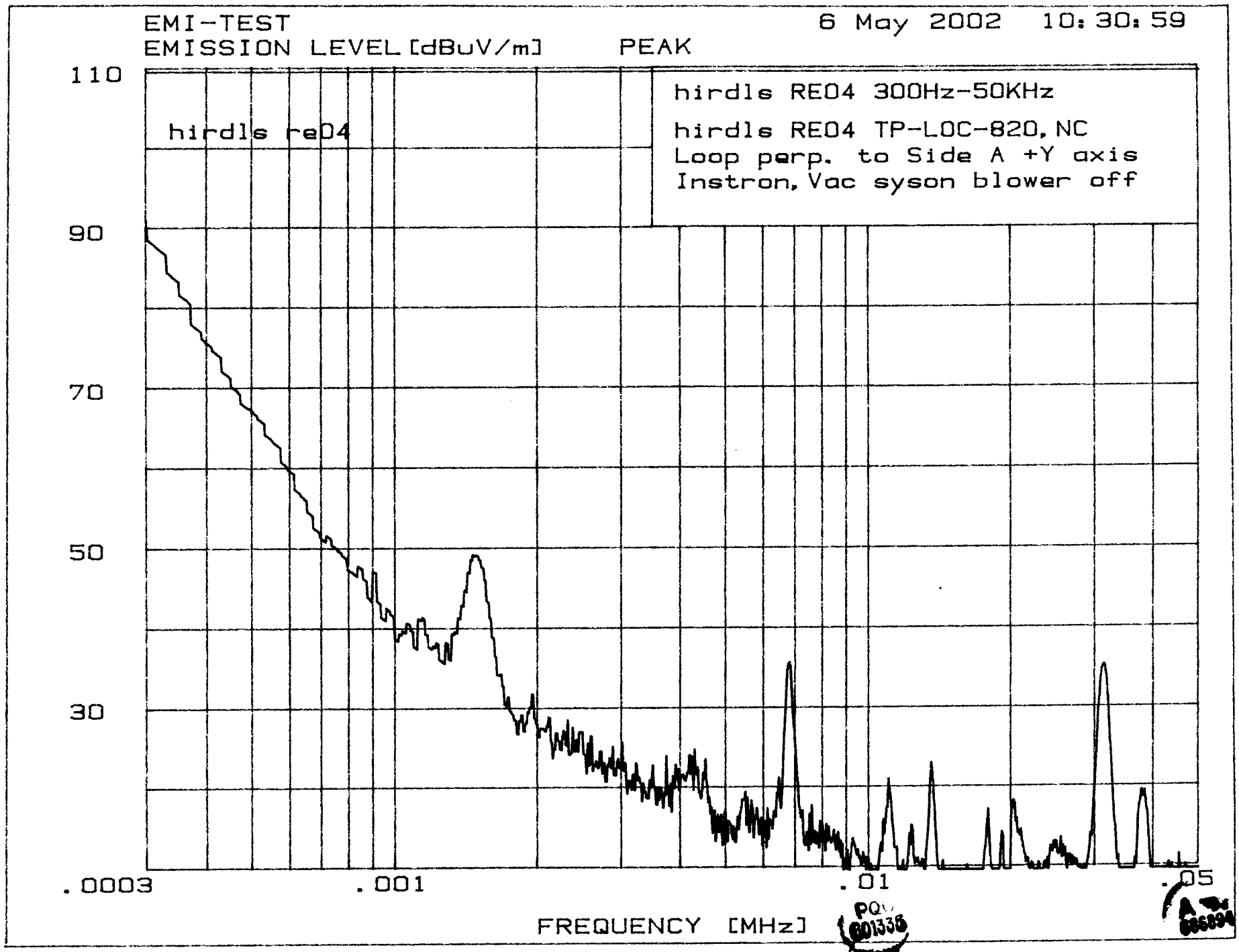
START 20.000Hz STOP 300.000Hz
AMPTD −11.0dBm

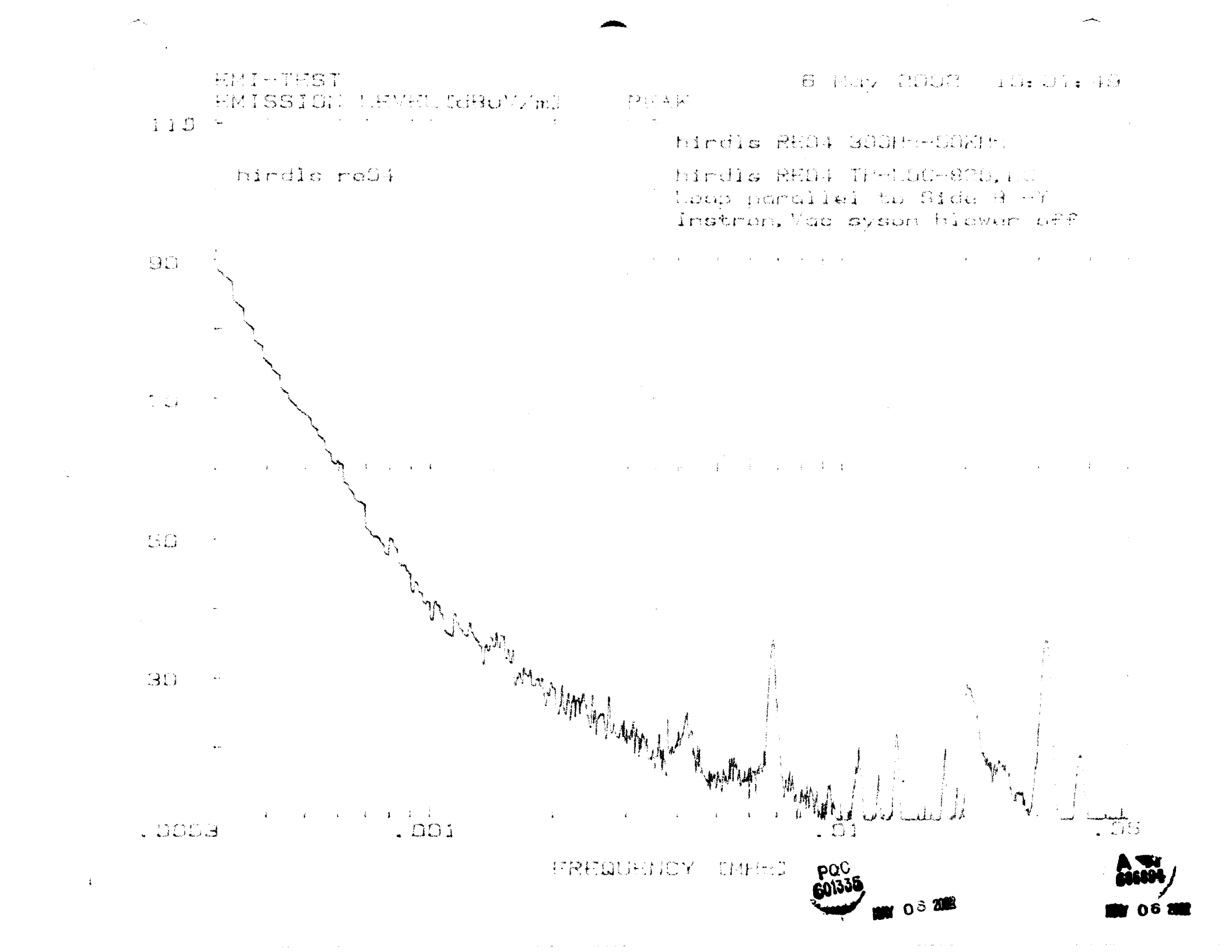
PQC 601336 MAY 06 2002

686894 MAY 06 2002

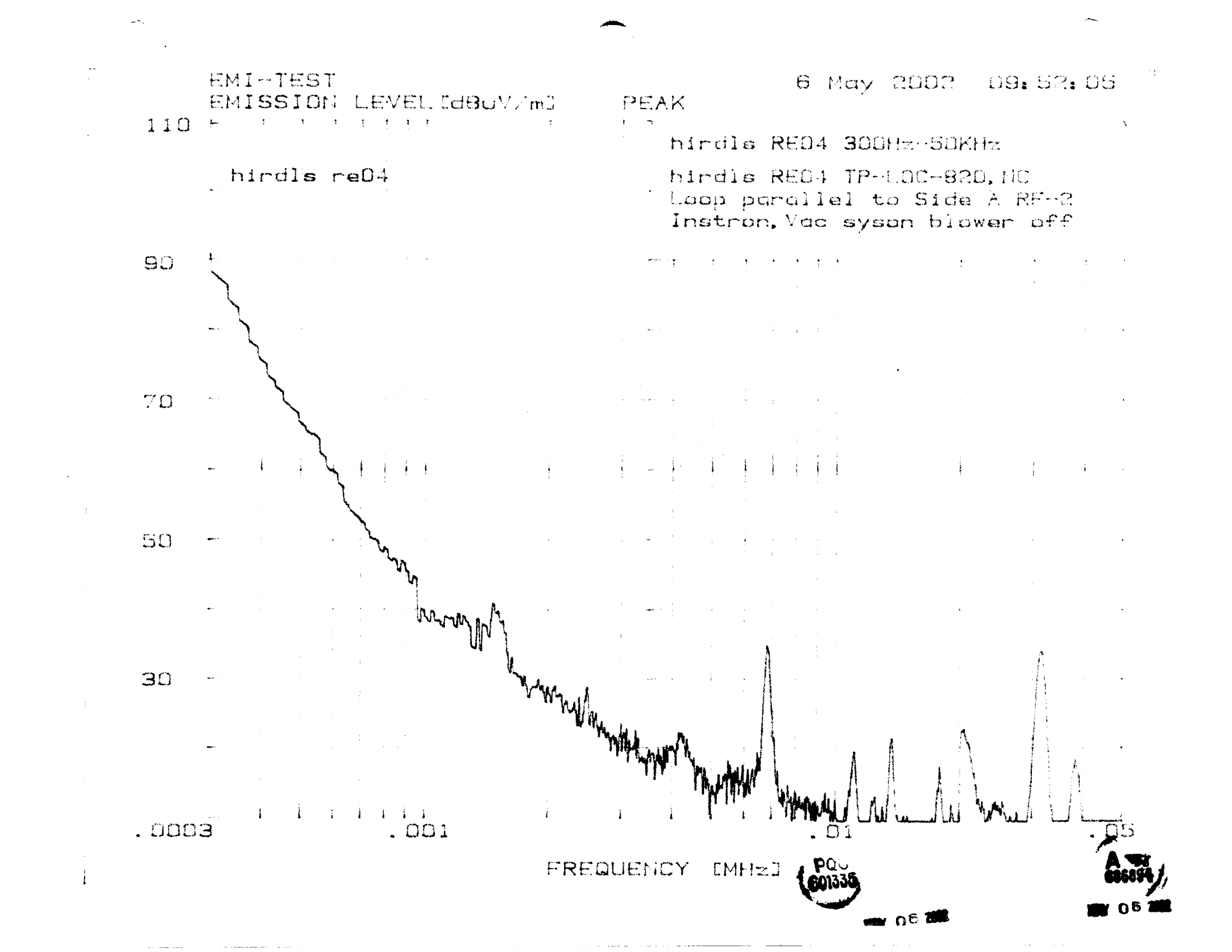


POC 601336
MAY 06 2002
MAY 06 2002

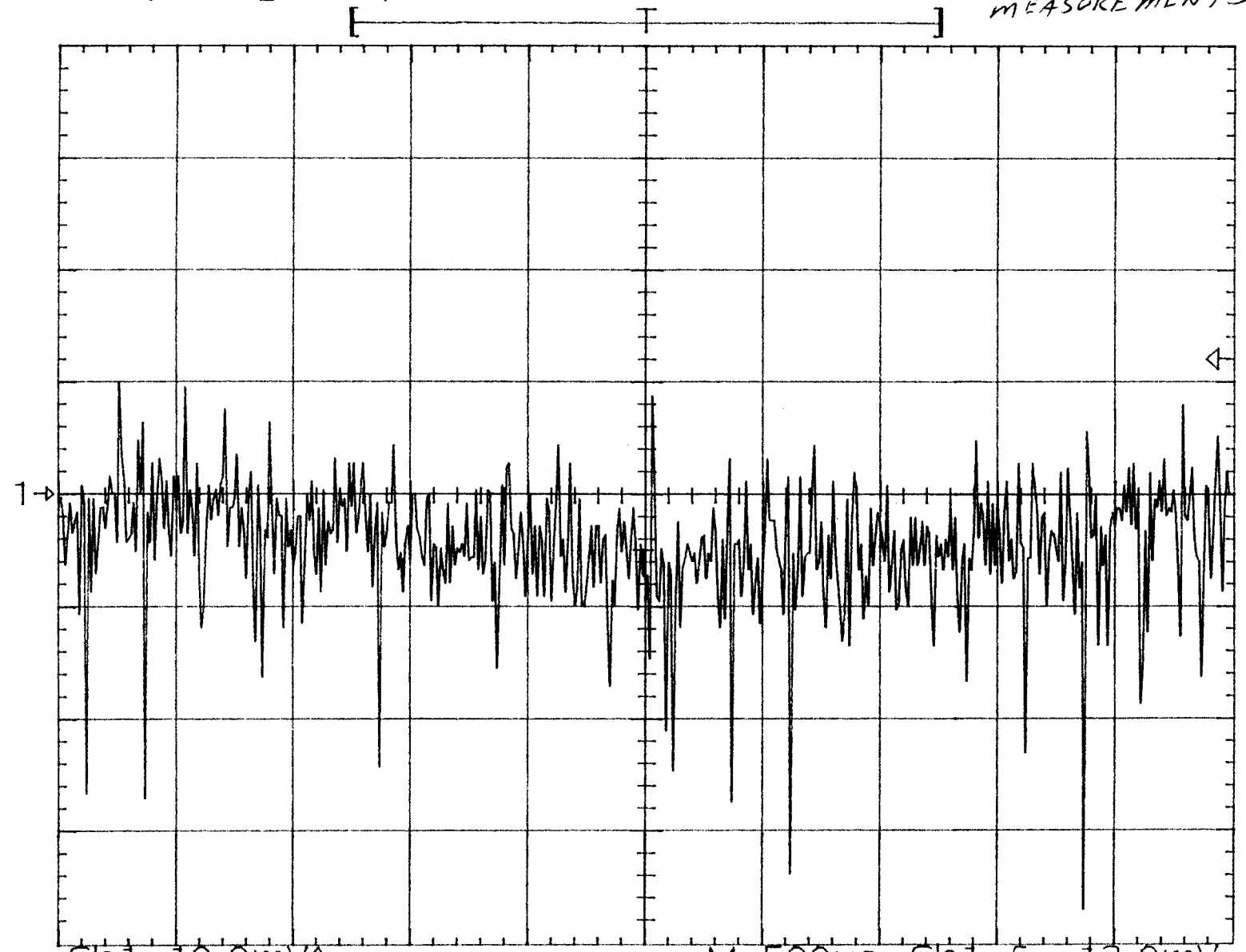

EMI-TEST
6 May 2002 10:30:59
EMISSION LEVEL [dBuV/m] PEAK
110
90
70
50
30
hirdls re04
hirdls RE04 300Hz-50KHz
hirdls RE04 TP-LOC-820, NC
Loop perp. to Side A +Y axis
Instron, Vac syson blower off
.0003
.001
.01
.05
FREQUENCY [MHz]



PQC 601335
NOV 06 2002
A 606894
NOV 06 2002


EMI--TEST
6 May 2002 09:52:05
EMISSION LEVEL [dBuV/m]
PEAK
110
90
70
50
30
hirdls re04
hirdls RE04 300Hz--50KHz
hirdls RE04 TP-LOC-820, NC
Loop parallel to Side A RF-2
Instron, Vac syson blower off
.0003
.001
.01
.05
FREQUENCY [MHz]
PQC
601336
A
606094
MAY 06 2002
MAY 06 2002

RIPPLE VOLTAGE MEASUREMENTS



File 000024
TEK 20:59:16

C1 Pk-Pk
47.2mV

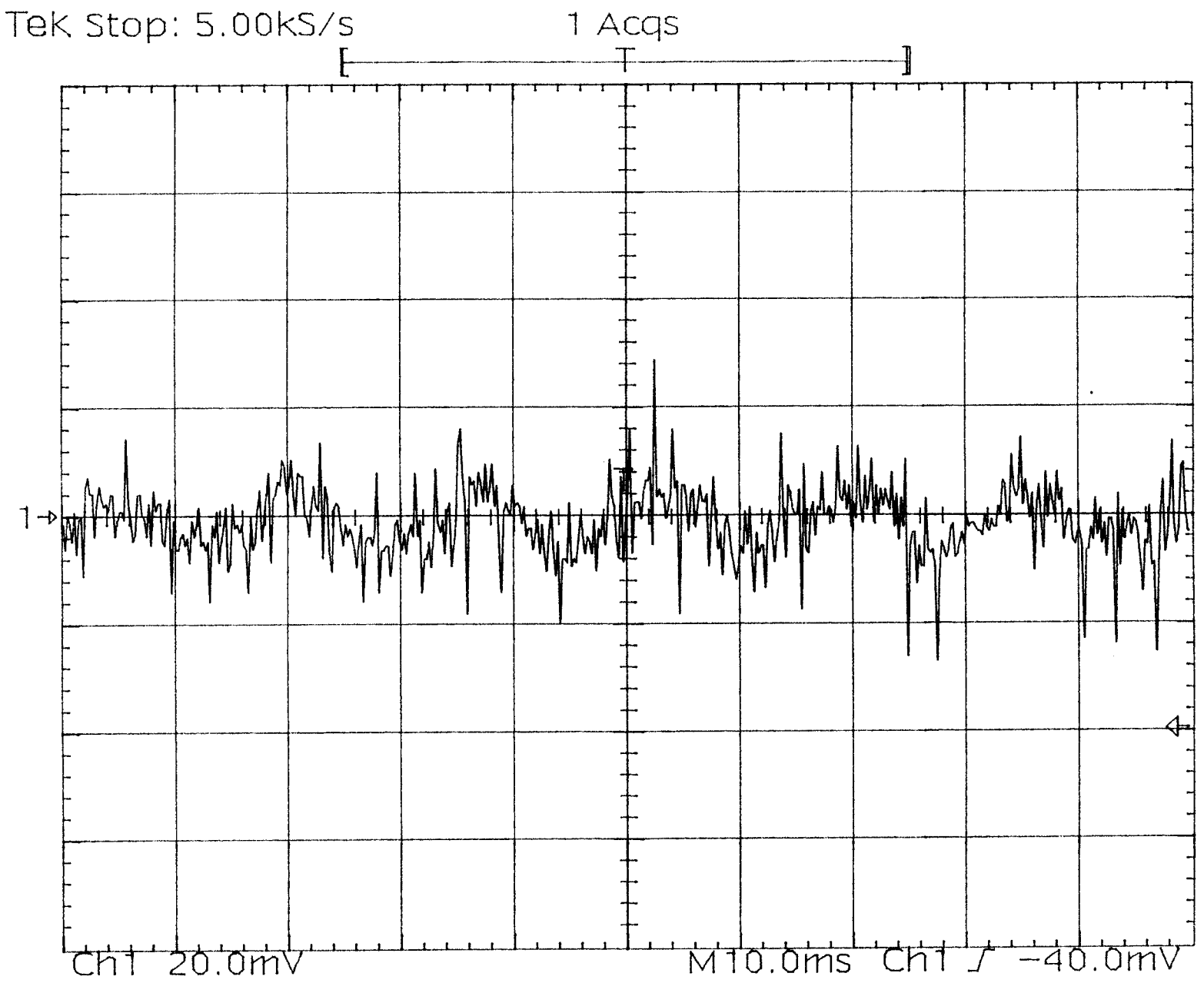
PR-QB-A
to
Chassis

OUT ON
STE ON
Gyro's ON

28 Apr 2002
20:53:25

INFORMATIONAL ONLY

PQC
601335
APR 29 2002
A
686894
APR 29 2002



File 0000021
TEK 19:19:04

C1 Pk-Pk
56.0mV

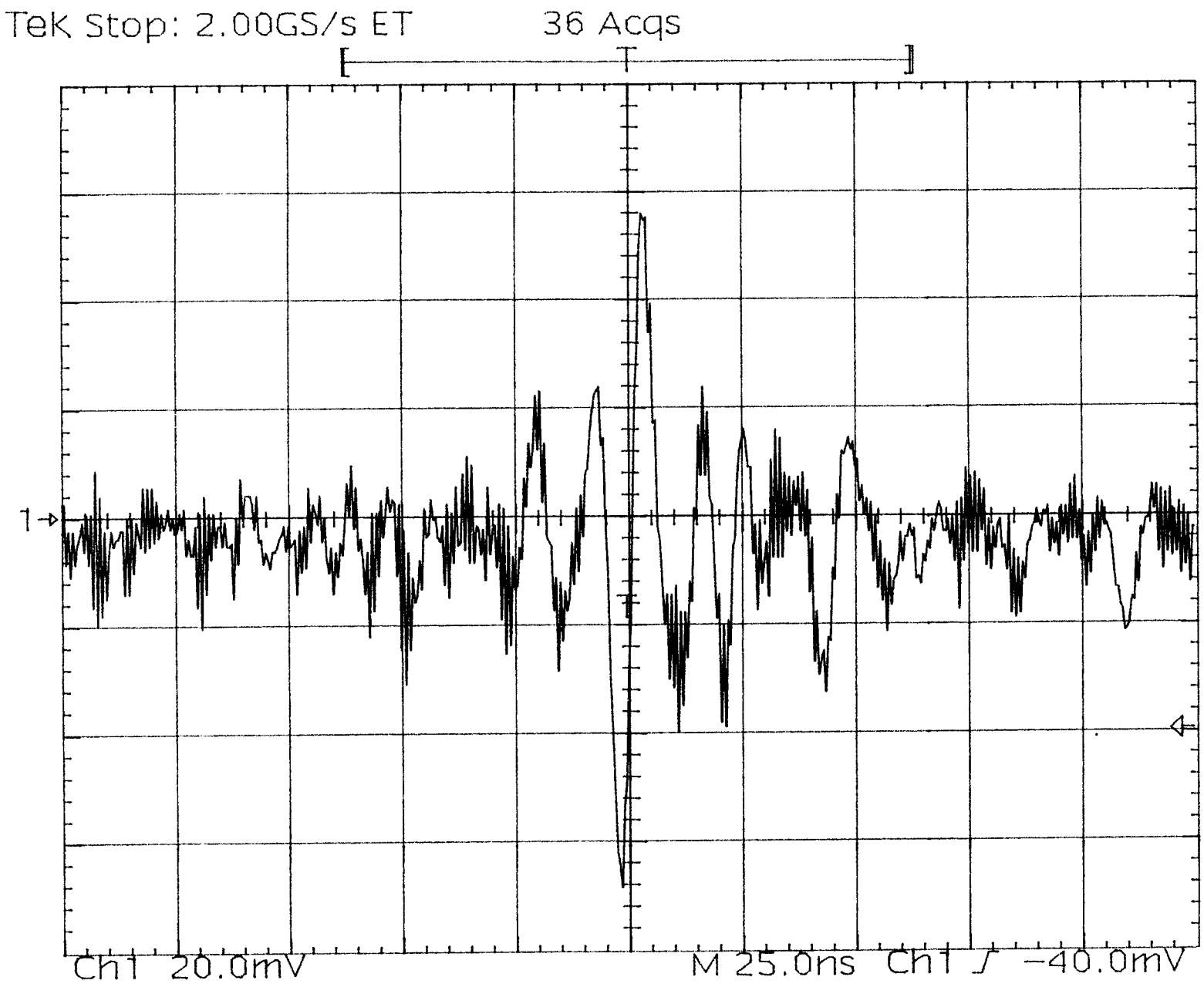
FR-QB-A
to
PI-QB-A

UUT ON
STE ON
Gyro's OFF

28 Apr 2002
19:11:58

PQC
601335 APR 29 2002

686894
APR 29 2002
INFORMATIONAL ONLY



TEK File 00022
19:56:42

C1 Pk-Pk
124.8mV

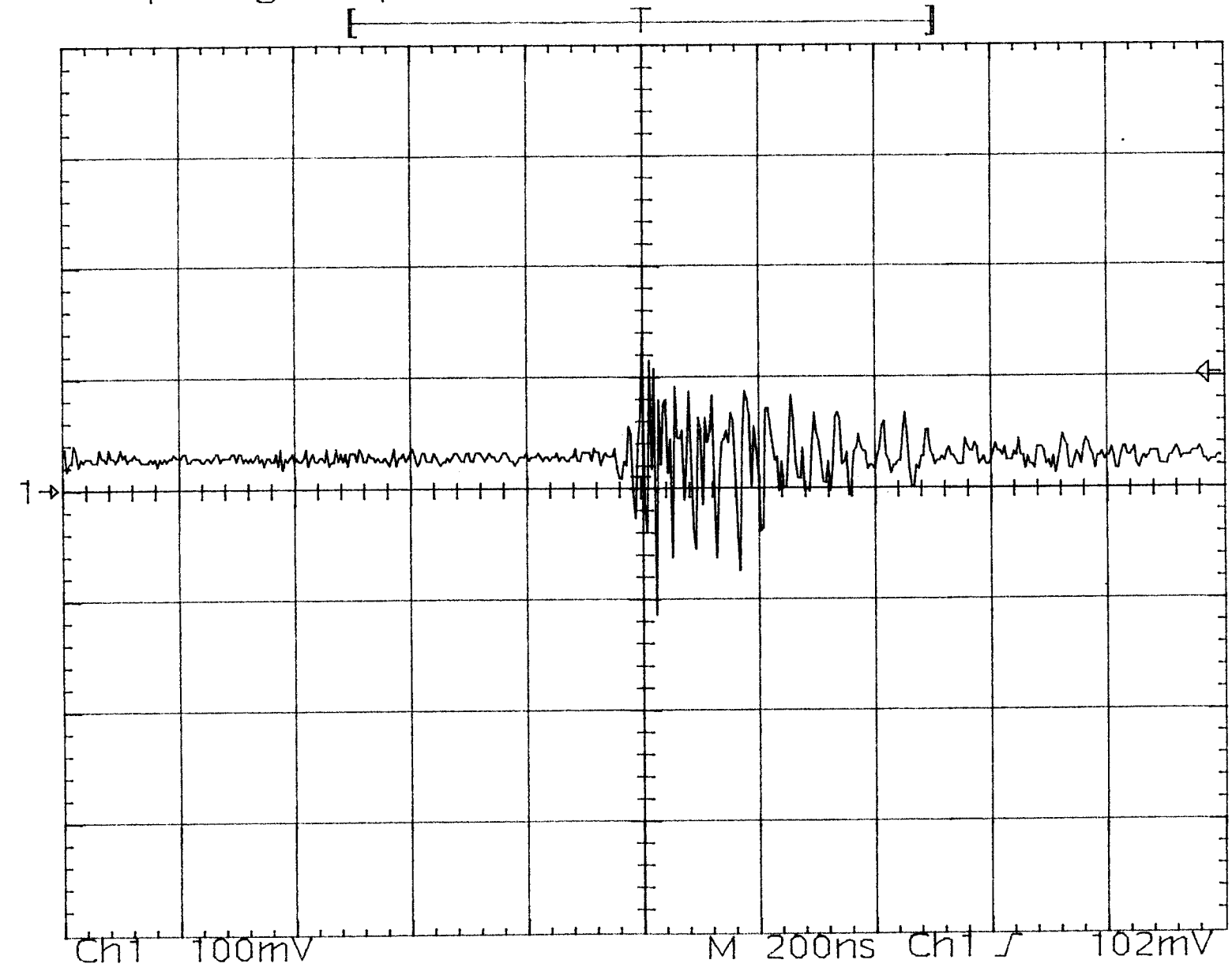
PR-QB-A
to
PI-QB-A

UUT ON
STE ON
Gyro's OFF

28 Apr 2002
19:41:40

INFORMATIONAL ONLY

601335
PDC
APR 29 2002
A 686894
APR 29 2002



file 000023
TEK 20:49:08

C1 Pk-Pk
252mV

PR-QB-A
to
Chassis

UUT ON
STE ON
Gyro's ON

28 Apr 2002
20:43:20

PQC
601335
APR 29 2002

A
686894
APR 29 2002

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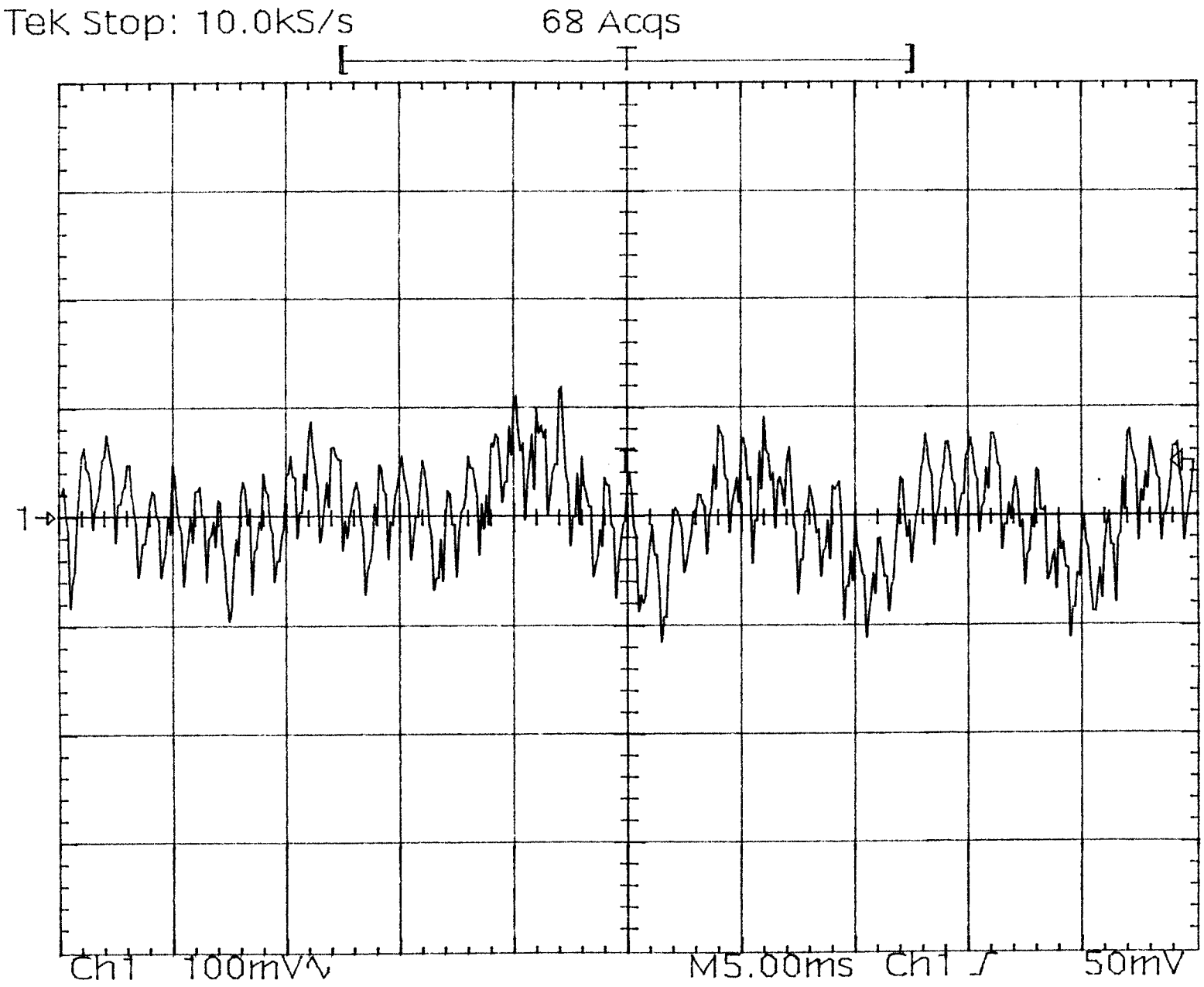
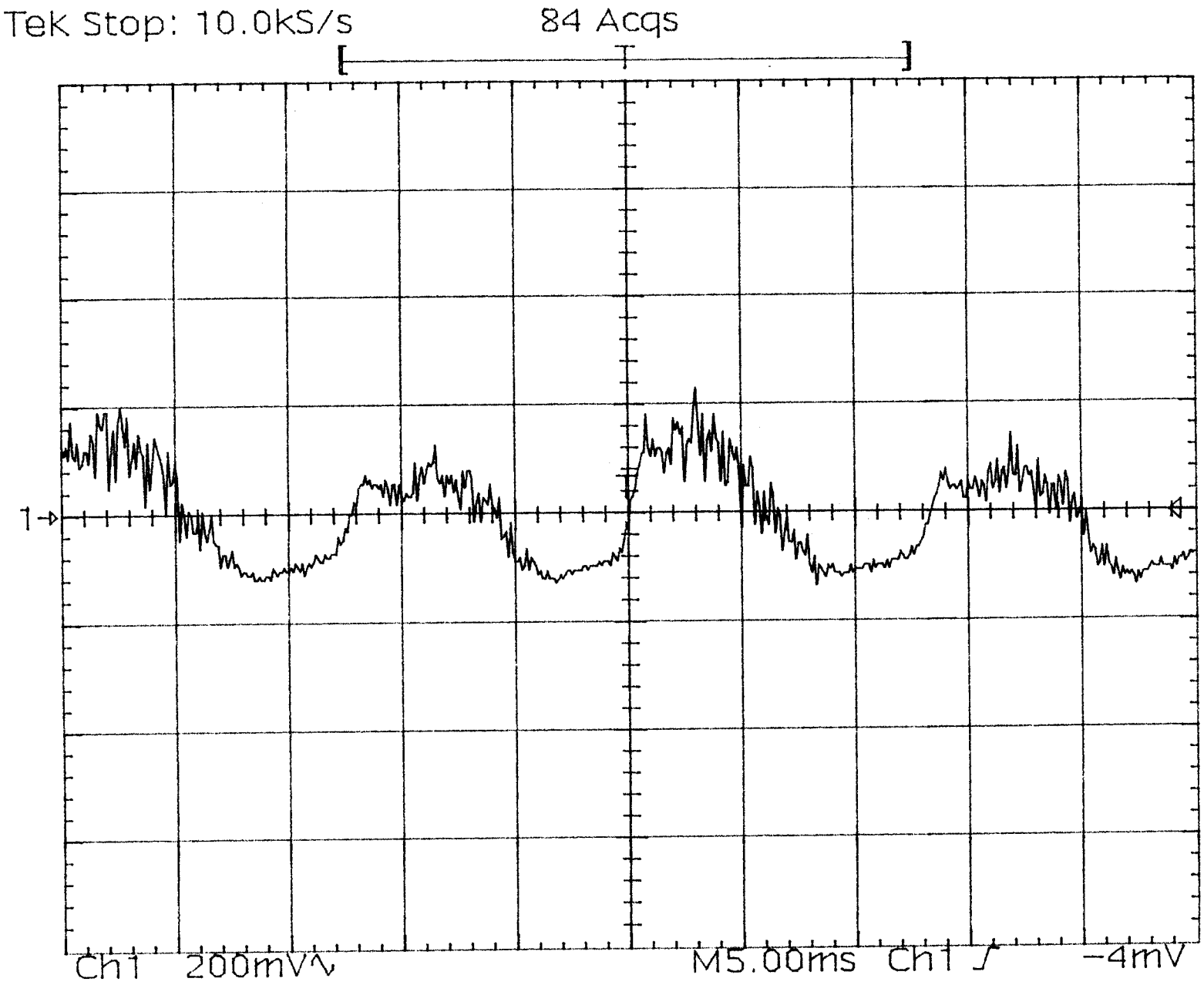
ONLY



APR 29 2002
INFORMATION ONLY
A 686894
APR 29 2002



C1 Pk-Pk
368mV

PI-NB-A
TO
PR-NB-A

OUT ON
SITE ON
File 26

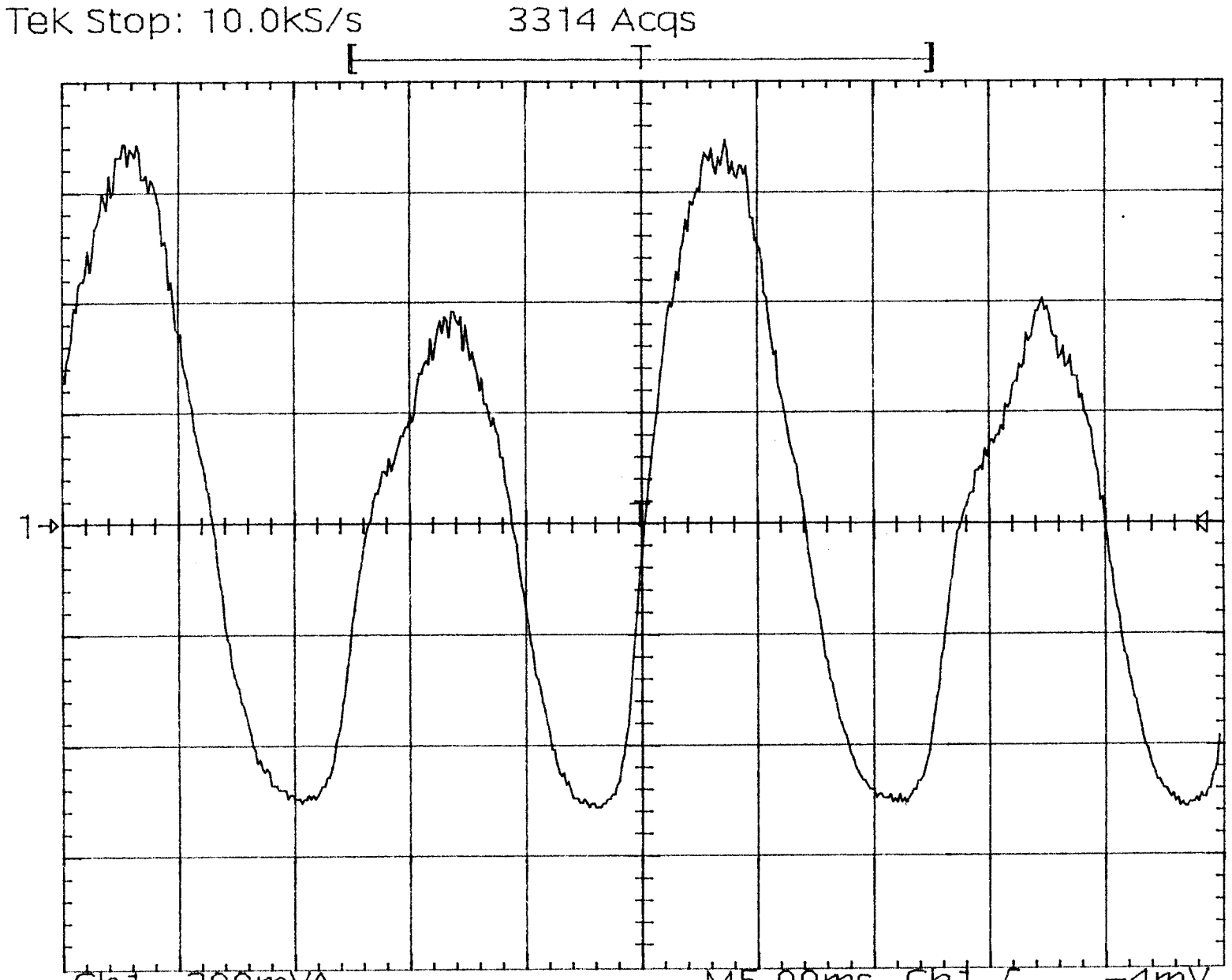
29 Apr 2002
09:52:40

INFORMATIONAL ONLY

A 686894

PQC 601335 APR 29 2002

APR 29 2002



C1 Pk-Pk
1.208 V

PI-NB-A
TO
STRUCTURE

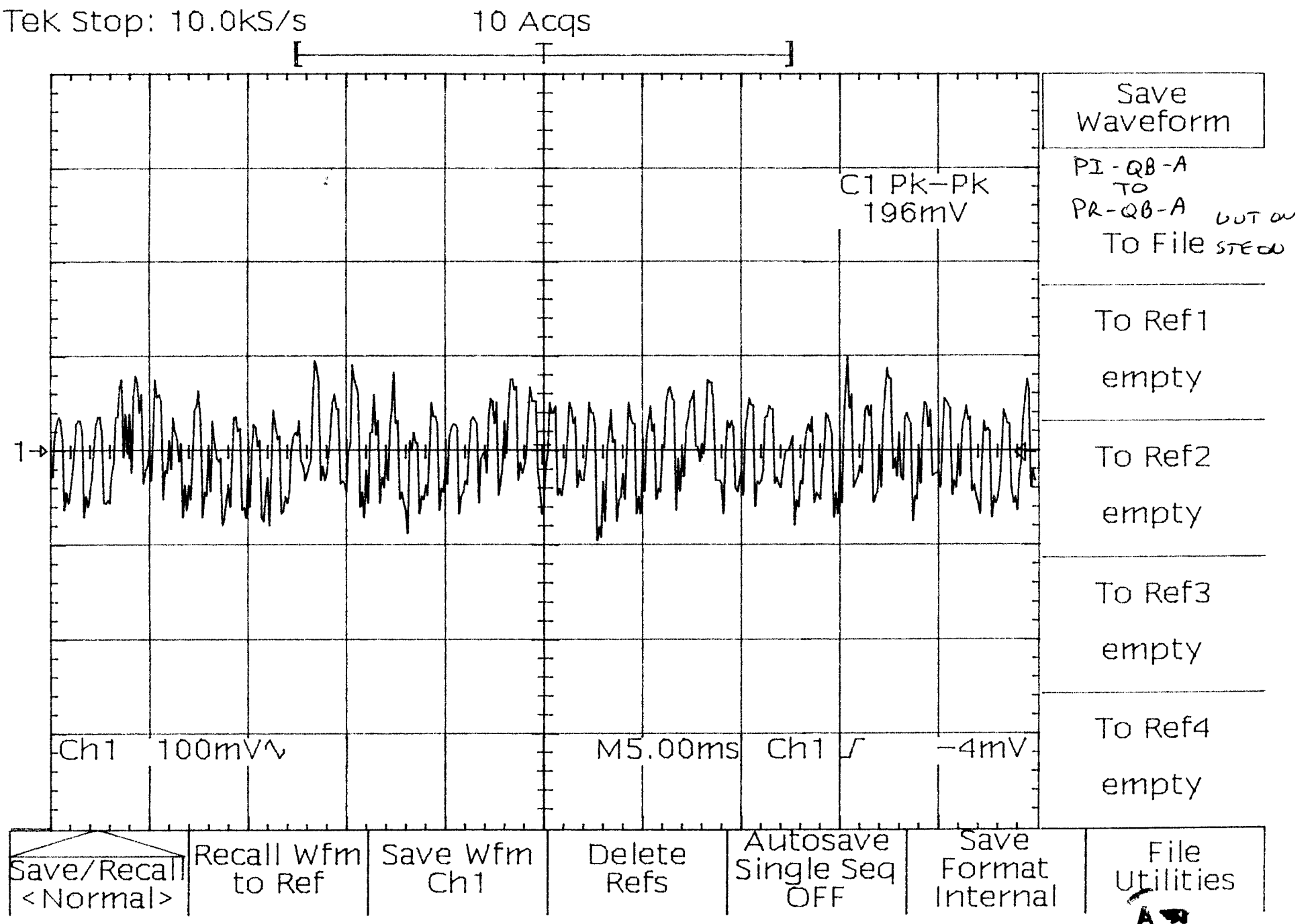
OUT ON
STE ON
FIG 27

29 Apr 2002
09:45:14

PQC
601335
APR 29 2002

INFORMATION ONLY

A
686894
APR 29 2002



PQC
601335
APR 2 9 2002

686894
APR 2 9 2002
INFORMATION ONLY

TEST DATA SHEET

CE01/CE03 Powerline Conducted Emissions

PARAGRAPH 13.4	DATE OF TEST
PART NO. 1A27800	CCA/SERIAL NO. 01
	TEST TECHNICIAN

Notes:

Cable/Lead	CE01 Complete	Pass	Fail	~~CE03 Complete~~	~~Pass~~	~~Fail~~	Remarks
PI-SB-A	✓	✓		✓		✓	
PR-SB-A	✓	✓		✓		✓	
PI-SB-B	✓	✓		✓		✓	
PR-SB-B	✓	✓		✓		✓	
PI-NB-A	✓	✗	✓	✓		✓	(CE01 AMBIENT PASS)(CE03 AMBIENT FAIL)
PR-NB-A	✓		✓	✓		✓	(CE01 AMBIENT PASS)(CE03 AMBIENT FAIL)
PI-NB-B	✓		✓	✓		✓	(CE01 AMB PASS)
PR-NB-B	✓		✓	✓		✓	(CE01 AMB PASS)
PI-QB-A	✓		✓	✓ w/AMB		✓ w/AMB	4/29/02 (CE01 AMB PASS)(CE03 AMBIENT FAIL)
PR-QB-A	✓		✓	✓ w/AMB		✓ w/AMB	4/29/02 (CE01 AMB PASS)(CE03 AMBIENT FAIL)
PI-QB-B	✓		✓	✓		✓	(CE01 AMB PASS)
PR-QB-B	✓✓		✓✓	✓		✓	first run Gyro's were off (CE01 AMB PASS) Second run Gyro's ON
PI-NB-A	✓		✓				4/29/02 RECAL
PR-NB-A	✓		✓				4/29/02 RECAL
PI-NB-A TO PR-NB-A	✓						RIPPLE VOLTAGE
PI-NB-A TO STRUCTURE	✓						
PI-QB-A TO PR-QB-A	✓						
PI-QB-A TO STRUCTURE	✓						
~~PI-QB-A TO PR-QB-A~~							

4/29/02 CE01 ok

4/29/02 CE01 ok

EMI-TEST [redacted]

Library File : NOISY 20K-50 MHz CE03

Display Title : CE03 20KHz-50MHz
Units Label : dBuA
Disp Ref Lvl (dB): 60
Test Type : PEAK
Freq Uncert. (%): .5
Min Swp Time/Oct : 3

Range 1 of 3
Start Freq(MHz): .02
Stop Freq (MHz): 2.5
Transducer : CP-105 S/N GH-1
Gain/Loss : NONE
SA Input : RIGHT
Presel/Input3 : BYPASS
Quasi-Peak Bw : BYPASS
SA Res Bw (Hz): 1000
Video Bw (Hz): 10000
Ref. Lvl (dBuV): 107
Int Atten (dB): 10
Presel Atten : 0
Ext Atten (dB): 0
Setups : 1
Sweeps/Setup : 1
Msg,Sub,Cont : MESSAGE
Line #1 : CONNECT CURRENT PROBE
Line #2 : TO ANALYZER

Range 2 of 3
Stop Freq (MHz): 12
Transducer : CP-105 S/N GH-1
Gain/Loss : NONE
SA Input : RIGHT
Presel/Input3 : BYPASS
Quasi-Peak Bw : BYPASS
SA Res Bw (Hz): 10000
Video Bw (Hz): 30000
Ref. Lvl (dBuV): 107
Int Atten (dB): 10
Presel Atten : 0
Ext Atten (dB): 0
Setups : 1
Sweeps/Setup : 1
Msg,Sub,Cont : CONTINUE

Range 3 of 3
Stop Freq (MHz): 50
Transducer : CP-105 S/N GH-1
Gain/Loss : NONE
SA Input : RIGHT
Presel/Input3 : BYPASS
Quasi-Peak Bw : BYPASS
SA Res Bw (Hz): 100000
Video Bw (Hz): 300000
Ref. Lvl (dBuV): 107
Int Atten (dB): 10
Presel Atten : 0

[redacted]

Library File : hirdls CE03 20KHz-50MHz

Display Title : hirdls CE03 20KHz-50MHz
Units Label : dBuA
Disp Ref Lvl (dB): 60
Test Type : PEAK
Freq Uncert. (%): .5
Min Swp Time/Oct : 3

Range 1 of 3
Start Freq(MHz): .02
Stop Freq (MHz): 2.5
Transducer : CP-105 S/N GH-1
Gain/Loss : NONE
SA Input : RIGHT
Presel/Input3 : BYPASS
Quasi-Peak Bw : BYPASS
SA Res Bw (Hz): 1000
Video Bw (Hz): 10000
Ref. Lvl (dBuV): 107
Int Atten (dB): 10
Presel Atten : 0
Ext Atten (dB): 0
Setups : 1
Sweeps/Setup : 1
Msg,Sub,Cont : MESSAGE
Line #1 : CONNECT CURRENT PROBE
Line #2 : TO ANALYZER

Range 2 of 3
Stop Freq (MHz): 12
Transducer : CP-105 S/N GH-1
Gain/Loss : NONE
SA Input : RIGHT
Presel/Input3 : BYPASS
Quasi-Peak Bw : BYPASS
SA Res Bw (Hz): 10000
Video Bw (Hz): 30000
Ref. Lvl (dBuV): 107
Int Atten (dB): 10
Presel Atten : 0
Ext Atten (dB): 0
Setups : 1
Sweeps/Setup : 1
Msg,Sub,Cont : CONTINUE

Range 3 of 3
Stop Freq (MHz): 50
Transducer : CP-105 S/N GH-1
Gain/Loss : NONE
SA Input : RIGHT
Presel/Input3 : BYPASS
Quasi-Peak Bw : BYPASS
SA Res Bw (Hz): 100000
Video Bw (Hz): 300000
Ref. Lvl (dBuV): 107
Int Atten (dB): 10
Presel Atten : 0

Ext Atten (dB) : 0
Setups : 1
Sweeps/Setup : 1
Msg,Sub,Cont : CONTINUE

Limit #1 Label : hirdls ce03 nb
Limit #2 Label : NONE
Limit #3 Label : NONE

---------- Test Setup Table Notes ----------

PQC
601335
APR 29 2002

A
606894
APR 29 2002

SET-UP

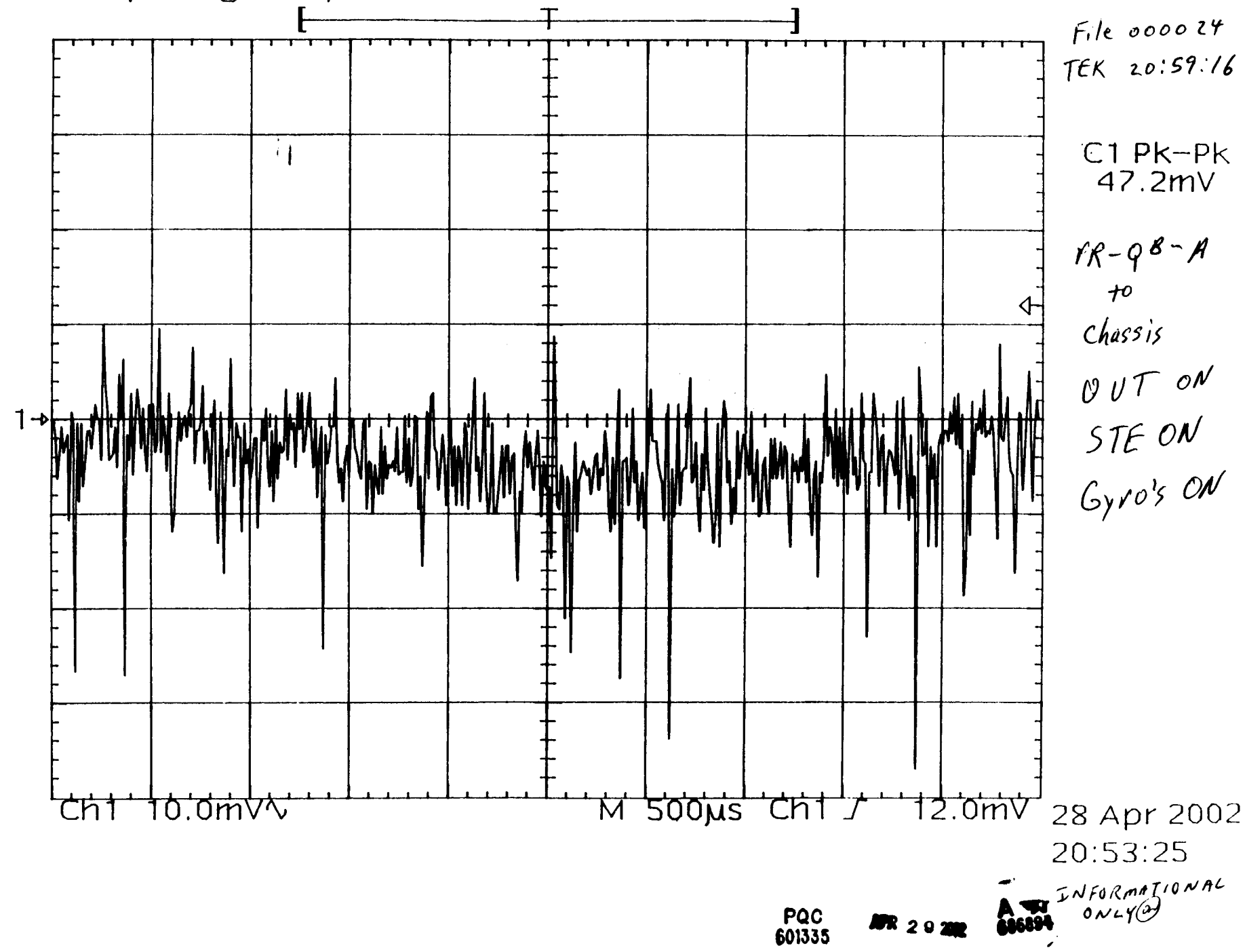
Ext Atten (dB)	:	0
# Setups	:	1
# Sweeps/Setup	:	1
Msg,Sub,Cont	:	CONTINUE
Limit #1 Label	:	hirdls noisy
Limit #2 Label	:	NONE
Limit #3 Label	:	NONE

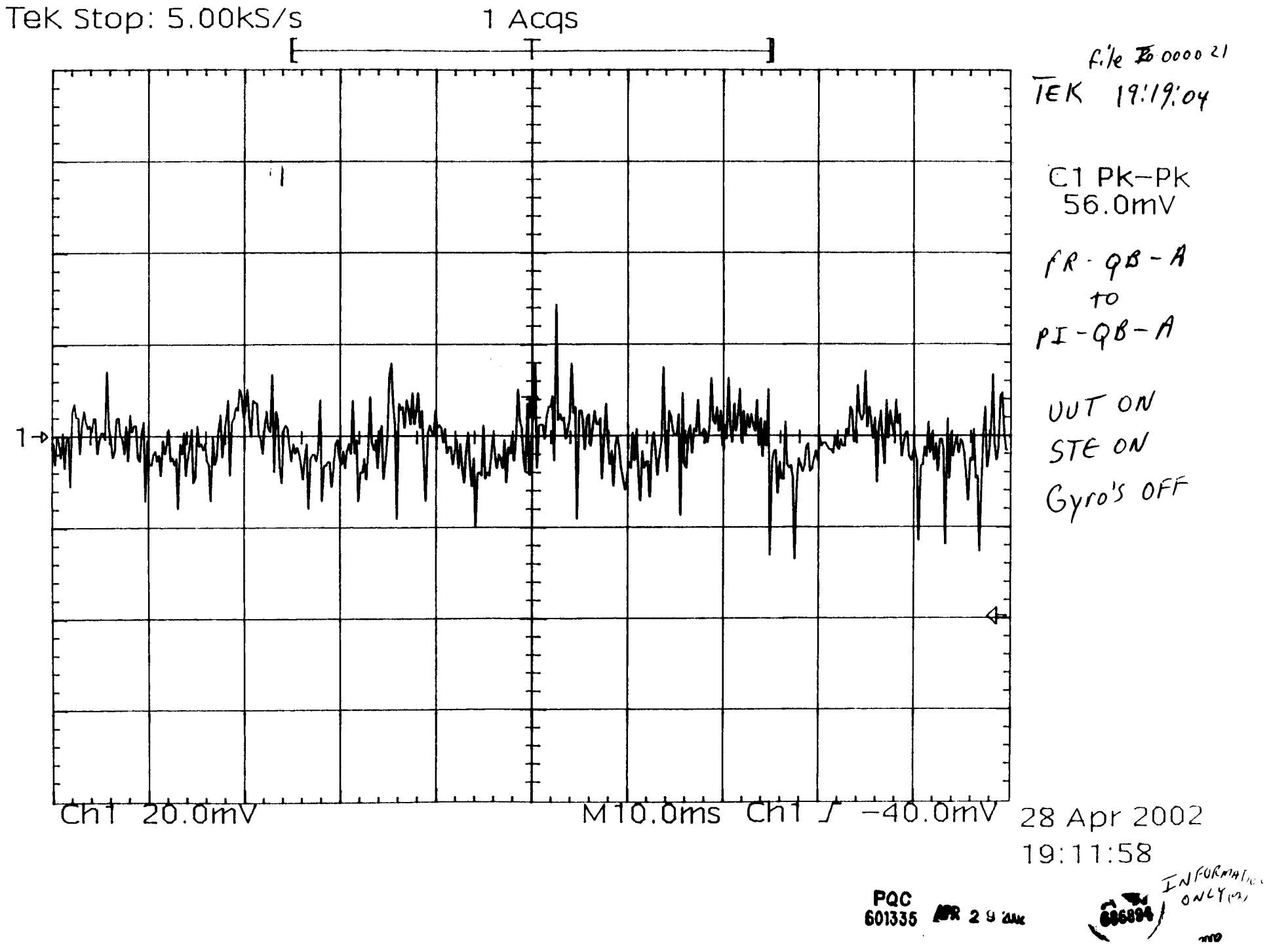
---------- Test Setup Table Notes ----------

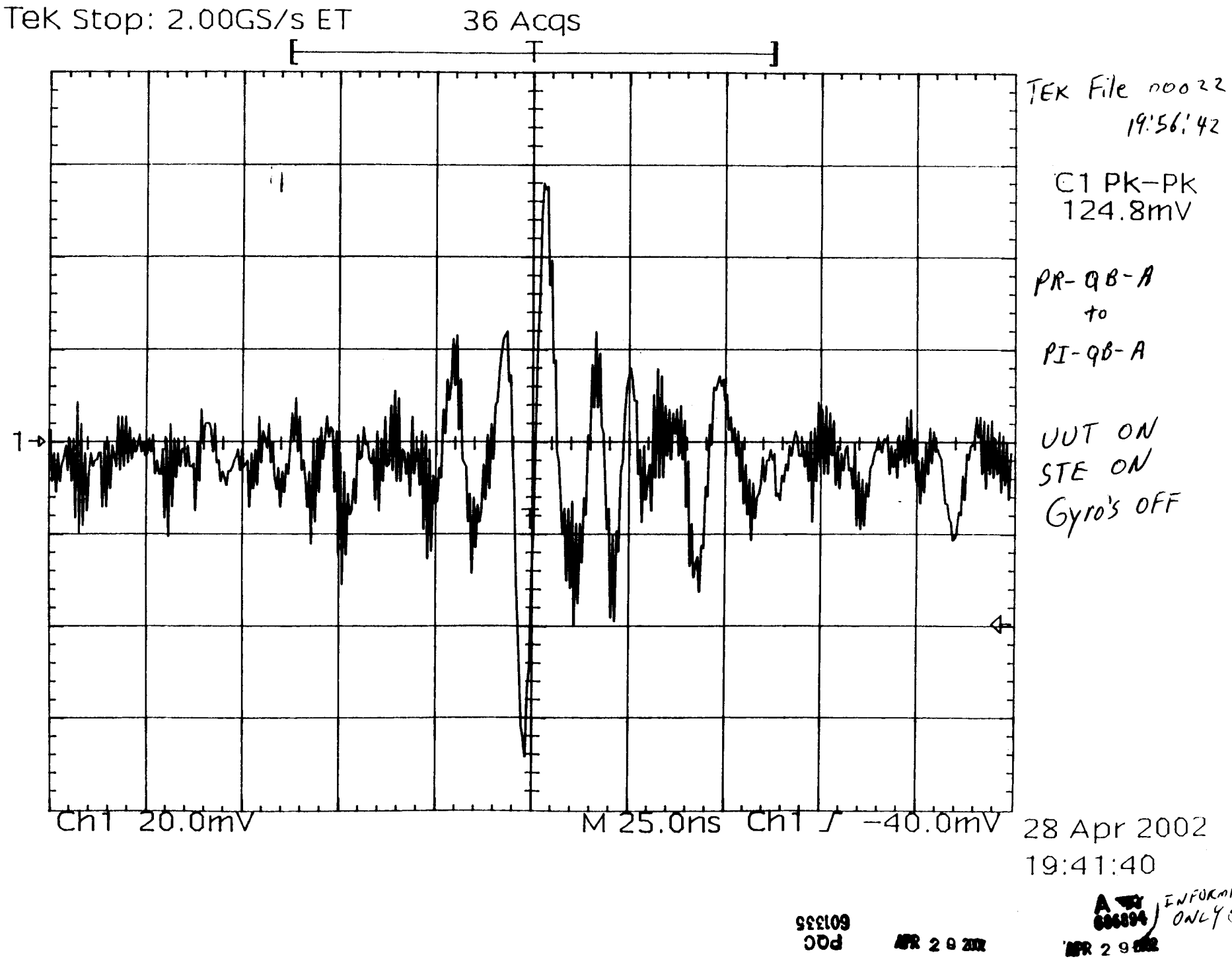
PQC
601335
APR 29 2008

A
606894
APR 29 2008

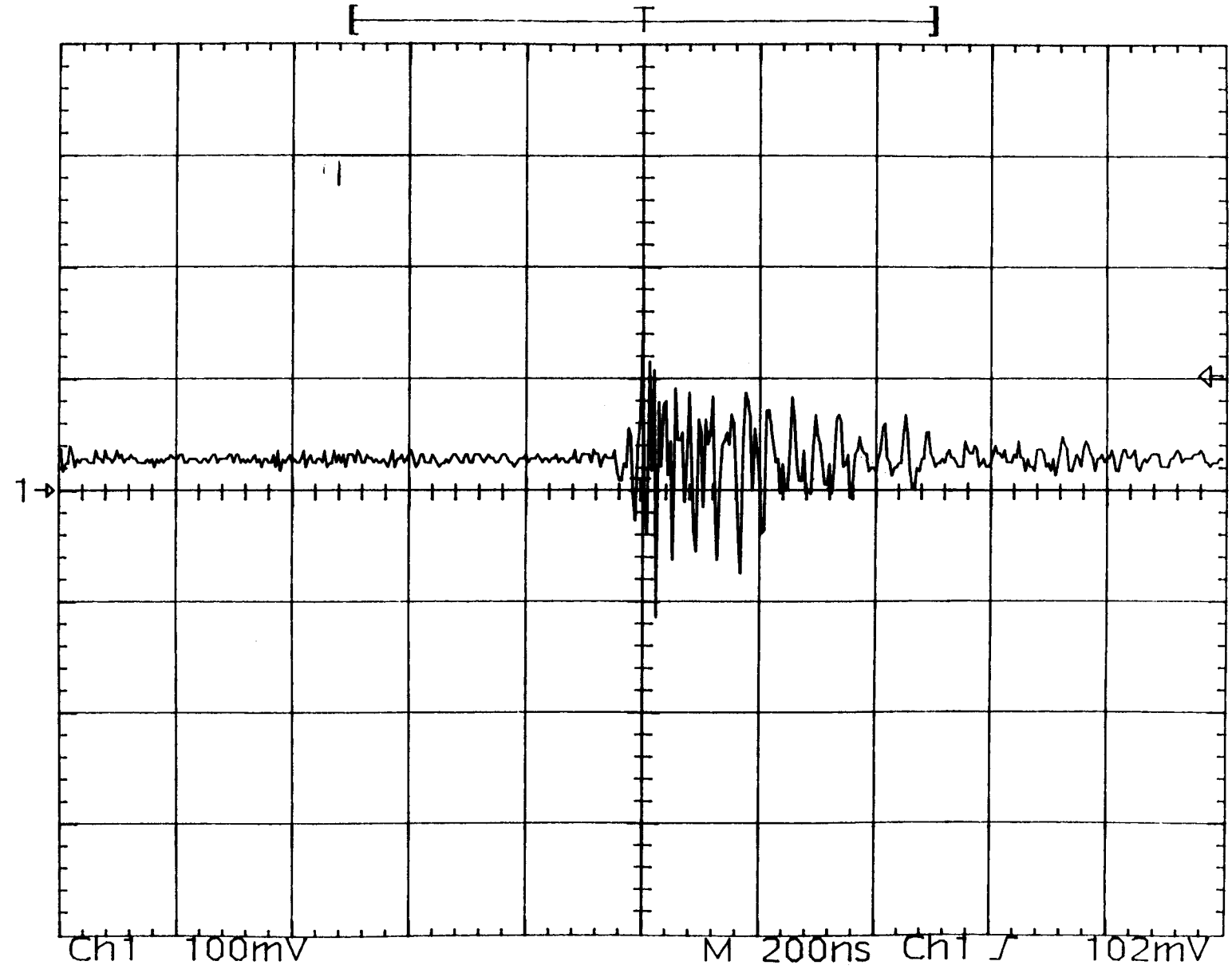
SET UP
2


Tek Stop: Single Seq 100kS/s
File 000024
TEK 20:59:16
C1 Pk-Pk
47.2mV
PR-QB-A
to
Chassis
OUT ON
STE ON
Gyro's ON
1
Ch1 10.0mV
M 500µs Ch1 ƒ 12.0mV
28 Apr 2002
20:53:25
INFORMATIONAL ONLY
PQC
601335
APR 29 2002
A
606894


Tek Stop: 5.00kS/s
1 Acqs
File 0000 21
TEK 19:19:04
C1 Pk-Pk
56.0mV
FR-QB-A
TO
PI-QB-A
UUT ON
STE ON
Gyro's OFF
1
Ch1 20.0mV
M10.0ms Ch1 ƒ -40.0mV
28 Apr 2002
19:11:58
PQC
601335
APR 29
INFORMATION ONLY



601335
POC
APR 2 9 2002
A 606894
INFORMATION ONLY (A)
APR 2 9



file 000023
TEK 20:49:09

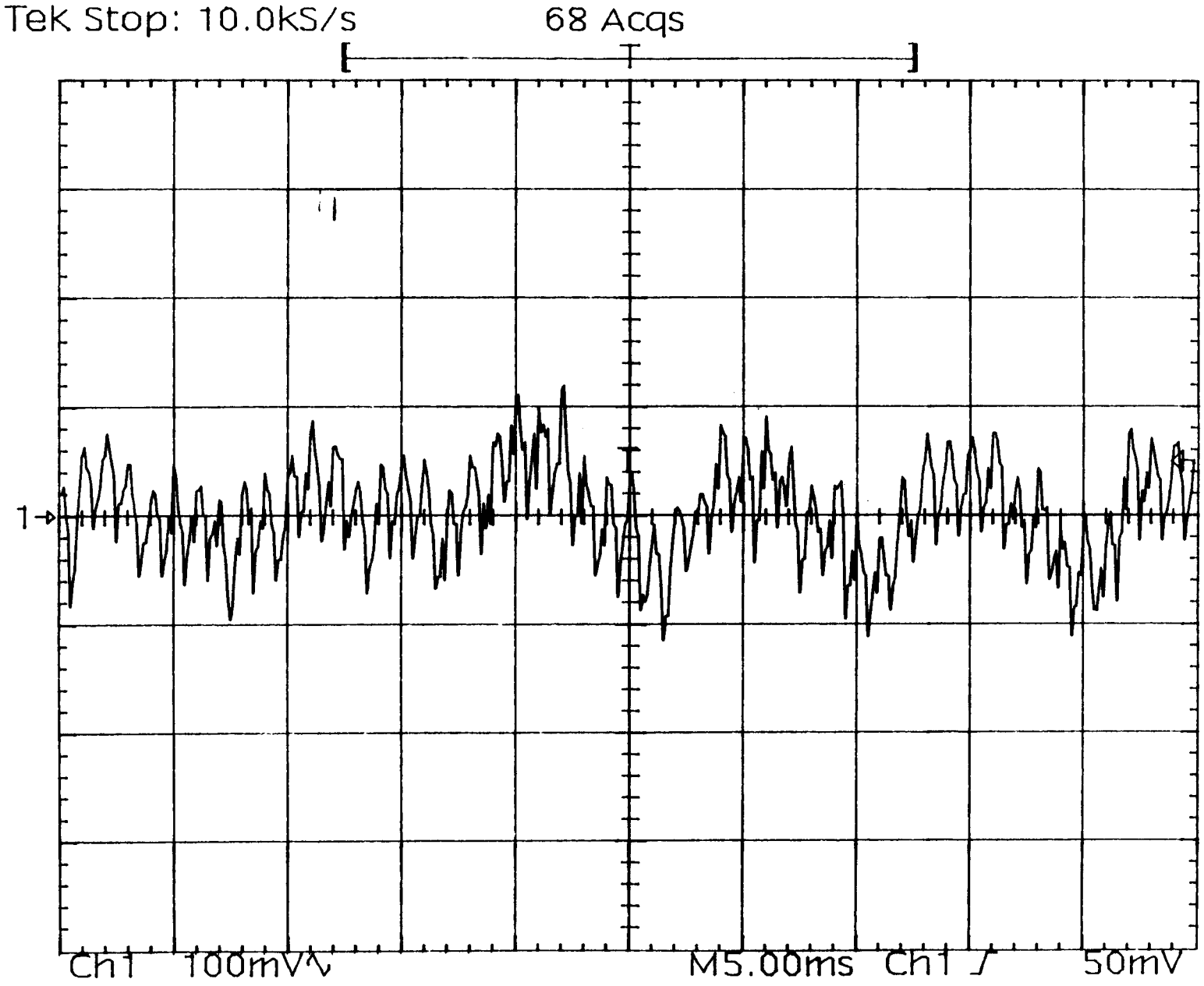
C1 Pk-Pk
252mV

PR-QB-A
to
Chassis

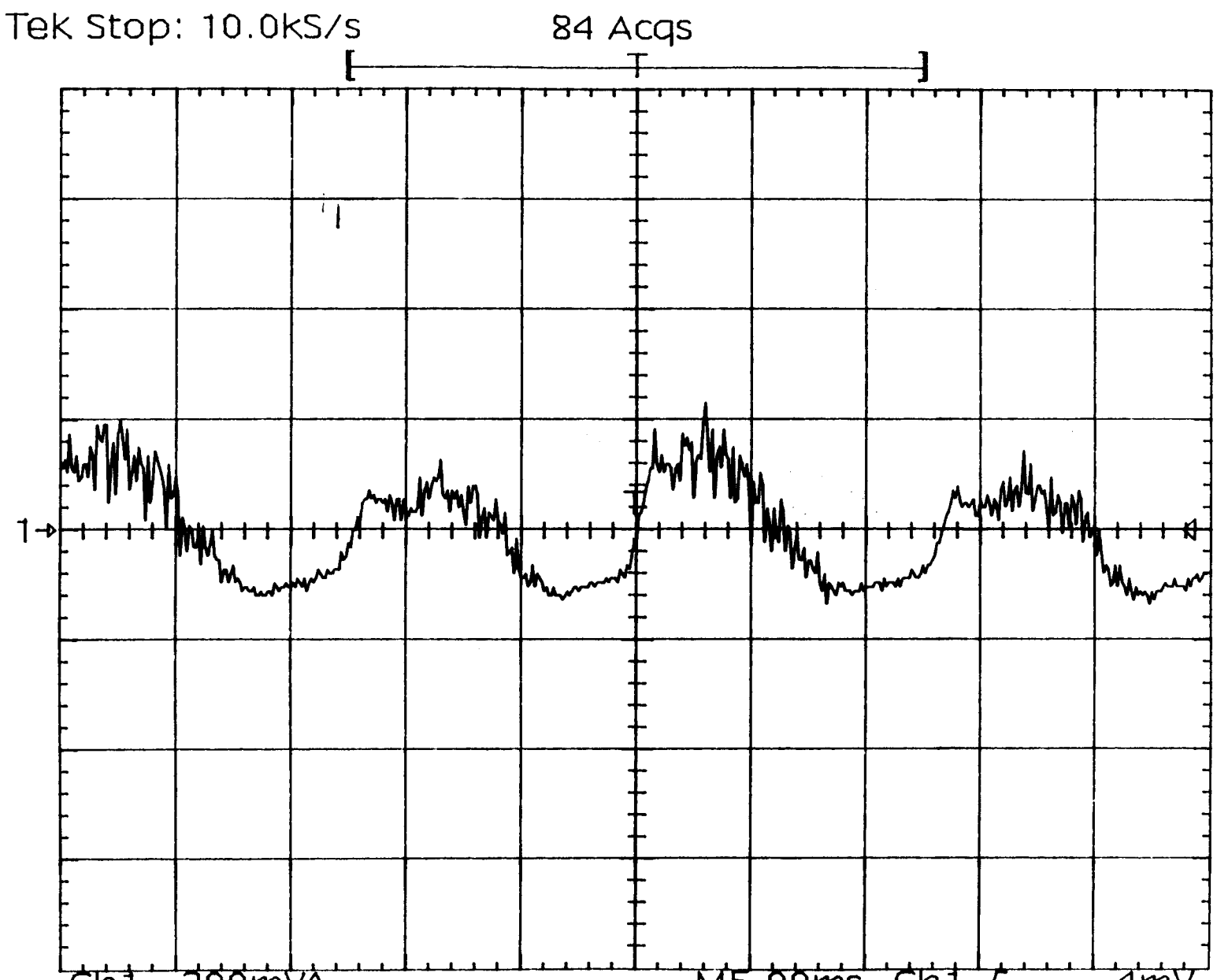
UUT ON
STE ON
Gyro's ON

28 Apr 2002
20:43:20

PQC
601335
APR 2 9 2002
A
686894
INFORMATIONAL
ONLY



PDC 601335
APR 29
INFORMATION ONLY
A 686894
APR 29



C1 Pk-Pk
368mV

PI-NB-A
TO
PR-NB-A

OUT ON
SIZE ON
FIG 26

29 Apr 2002
09:52:40

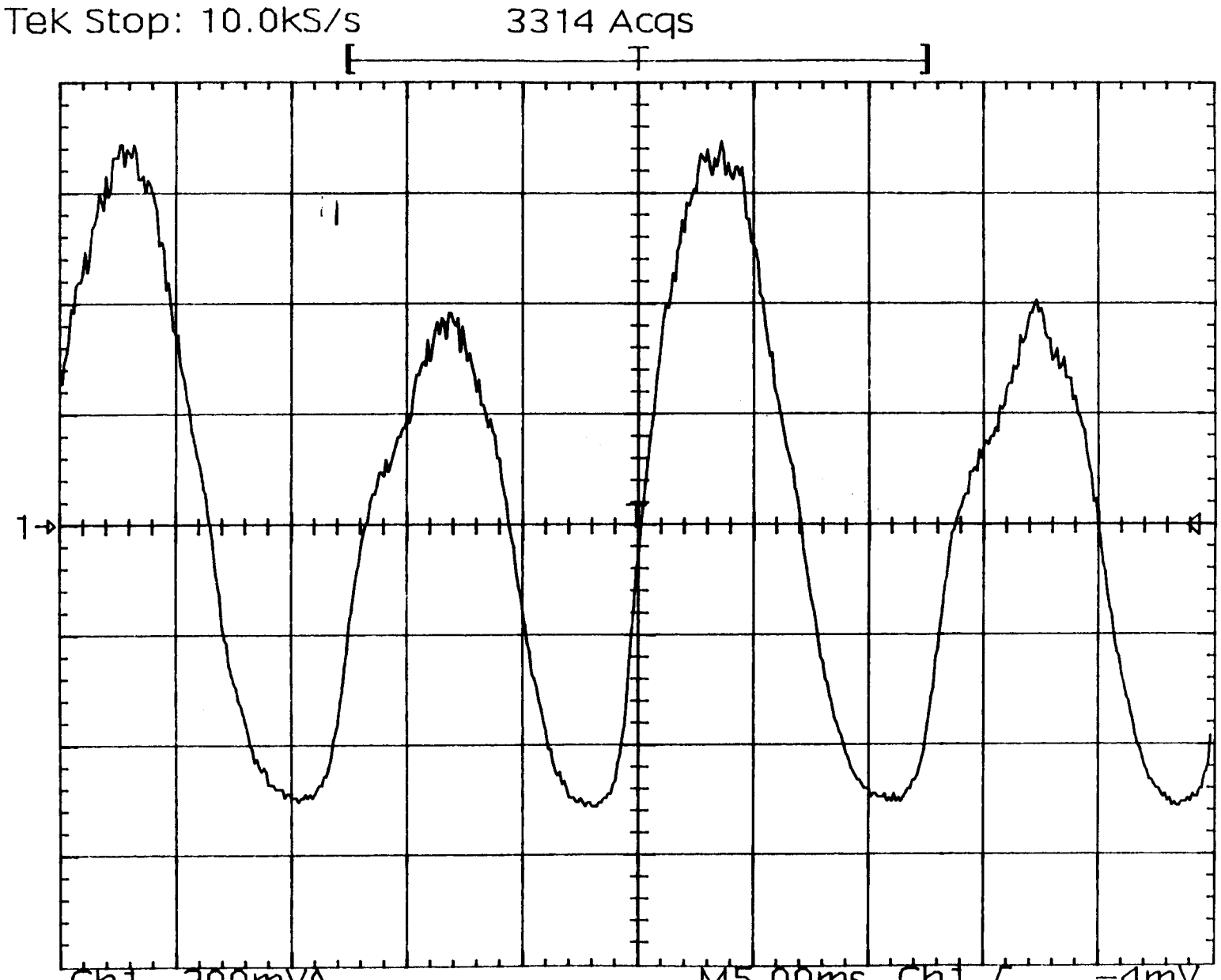
© INFORMATIONAL ONLY

A
606894

PQC
601335

APR 29 2002

APR 29 2002



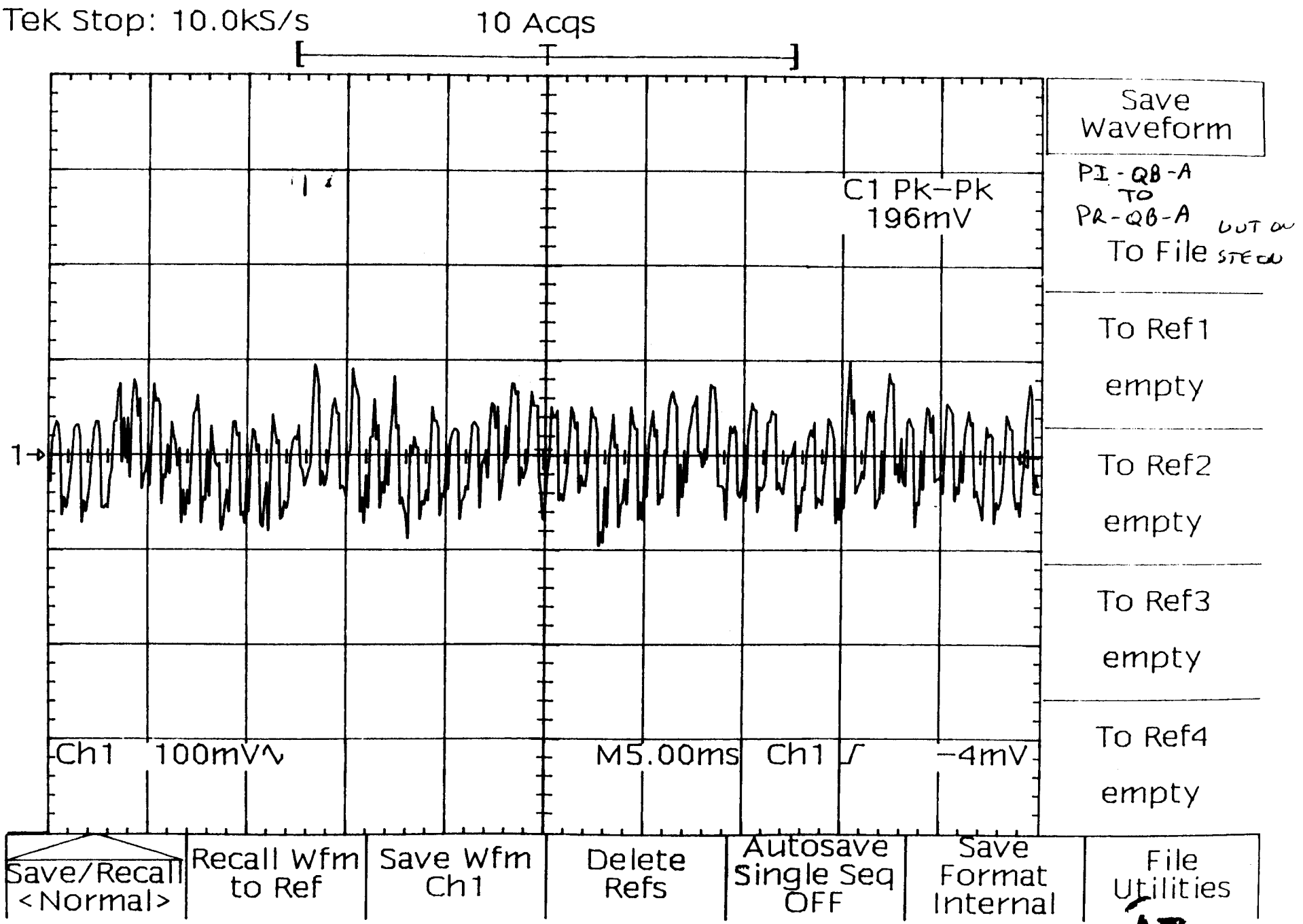
C1 Pk-Pk
1.208 V

PI-NB-A
TO
STRUCTURE

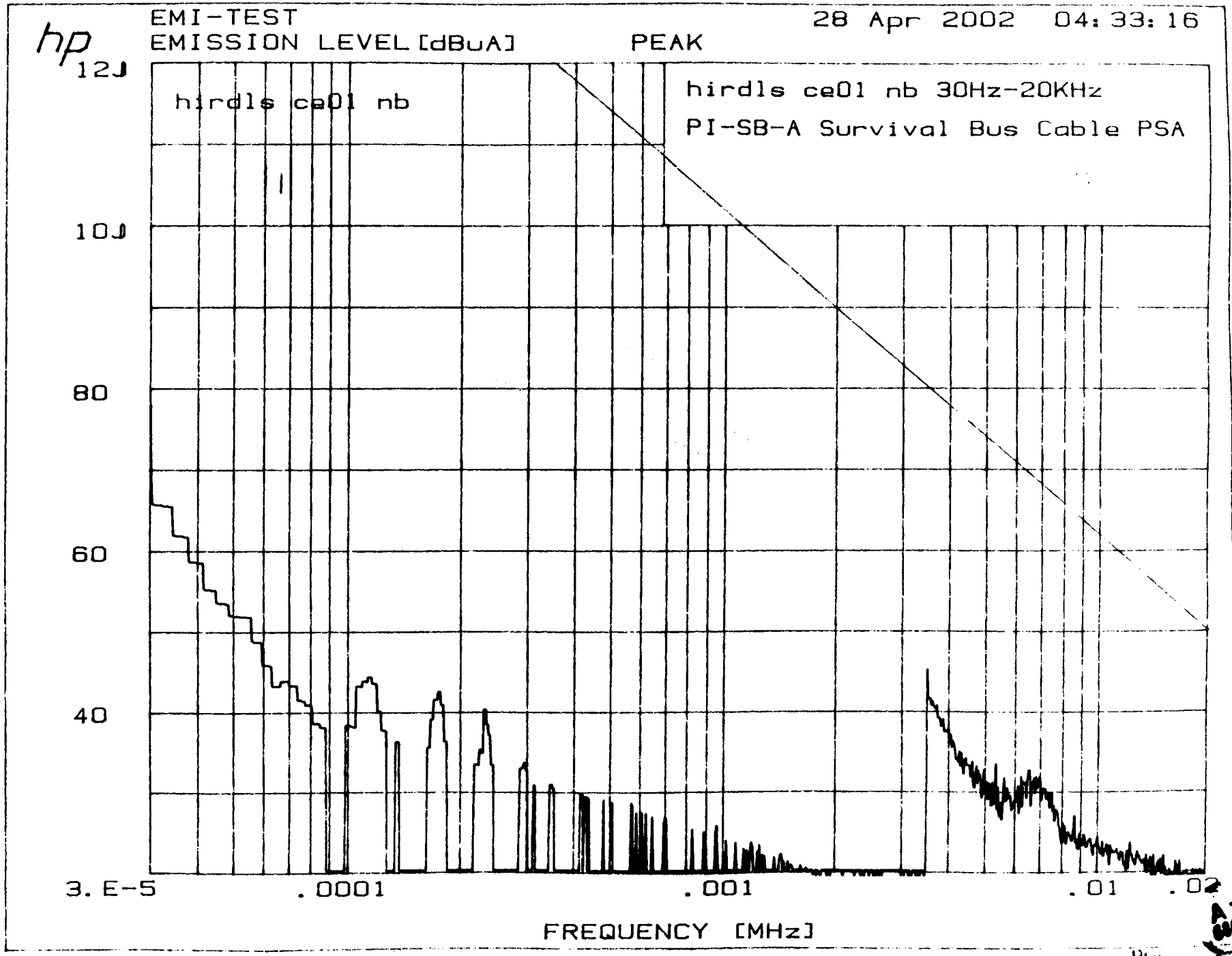
OUT ON
STE ON
FIG 27

29 Apr 2002
09:45:14

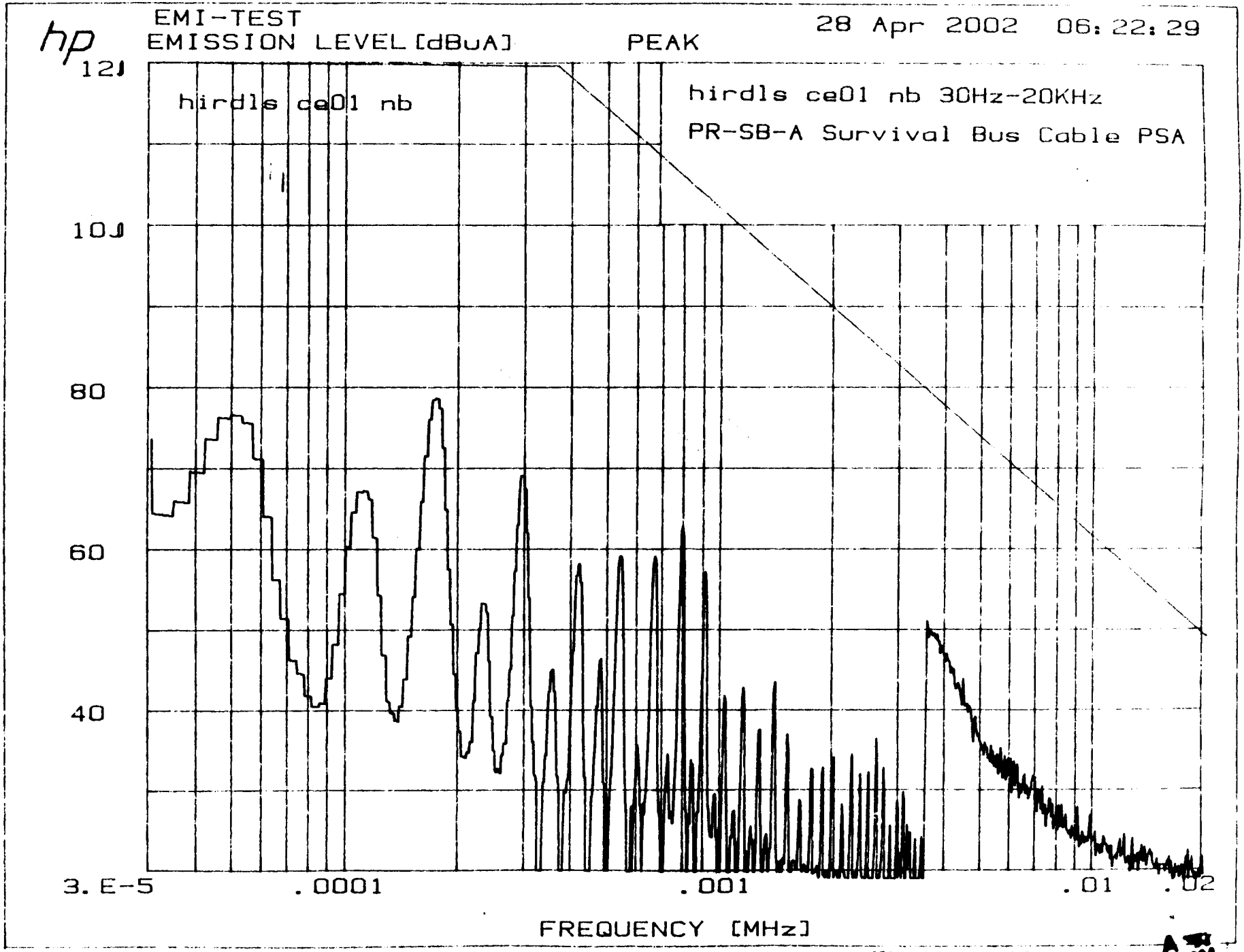
PQC
601335
APR 29 2002
INFORMATION ONLY

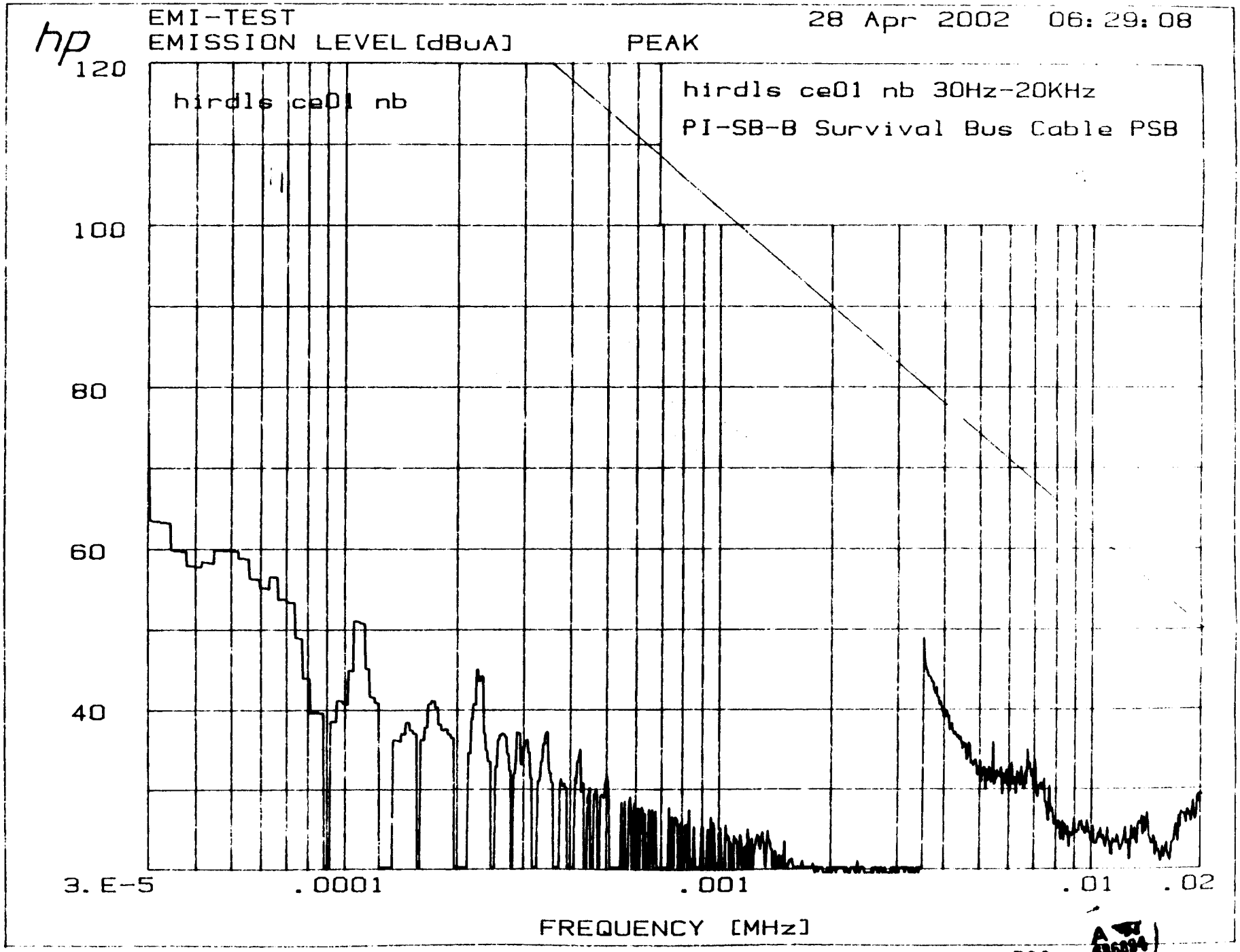


PQC
601335
APR 29 2012

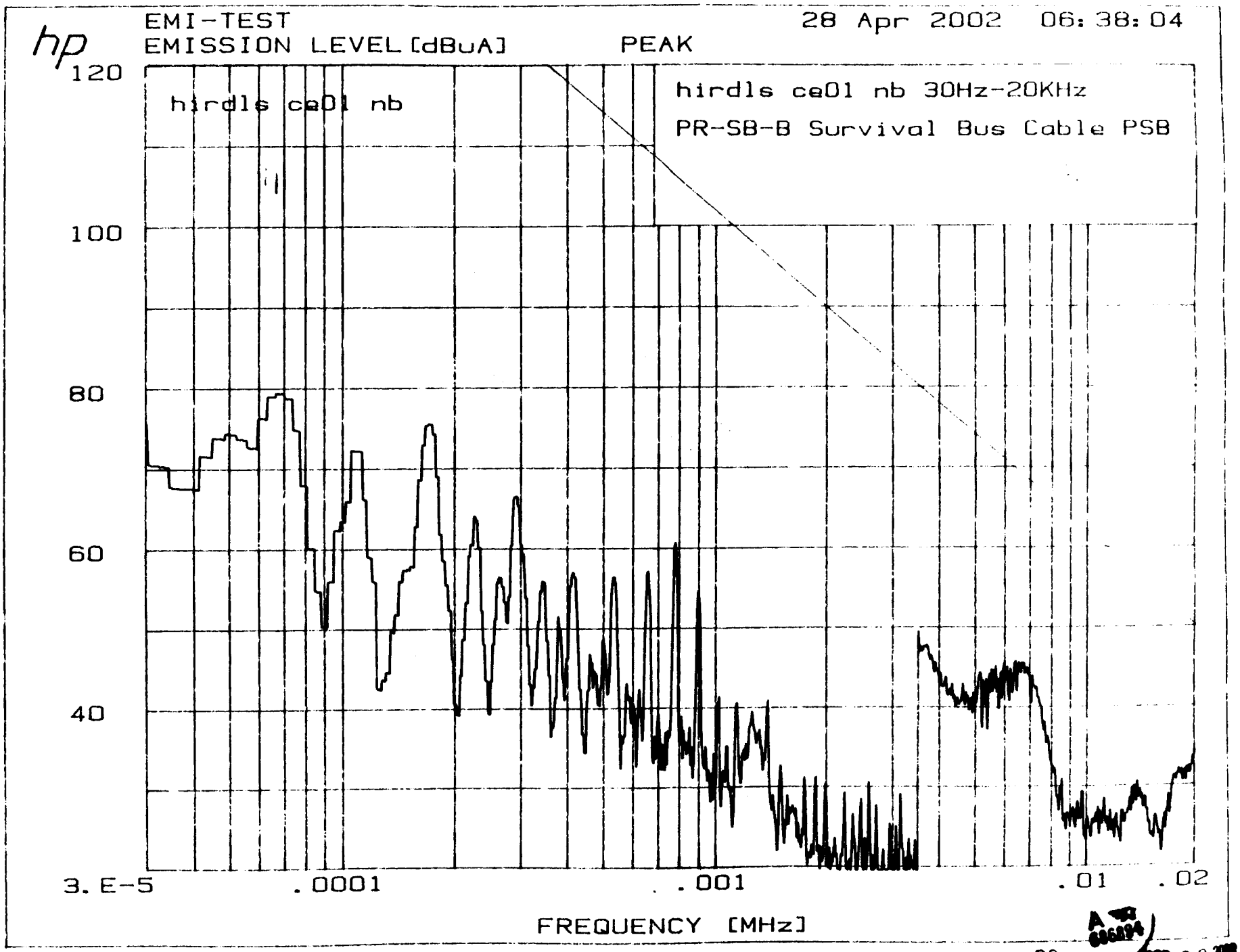


APR 29 2002
601336
APR 29 2002

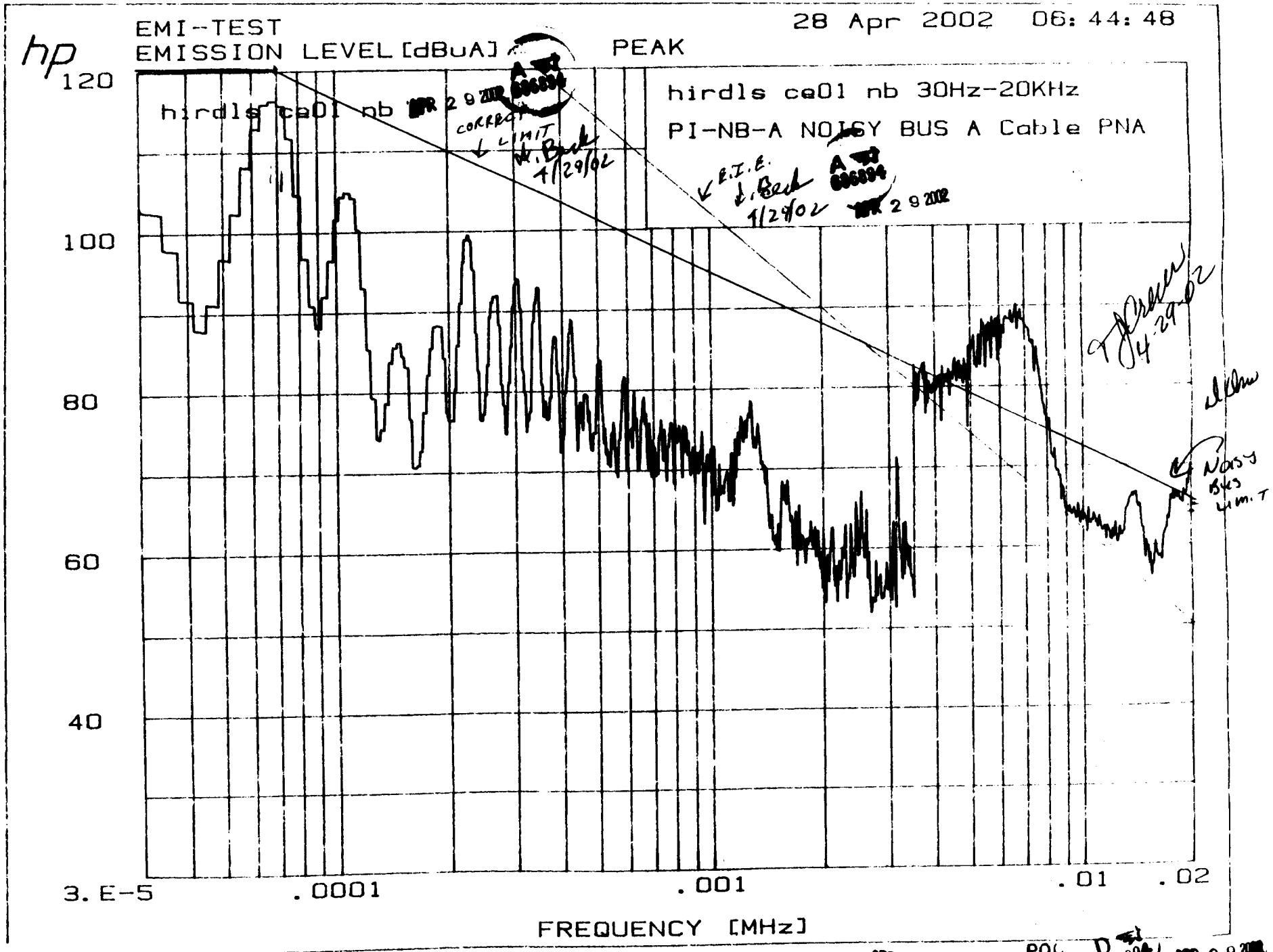

EMI-TEST
28 Apr 2002 06:22:29
EMISSION LEVEL [dBuA]
PEAK
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PR-SB-A Survival Bus Cable PSA
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]



APR 2 9 2002 PQC APR 2 9 2002



APR 29 2002
PQC 601336
APR 29 2002

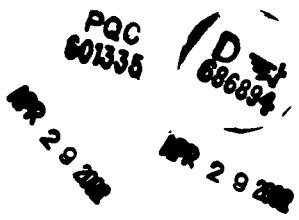

hp
EMI-TEST
28 Apr 2002 06:44:48
EMISSION LEVEL [dBuA]
PEAK
hirdls ce01 nb 30Hz-20KHz
PI-NB-A NOISY BUS A Cable PNA
hirdls ce01 nb
CORRECT LIMIT
R. Beck 1/29/02
E.I.E. R. Beck 1/24/02
A 686894
APR 29 2002
Noisy Bus Limit
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]
PQC 601335
D 686894
APR 29 2002

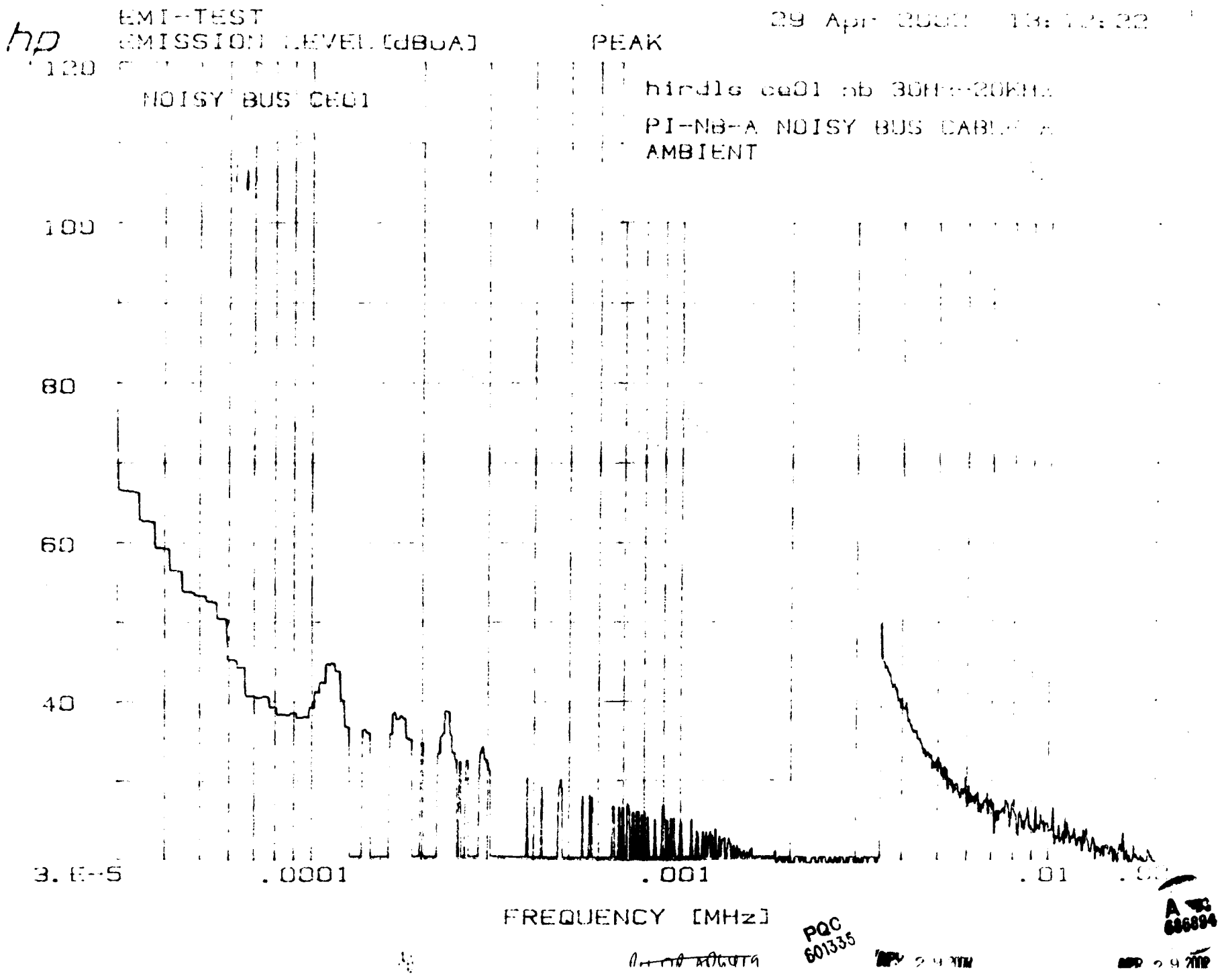
EMI-TEST 28 Apr 2002 06:44:48

1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz

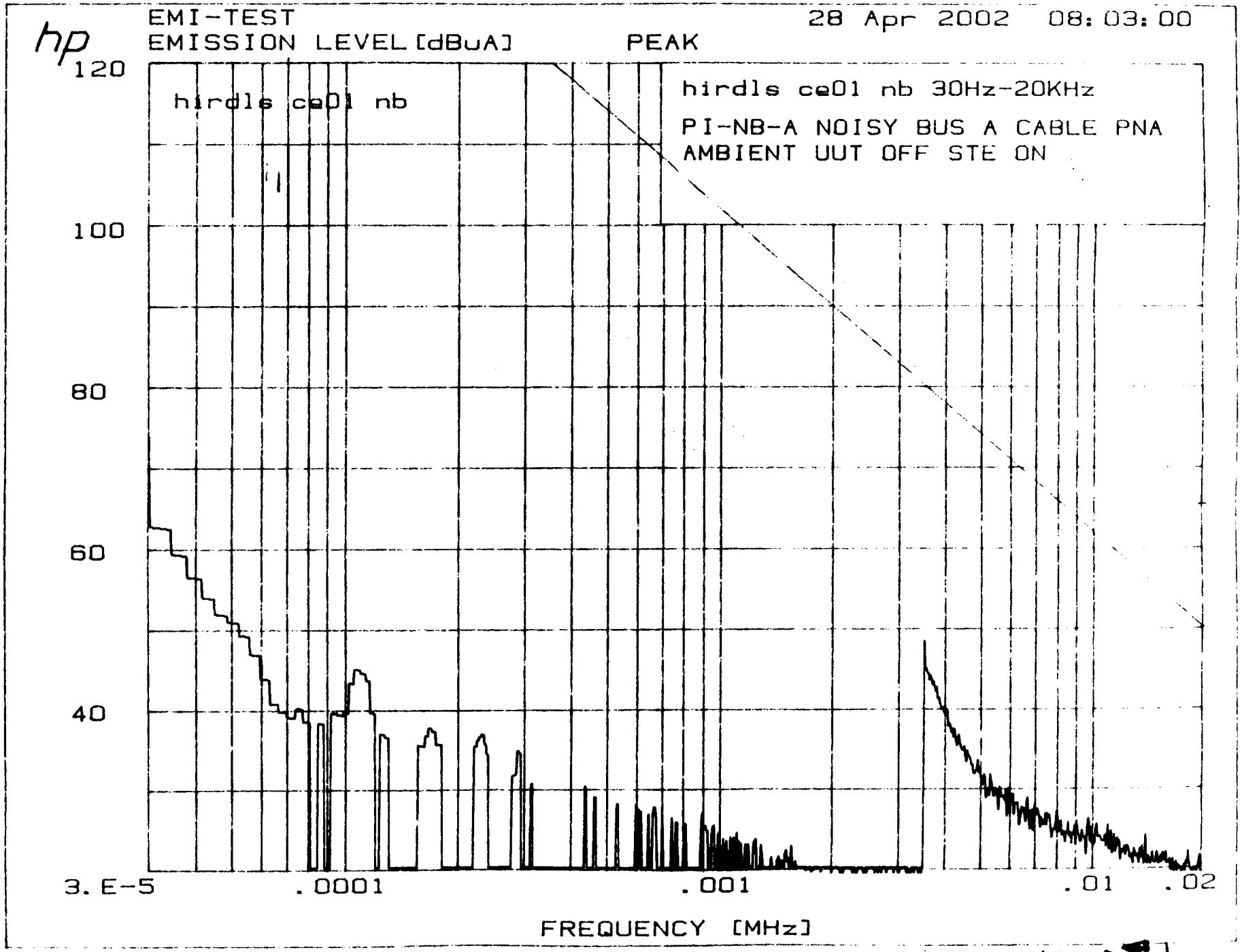
Peaks above 20 dBuA
peak criteria = 6 dB

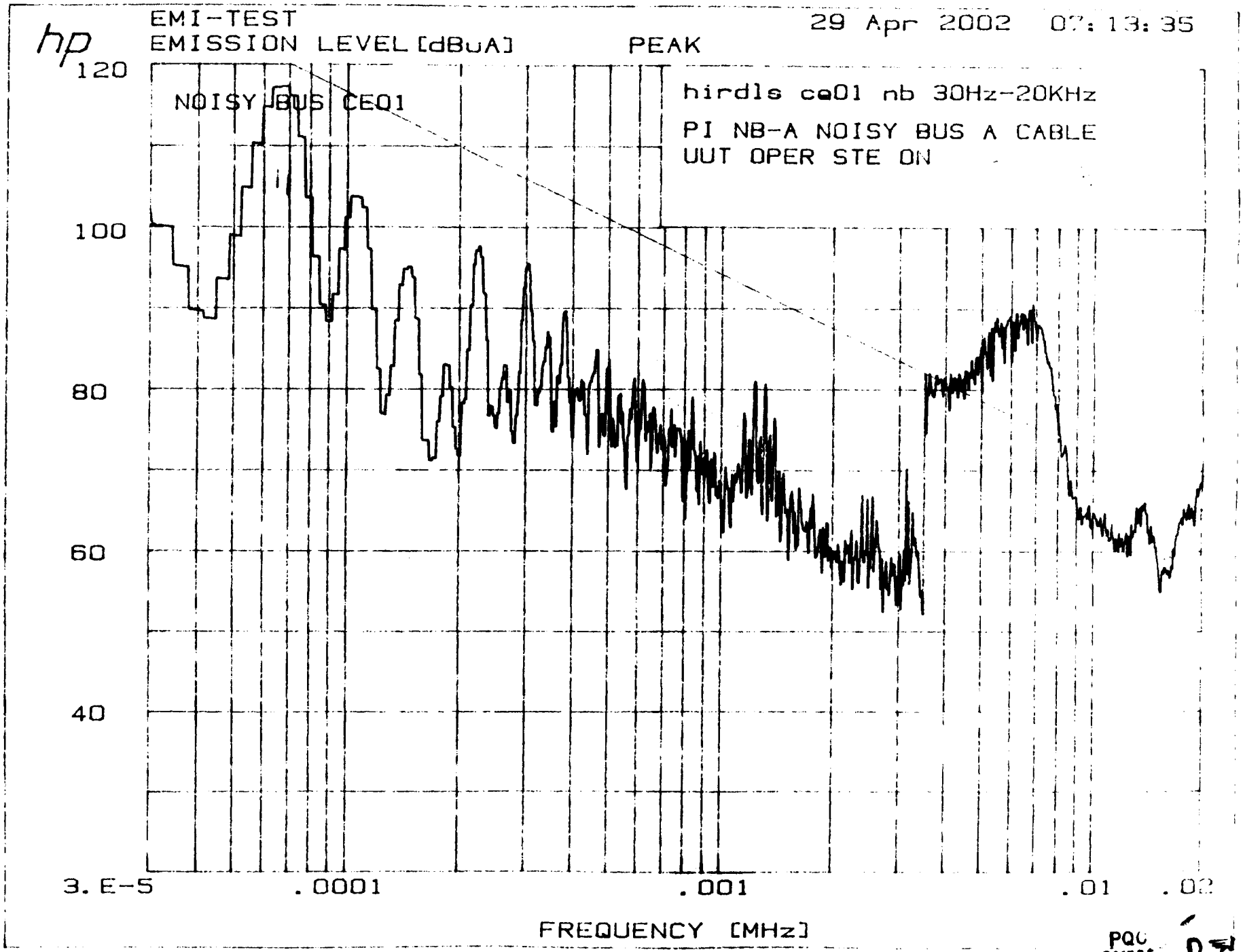
PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	6.7E-5	116.3	96.3
2	.000106	104.9	84.9
3	.000225	99.5	79.5
4	.000303	94.1	74.1
5	.000343	92.9	72.9
6	.000268	92	72.0
7	.006629	90.2	70.2
8	.000422	88.9	68.9
9	.00535	88.4	68.4
10	.000185	88.3	68.3
11	.00038	86.8	66.8
12	.000145	86.2	66.2
13	.000503	83.8	63.8
14	.004519	83.6	63.6
15	.003743	83.1	63.1
16	.000584	81.7	61.7
17	.000623	79.9	59.9
18	.000459	79.6	59.6
19	.000661	79.1	59.1
20	.001273	78.5	58.5
21	.000733	76.3	56.3
22	.000798	76.3	56.3
23	.000777	75.9	55.9
24	.00084	75.5	55.5
25	.000944	74.8	54.8
26	.001014	72.9	52.9
27	.001133	72.1	52.1
28	.003141	71.3	51.3
29	.001598	68.6	48.6
30	.002518	67.1	47.1
31	.0139	66.7	46.7
32	.002438	65.8	45.8
33	.001717	65.5	45.5
34	.002601	64.8	44.8
35	.00308	63.3	43.3
36	.003308	63.3	43.3
37	.00236	63.1	43.1
38	.003265	63.1	43.1
39	.002284	63	43.0
40	.002099	62.6	42.6
41	.001993	61.6	41.6



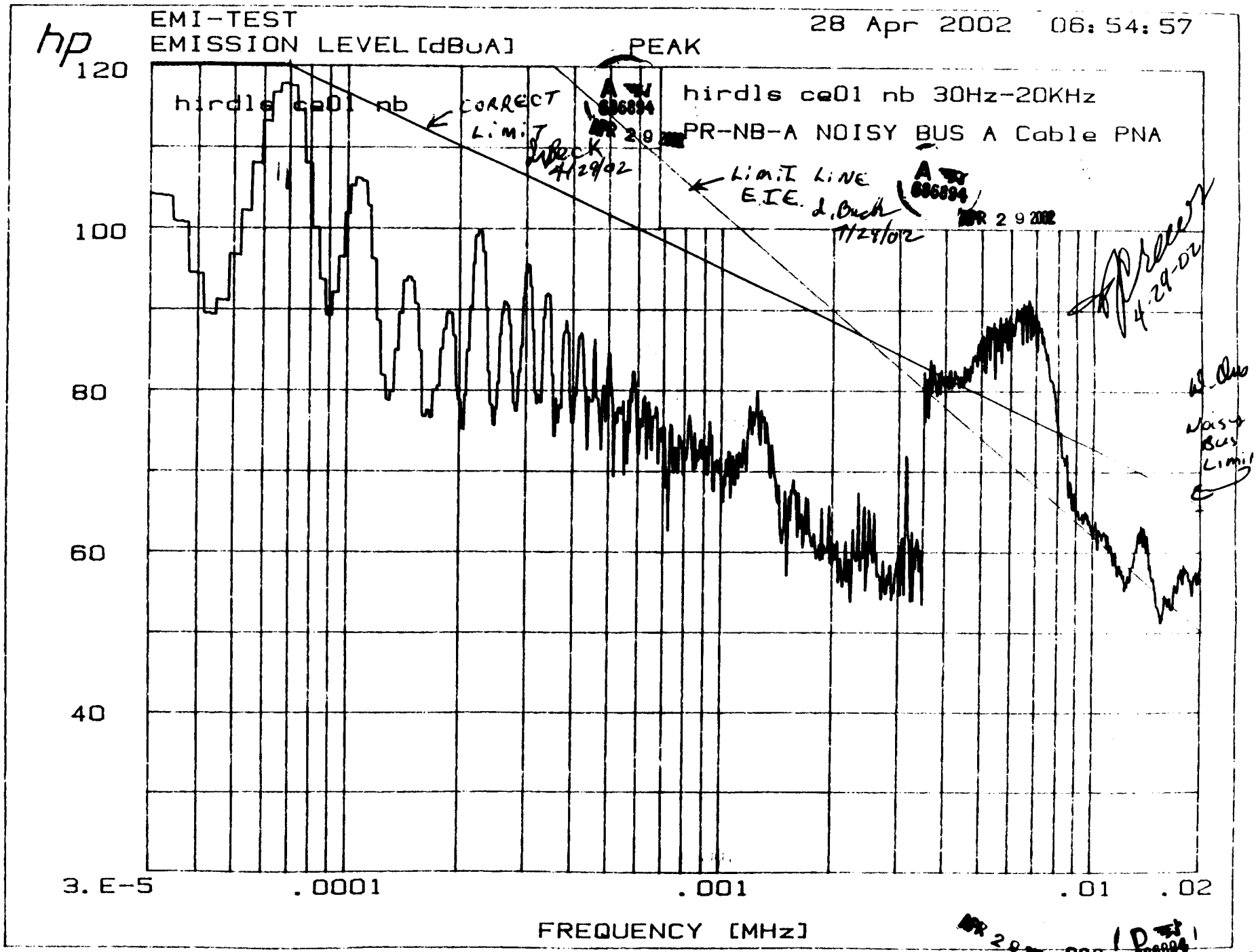

hp
EMI-TEST
EMISSION LEVEL [dBUA]
29 Apr 2000 13:12:22
PEAK
120
NOISY BUS CE01
hirdls ce01 nb 30Hz-20KHz
PI-NB-A NOISY BUS CABLE A
AMBIENT
100
80
60
40
3.E-5
.0001
.001
.01
FREQUENCY [MHz]

PQC 601335


EMI-TEST
28 Apr 2002 08:03:00
EMISSION LEVEL [dBuA]
PEAK
hp
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PI-NB-A NOISY BUS A CABLE PNA
AMBIENT UUT OFF STE ON
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]



PQC 601336 D 686894


hp
EMI-TEST
28 Apr 2002 06:54:57
EMISSION LEVEL [dBuA]
PEAK
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]
hirdls cq01 nb
CORRECT
LIMIT
hirdls cq01 nb 30Hz-20KHz
PR-NB-A NOISY BUS A Cable PNA
LIMIT LINE
E.I.E.
Noisy Bus Limit
PQC
DRAD6419

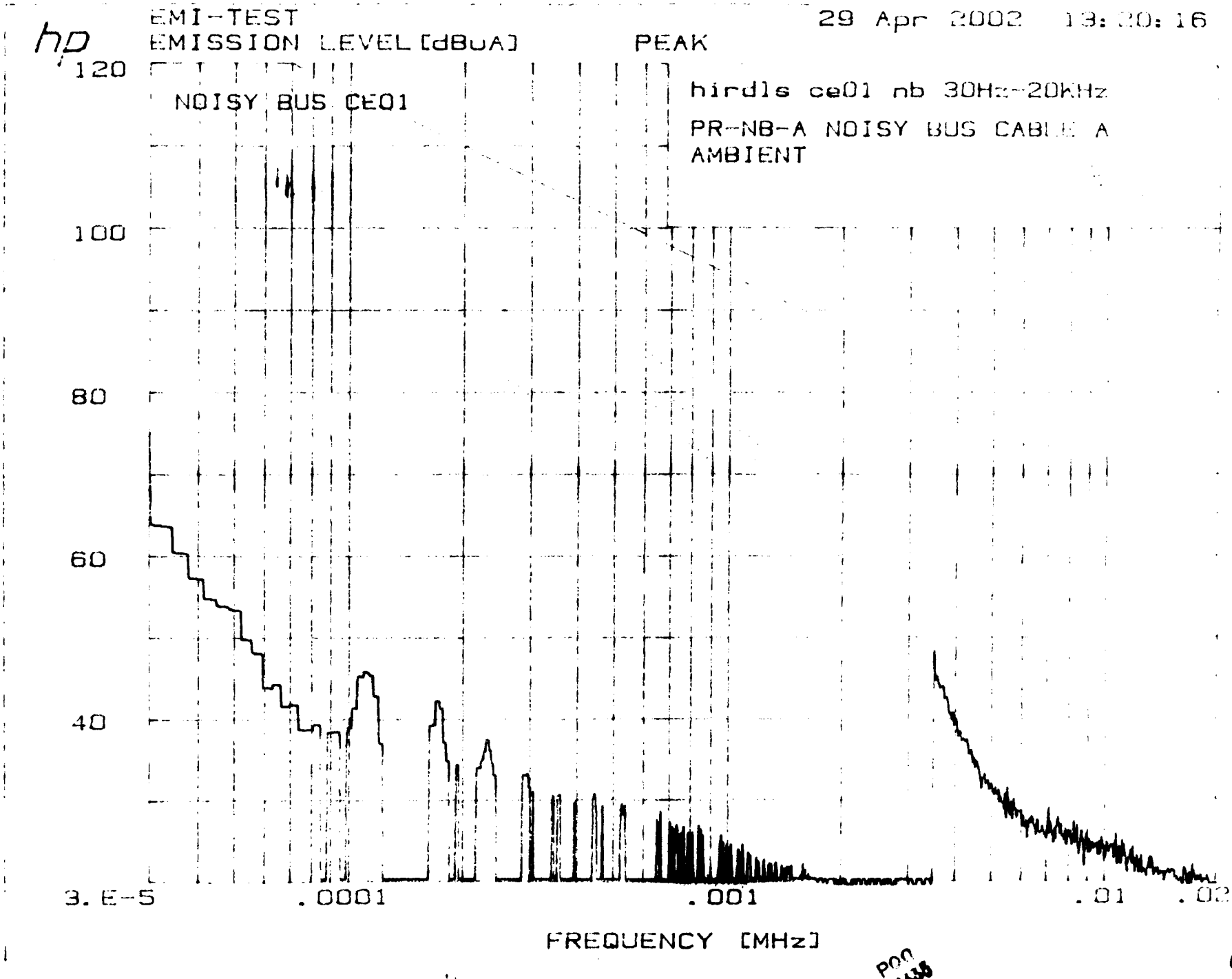
EMI-TEST 28 Apr 2002 06:54:57

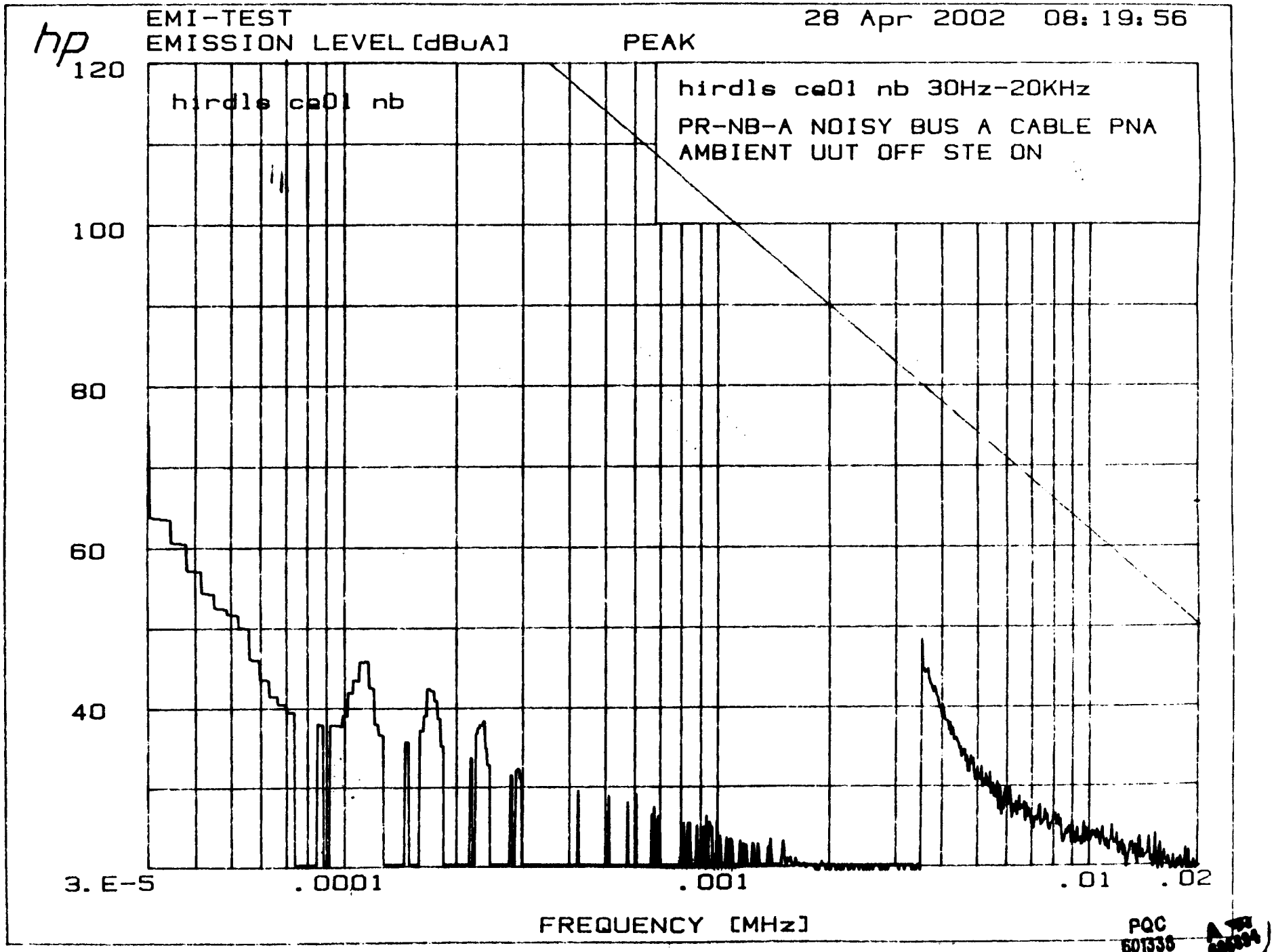
1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz

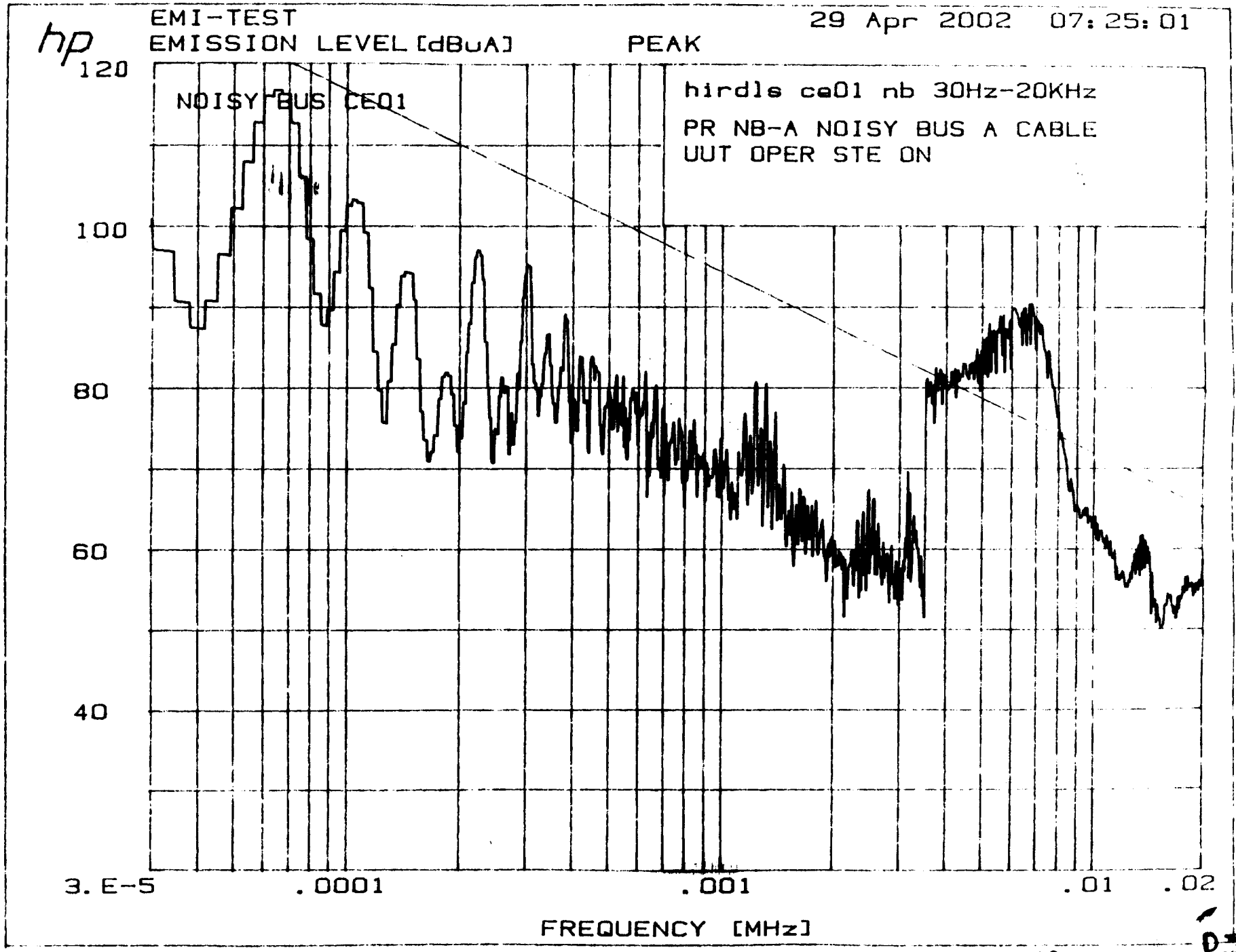
Peaks above 20 dBuA
peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	6.7E-5	117.8	97.8
2	.000106	106.2	86.2
3	.000225	99.8	79.8
4	.000303	95.6	75.6
5	.000145	94	74.0
6	.000343	92	72.0
7	.006672	91.4	71.4
8	.000263	91	71.0
9	.000185	89.6	69.6
10	.000385	88.6	68.6
11	.005385	88.6	68.6
12	.000422	87.1	67.1
13	.000459	86.3	66.3
14	.000503	84.6	64.6
15	.00058	82.4	62.4
16	.003507	82.4	62.4
17	.001249	79.9	59.9
18	.000623	79.3	59.3
19	.000547	78.7	58.7
20	.00064	78.6	58.6
21	.000824	76.9	56.9
22	.000932	76.2	56.2
23	.000733	75.8	55.8
24	.003141	72	52.0
25	.001567	69	49.0
26	.001488	67.6	47.6
27	.002345	67.4	47.4
28	.001694	66.8	46.8
29	.001955	65.8	45.8
30	.002438	65.6	45.6
31	.001868	65.5	45.5
32	.002502	65.3	45.3
33	.002585	64.9	44.9
34	.01354	63.3	43.3
35	.003265	62.6	42.6
36	.00308	61.8	41.8
37	.003373	61.7	41.7

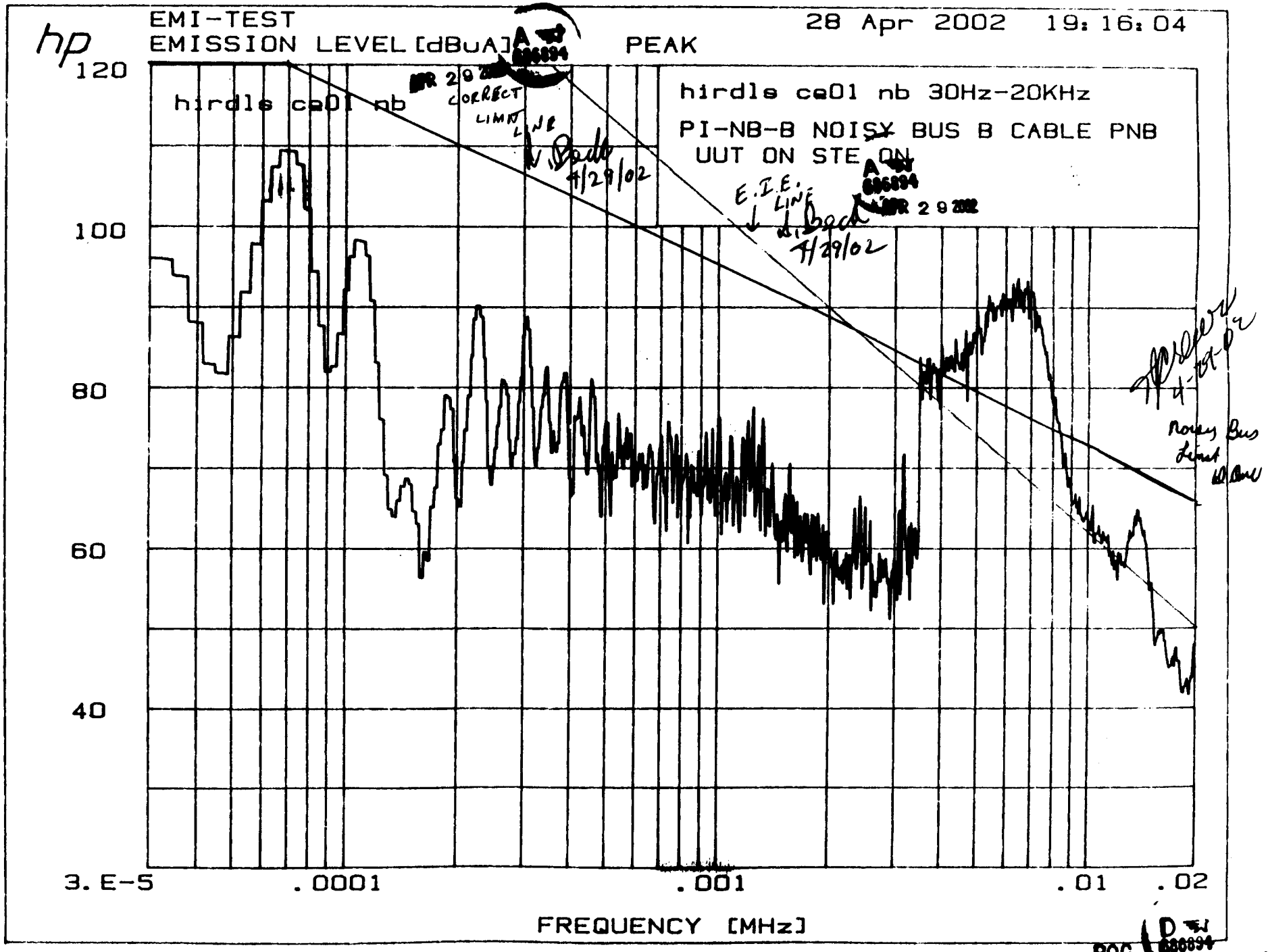
FCC 97-326 MAR 20 2002


hp
EMI-TEST
29 Apr 2002 13:20:16
EMISSION LEVEL [dBuA]
PEAK
120
NOISY BUS CE01
hirdls ce01 nb 30Hz-20kHz
PR-NB-A NOISY BUS CABLE A
AMBIENT
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]


EMI-TEST
28 Apr 2002 08:19:56
EMISSION LEVEL [dBuA]
PEAK
hp
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PR-NB-A NOISY BUS A CABLE PNA
AMBIENT UUT OFF STE ON
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]
PQC
501336


EMI-TEST
29 Apr 2002 07:25:01
EMISSION LEVEL [dBuA]
PEAK
hp
120
100
80
60
40
NOISY BUS CEQ1
hirdls ce01 nb 30Hz-20KHz
PR NB-A NOISY BUS A CABLE
UUT OPER STE ON
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]

PQC
D 686894

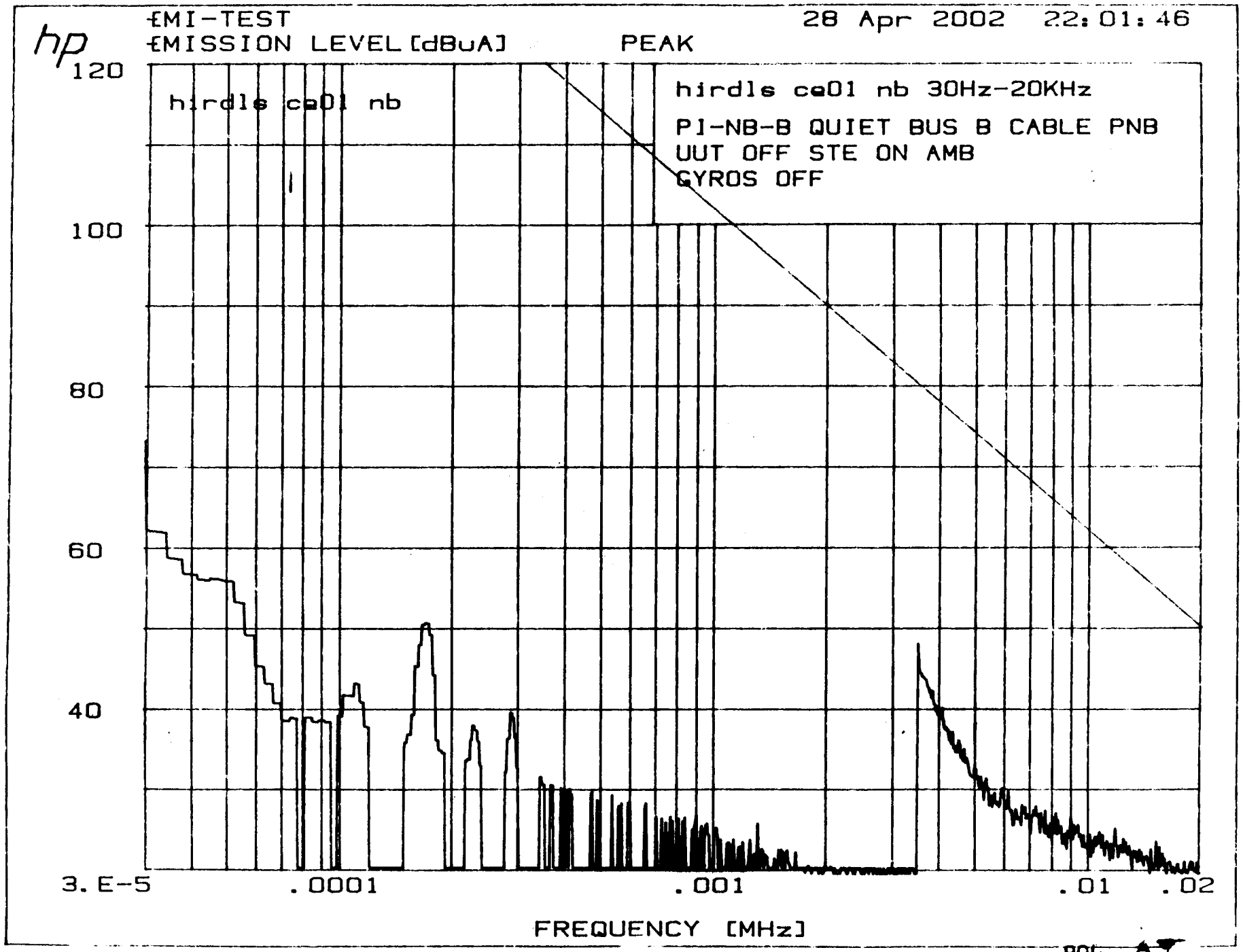

hp
EMI-TEST
EMISSION LEVEL [dBuA]
PEAK
28 Apr 2002 19:16:04
hirdls ca01 nb
hirdls ca01 nb 30Hz-20KHz
PI-NB-B NOISY BUS B CABLE PNB
UUT ON STE ON
CORRECT LIMIT LINE
E.I.E. LINE
Noisy Bus Limit
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]
PQC 601335

EMI-TEST 28 Apr 2002 19:16:04

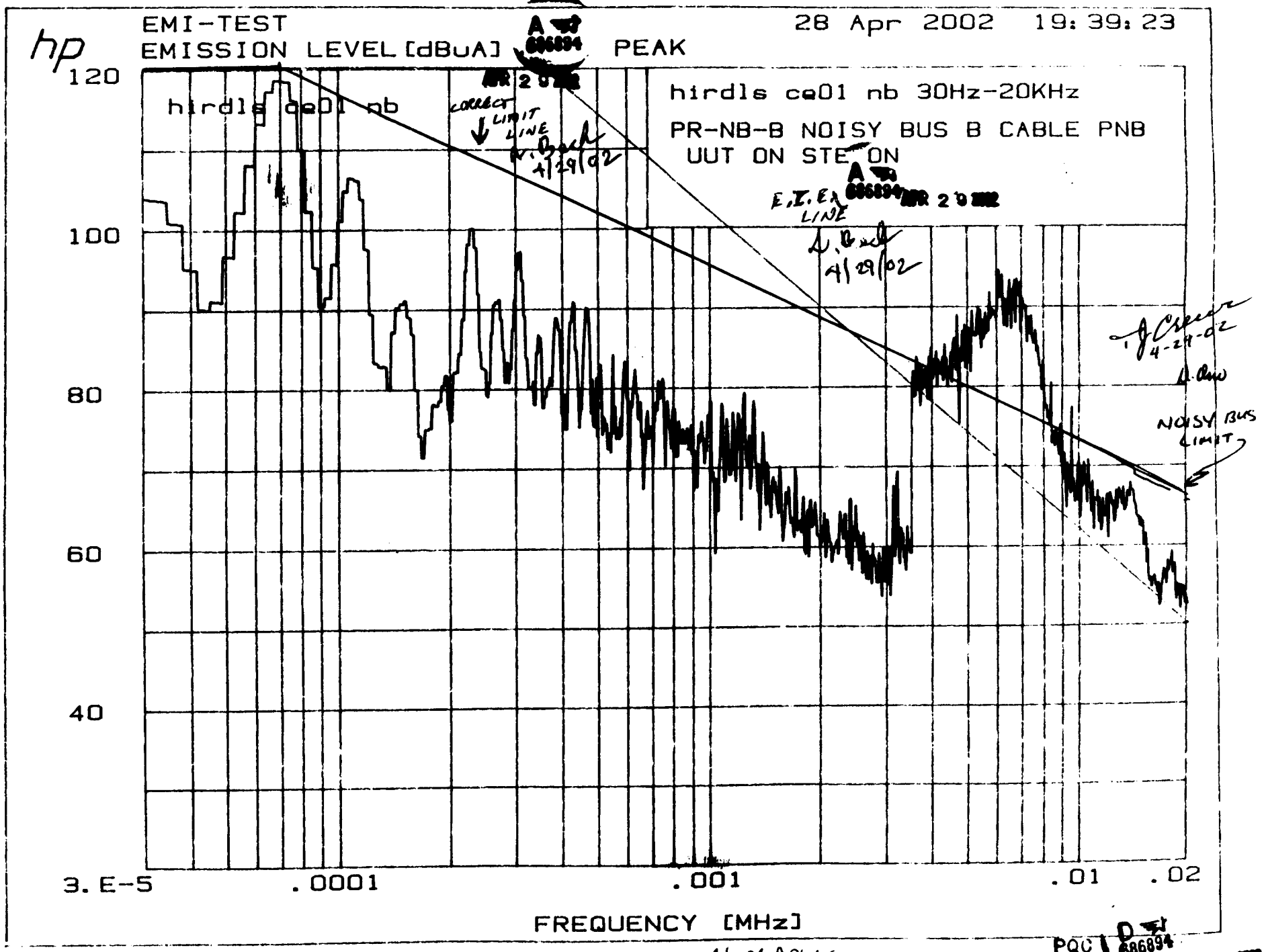
1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz PI-NB-B OPER.

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

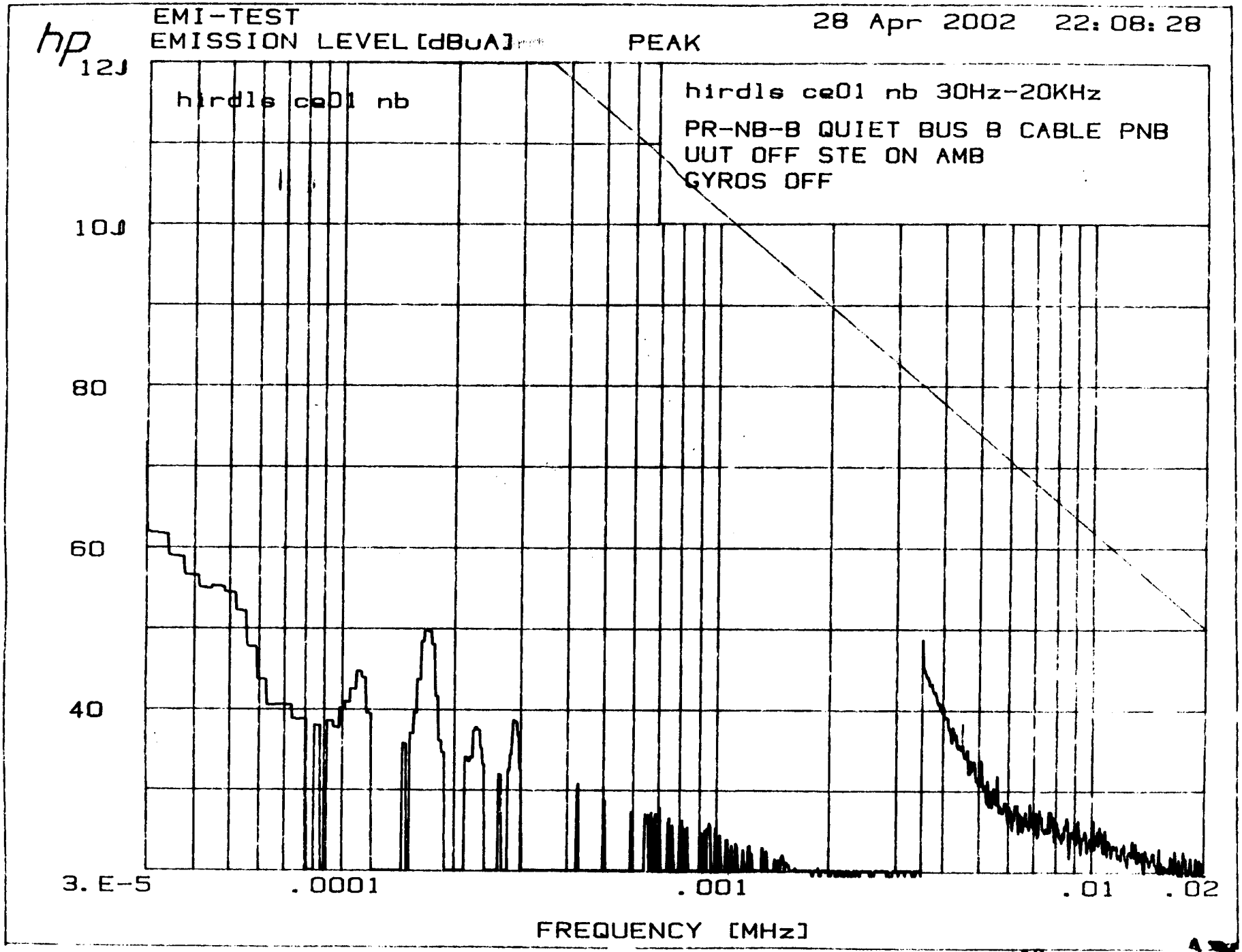
PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.003507	83.8	3.7
2	.003576	81.9	2.2
3	.003671	83.6	4.3
4	.003719	83.7	4.6
5	.003816	83	4.4
6	.003942	82.3	4.3
7	.00402	85.3	7.6
8	.004126	83.8	6.5
9	.004207	83.8	6.9
10	.004262	84	7.3
11	.004374	86.1	9.8
12	.004548	84.3	8.7
13	.004607	84.8	9.4
14	.004668	87.2	12.1
15	.004729	85.4	10.5
16	.004791	85.7	11.0
17	.004917	86.9	12.7
18	.005013	89.5	15.6
19	.005281	89.4	16.4
20	.005385	91.5	18.8
21	.005563	89.8	17.7
22	.005784	90.9	19.5
23	.005859	91.8	20.6
24	.005975	91.5	20.6
25	.006132	91.1	20.7
26	.006253	93	22.9
27	.006459	93.6	24.1
28	.006543	92.2	22.9
29	.006848	93.3	24.8
30	.006983	92	23.8
31	.007213	89.5	21.9
32	.007355	89	21.7
33	.008652	71.9	7.5
34	.00888	68.8	4.8
35	.[redacted]	66.8	3.5
36	.[redacted]	66.5	3.6
37	.[redacted]	64.5	2.4
38	.[redacted]	65.4	4.0
39	.[redacted]	62.9	2.2
40	.011	62.1	1.8
41	.01174	59.6	.4
42	.01213	59.5	.9
43	.01346	64	7.2
44	.01363	64.9	8.3



APR 29 2002
PQC 601335
APR 29 2002


EMI-TEST
28 Apr 2002 19:39:23
EMISSION LEVEL [dBuA]
PEAK
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PR-NB-B NOISY BUS B CABLE PNB
UUT ON STE ON
CORRECT LIMIT LINE
E.I.E. LINE
NOISY BUS LIMIT
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]

52	.009852	70.4	8.2
53	.01011	69.8	8.0
54	.01024	70.5	9.0
55	.01051	70.8	9.7
56	.01079	68.1	7.5
57	.01115	66.9	6.8
58	.01129	66	6.2
59	.01151	65.9	6.4
60	.01182	66.4	7.3
61	.01205	66.6	7.9
62	.01253	67	9.0
63	.01278	67.2	9.5
64	.01311	67.4	10.1
65	.01372	67.9	11.4
66	.01513	61.5	6.7
67	.01532	59.4	4.8
68	.01604	56.2	2.4
69	.01646	55.2	1.9
70	.017	57	4.2
71	.01745	58.1	5.8
72	.01791	59.2	7.3
73	.01826	57.7	6.2
74	.01862	55.1	3.9
75	.01911	54.9	4.2



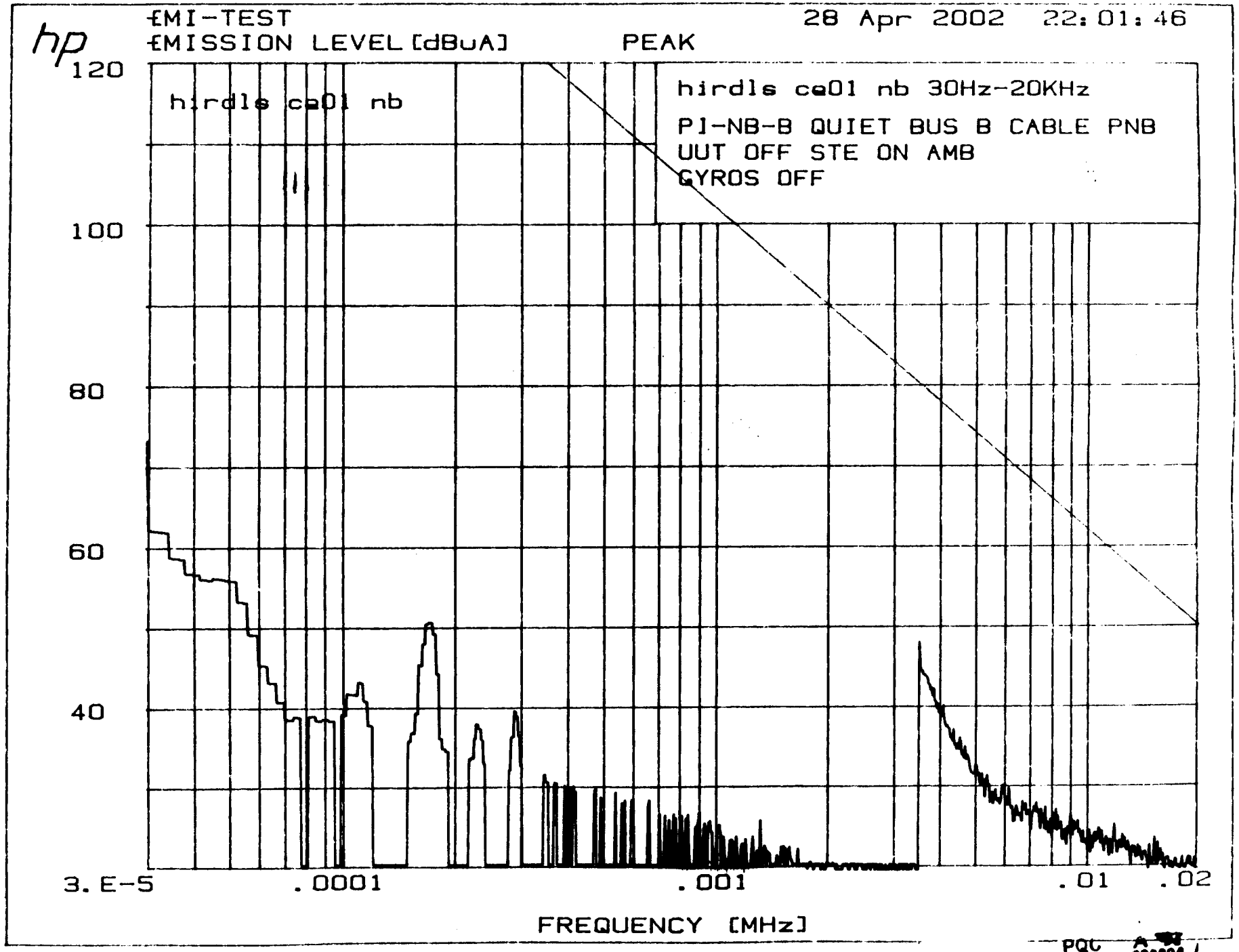
APR 2 9 2002 PQC 601335 APR 2 9 2002

EMI-TEST 28 Apr 2002 19:39:23

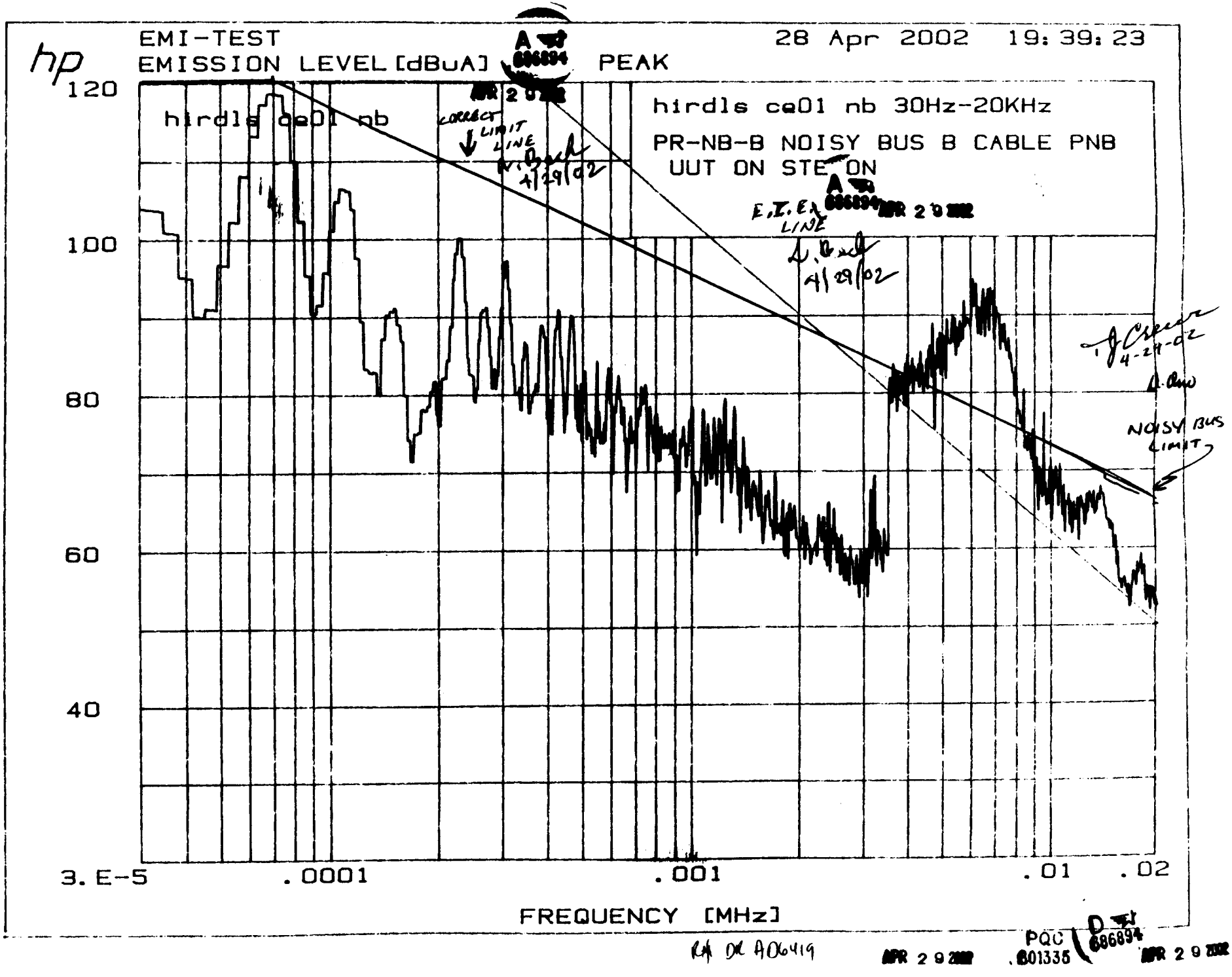
1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz PR-NB-B OPER

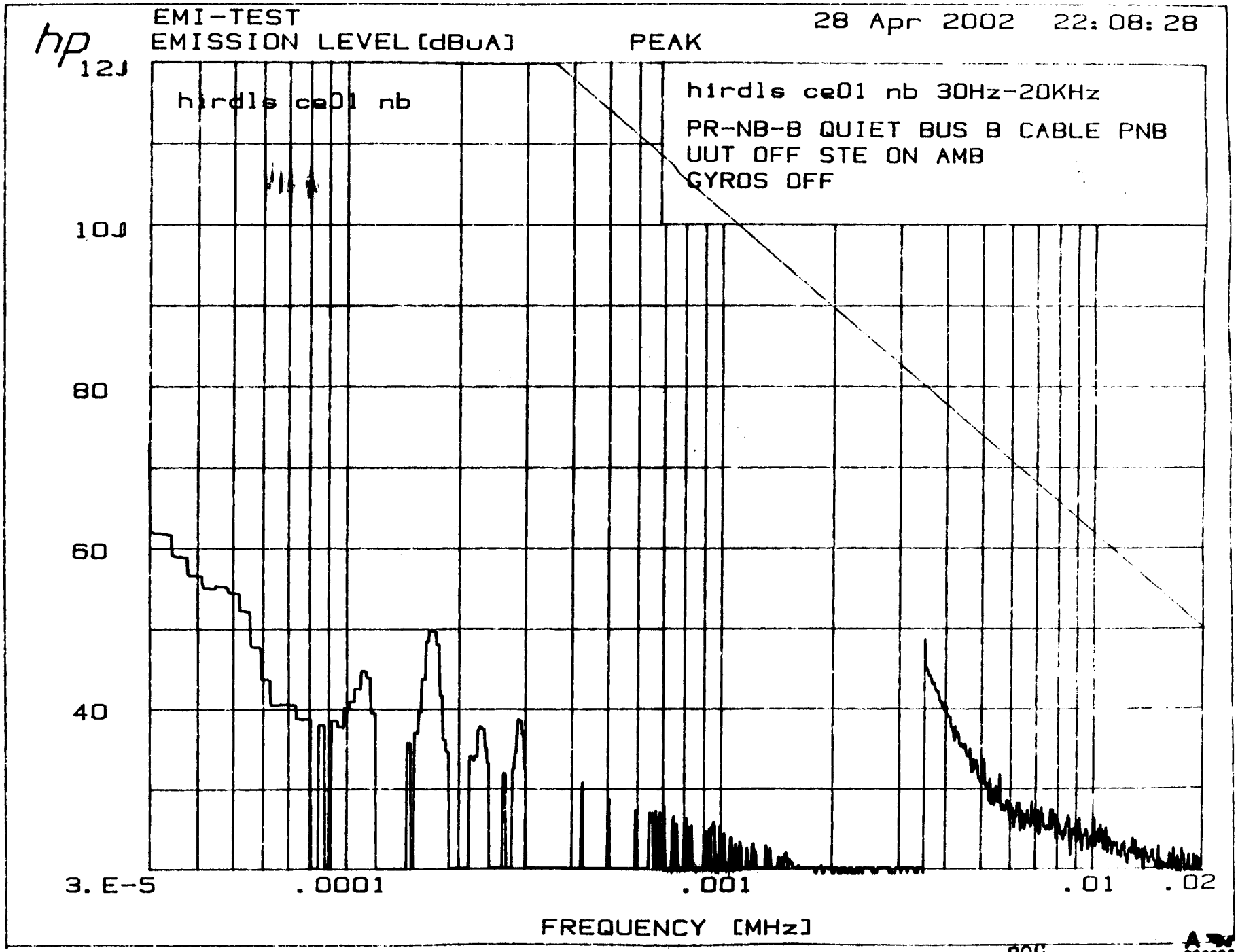
Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.00353	81.9	1.9
2	.0036	83.7	4.1
3	.003671	82.4	3.1
4	.003719	82.4	3.3
5	.003792	82	3.3
6	.003841	82.2	3.7
7	.003891	83.7	5.4
8	.003942	84.9	6.9
9	.00402	83.3	5.6
10	.004073	84.4	6.9
11	.004126	83.3	6.0
12	.004234	83.6	6.8
13	.00429	85.3	8.7
14	.004346	83.5	7.1
15	.00446	84.2	8.3
16	.004548	86	10.4
17	.004638	88.9	13.7
18	.004729	84.7	9.8
19	.004791	86.9	12.2
20	.004853	87.7	13.2
21	.004917	84.4	10.2
22	.004981	87.3	13.3
23	.005079	89.4	15.7
24	.005281	89.9	16.9
25	.00535	89.5	16.7
26	.00542	88.3	15.8
27	.005527	89.2	17.0
28	.005599	88.2	16.2
29	.005672	91.8	20.0
30	.006014	94.6	23.9
31	.006132	94	23.6
32	.006253	90.9	20.8
33	.006417	93.3	23.7
34	.006629	93.3	24.2
35	.006716	93.5	24.7
36	[illegible]	93	24.5
37	[illegible]	91	22.8
38	[illegible]	88.6	21.0
39	[illegible]	88.8	21.5
40	.007549	87	20.2
41	.0079	83.2	17.2
42	.008321	80.4	15.3
43	.008485	74.2	9.4
44	.008596	74.4	9.8
45	.008822	75.2	11.1
46	.008937	74	10.1
47	.009054	71.6	7.9
48	.009233	70.4	7.1
49	.009476	77.4	14.5
50	.009599	68.3	5.6
51	.009725	66.9	4.5



PQC 601335 696894


EMI-TEST
28 Apr 2002 19:39:23
EMISSION LEVEL [dBuA]
PEAK
hp
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PR-NB-B NOISY BUS B CABLE PNB
UUT ON STE ON
CORRECT LIMIT LINE
E.I.E. LINE
NOISY BUS LIMIT
4/29/02
4-29-02
APR 29 2002
A 686894
D 686894
PQC 801335
RA DL A06419


EMI-TEST
28 Apr 2002 22:08:28
EMISSION LEVEL [dBuA]
PEAK
hp 12J
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PR-NB-B QUIET BUS B CABLE PNB
UUT OFF STE ON AMB
GYROS OFF
10J
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]

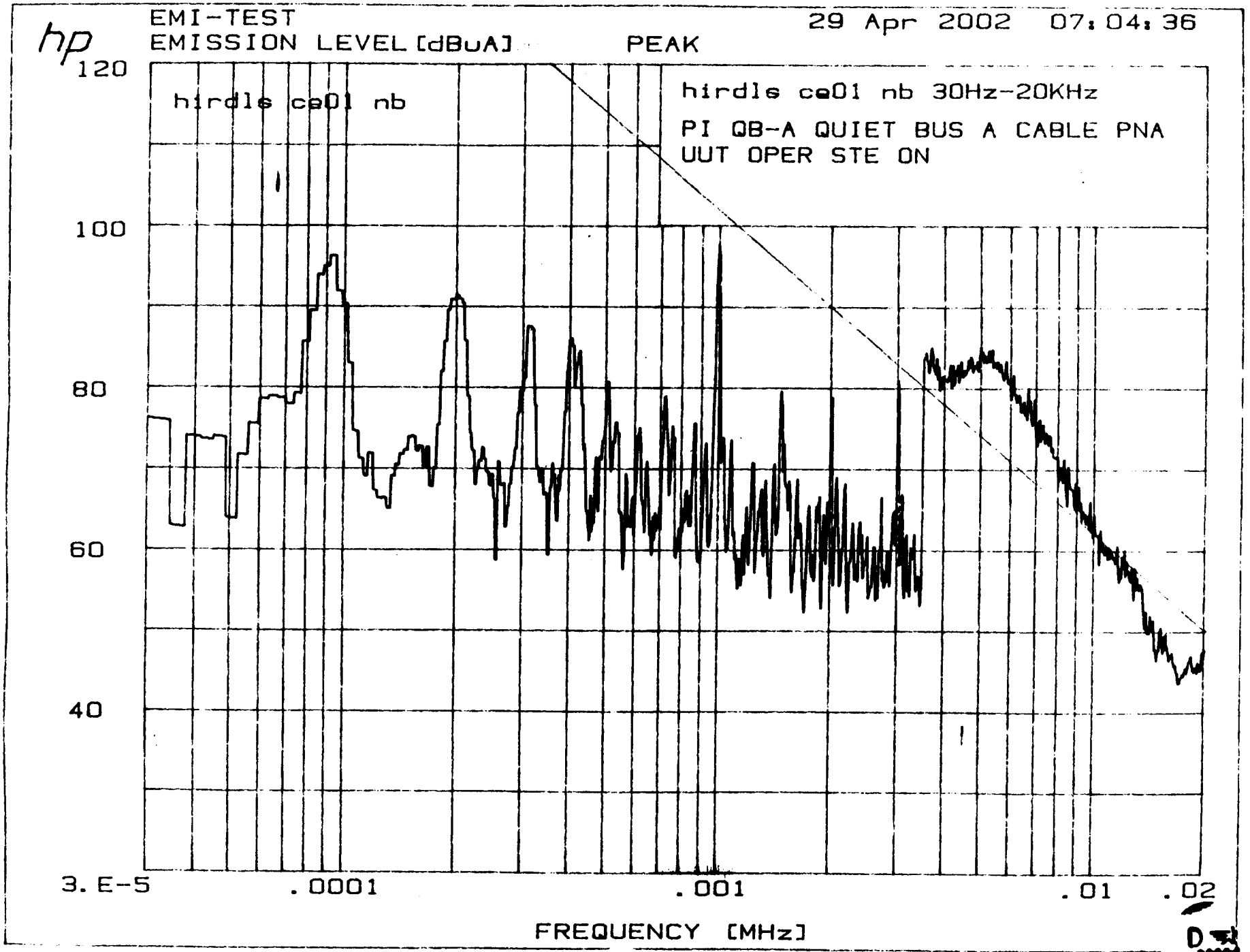
52	.009852	70.4	8.2
53	.01011	69.8	8.0
54	.01024	70.5	9.0
55	.01051	70.8	9.7
56	.01079	68.1	7.5
57	.01115	66.9	6.8
58	.01129	66	6.2
59	.01151	65.9	6.4
60	.01182	66.4	7.3
61	.01205	66.6	7.9
62	.01253	67	9.0
63	.01278	67.2	9.5
64	.01311	67.4	10.1
65	.01372	67.9	11.4
66	.01513	61.5	6.7
67	.01532	59.4	4.8
68	.01604	56.2	2.4
69	.01646	55.2	1.9
70	.017	57	4.2
71	.01745	58.1	5.8
72	.01791	59.2	7.3
73	.01826	57.7	6.2
74	.01862	55.1	3.9
75	.01911	54.9	4.2

EMI-TEST 28 Apr 2002 19:16:04

1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz PI-NB-B OPER.

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.003507	83.8	3.7
2	.003576	81.9	2.2
3	.003671	83.6	4.3
4	.003719	83.7	4.6
5	.003816	83	4.4
6	.003942	82.3	4.3
7	.00402	85.3	7.6
8	.004126	83.8	6.5
9	.004207	83.8	6.9
10	.004262	84	7.3
11	.004374	86.1	9.8
12	.004548	84.3	8.7
13	.004607	84.8	9.4
14	.004668	87.2	12.1
15	.004729	85.4	10.5
16	.004791	85.7	11.0
17	.004917	86.9	12.7
18	.005013	89.5	15.6
19	.005281	89.4	16.4
20	.005385	91.5	18.8
21	.005563	89.8	17.7
22	.005784	90.9	19.5
23	.005859	91.8	20.6
24	.005975	91.5	20.6
25	.006132	91.1	20.7
26	.006253	93	22.9
27	.006459	93.6	24.1
28	.006543	92.2	22.9
29	.006848	93.3	24.8
30	.006983	92	23.8
31	.007213	89.5	21.9
32	.007355	89	21.7
33	.008652	71.9	7.5
34	.00888	68.8	4.8
35	.009233	66.8	3.5
36	[illegible]	66.5	3.6
37	[illegible]	64.5	2.4
38	[illegible]	65.4	4.0
39	[illegible]	62.9	2.2
40	.011	62.1	1.8
41	.01174	59.6	.4
42	.01213	59.5	.9
43	.01346	64	7.2
44	.01363	64.9	8.3



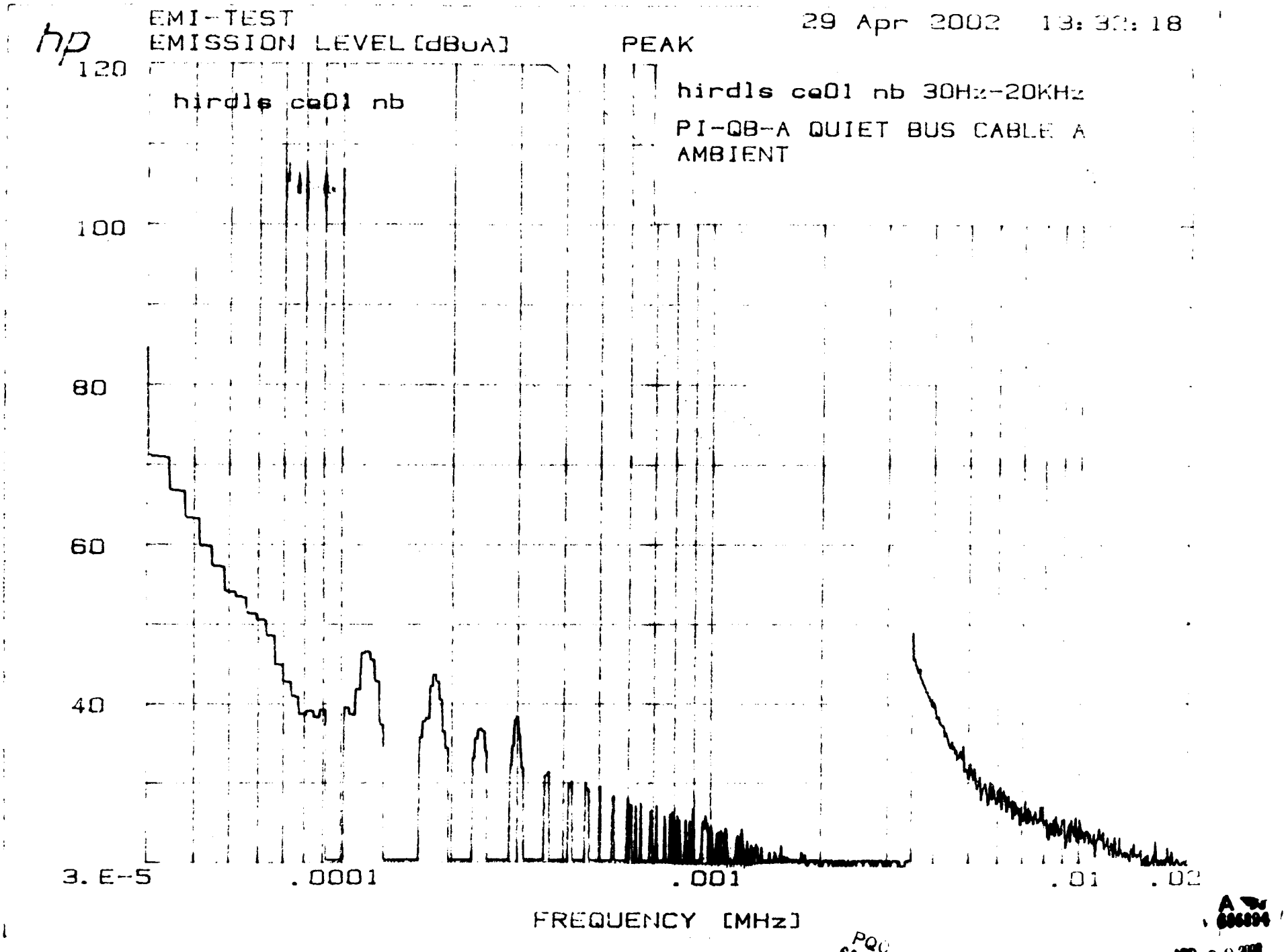
Ref OR AD6419

EMI-TEST 29 Apr 2002 07:04:36

1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz PI-QB-A OPER.

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.004949	85.1	11.0
2	.003671	85	5.7
3	.005315	84.8	11.9
4	.005213	84.7	11.5
5	.003553	84.4	4.6
6	.004668	83.9	8.8
7	.003792	83.7	5.0
8	.005784	83.4	12.0
9	.004403	83.3	7.2
10	.004853	83.3	8.8
11	.004126	82.9	5.6
12	.00418	82.9	5.9
13	.004318	82.9	6.4
14	.003841	82.6	4.1
15	.006053	81.6	11.0
16	.003891	81.3	3.0
17	.006629	80	10.9
18	.006892	78.7	10.3
19	.006716	78.5	9.7
20	.006459	78.4	8.9
21	.007074	76.1	8.2
22	.00726	75.5	8.0
23	.007403	74.5	7.4
24	.007549	74.2	7.4
25	.008267	71.3	6.1
26	.008485	70.4	5.6
27	.008108	70.3	4.7
28	.00888	68.4	4.4
29	.009054	67.9	4.2
30	.009725	66.1	3.7
31	.009293	64.9	1.7
32	.009981	64.4	2.4
33	.01038	62.6	1.3
34	.01151	60.6	1.1
35	.01205	60.1	1.4
36	[redacted]	59.3	.4
37	[redacted]	58.7	.2
38	[redacted]	57.9	.3



PQC
60133
APR 29 2002
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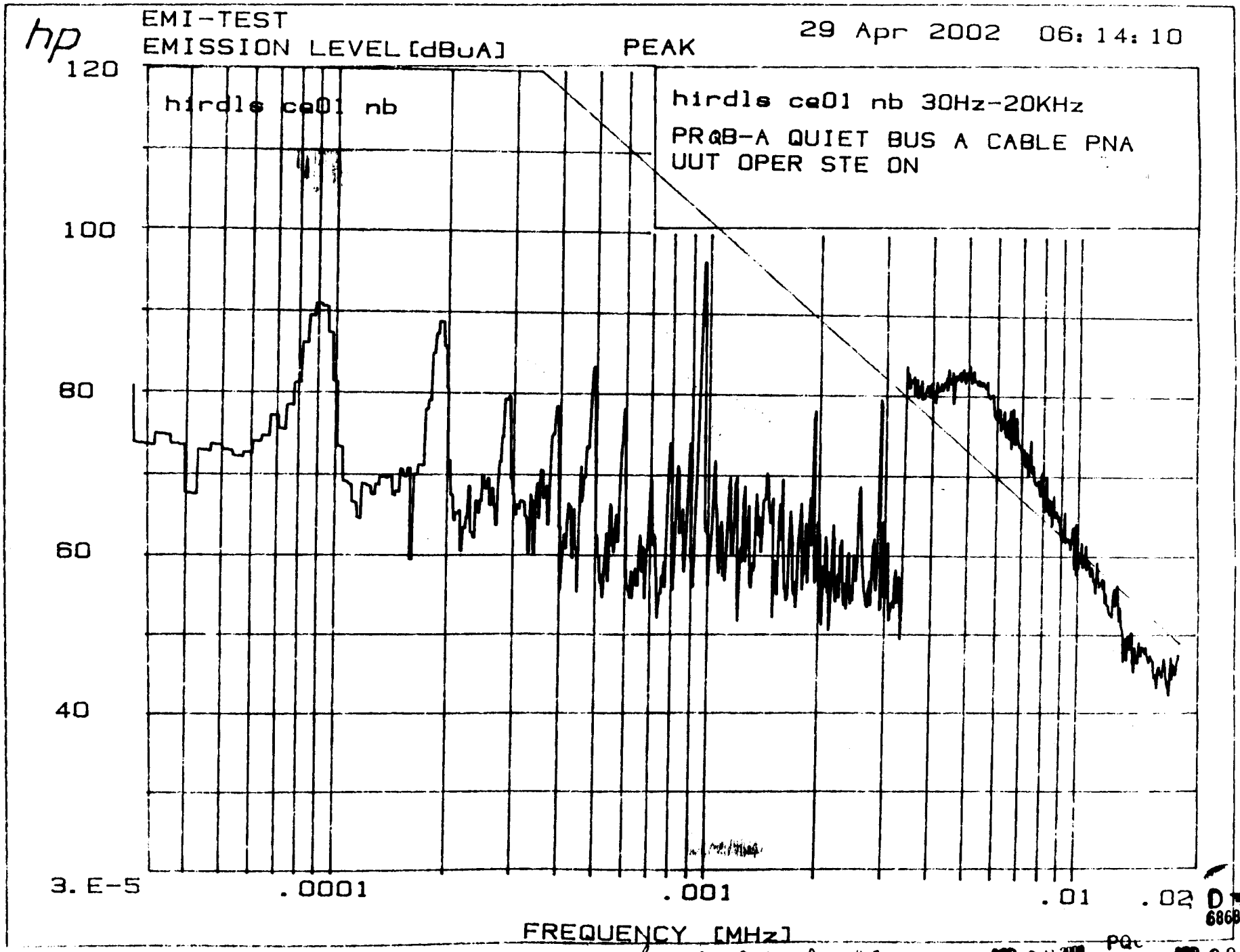
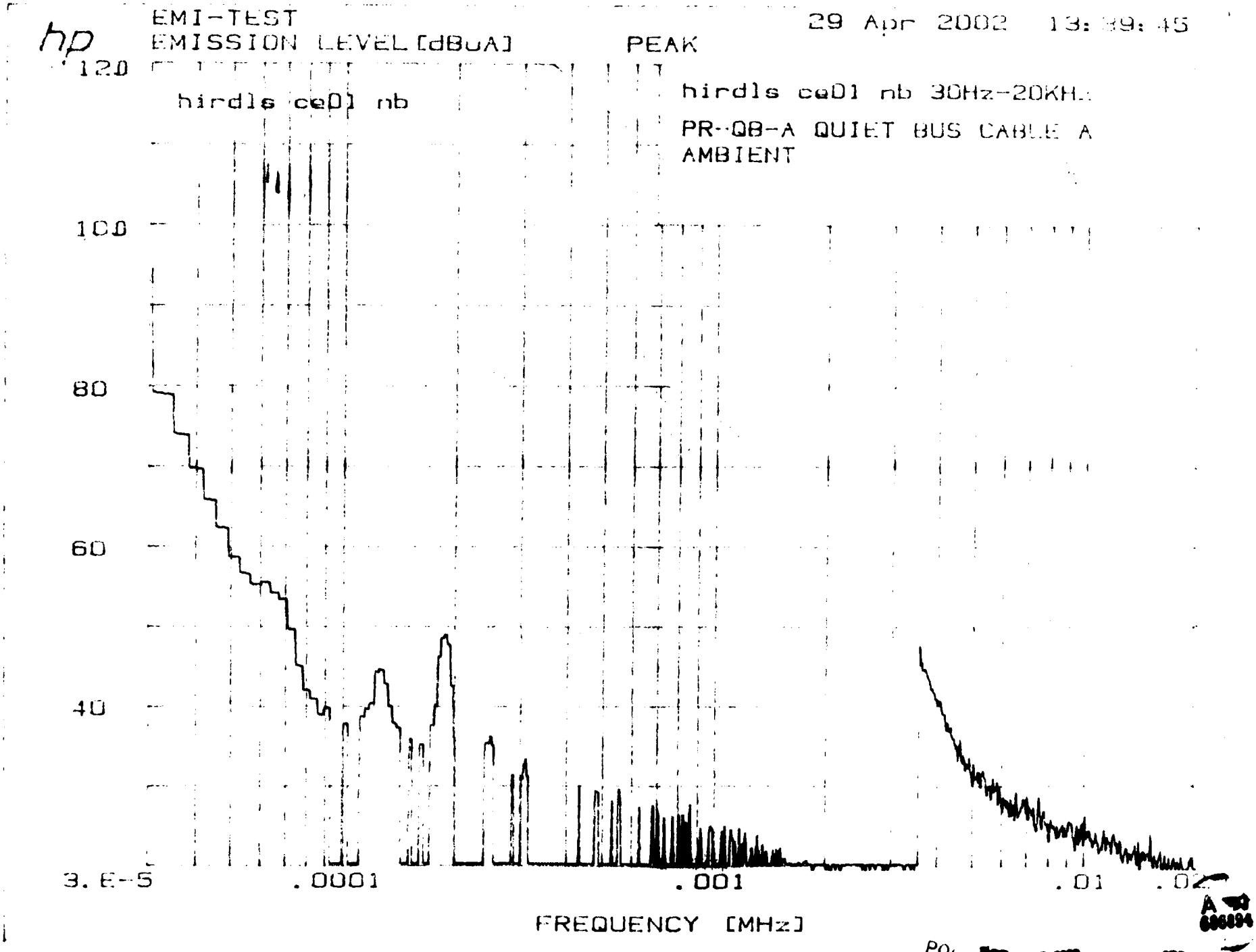

hp
EMI-TEST
EMISSION LEVEL [dBuA]
PEAK
29 Apr 2002 06:14:10
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PRQB-A QUIET BUS A CABLE PNA
UUT OPER STE ON
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]

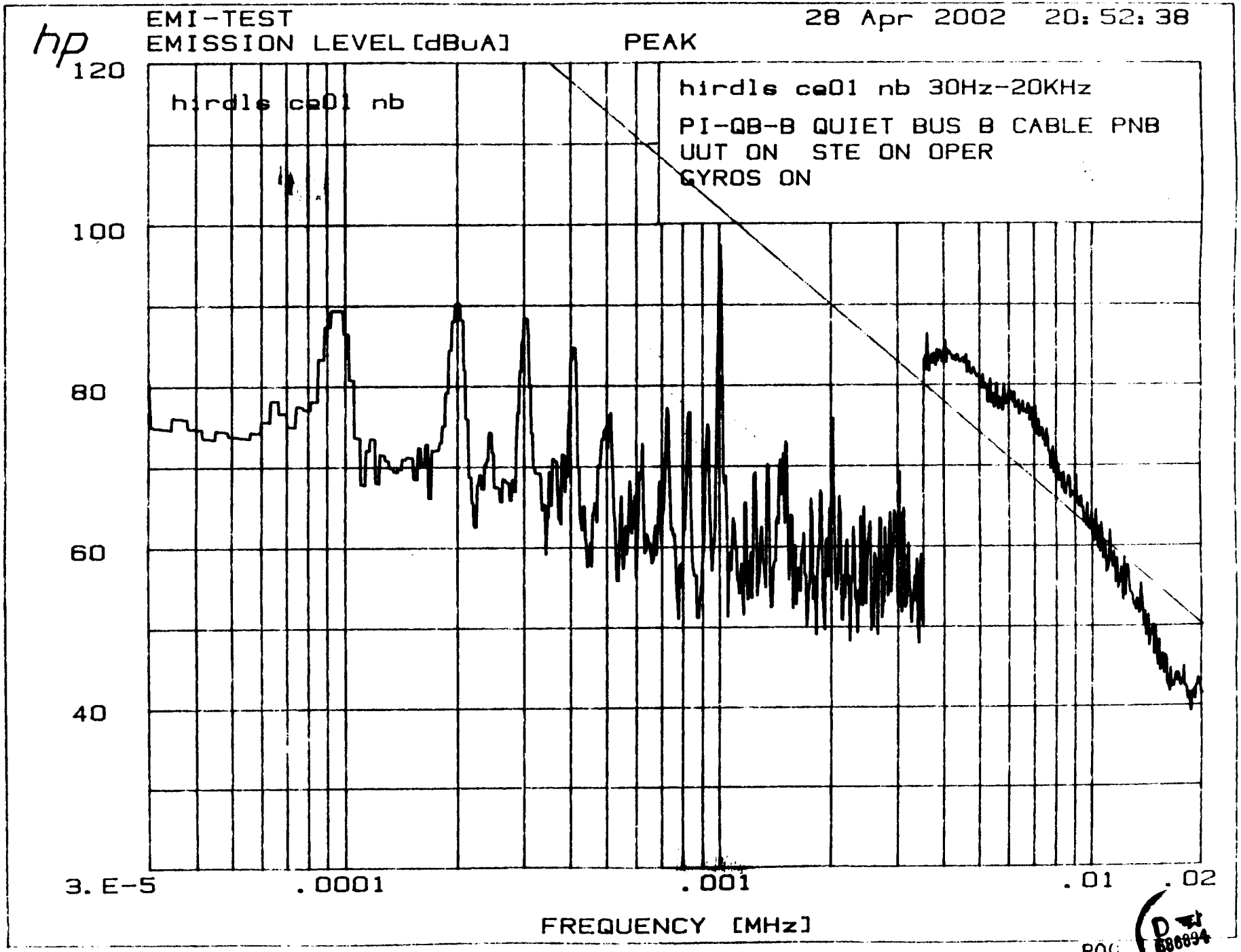
EMI-TEST 29 Apr 2002 06:14:10

1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz PR-QB-A OPER.

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.003507	84	3.9
2	.003553	83.1	3.3
3	.003671	82.7	3.4
4	.003743	82.3	3.4
5	.003841	82.2	3.7
6	.003994	81.6	3.8
7	.004099	81.9	4.5
8	.004234	82.1	5.3
9	.004489	82.6	6.8
10	.004548	83.7	8.1
11	.004668	83.3	8.2
12	.004885	83.3	9.0
13	.004981	83.7	9.7
14	.005179	84.1	10.8
15	.005315	83.5	10.6
16	.006212	78.9	8.7
17	.006459	78.6	9.1
18	.006629	77.4	8.3
19	.006716	78.7	9.9
20	.006848	78.9	10.4
21	.006983	77.8	9.6
22	.007355	73.9	6.6
23	.007451	73.5	6.5
24	.007647	75	8.4
25	.008214	71	5.7
26	.008485	70.6	5.8
27	.008596	67.8	3.2
28	.008708	67.6	3.3
29	.00888	68.2	4.2
30	.009537	66.2	3.4
31	.01011	64.3	2.5
32	.01024	64.8	3.3
33	.01038	63.1	1.8
34	.01065	62.5	1.6
35	.01093	62.1	1.7
36	.01174	60	.8
37	[redacted]	57.2	.3


hp
EMI-TEST
29 Apr 2002 13:39:45
EMISSION LEVEL [dBuA]
PEAK
120
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PR-QB-A QUIET BUS CABLE A
AMBIENT
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]


EMI-TEST
28 Apr 2002 20:52:38
EMISSION LEVEL [dBuA]
PEAK
hp
120
100
80
60
40
3. E-5
.0001
.001
.01
.02
FREQUENCY [MHz]
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PI-QB-B QUIET BUS B CABLE PNB
UUT ON STE ON OPER
GYROS ON

PQC 601335

EMI-TEST 28 Apr 2002 20:52:38

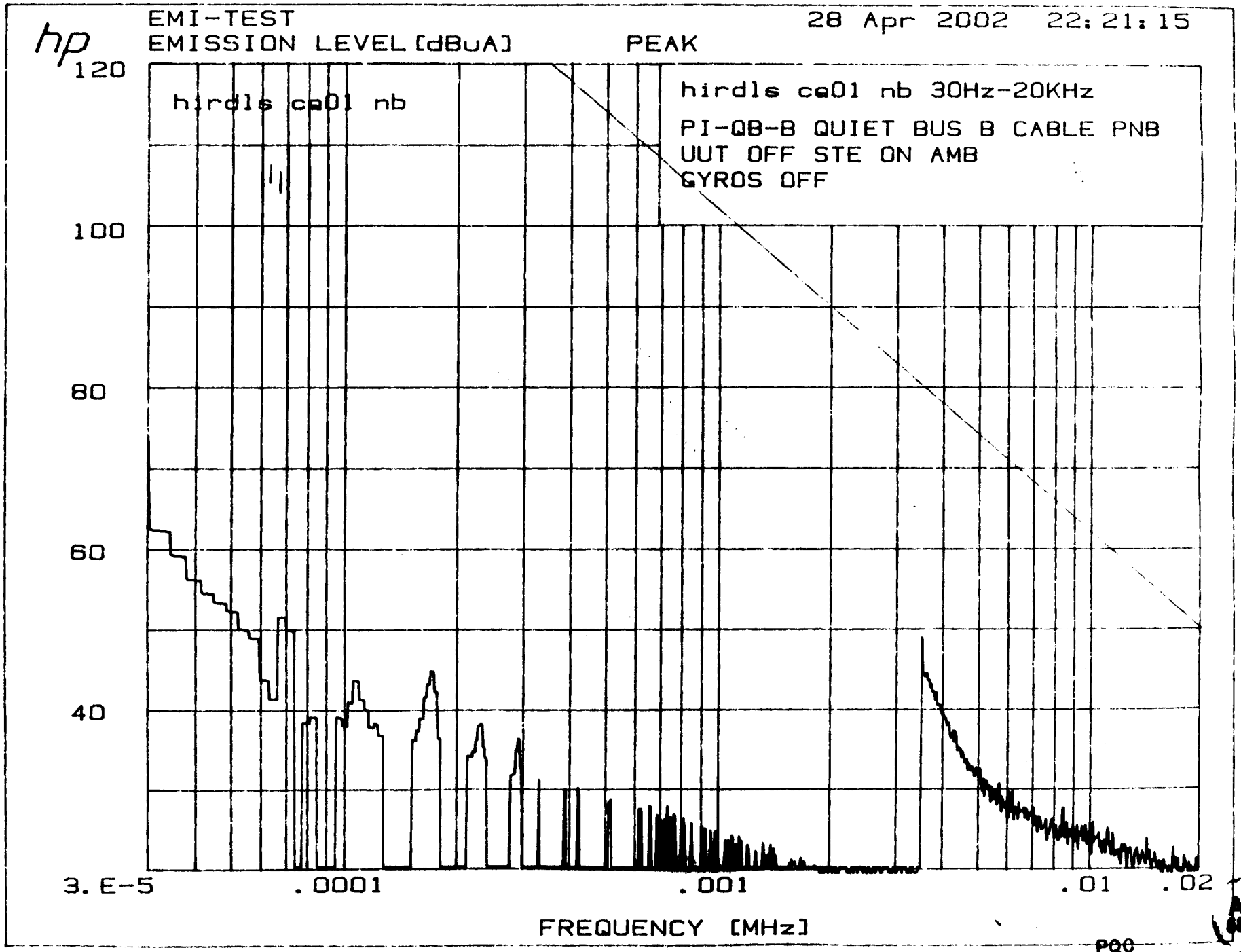
1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz PI-QB-B Gyro's ON

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB OPER.

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.00353	83.6	3.6
2	.003576	86.5	6.8
3	.003671	83.8	4.5
4	.003719	84	4.9
5	.003792	84.5	5.8
6	.003841	84.3	5.8
7	.003994	85.6	7.8
8	.004046	84.4	6.8
9	.004548	83.8	8.2
10	.004638	82.9	7.7
11	.005046	81.3	7.5
12	.005281	80.8	7.8
13	.005385	78.9	6.2
14	.005491	80.3	8.0
15	.005599	78.5	6.5
16	.005746	80.2	8.7
17	.005936	79.4	8.4
18	.006014	79.2	8.5
19	.006132	79.2	8.8
20	.006459	78	8.5
21	.006672	77.7	8.8
22	.006848	77.1	8.6
23	.006983	77.3	9.1
24	.00712	75.7	7.9
25	.00726	74.7	7.2
26	.0075	74.6	7.7
27	.007798	72.3	6.1
28	.007951	71.1	5.2
29	.008321	69.2	4.1
30	.008596	68.8	4.2
31	.008996	68.9	5.1
32	.009293	66.2	3.0
33	.009662	65.4	2.9
34	.009916	64.2	2.1
35	.01018	64.6	3.0
36	.01038	62.5	1.2
37	.[illegible]51	63	1.9
38	.[illegible]7	62.1	1.9

[illegible]

04/30/02



APR 29 2002
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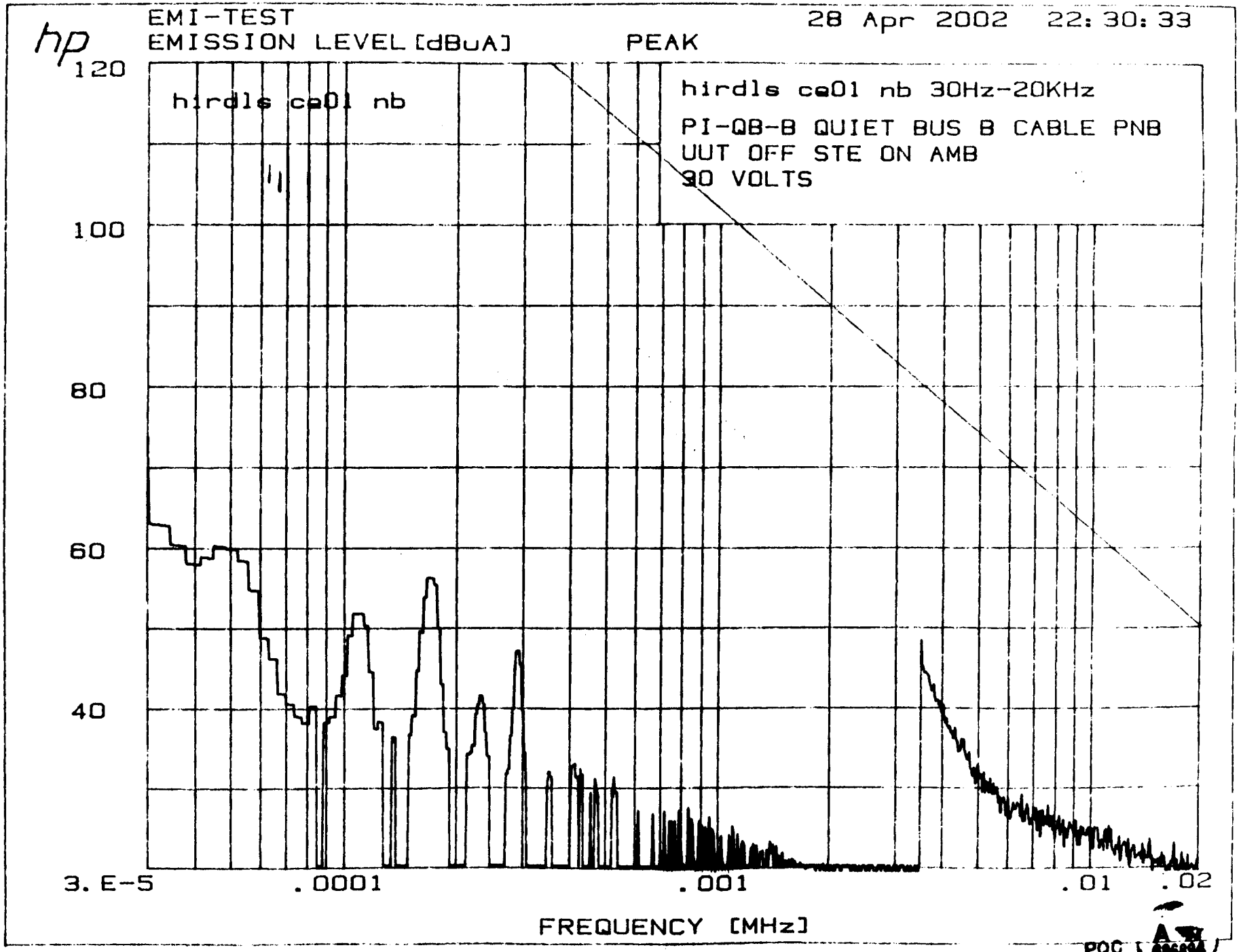
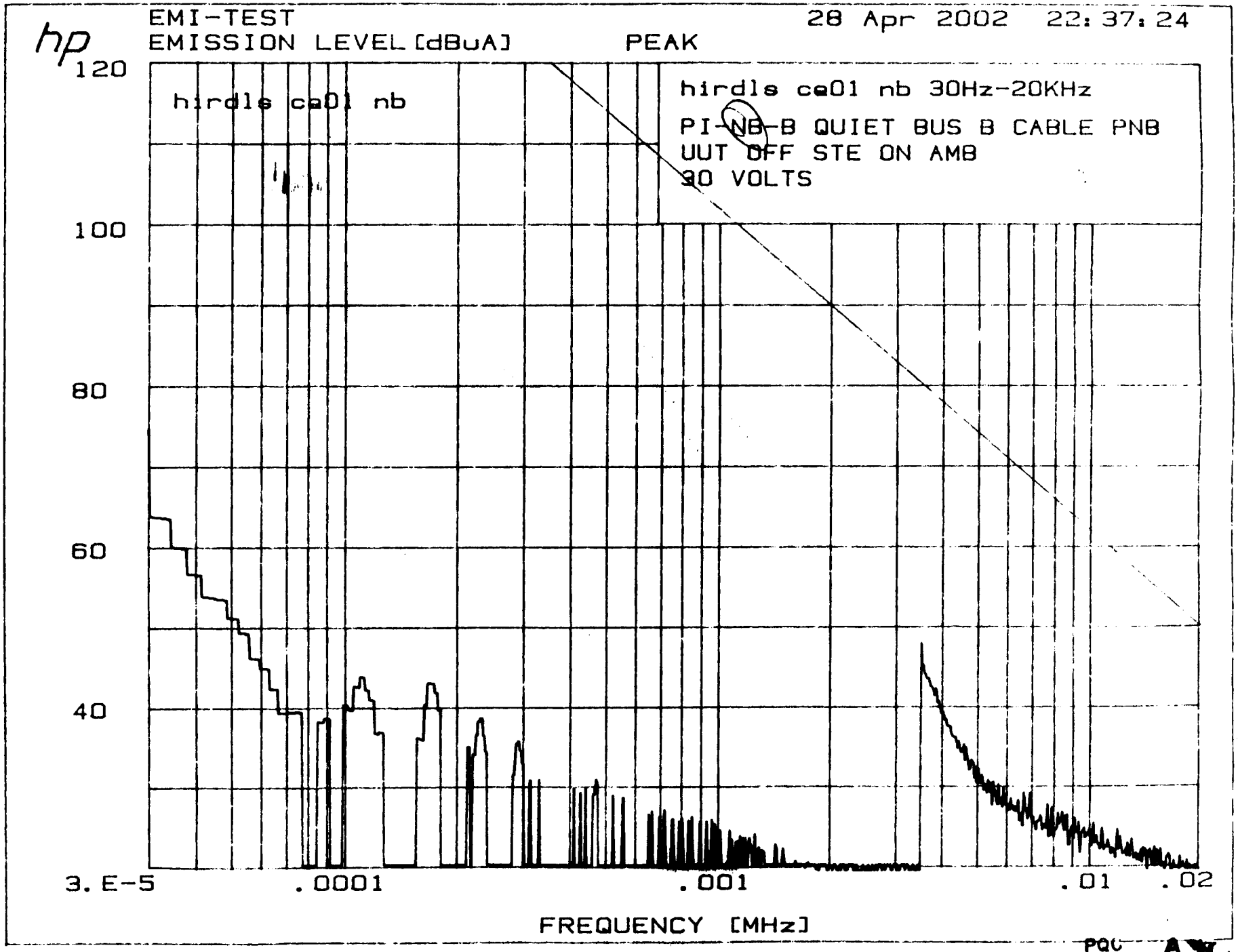
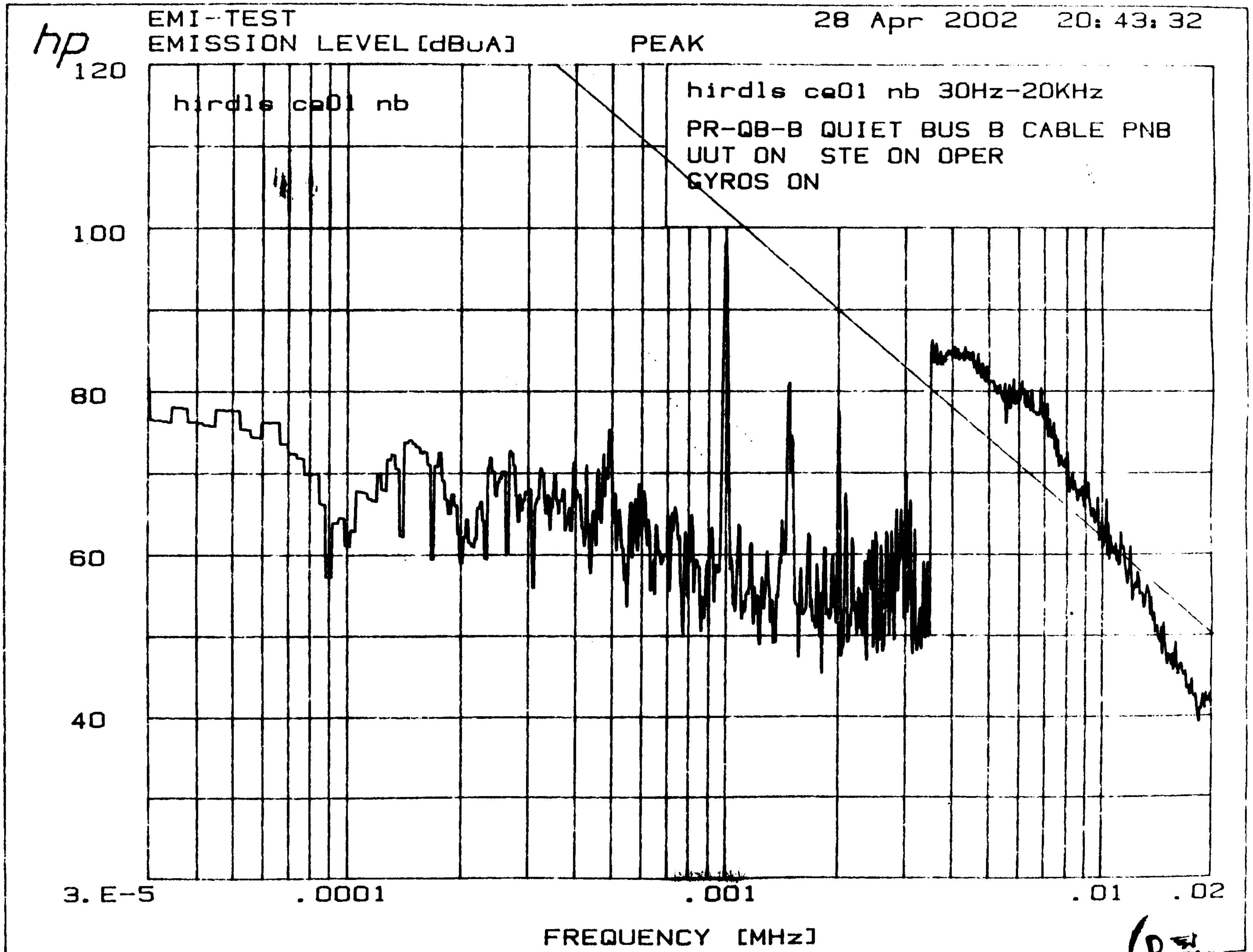
601336
APR 29 2002


EMI-TEST
28 Apr 2002 22:30:33
EMISSION LEVEL [dBuA]
PEAK
hp
120
100
80
60
40
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PI-QB-B QUIET BUS B CABLE PNB
UUT OFF STE ON AMB
30 VOLTS
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]

PQC 601335



PQC A
601336 686894


hp
EMI-TEST
EMISSION LEVEL [dBuA]
PEAK
28 Apr 2002 20:43:32
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PR-QB-B QUIET BUS B CABLE PNB
UUT ON STE ON OPER
GYROS ON
120
100
80
60
40
3. E-5
.0001
.001
.01
.02
FREQUENCY [MHz]

EMI-TEST 28 Apr 2002 20:43:32

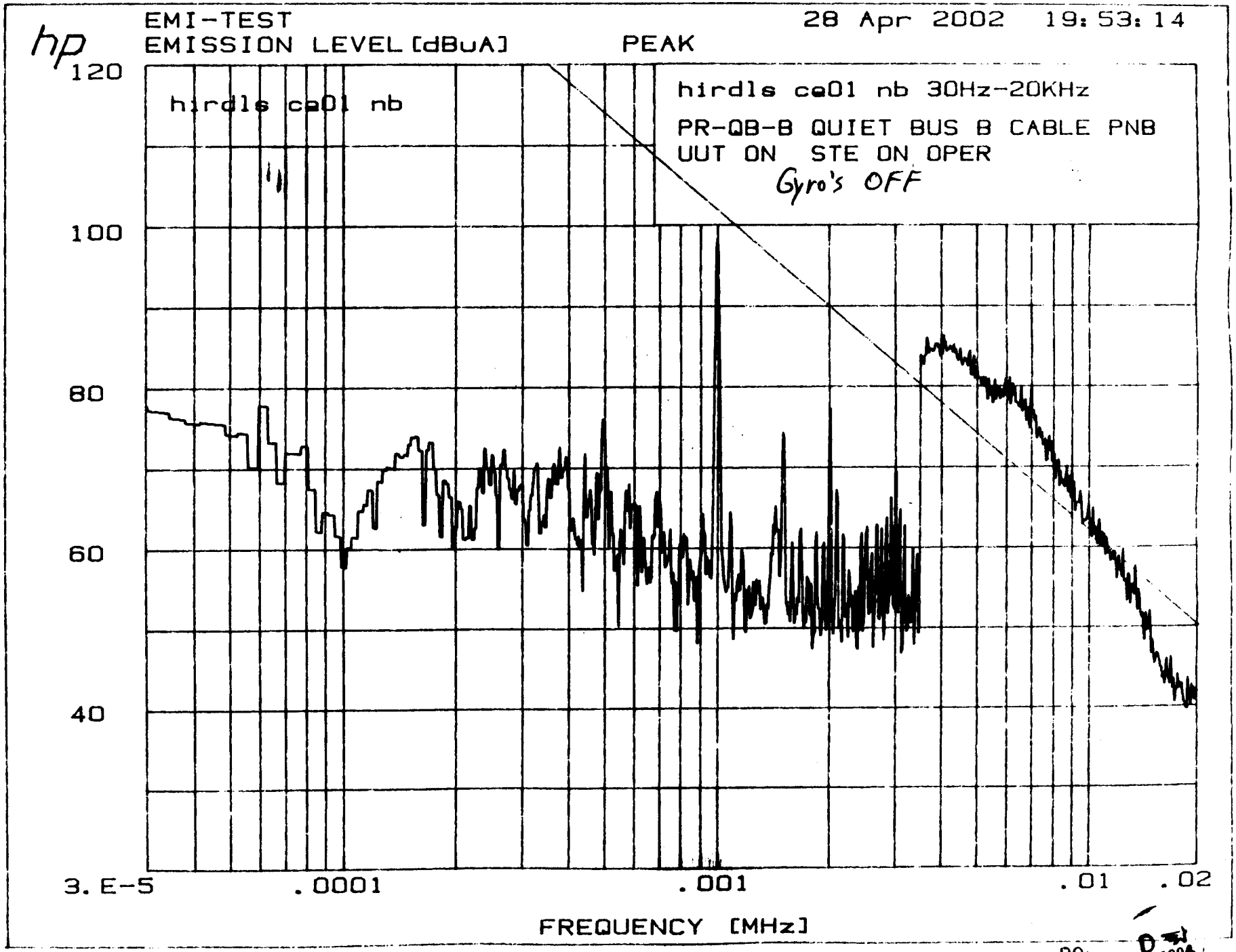
1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz PR-QB-B Gyro's ON

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB OPER.

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.00353	86.3	6.3
2	.003623	85.8	6.3
3	.003719	84.8	5.7
4	.004046	85.4	7.8
5	.004126	85.2	7.9
6	.004318	85.4	8.9
7	.004668	84.6	9.5
8	.004791	83.4	8.7
9	.004917	83	8.8
10	.005315	80.7	7.8
11	.005491	80.9	8.6
12	.005635	80.8	8.9
13	.005784	81.5	10.1
14	.005936	79.9	8.9
15	.006092	81.2	10.7
16	.006293	79.7	9.7
17	.006459	80.2	10.7
18	.006848	80.4	11.9
19	.00712	78.5	10.7
20	.007213	76.6	9.0
21	.007403	76.1	9.0
22	.0075	74.6	7.7
23	.007598	74	7.3
24	.007747	72.1	5.7
25	.007951	71.7	5.8
26	.008055	72.5	6.8
27	.008321	70	4.9
28	.00843	69	4.1
29	.008822	68.3	4.2
30	.008996	69.9	6.1
31	.009173	68.8	5.4
32	.009725	67	4.6
33	.009981	64.3	2.3
34	.01011	63.3	1.5
35	.01024	66.8	5.3
36	.01038	63.8	2.5
37	[redacted]	62.3	1.2
38	[redacted]	61.3	.8
39	[redacted]	62.8	2.8
40	.01189	61	2.1

D 6160TA 4/30/02

[redacted]



APR 29 2002 PQC 686894 APR 29 2002

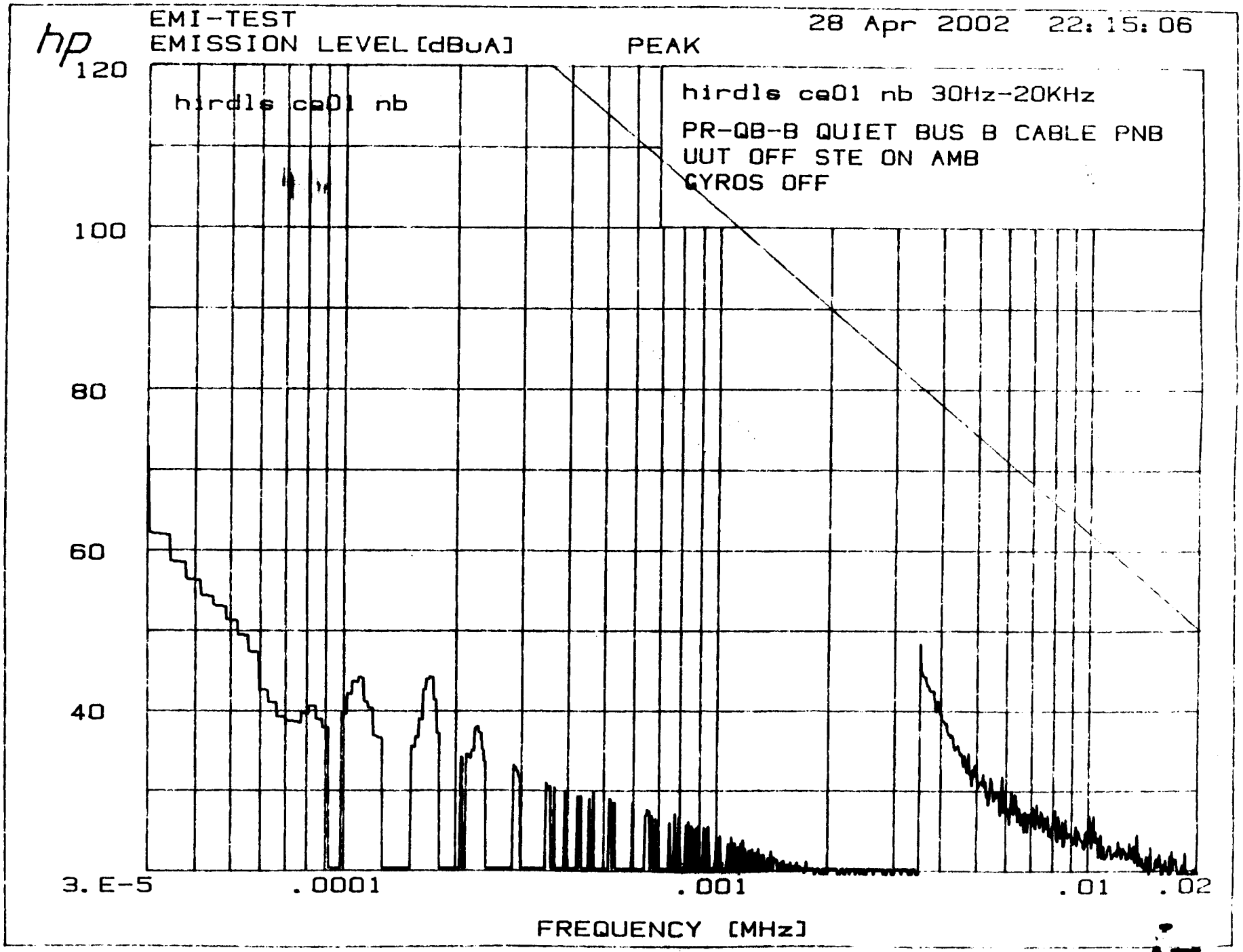
EMI-TEST 28 Apr 2002 19:53:14

1. hirdls emi test
   1.1 hirdls ce01 nb 30Hz-20KHz PR-QB-B Gyro's OFF

Peaks above 0 dB of Limit Line #1 OPER.
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.003507	83.9	3.8
2	.003647	86.1	6.7
3	.003841	85.3	6.8
4	.003994	86	8.2
5	.004046	86.4	8.8
6	.004489	84.7	8.9
7	.00476	84.4	9.6
8	.004885	83.8	9.5
9	.004981	82.2	8.2
10	.00535	80.9	8.1
11	.005563	80.8	8.7
12	.005709	79.8	8.2
13	.005936	80.9	9.9
14	.006092	81.1	10.6
15	.006212	80.3	10.1
16	.006543	80	10.7
17	.006716	78.3	9.5
18	.006848	77.3	8.8
19	.006983	80.1	11.9
20	.007307	74.8	7.4
21	.007798	73.8	7.6
22	.0079	73.1	7.1
23	.008267	70.8	5.6
24	.008375	69.4	4.4
25	.008708	70	5.7
26	.00888	68.8	4.8
27	.008996	69.5	5.7
28	.009113	68.1	4.6
29	.009476	66.9	4.0
30	.009981	65.2	3.2
31	.01024	64.9	3.4
32	.01065	63.4	2.5
33	.01086	61.8	1.3
34	.011	61.6	1.3
35	.01115	61.2	1.1
36	.01174	59.4	.2
37	[redacted]	58.8	.1
38	[redacted]	59.7	1.4
39	[redacted]	57.7	.8

[redacted]
4/30/02


hp
EMI-TEST
EMISSION LEVEL [dBuA]
PEAK
28 Apr 2002 22:15:06
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
PR-QB-B QUIET BUS B CABLE PNB
UUT OFF STE ON AMB
GYROS OFF
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]

EMI-TEST 29 Apr 2002 12:57:50

1. hirdls emi test
   1.10 hirdls CE03 20KHz-50MHz VER3

Peaks above 0 dBuA
peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	5.873	36.6	36.6
2	2.143	18.4	18.4
3	3.192	12.7	12.7

PR-NB-A NOISY BUS
AMBIENT
WITH HP8447D PREAMP

D 686894
APR 29 2002

PQC 601336 APR 29 2002

```
   Int Atten  (dB): 10
   Presel Atten    : 0
   Ext Atten  (dB): 0
   # Setups        : 1
   # Sweeps/Setup  : 1
   Msg,Sub,Cont    : CONTINUE

Limit #1 Label     : hirdls CE03 QB
Limit #2 Label     : NONE
Limit #3 Label     : NONE

------------- Test Setup Table Notes -------------
```

SET-UP

PQC
601335
APR 29 2002

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[redacted]

Library File : hirdls CE03 20KHz-50MHz VER3

```
Display Title     : hirdls CE03 20KHz-50MHz QB
Units Label       : dBuA
Disp Ref Lvl (dB): 60
Test Type         : PEAK
Freq Uncert.  (%): .5
Min Swp Time/Oct  : 3

Range 1 of 3
  Start Freq(MHz): .02
  Stop Freq (MHz): 1
  Transducer      : CP-105 S/N GH-1
  Gain/Loss       : 8447D
  SA Input        : RIGHT
  Presel/Input3   : BYPASS
  Quasi-Peak Bw   : BYPASS
  SA Res Bw  (Hz): 1000
  Video Bw   (Hz): 10000
  Ref. Lvl (dBuV): 107
  Int Atten  (dB): 10
  Presel Atten    : 0
  Ext Atten  (dB): 0
  # Setups        : 1
  # Sweeps/Setup  : 1
  Msg,Sub,Cont    : MESSAGE
         Line #1  : CONNECT CURRENT PROBE
         Line #2  : TO ANALYZER

Range 2 of 3
  Stop Freq (MHz): 15
  Transducer      : CP-105 S/N GH-1
  Gain/Loss       : 8447d
  SA Input        : RIGHT
  Presel/Input3   : BYPASS
  Quasi-Peak Bw   : BYPASS
  SA Res Bw  (Hz): 30000
  Video Bw   (Hz): 30000
  Ref. Lvl (dBuV): 107
  Int Atten  (dB): 10
  Presel Atten    : 0
  Ext Atten  (dB): 0
  # Setups        : 1
  # Sweeps/Setup  : 1
  Msg,Sub,Cont    : MESSAGE
         Line #1  : CONNECT 8447D,TURN ON
         Line #2  :

Range 3 of 3
  Stop Freq (MHz): 50
  Transducer      : CP-105 S/N GH-1
  Gain/Loss       : 8447d
  SA Input        : RIGHT
  Presel/Input3   : BYPASS
  Quasi-Peak Bw   : BYPASS
  SA Res Bw  (Hz): 100000
  Video Bw   (Hz): 300000
  Ref. Lvl (dBuV): 107
```

[redacted]

[redacted]

APR 29 2002

APR 29 2002

LIMIT TABLE
Limit Title : birdls noisy
Number of Points : 3

Point	Frequency (MHz)	Amplitude
1	.02	65
2	2	20
3	50	20

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601335
MAR 29 2002

D
686894
MAR 29 2002

LIMIT TABLE
Limit Title : birdls ce03 nb
Number of Points : 3

Point	Frequency (MHz)	Amplitude
1	.02	50
2	2	20
3	50	20

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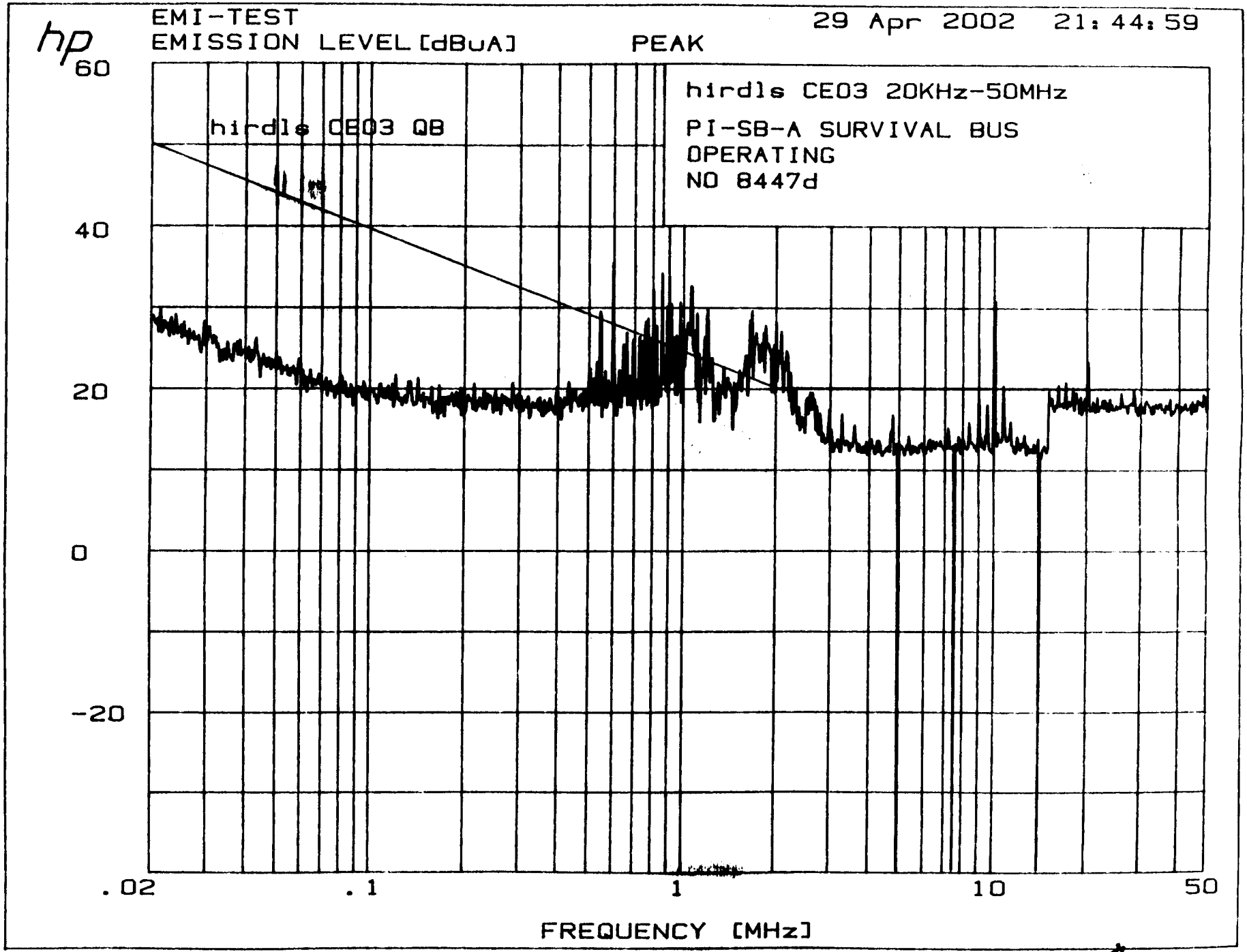
MAR 29 2002
MAR 29 2002


EMI-TEST
EMISSION LEVEL [dBuA]
PEAK
29 Apr 2002 21:44:59
hp
60
40
20
0
-20
hirdls CE03 QB
hirdls CE03 20KHz-50MHz
PI-SB-A SURVIVAL BUS
OPERATING
NO 8447d
.02
.1
1
10
50
FREQUENCY [MHz]

PQC

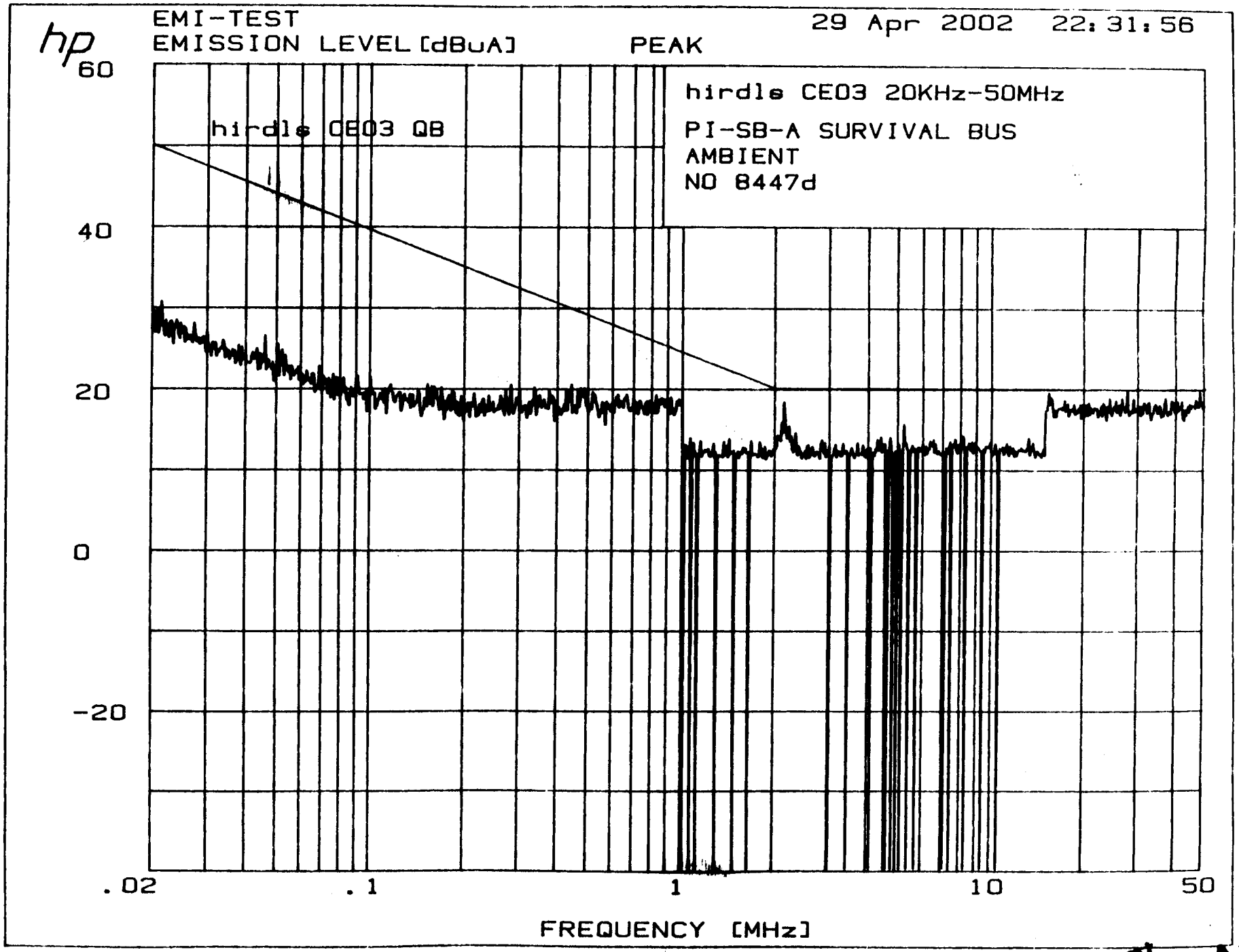
EMI-TEST 29 Apr 2002 21:44:53

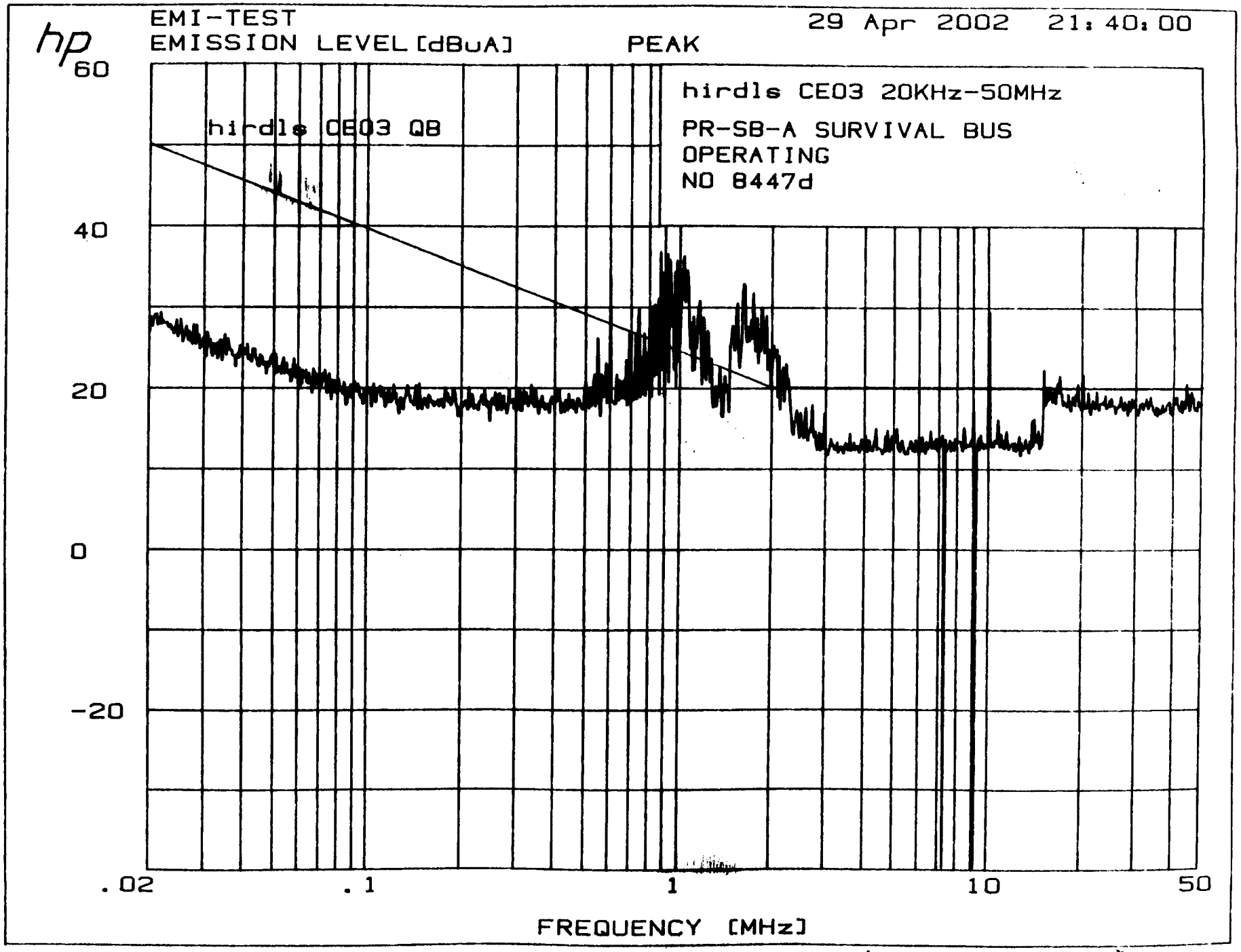
1. hirdls emi test
   1.13 hirdls CE03 20KHz-50MHz QB VER5

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PI-SB-A
OPERATING
NO 8447D

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.5414	29.5	1.0
2	.5947	35.5	7.6
3	.7577	28.3	2.0
4	.7696	28.7	2.5
5	.7879	26.3	.3
6	.8003	32.1	6.2
7	.8193	27.8	2.0
8	.8519	34.3	8.8
9	.8859	30.2	4.9
10	.8999	33.8	8.6
11	.914	30.5	5.4
12	.9357	26.4	1.5
13	.9505	26.6	1.8
14	.9806	30.7	6.1
15	.9961	24.8	.3
16	1.036	28.1	3.9
17	1.06	32.7	8.6
18	1.094	27.2	3.3
19	1.111	29.3	5.5
20	1.129	24.3	.6
21	1.174	26.4	3.0
22	1.202	29.7	6.4
23	1.24	23.8	.7
24	1.351	22.7	.2
25	1.519	22.3	.6
26	1.592	24.1	2.7
27	1.643	28.5	7.3
28	1.669	29.6	8.5
29	1.722	26.9	6.0
30	1.79	25.6	4.9
31	1.818	27	6.4
32	1.847	27.9	7.4
33	1.966	25.5	5.4
34	1.997	28.3	8.3
35	2.029	24.7	4.7
36	2.077	27.1	7.1
37	2.1[redacted]	24.7	4.7
38	2.[redacted]	22	2.0
39	10.[redacted]	30.9	10.9
40	10.[redacted]	20.4	.4
41	16.1	20.5	.5
42	17	20.9	.9
43	17.96	20.2	.2
44	20.04	23.4	3.4


EMI-TEST
29 Apr 2002 22:31:56
EMISSION LEVEL [dBuA]
PEAK
hp
60
40
20
0
-20
hirdls CE03 QB
hirdls CE03 20KHz-50MHz
PI-SB-A SURVIVAL BUS
AMBIENT
NO 8447d
.02
.1
1
10
50
FREQUENCY [MHz]


EMI-TEST
29 Apr 2002 21:40:00
EMISSION LEVEL [dBuA]
PEAK
hp
60
40
20
0
-20
hirdls CE03 QB
hirdls CE03 20KHz-50MHz
PR-SB-A SURVIVAL BUS
OPERATING
NO 8447d
.02
.1
1
10
50
FREQUENCY [MHz]

EMI-TEST 29 Apr 2002 21:40:00

1. hirdls emi test
   1.13 hirdls CE03 20KHz-50MHz QB VER5

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PR-SB-A
OPERATING
NO 94470

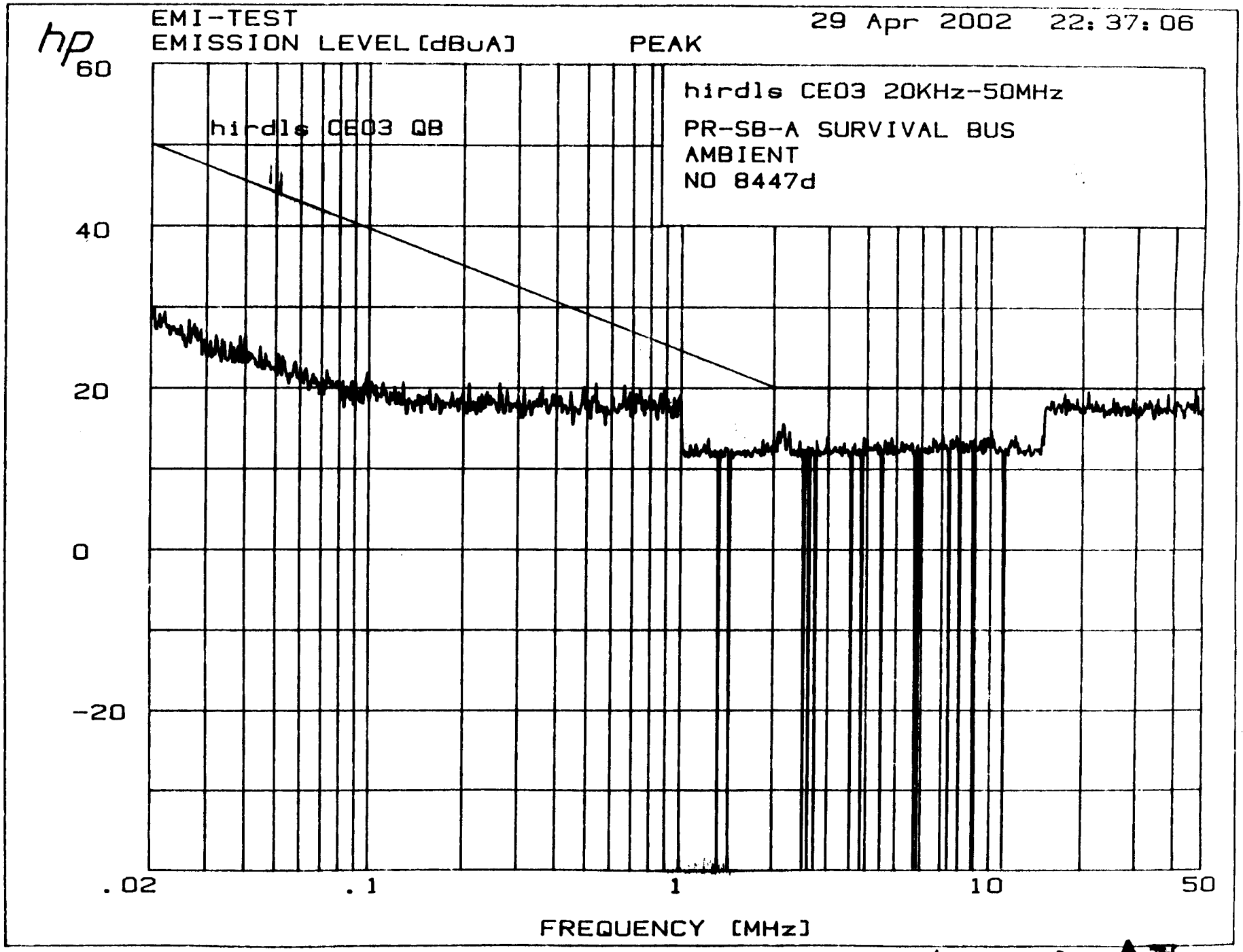
PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.5993	33.9	6.1
2	.6899	27.1	.2
3	.723	26.8	.2
4	.7401	29.8	3.4
5	.7696	26.8	.6
6	.8003	30	4.1
7	.8193	30.2	4.4
8	.8322	30.4	4.7
9	.8519	31.1	5.6
10	.8654	36.9	11.5
11	.8859	34.3	9.0
12	.8999	25.3	.1
13	.914	36.6	11.5
14	.9284	35.9	11.0
15	.9505	31.4	6.6
16	.9654	34.4	9.7
17	.9806	35.8	11.2
18	.9961	28.7	4.2
19	1.036	36.3	12.1
20	1.06	34.6	10.5
21	1.094	28.1	4.2
22	1.111	28.9	5.1
23	1.129	27.5	3.8
24	1.165	30.8	7.3
25	1.192	28.8	5.5
26	1.23	27.1	4.0
27	1.269	23.7	.8
28	1.351	22.6	.1
29	1.484	27.8	5.9
30	1.543	30.5	8.9
31	1.617	32.9	11.6
32	1.669	27.6	6.5
33	1.70[redacted]	28.5	7.5
34	1.7[redacted]	31.8	10.9
35	1.[redacted]	28.7	8.0
36	1.[redacted]	26.1	5.5
37	1.[redacted]	30	9.5
38	1.921	29	8.8
39	1.951	24.8	4.7
40	2.029	25.3	5.3
41	2.109	24	4.0
42	2.176	22.6	2.6
43	2.228	23	3.0
44	2.263	21.2	1.2
45	10.07	29.5	9.5
46	15	22.4	2.4
47	15.36	20.2	.2
48	15.6	20.2	.2
49	16.61	20.7	.7
50	16.87	21.6	1.6
51	19.27	20.6	.6

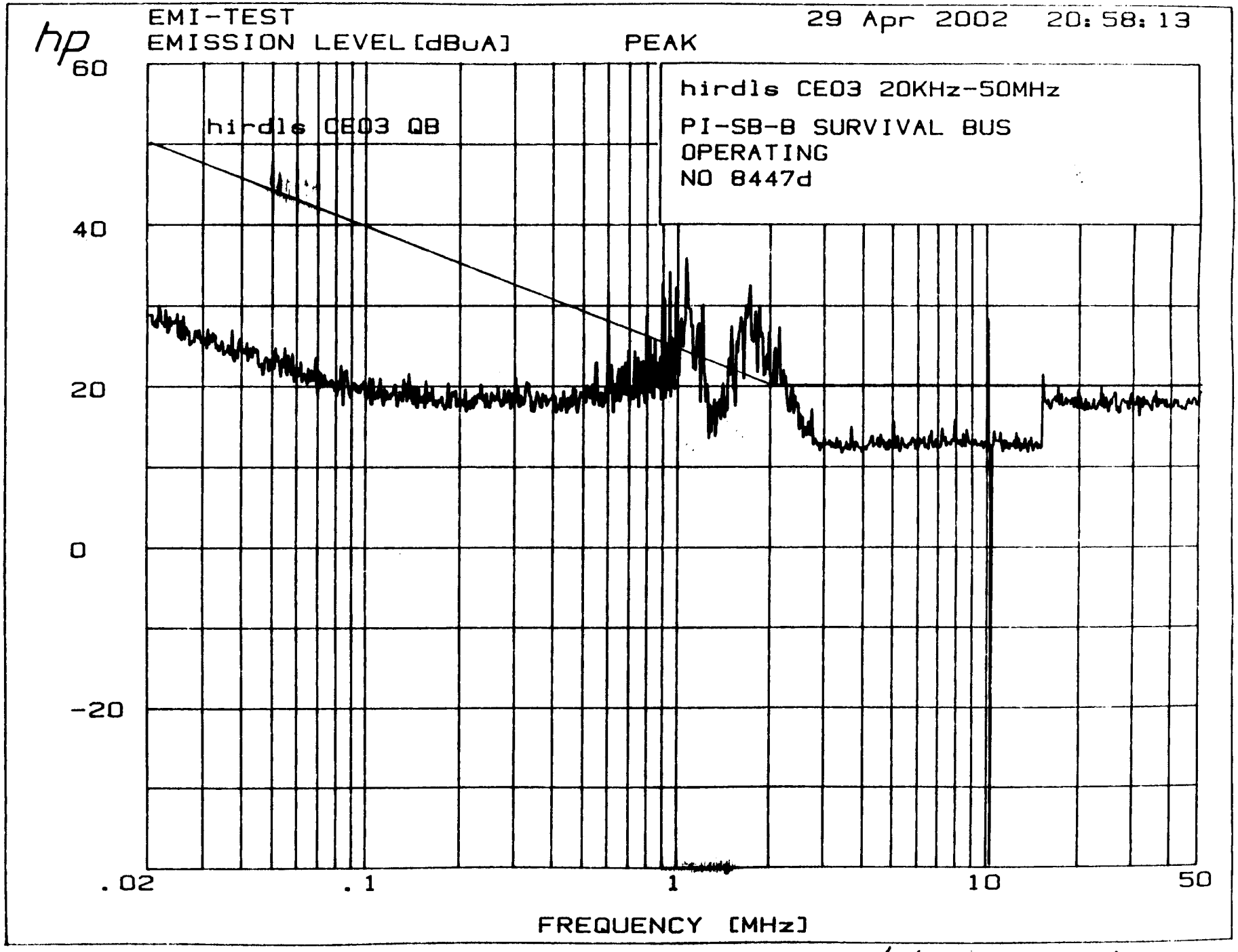
D 616071A 4/4/12

[redacted]

52	20.04	21.8	1.8
53	44.12	20.7	.7

52	20.04	21.3	1.8
53	44.12	20.7	.7


hp
EMI-TEST
EMISSION LEVEL [dBuA]
PEAK
29 Apr 2002 22:37:06
hirdls CE03 20KHz-50MHz
PR-SB-A SURVIVAL BUS
AMBIENT
NO 8447d
hirdls CE03 QB
60
40
20
0
-20
.02
.1
1
10
50
FREQUENCY [MHz]


EMI-TEST
29 Apr 2002 20:58:13
EMISSION LEVEL [dBuA]
PEAK
hp
60
40
20
0
-20
hirdls CE03 QB
hirdls CE03 20KHz-50MHz
PI-SB-B SURVIVAL BUS
OPERATING
NO 8447d
.02
.1
1
10
50
FREQUENCY [MHz]

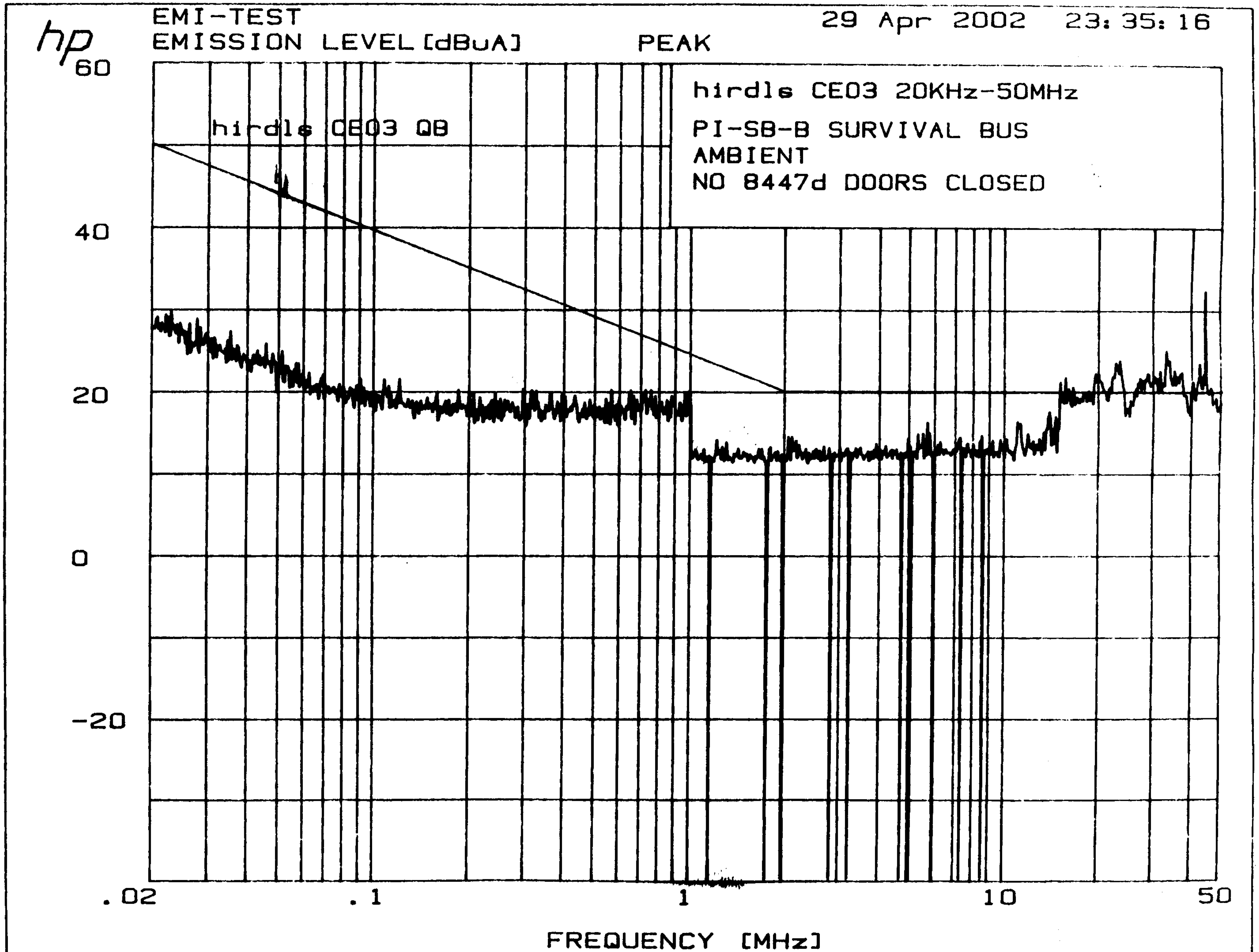
EMI-TEST 29 Apr 2002 20:58:13

1. hirdls emi test
   1.13 hirdls CE03 20KHz-50MHz QB VER5

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PI-SB-B
OPERATING
NU 8447D

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.5947	31.5	3.6
2	.7879	28.7	2.7
3	.8859	32.7	7.4
4	.8999	30.8	5.6
5	.9357	34.1	9.2
6	.9505	26	1.2
7	.9654	25.8	1.1
8	.9806	32.2	7.6
9	.9961	25.6	1.1
10	1.02	28.3	4.0
11	1.06	35.8	11.7
12	1.165	27.7	4.2
13	1.202	30	6.7
14	1.461	23.4	1.4
15	1.484	27.4	5.5
16	1.543	25.5	3.9
17	1.592	28.5	7.1
18	1.656	30	8.8
19	1.708	32.5	11.5
20	1.776	29.2	8.5
21	1.833	30	9.5
22	1.936	23.8	3.6
23	1.966	26.6	6.5
24	2.061	24.7	4.7
25	2.126	27.3	7.3
26	2.194	21.9	1.9
27	9.993	28.3	8.3
28	15	21.5	1.5


hp
EMI-TEST
EMISSION LEVEL [dBuA]
PEAK
29 Apr 2002 23:35:16
hirdls CE03 20KHz-50MHz
PI-SB-B SURVIVAL BUS
AMBIENT
NO 8447d DOORS CLOSED
hirdls CE03 QB
60
40
20
0
-20
.02
.1
1
10
50
FREQUENCY [MHz]

EMI-TEST 29 Apr 2002 23:35:16

1. hirdls emi test
   1.13 hirdls CE03 20KHz-50MHz QB VER5

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

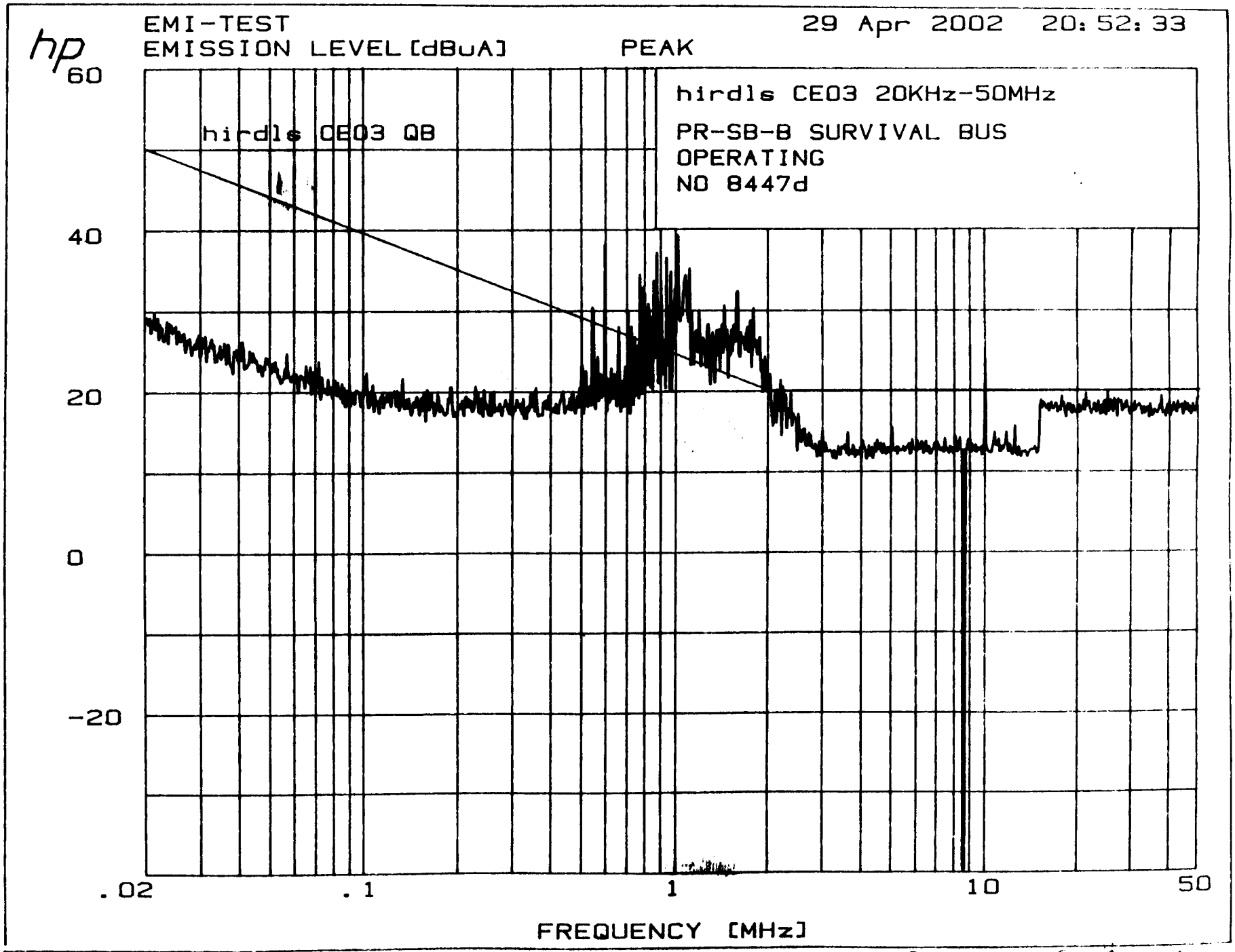
PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	15	21.4	1.4
2	15.6	21.9	1.9
3	15.97	20.5	.5
4	16.48	20.7	.7
5	17.82	20.1	.1
6	18.53	20.2	.2
7	19.42	22.4	2.4
8	22.53	23.7	3.7
9	23.24	24	4.0
10	26.97	21.8	1.8
11	27.39	21.6	1.6
12	28.48	22.4	2.4
13	29.85	22	2.0
14	31.28	22.7	2.7
15	32.78	25.2	5.2
16	34.9	22.7	2.7
17	36.86	22.5	2.5
18	40.17	21.3	1.3
19	42.1	23.6	3.6
20	43.44	22.3	2.3
21	44.12	32.5	12.5

PI-SB-B
AMBIENT
WO 84470
DOORS CLOSED

D 616074 4/30/02

[redacted]

[redacted]



PBC ENGOTIA 4/30/02

EMI-TEST 29 Apr 2002 20:52:33

1. hirdls emi test
1.13 hirdls CE03 20KHz-50MHz QB VER5

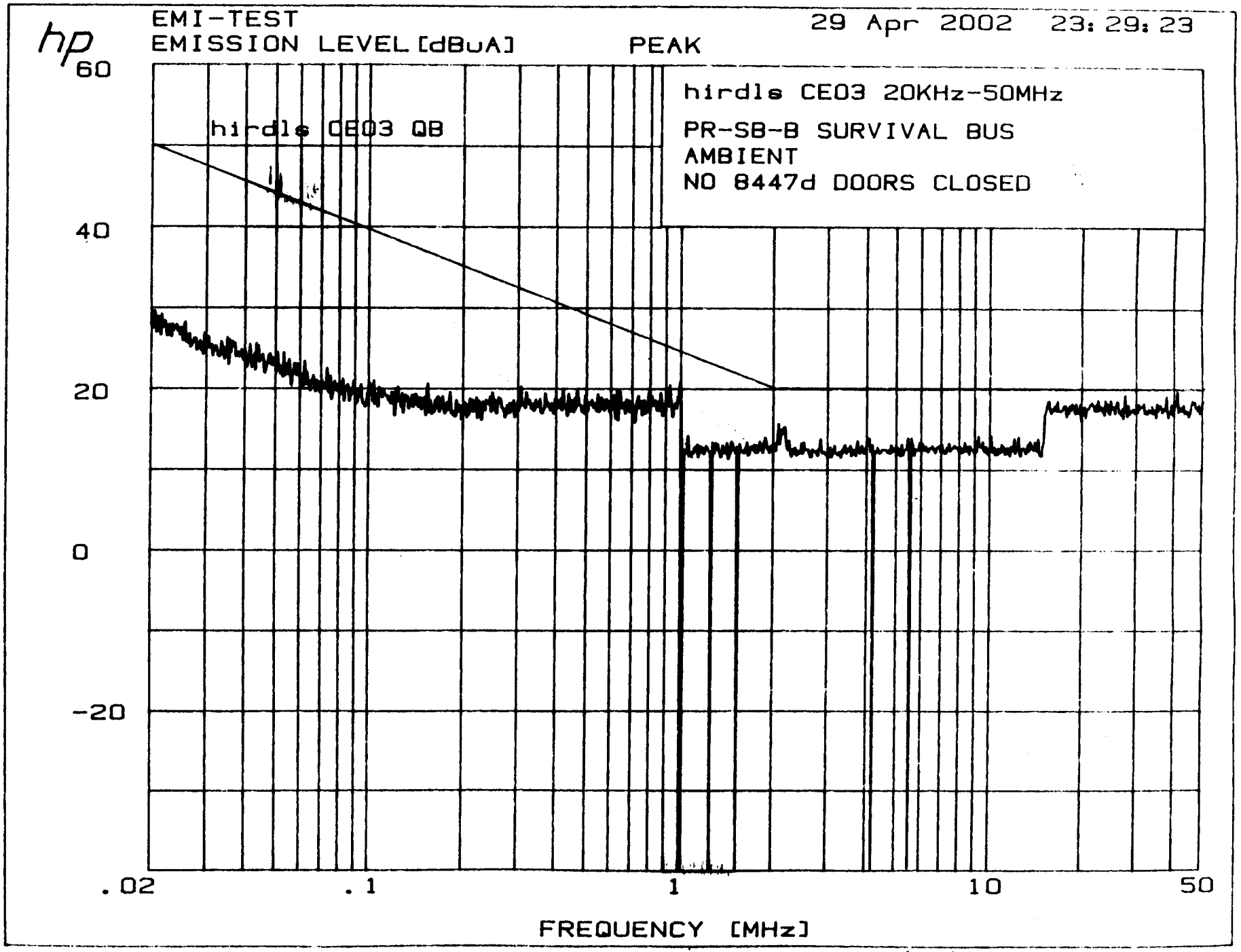
Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PR-SB-B
OPERATING
NO 9447D

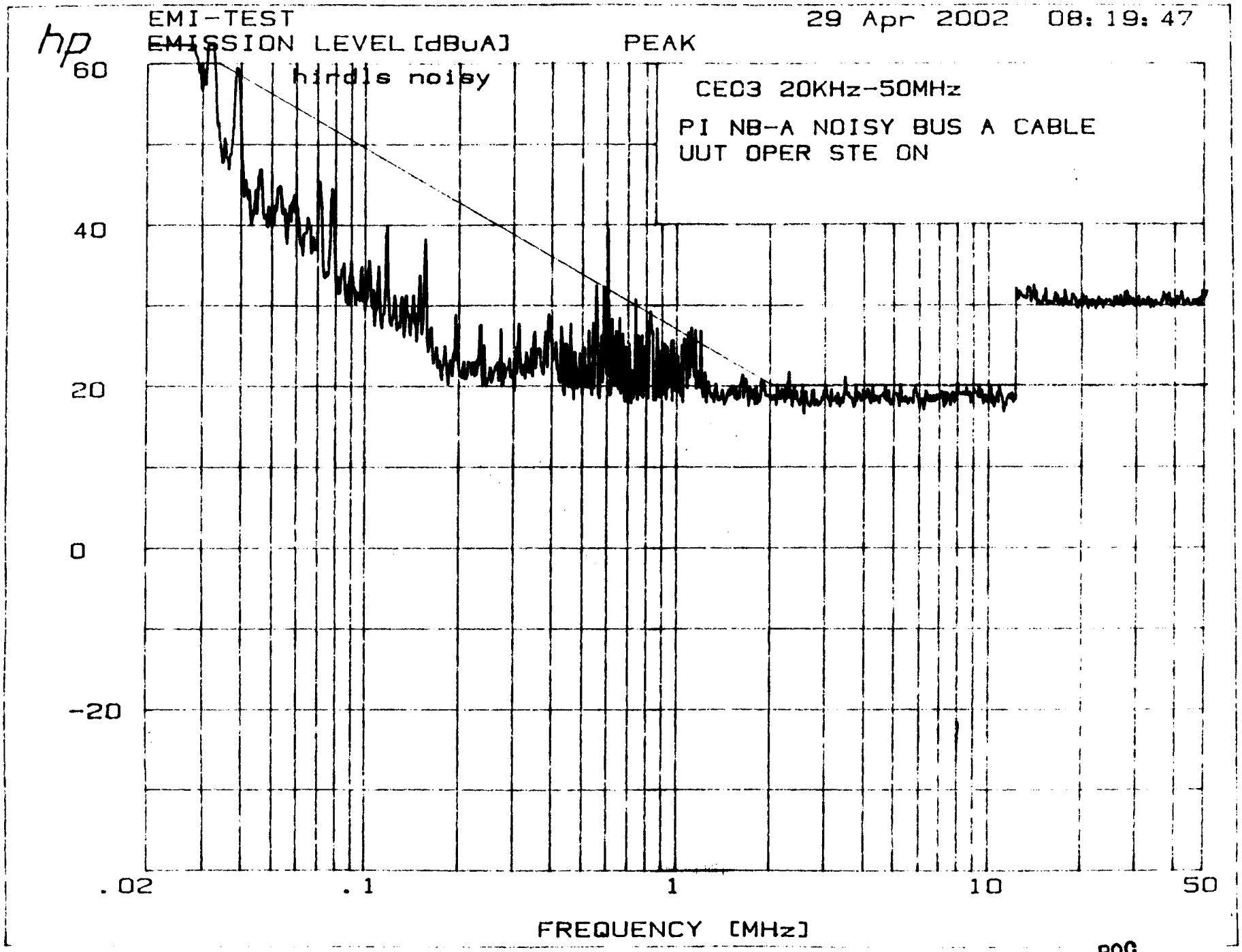
D 160714 4/30/02

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.5414	30.5	2.0
2	.5947	38.2	10.3
3	.6583	28	.8
4	.7062	29.9	3.2
5	.723	28.1	1.5
6	.7401	26.8	.4
7	.7696	34.5	8.3
8	.7879	32.9	6.9
9	.8003	29.6	3.7
10	.8193	30.9	5.1
11	.8387	29.2	3.6
12	.8519	33.7	8.2
13	.8722	37.2	11.8
14	.8859	30.2	4.9
15	.8999	33.8	8.6
16	.9212	26.4	1.4
17	.9357	36.6	11.7
18	.9505	30.5	5.7
19	.9654	34.9	10.2
20	.9806	30.9	6.3
21	.9961	32.7	8.2
22	1.012	39.4	15.0
23	1.077	34.4	10.4
24	1.111	35.2	11.4
25	1.129	29.8	6.1
26	1.165	27.5	4.0
27	1.192	30.1	6.8
28	1.221	26.6	3.4
29	1.269	28.3	5.4
30	1.32	27.3	4.6
31	1.362	27.6	5.1
32	1.383	27.7	5.3
33	1.416	28.3	6.1
34	1.438	30.7	8.6
35	1.472	27.6	5.7
36	1.49[redacted]	26.7	4.9
37	1.[redacted]	27.7	6.0
38	1.[redacted]	28.3	6.7
39	1.[redacted]	32.4	11.0
40	1.6[redacted]	27.3	6.0
41	1.708	28	7.0
42	1.749	28.8	8.0
43	1.79	30.3	9.6
44	1.876	26.7	6.3
45	1.906	23.8	3.5
46	1.951	24.3	4.2
47	2.029	22.1	2.1
48	2.109	20.1	.1
49	2.143	20.2	.2
50	2.194	21.4	1.4
51	2.228	20.6	.6

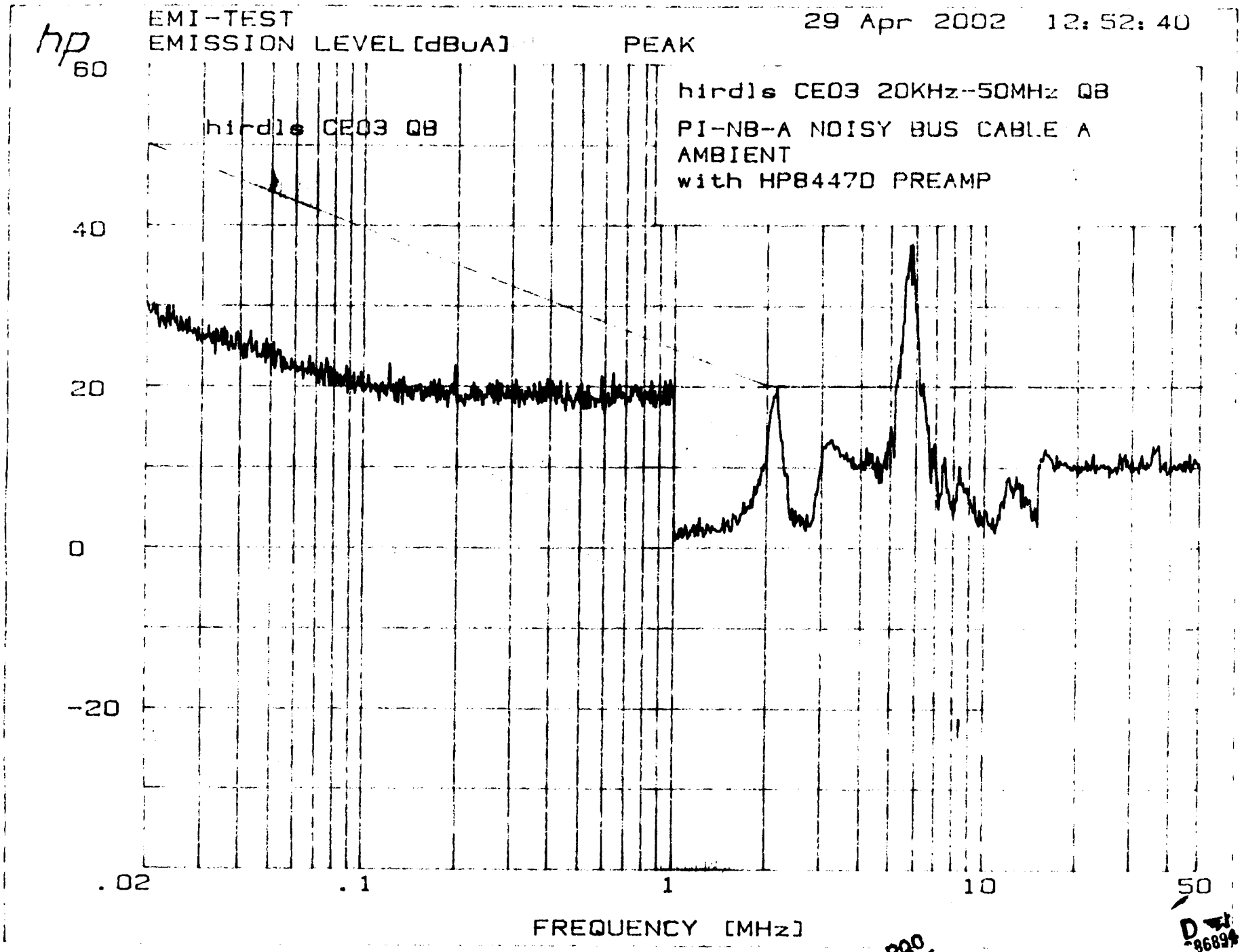
52	9.993	23.9	3.9



4/29/02 PQC 4/2/02



D
686894
PQC
616723
APR 29 2002


EMI-TEST
29 Apr 2002 12:52:40
EMISSION LEVEL [dBuA]
PEAK
hirdls CE03 20KHz-50MHz Q8
PI-NB-A NOISY BUS CABLE A
AMBIENT
with HP8447D PREAMP
hirdls CE03 Q8
60
40
20
0
-20
.02
.1
1
10
50
FREQUENCY [MHz]

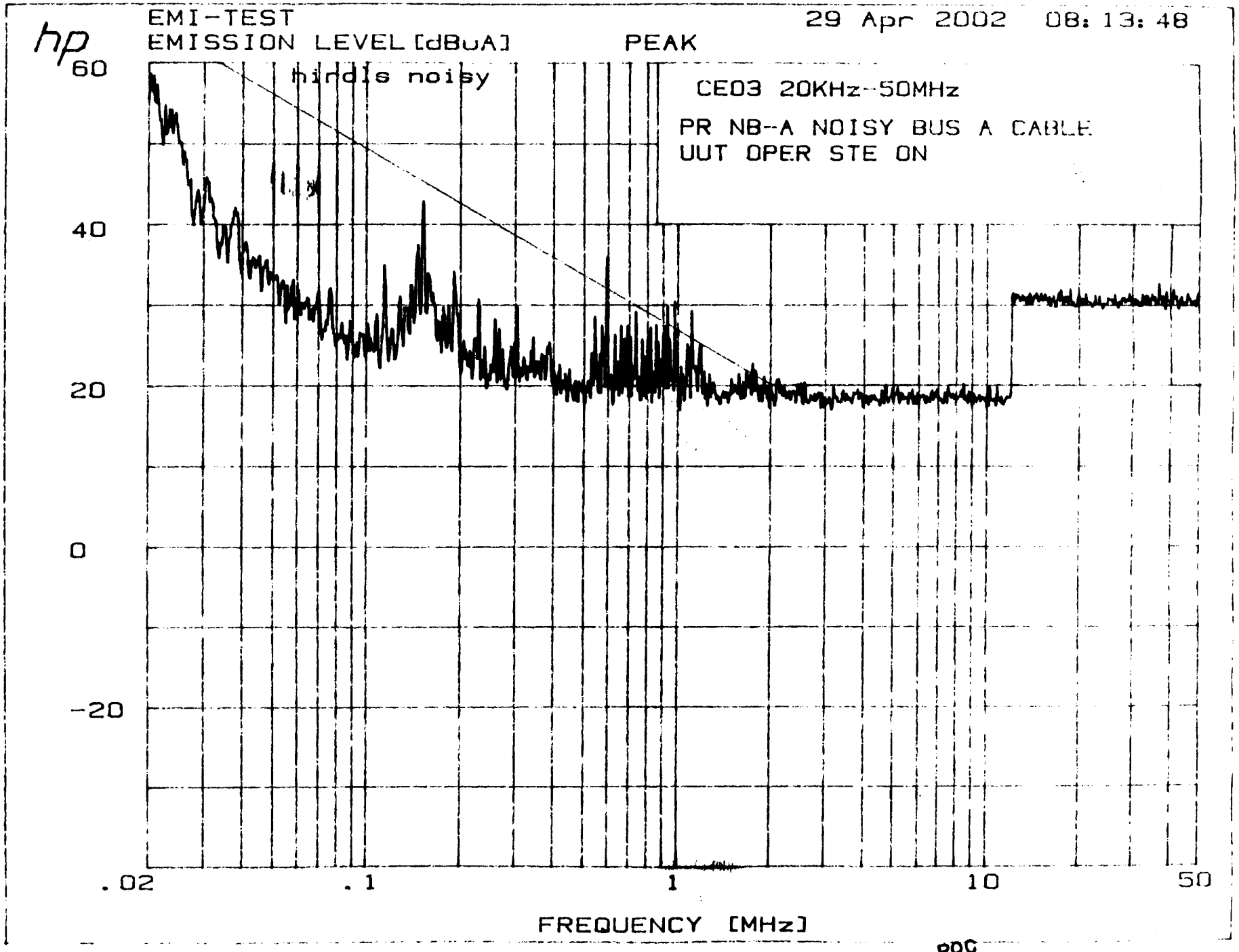
EMI-TEST 29 Apr 2002 12:52:40

1. hirdls emi test
   1.10 hirdls CE03 20KHz-50MHz VER3

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PI-NB-A
AMBIENT
WITH HP8447A

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	5.306	22.7	2.7
2	5.389	25.3	5.3
3	5.782	37.6	17.6
4	5.873	37.7	17.7
5	6.06	30.3	10.3
6	6.351	20.4	.4



AD6419

PQC 601336 APR 29 2002

APR 29 2002

D 686804

EMI-TEST

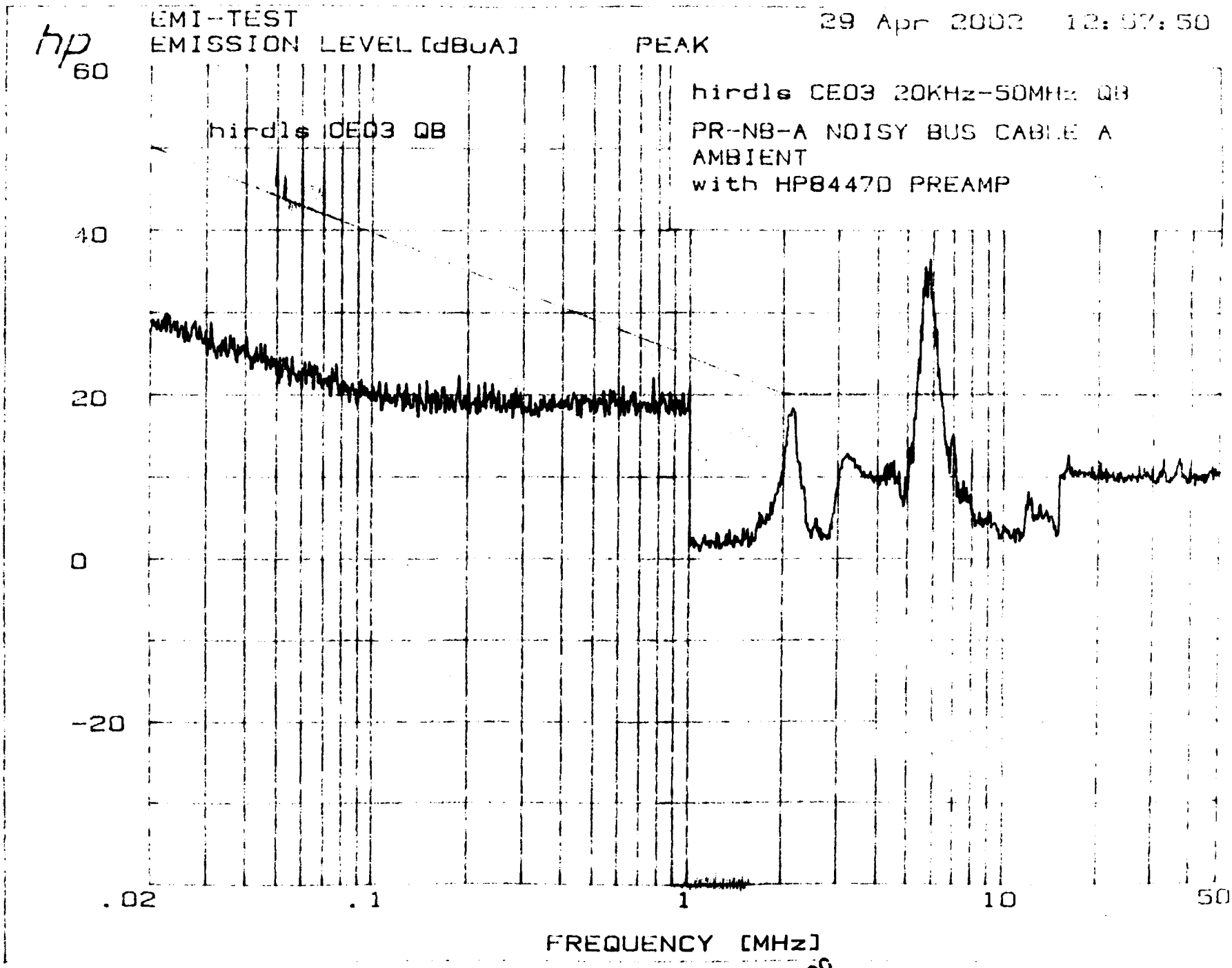
1. hirdls emi test
   1.8 NOISY 20K-50 MHz CE03

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PR-NB-A

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.5947	36	4.2
2	.9284	29.8	2.4
3	.9806	30.5	3.6
4	1.111	29.3	3.6
5	1.669	21.8	.1
6	1.749	22.8	1.5
7	1.79	21.9	.9
8	1.906	21.2	.8
9	1.997	20.3	.3
10	2.093	20.8	.8
11	2.447	20.2	.2
12	2.505	20.3	.3
13	2.565	20.5	.5
14	4.719	20.1	.1
15	8.414	20.3	.3
16	12.15	31.6	11.6
17	12.34	31.4	11.4
18	13.77	31.6	11.6
19	14.43	31.6	11.6
20	16.48	31.2	11.2
21	17.14	31.6	11.6
22	17.41	32	12.0
23	18.67	32.1	12.1
24	19.88	31.4	11.4
25	21	31.5	11.5
26	22.53	31.3	11.3
27	23.24	31.2	11.2
28	26.14	31.4	11.4
29	29.16	31.5	11.5
30	32.28	31.4	11.4
31	33.04	31.3	11.3
32	34.63	31.4	11.4
33	36.58	32.8	12.8
34	37.74	31.2	11.2
35	38.63	31.8	11.8
36	40.8	32.1	12.1
37	43.44	31.1	11.1
38	45.5	31.5	11.5

D6160/A 2/09/11



D 066894
APR 2 9 2002

EMI-TEST 29 Apr 2002 12:57:50

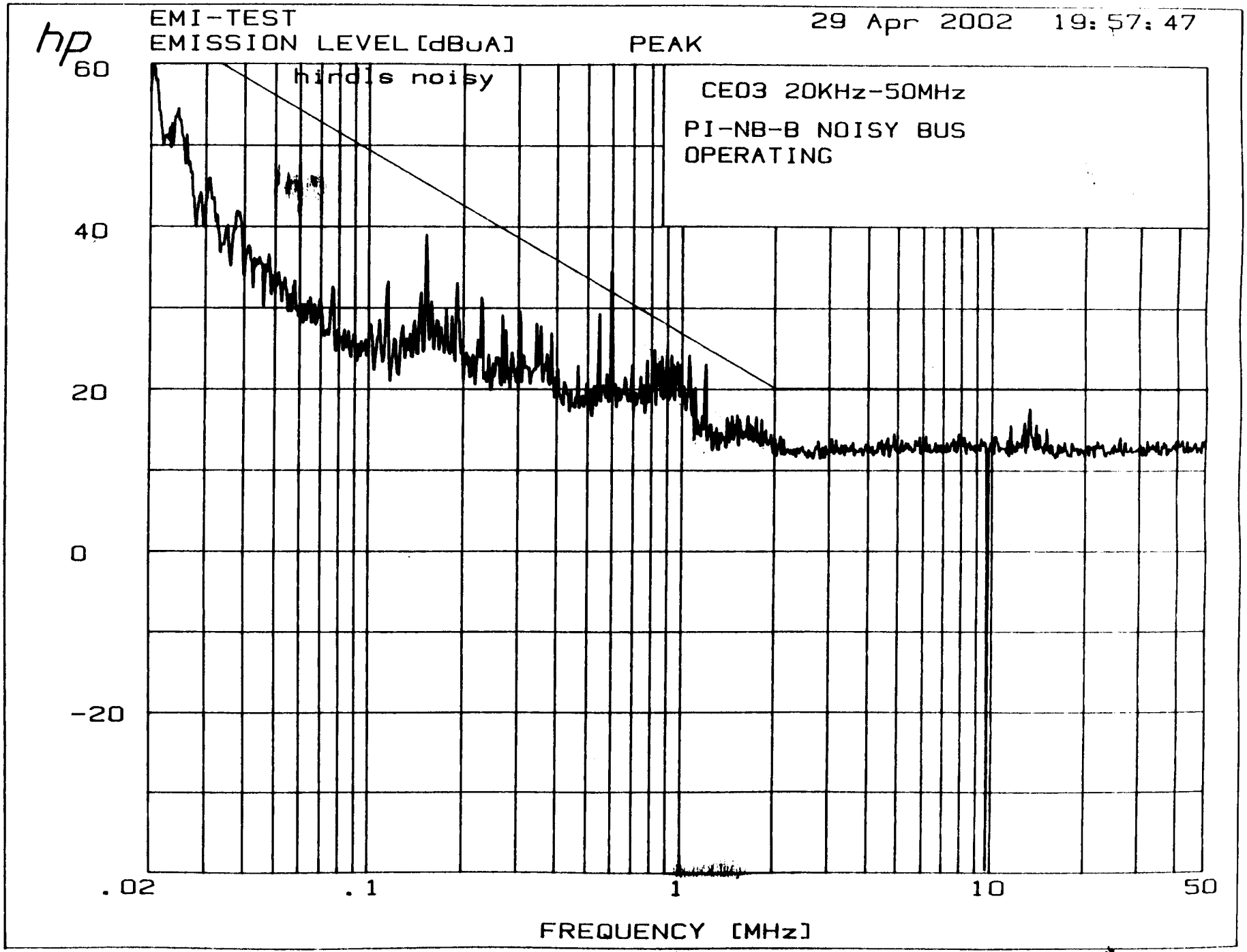
1. hirdls emi test
   1.10 hirdls CE03 20KHz-50MHz VER3

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	5.389	24.5	4.5
2	5.474	28.5	8.5
3	5.648	35.7	15.7
4	5.873	36.6	16.6
5	6.155	28	8.0

PR-NB-A
AMBIENT
w/ HP8447A

Peaks 4/30/02


EMI-TEST
29 Apr 2002 19:57:47
EMISSION LEVEL [dBuA]
PEAK
hirdis noisy
CE03 20KHz-50MHz
PI-NB-B NOISY BUS
OPERATING
60
40
20
0
-20
.02
.1
1
10
50
FREQUENCY [MHz]

EMI-TEST 29 Apr 2002 19:57:47

1. hirdls emi test
   1.12 CE03 20KHz-50MHz NOISY VERSION 2 PI-NB-B

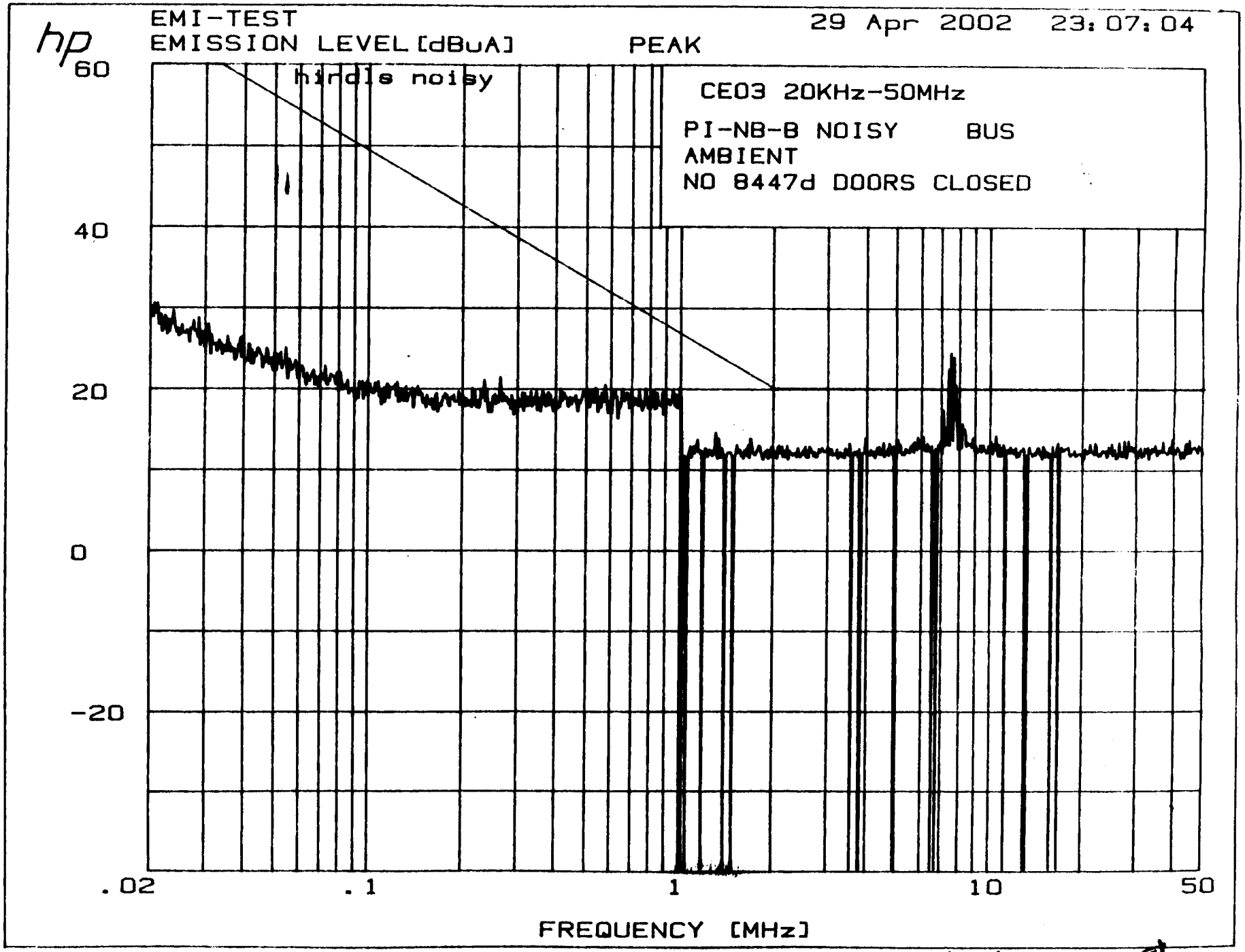
OPER

Peaks above 0 [redacted] of Limit Line #1
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.5947	34.5	2.7

[redacted]

[redacted]


EMI-TEST
29 Apr 2002 23:07:04
EMISSION LEVEL [dBuA]
PEAK
hirdis noisy
CE03 20KHz-50MHz
PI-NB-B NOISY BUS
AMBIENT
NO 8447d DOORS CLOSED
60
40
20
0
-20
.02
.1
1
10
50
FREQUENCY [MHz]

EMI-TEST 29 Apr 2002 23:07:04

1. hirdls emi test
   1.12 CE03 20KHz-50MHz NOISY VERSION 2

PI-NB-B
AMBIENT
NO 8447D
DOOR CLOSED

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	7.31	22.6	2.6
2	7.425	24.6	4.6
3	7.601	24.1	4.1
4	7.721	20.6	.6

Peoria 4/30/02

EMI-TEST 29 Apr 2002 23:07:04

1. hirdls emi test
   1.12 CE03 20KHz-50MHz NOISY VERSION 2

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PI-NB-B
AMBIENT
NO 8447D
DOORS CLOSED

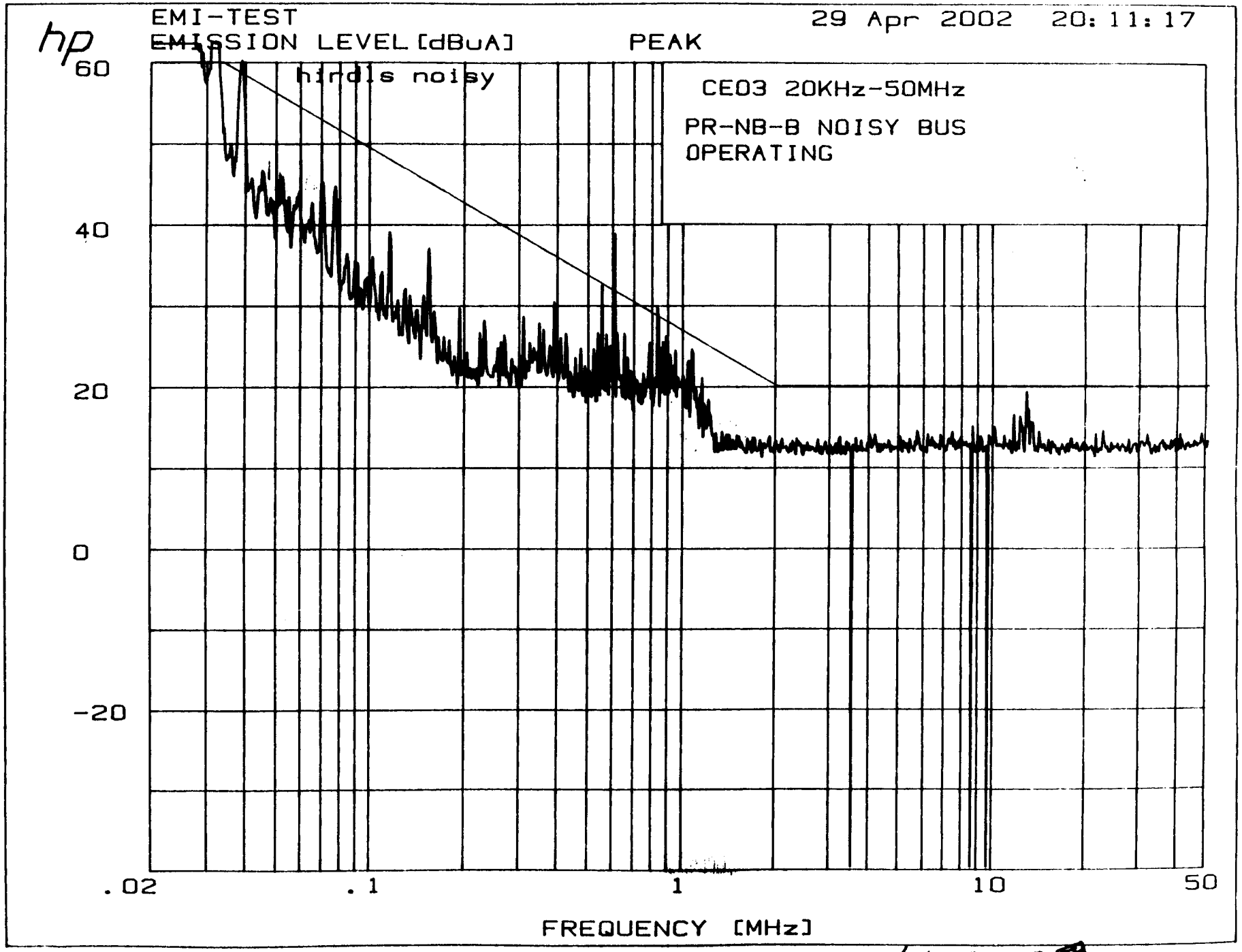
PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	7.31	22.6	2.6
2	7.425	24.6	4.6
3	7.601	24.1	4.1
4	7.721	20.6	.6

Duplicate copy

P 6160 7A 4/30/02

[redacted]

[redacted]



4/29/02 PKO DIGITAL 4/30/02

EMI-TEST 29 Apr 2002 20:11:17

1. hirdls emi test
   1.12 CE03 20KHz-50MHz NOISY VERSION 2

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PR-NB-B
OPERATING

PEAK#	FREQ (MHz)	(dBuA)		DELTA
1	.03074	62.3	OVRRNG	1.6
2	.03856	60.2	OVRRNG	1.7
3	.5457	32.7		.1
4	.5993	38.9		7.2
5	.8193	29.8		1.1

D 6160774 1/24/02

EMI-TEST 29 Apr 2002 20:11:17

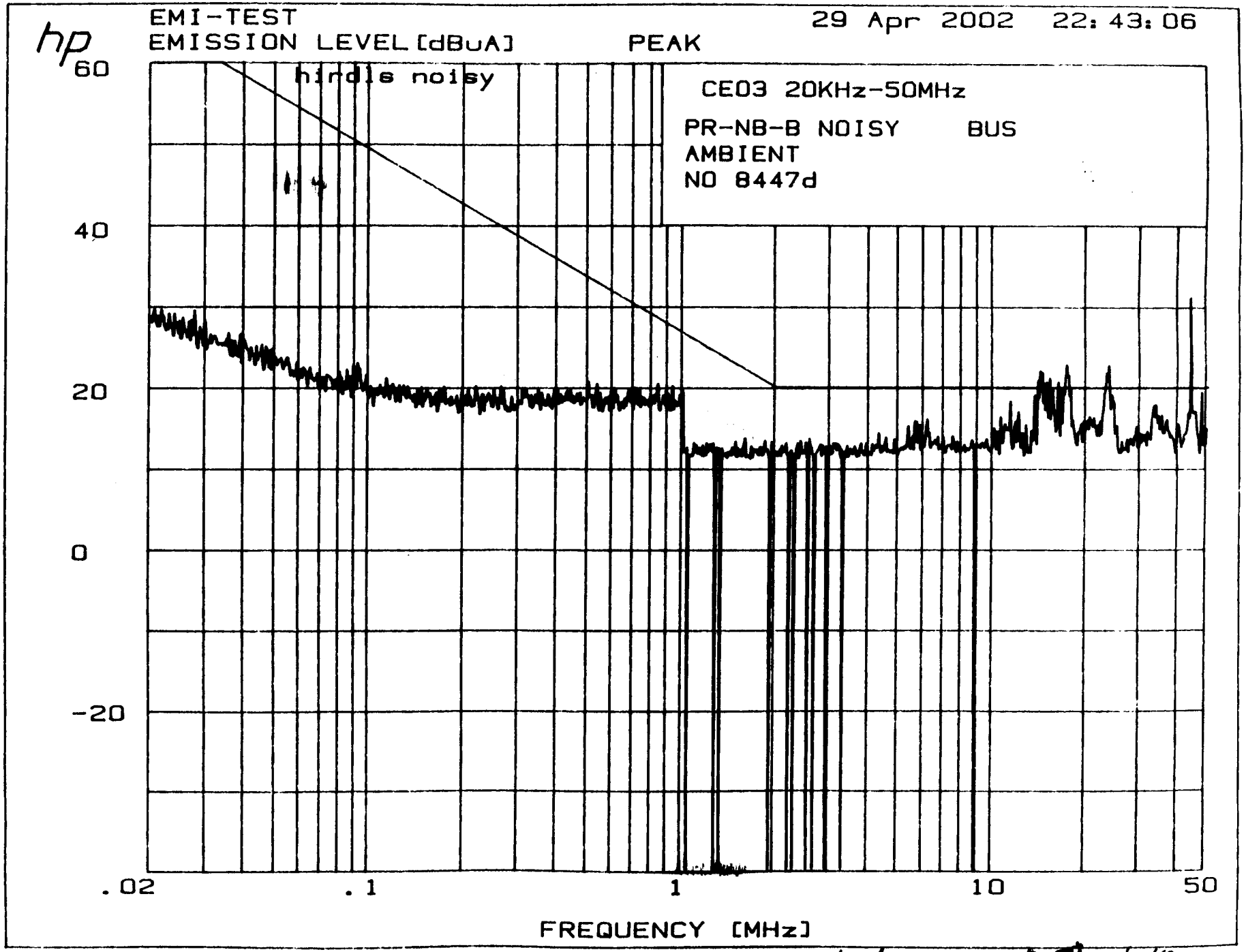
1. hirdls emi test
   1.12 CE03 20KHz-50MHz NOISY VERSION 2 PI-NB-B OPER.

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)		DELTA
1	.03074	62.3	OVRRNG	1.6
2	.03856	60.2	OVRRNG	1.7
3	.5457	32.7		.1
4	.5993	38.9		7.2
5	.8193	29.8		1.1

Duplicate printout

D616071A 4/30/02



4/29/12 PQC

4/30/12

EMI-TEST 29 Apr 2002 22:43:06

1. hirdls emi test
   1.12 CE03 20KHz-50MHz NOISY VERSION 2

Peaks above 0 dB of Limit Line #1
peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	43.78	31.3	11.3
2	17.14	22.9	2.9
3	23.43	22.9	2.9
4	14.09	22.2	2.2
5	16.1	20.8	.8

PR-NB-B CE03 VER.5 AMB. 4/29/02

PQC
[redacted]

D 6160714 4/29/02

[redacted]

[redacted]

EMI-TEST 29 Apr 2002 22:43:06

1. hirdls emi test
   1.12 CE03 20KHz-50MHz NOISY VERSION 2

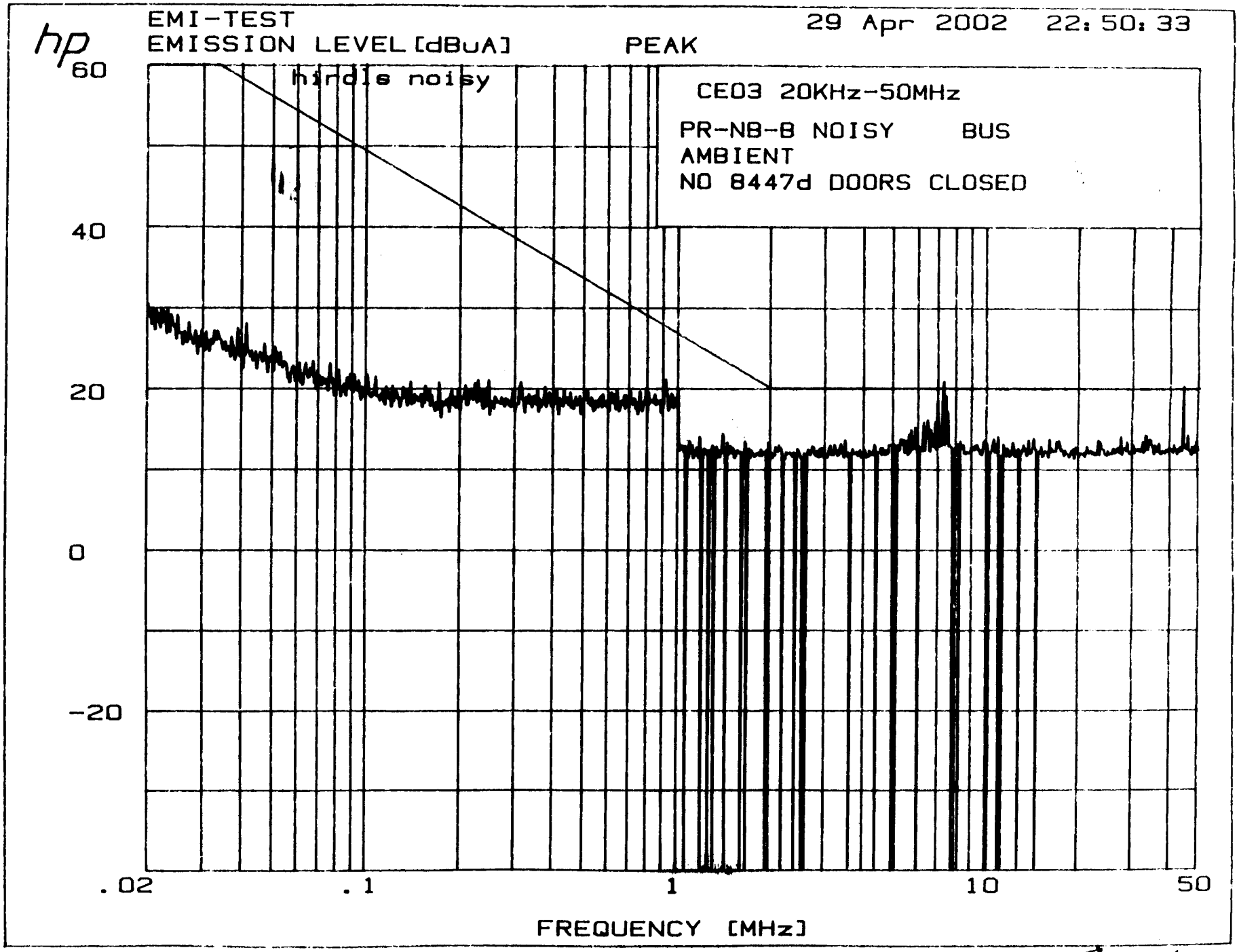
Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PR-WR-B
AMBIENT
DO 81470

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	13.88	21	1.0
2	14.09	22.2	2.2
3	14.54	20.6	.6
4	14.77	20.8	.8
5	15.12	21.3	1.3
6	16.1	20.8	.8
7	17.14	22.9	2.9
8	23.06	21.9	1.9
9	23.43	22.9	2.9
10	43.78	31.3	11.3

D 6160 1a 4/30/02

Duplicate printout


EMI-TEST
29 Apr 2002 22:50:33
EMISSION LEVEL [dBuA]
PEAK
hp
60
40
20
0
-20
hirdis noisy
CE03 20KHz-50MHz
PR-NB-B NOISY BUS
AMBIENT
NO 8447d DOORS CLOSED
.02
.1
1
10
50
FREQUENCY [MHz]

EMI-TEST 29 Apr 2002 22:50:32

1. hirdls emi test
   1.12 CE03 20KHz-50MHz NOISY VERSION 2

Peaks above 0 dB of Limit Line #1
peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	7.253	21	1.0
2	44.12	20.5	.5

PQC 686843

PR-NB-B CE03 VER.5 AMB 4/29/02 D660724 4/30/02

DOOR CLOSED.

EMI-TEST 29 Apr 2002 22:50:33

1. hirdls emi test
   1.12 CE03 20KHz-50MHz NOISY VERSION 2

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	7.253	21	1.0
2	44.12	20.5	.5

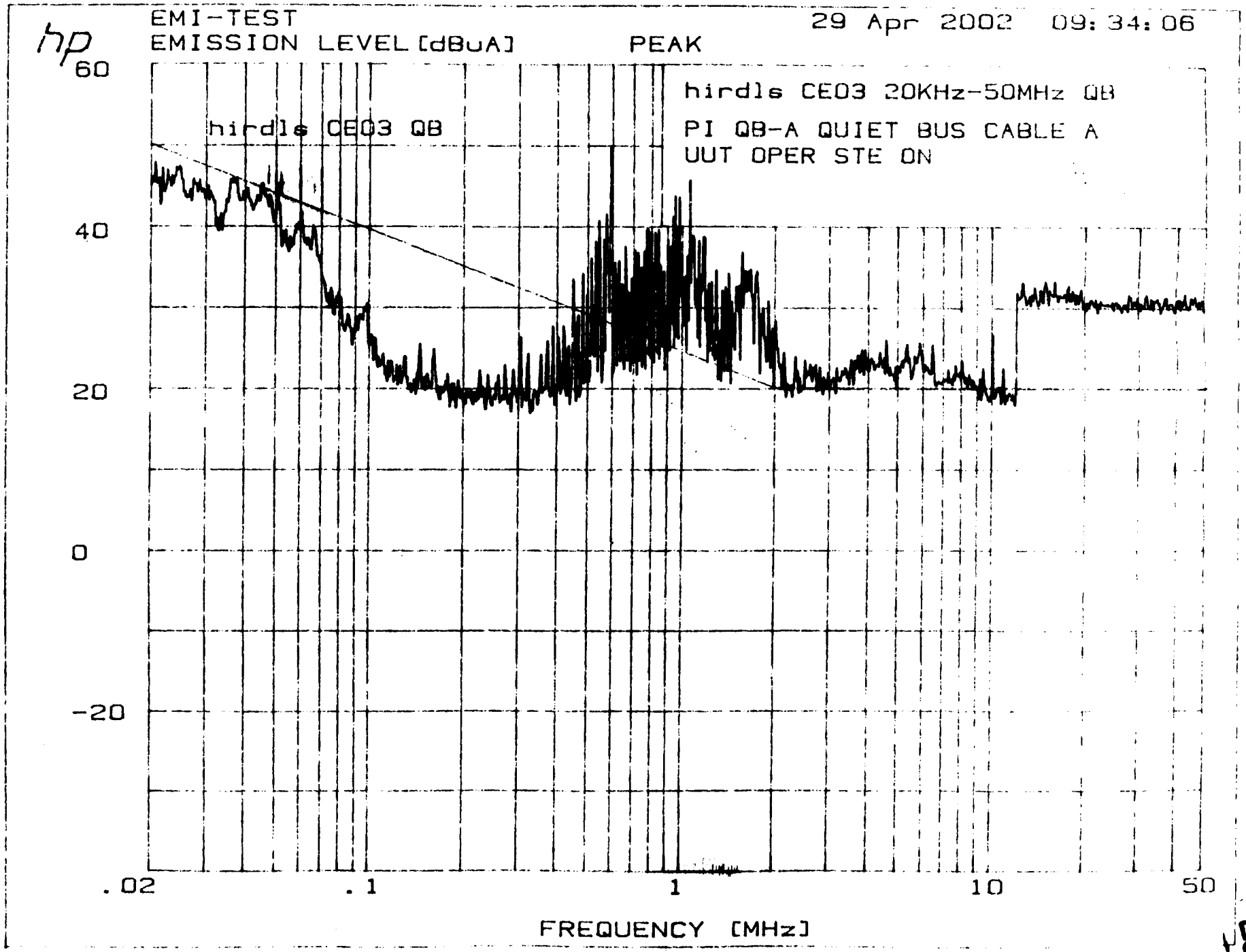
PR-NB-B
AMBIENT
NO 84470
DOOR CLOSED

Duplicate printout
TJC

D 616 Orig 4/29/02

[redacted]

[redacted]


EMI-TEST
29 Apr 2002 09:34:06
EMISSION LEVEL [dBuA]
PEAK
hp
60
40
20
0
-20
hirdls CE03 QB
hirdls CE03 20KHz-50MHz QB
PI QB-A QUIET BUS CABLE A
UUT OPER STE ON
.02
.1
1
10
50
FREQUENCY [MHz]

D 686894

PQC

EMI-TEST 29 Apr 2002 09:34:06

1. hirdls emi test
   1.2 hirdls CE03 20KHz-50MHz QB

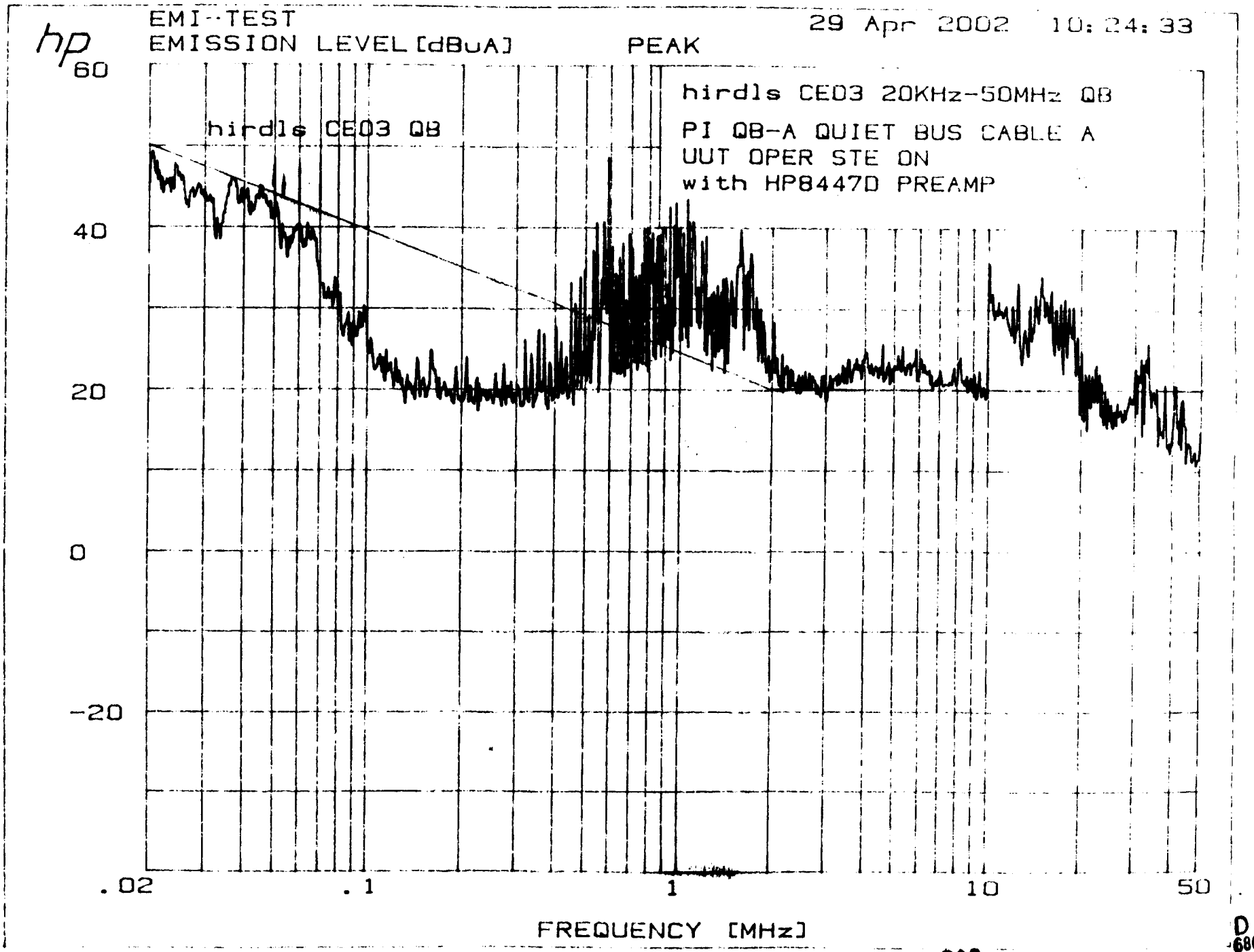
Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PI-QB-A
UUT OPER
STE ON

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.03767	46	.2
2	.04544	45.3	.7
3	.0507	44	.1
4	.4488	33.5	3.8
5	.4815	34.2	5.0
6	.4968	31.6	2.6
7	.5126	36.1	7.3
8	.5289	38.2	9.6
9	.5414	40.8	12.3
10	.563	38.4	10.2
11	.5719	41.6	13.5
12	.59	50	22.1
13	.6088	35.6	7.9
14	.6281	35.8	8.3
15	.643	33	5.7
16	.6583	37.6	10.4
17	.6739	31.9	4.9
18	.6899	33.7	6.8
19	.7062	37.1	10.4
20	.723	36.8	10.2
21	.7401	35	8.6
22	.7577	37	10.7
23	.7757	39.7	13.6
24	.7879	39.3	13.3
25	.8066	35.2	9.3
26	.8193	39.3	13.5
27	.8387	39.6	14.0
28	.8519	35.3	9.8
29	.8722	34.5	9.1
30	.8859	29.3	4.0
31	.8999	38.4	13.2
32	.9212	37.6	12.6
33	.9357	41.3	16.4
34	.9505	43.8	19.0
35	.9654	39.8	15.1
36	[redacted]	43.7	19.1
37	1.[redacted]	33.7	9.3
38	1.[redacted]	33.9	9.6
39	1.044	36.4	12.2
40	1.06	45.8	21.7
41	1.086	38.9	15.0
42	1.12	33.5	9.8
43	1.138	38.3	14.7
44	1.156	34	10.5
45	1.174	38.7	15.3
46	1.202	32	8.7
47	1.221	33.1	9.9
48	1.25	33.2	10.2
49	1.269	27	4.1
50	1.289	34.7	11.9
51	1.33	27.2	4.6

52	1.351	32.2	9.7
53	1.383	32.6	10.2
54	1.416	34.3	12.1
55	1.45	30.8	8.8
56	1.496	32.7	10.9
57	1.531	32.8	11.1
58	1.567	36.9	15.4
59	1.605	34.6	13.2
60	1.643	34.6	13.4
61	1.669	34.8	13.7
62	1.749	34.5	13.7
63	1.804	29.2	8.6
64	1.833	29.8	9.3
65	1.906	30.9	10.6
66	1.966	27.5	7.4
67	2.013	28.4	8.4
68	2.143	24.5	4.5
69	2.194	20.6	.6
70	2.335	24	4.0
71	2.372	22.2	2.2
72	2.409	21.4	1.4
73	2.505	23.6	3.6
74	2.605	23	3.0
75	2.709	23	3.0
76	2.752	21.3	1.3
77	2.795	22.7	2.7
78	2.884	21.5	1.5
79	2.975	22	2.0
80	3.094	21.4	1.4
81	3.167	22.6	2.6
82	3.372	22.6	2.6
83	3.534	23.6	3.6
84	3.617	23.6	3.6
85	3.703	24.2	4.2
86	3.821	24.8	4.8
87	3.912	24.9	4.9
88	4.004	23.5	3.5
89	4.099	23.8	3.8
90	4.364	24.5	4.5
91	4.502	23.8	3.8
92	4.573	26.1	6.1
93	4.719	22.7	2.7
94	4.9[illegible]	22.7	2.7
95	5.[illegible]	25.5	5.5
96	5.[illegible]	25.7	5.7
97	6.[illegible]	25.5	5.5
98	7.253	22.4	2.4
99	7.661	22.9	2.9
100	8.029	23.5	3.5
101	8.48	21.8	1.8
102	9.17	21.3	1.3
103	9.387	22.6	2.6
104	10.07	26.7	6.7
105	10.47	20.2	.2
106	10.89	22.6	2.6
107	12.54	33.2	13.2
108	13.24	31.5	11.5
109	13.77	32.6	12.6
110	14.32	32.3	12.3
111	14.89	33.3	13.3
112	15.97	33.4	13.4

113	17.68	32.8	12.8
114	18.24	32.2	12.2
115	18.82	31.7	11.7
116	19.42	32.4	12.4
117	21	31.1	11.1
118	22.53	30.9	10.9
119	25.33	30.8	10.8
120	27.82	31.8	11.8
121	29.62	31.3	11.3
122	31.78	31.7	11.7
123	33.04	31.2	11.2
124	34.63	31.2	11.2
125	37.15	31.4	11.4
126	40.49	31.1	11.1
127	42.76	31.8	11.8
128	46.24	31.5	11.5



PQC
601335
APR 29 2002
D
686894

EMI-TEST 29 Apr 2002 10:24:33

1. hirdls emi test
   1.9 hirdls CE03 20KHz-50MHz QB ver2

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

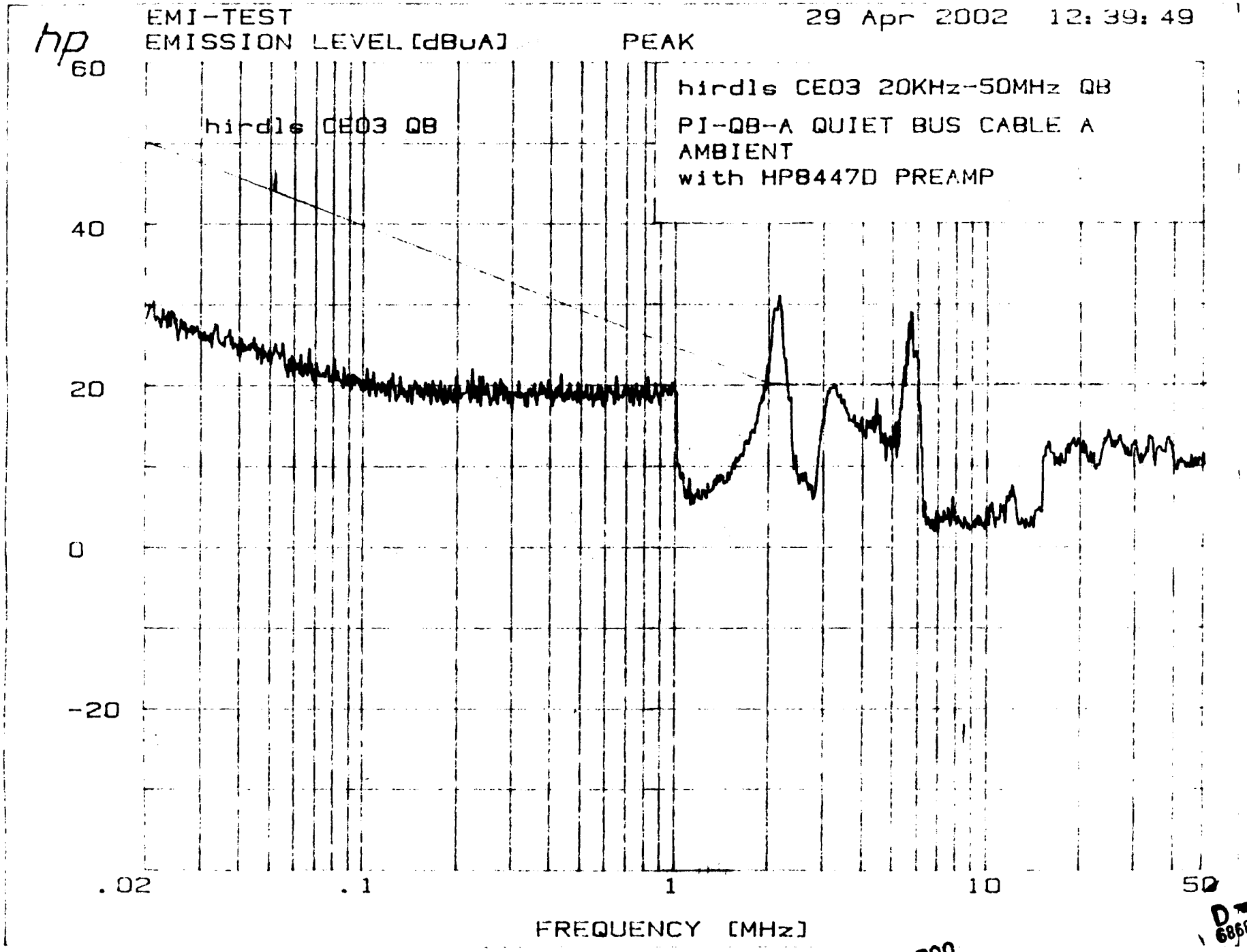
PI-Q13-A
LAST PEAK STEP ON
WITH 9447D

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.04509	45.1	.4
2	.4488	33.2	3.5
3	.4631	30.6	1.1
4	.4815	33.9	4.7
5	.4968	34.8	5.8
6	.5126	29.2	.4
7	.5289	37.2	8.6
8	.5414	40.7	12.2
9	.563	33.7	5.5
10	.5719	40.8	12.7
11	.59	48.7	20.8
12	.6088	37.7	10.0
13	.6232	34.4	6.9
14	.643	36.4	9.1
15	.6583	38.1	10.9
16	.6739	31.1	4.1
17	.6899	39.3	12.4
18	.7062	37.5	10.8
19	.723	34.1	7.5
20	.7401	34.2	7.8
21	.7577	35.7	9.4
22	.7696	39.8	13.6
23	.7879	40.1	14.1
24	.8003	38.5	12.6
25	.8193	39.4	13.6
26	.8322	35.6	9.9
27	.8519	39	13.5
28	.8654	39.2	13.8
29	.879	39.9	14.6
30	.8929	30.4	5.2
31	.914	33	7.9
32	.9284	42.6	17.7
33	.9431	31.3	6.5
34	.9579	40.3	15.6
35	.973	43.1	18.5
36	[redacted]	40	15.5
37	1.[redacted]	37.5	13.1
38	1.[redacted]	39.4	15.1
39	1.[redacted]	34.2	10.0
40	1.06	43.6	19.5
41	1.077	40.8	16.8
42	1.103	40.8	17.0
43	1.156	32.7	9.2
44	1.183	38.4	15.0
45	1.221	39	15.8
46	1.25	31.4	8.4
47	1.269	31.8	8.9
48	1.289	32.2	9.4
49	1.33	33	10.4
50	1.362	32.1	9.6
51	1.383	33.7	11.3

D860174
4/29/02

	[redacted].416	33.9	11.7
53	1.472	33.5	11.6
54	1.507	31.3	9.5
55	1.58	39.8	18.3
56	1.63	34.1	12.8
57	1.669	34.6	13.5
58	1.708	37	16.0
59	1.776	31.6	10.9
60	1.818	30	9.4
61	1.876	28.5	8.1
62	1.951	24.2	4.1
63	2.029	28.5	8.5
64	2.077	24	4.0
65	2.126	21.7	1.7
66	2.16	24.5	4.5
67	2.228	23	3.0
68	2.299	22.6	2.6
69	2.335	22.4	2.4
70	2.447	21.9	1.9
71	2.505	21.9	1.9
72	2.565	22.3	2.3
73	2.646	22.1	2.1
74	2.709	21.8	1.8
75	2.817	20.6	.6
76	2.906	21.8	1.8
77	2.952	21.8	1.8
78	3.094	21.8	1.8
79	3.242	21.7	1.7
80	3.294	22.1	2.1
81	3.398	23.1	3.1
82	3.452	22.7	2.7
83	3.534	23.9	3.9
84	3.762	23.9	3.9
85	4.067	24.7	4.7
86	4.197	23.3	3.3
87	4.33	23	3.0
88	4.573	25.7	5.7
89	4.793	23.5	3.5
90	4.907	22.6	2.6
91	5.142	24.3	4.3
92	5.306	25.5	5.5
93	5.[redacted]	23.4	3.4
94	5.[redacted]	25.1	5.1
95	6.[redacted]	23.9	3.9
96	6.604	21.9	1.9
97	7.03	22.4	2.4
98	7.782	22.8	2.8
99	8.155	24.1	4.1
100	8.547	21.8	1.8
101	8.681	21.2	1.2
102	8.818	21.6	1.6
103	9.027	22	2.0
104	9.387	22.4	2.4
105	9.685	20.4	.4
106	10.07	35.7	15.7
107	10.81	31	11.0
108	11.41	30.5	10.5
109	11.96	30.6	10.6
110	12.44	33.4	13.4
111	13.14	27.6	7.6
112	13.66	30.6	10.6

113	14.21	32	12.0
114	14.89	34.2	14.2
115	15.46	31.1	11.1
116	15.97	32.5	12.5
117	16.48	30	10.0
118	17.14	30.8	10.8
119	17.68	31.4	11.4
120	18.24	30.4	10.4
121	18.82	30.4	10.4
122	19.42	26.7	6.7
123	20.04	24.7	4.7
124	20.51	22.2	2.2
125	21.16	22.1	2.1
126	21.66	22	2.0
127	22.35	23.2	3.2
128	22.88	22.2	2.2
129	23.24	21.1	1.1
130	30.08	22.7	2.7
131	31.28	24.1	4.1
132	31.78	23.4	3.4
133	32.28	24	4.0
134	33.04	25.9	5.9
135	35.17	20.3	.3
136	37.44	20.8	.8
137	40.49	20.7	.7



PQO 601335

D 686894

EMI-TEST 29 Apr 2002 12:39:49

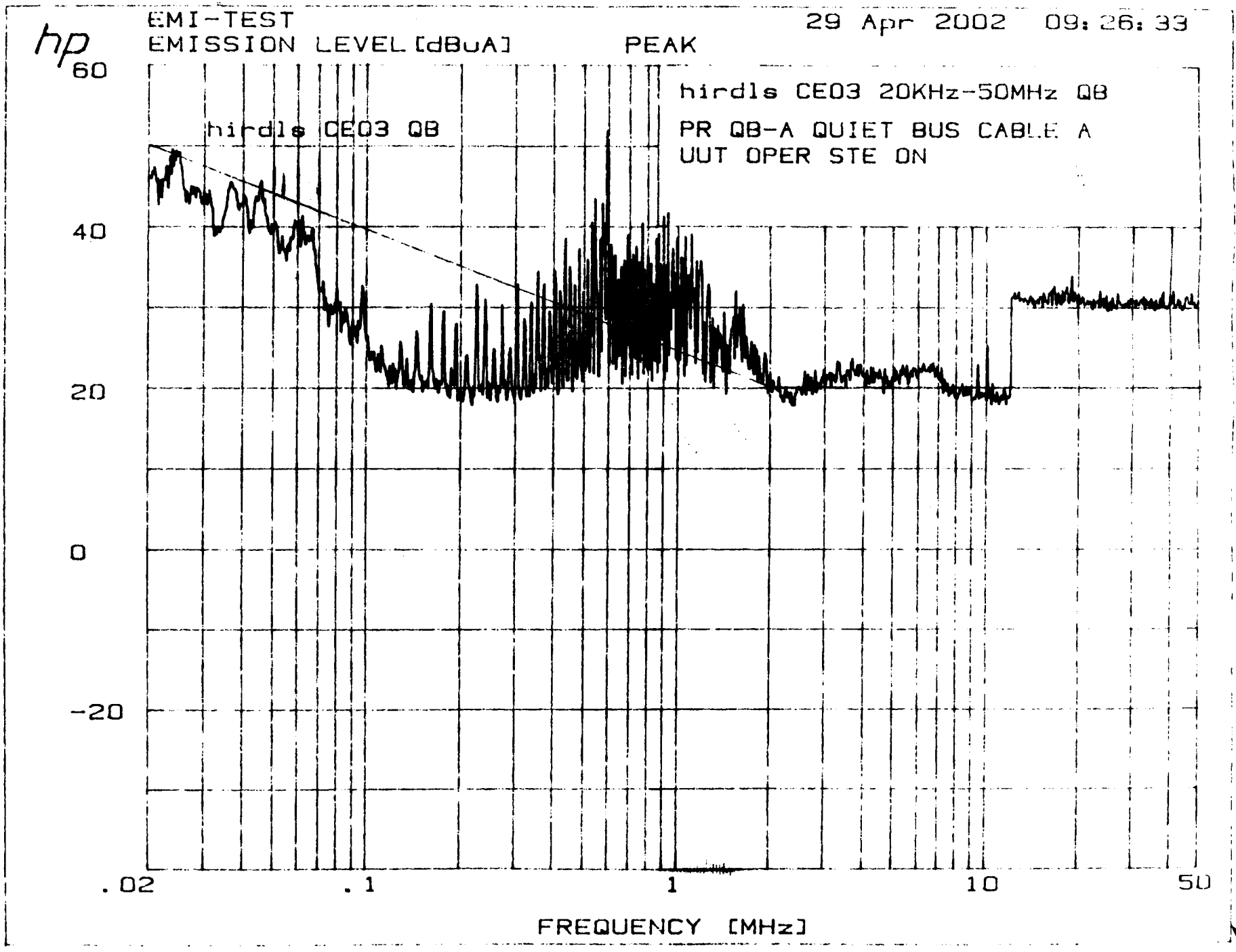
1. hirdls emi test
   1.10 hirdls CE03 20KHz-50MHz VER3

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PI-QB-A
AMBIENT
WITH HP8447D

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	2.143	31	11.0
2	5.389	22.2	2.2
3	5.474	25.3	5.3
4	5.56	27.6	7.6
5	5.648	29	9.0

4/30/02


EMI-TEST
29 Apr 2002 09:26:33
EMISSION LEVEL [dBuA]
PEAK
hp
hirdls CE03 QB
hirdls CE03 20KHz-50MHz QB
PR QB-A QUIET BUS CABLE A
UUT OPER STE ON
60
40
20
0
-20
.02
.1
1
10
50
FREQUENCY [MHz]

EMI-TEST 29 Apr 2002 09:26:33

1. hirdls emi test
   1.2 hirdls CE03 20KHz-50MHz QB

Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

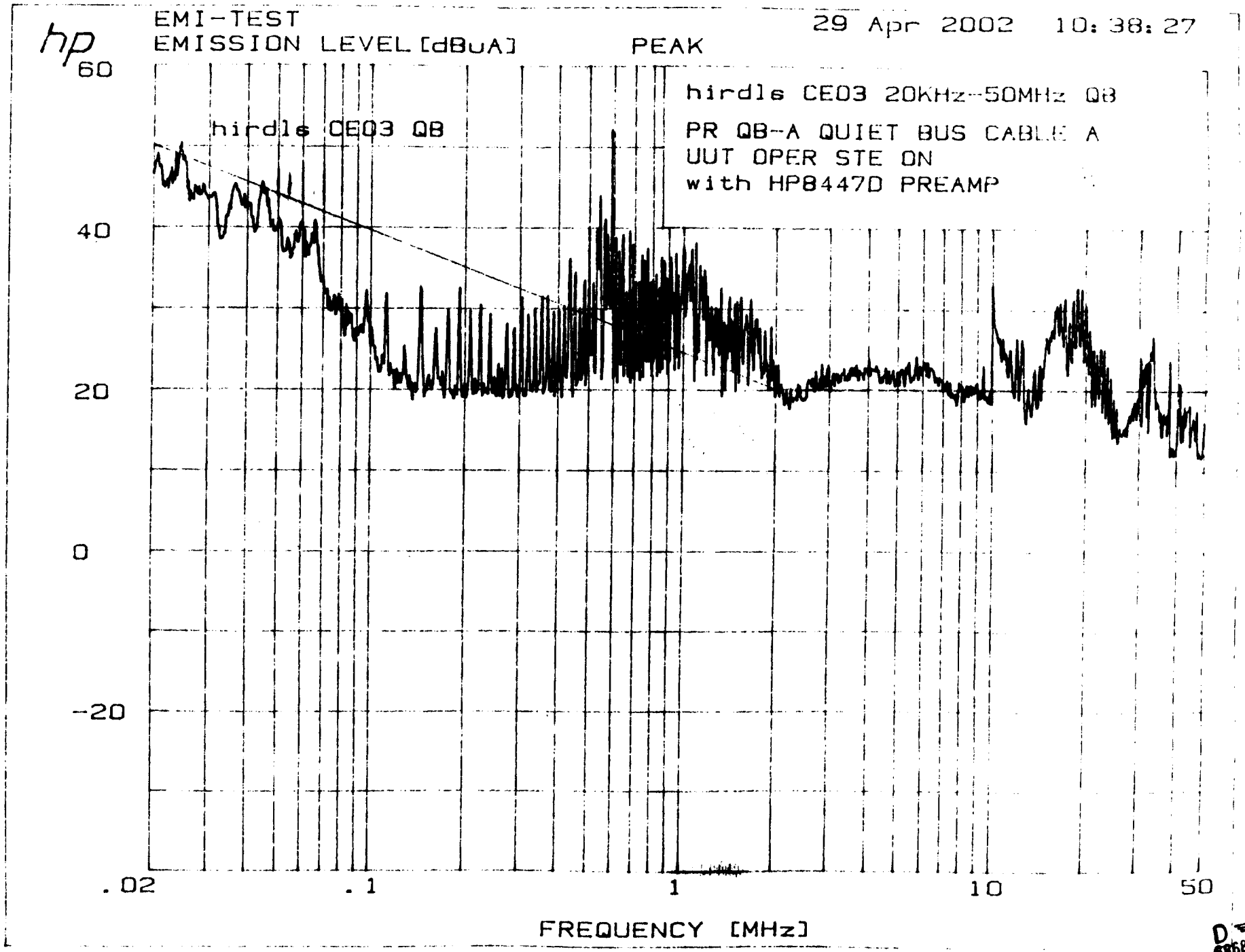
PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.02375	49.6	.8
2	.02413	49.3	.6
3	.02451	49.4	.8
4	.0458	45.7	1.1
5	.306	32.9	.7
6	.355	34.5	3.3
7	.372	32.9	2.0
8	.4023	34.5	4.1
9	.4183	32.1	2.0
10	.435	38.6	8.7
11	.4488	35.1	5.4
12	.4667	32.8	3.4
13	.4815	37.3	8.1
14	.4968	32	3.0
15	.5126	36	7.2
16	.5289	40.6	12.0
17	.5414	43.6	15.1
18	.563	38.5	10.3
19	.5719	42.9	14.8
20	.5809	40.4	12.4
21	.5947	52	24.1
22	.6088	37.8	10.1
23	.6281	36.5	9.0
24	.643	33.5	6.2
25	.6583	35.1	7.9
26	.6739	35.9	8.9
27	.6899	39	12.1
28	.7062	35.9	9.2
29	.7174	36.6	10.0
30	.7344	37.6	11.1
31	.7518	35.7	9.4
32	.7696	40.5	14.3
33	.7818	34.7	8.6
34	.8003	36.4	10.5
35	.8193	35.5	9.7
36	[illegible]	33	7.3
37	[illegible]	38.6	13.1
38	[illegible]	39.2	13.8
39	[illegible]	35.5	10.2
40	.8999	41.3	16.1
41	.914	35.2	10.1
42	.9284	41.8	16.9
43	.9431	31.8	7.0
44	.9654	37.3	12.6
45	.9806	34.2	9.6
46	.9961	38.7	14.2
47	1.012	32.6	8.2
48	1.028	36.3	12.0
49	1.044	36.1	11.9
50	1.06	38.8	14.7
51	1.077	34	10.0

PR-QB-A
UUT OPER STE ON

D616072
4/30/02

52	1.111	39.1	15.3
53	1.138	32.3	8.7
54	1.156	35.8	12.3
55	1.1[redacted]	35.8	12.5
56	1.221	28.2	5.0
57	1.259	32.9	9.9
58	1.299	28.7	5.9
59	1.32	27.5	4.8
60	1.351	27.8	5.3
61	1.372	26.8	4.4
62	1.416	29.4	7.2
63	1.45	25.4	3.4
64	1.519	28.8	7.1
65	1.543	32.1	10.5
66	1.567	29	7.5
67	1.592	30.1	8.7
68	1.63	30.4	9.1
69	1.669	26.4	5.3
70	1.735	25.8	4.9
71	1.776	25.4	4.7
72	1.804	24.9	4.3
73	1.833	23.9	3.4
74	1.921	24.4	4.2
75	1.997	21.8	1.8
76	2.045	20.9	.9
77	2.126	21.4	1.4
78	2.246	20.1	.1
79	2.585	22.1	2.1
80	2.646	21.6	1.6
81	2.709	21.3	1.3
82	2.795	22.2	2.2
83	2.975	22.3	2.3
84	3.118	21.9	1.9
85	3.167	21.8	1.8
86	3.294	23.4	3.4
87	3.534	22.2	2.2
88	3.674	23.7	3.7
89	3.821	22.9	2.9
90	3.912	22.9	2.9
91	4.099	22.2	2.2
92	4.23	22.6	2.6
93	4.296	22.5	2.5
94	4.5[redacted]	22.3	2.3
95	4.[redacted]	22.4	2.4
96	5.[redacted]	22.5	2.5
97	5.[redacted]	22.1	2.1
98	5.347	22.8	2.8
99	5.517	22.8	2.8
100	5.782	22.5	2.5
101	6.708	23.1	3.1
102	6.921	22.7	2.7
103	7.14	22.5	2.5
104	7.31	21.1	1.1
105	7.782	20.4	.4
106	8.349	20.5	.5
107	8.614	20.2	.2
108	9.387	23	3.0
109	10.07	25.3	5.3
110	10.47	20.6	.6
111	12.73	32	12.0
112	13.88	31.5	11.5

113	14.89	31.4	11.4
114	15.36	31.9	11.9
115	16.22	32.1	12.1
116	16.61	32.7	12.7
117	17.14	31.9	11.9
118	17.68	32.2	12.2
119	18.24	32.7	12.7
120	18.97	34	14.0
121	19.42	32	12.0
122	20.04	31.6	11.6
123	23.43	32.2	12.2
124	24.55	31.6	11.6
125	25.33	30.8	10.8
126	25.73	31.3	11.3
127	26.76	31.8	11.8
128	29.39	31.2	11.2
129	32.53	31.4	11.4
130	33.04	31.1	11.1
131	34.36	31.2	11.2
132	35.73	31	11.0
133	37.74	32	12.0
134	39.86	31.6	11.6
135	40.8	32.1	12.1
136	46.97	31.8	11.8



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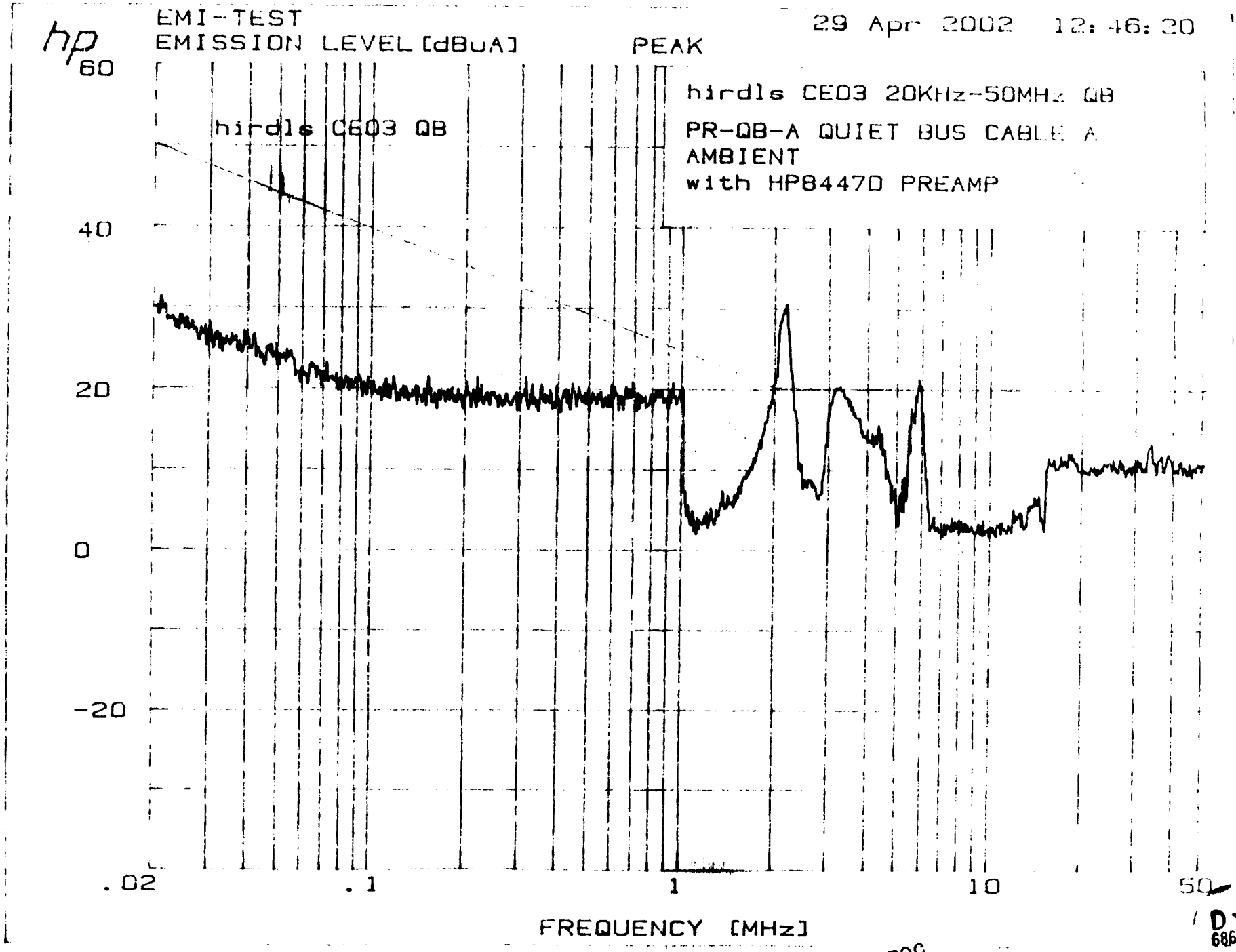
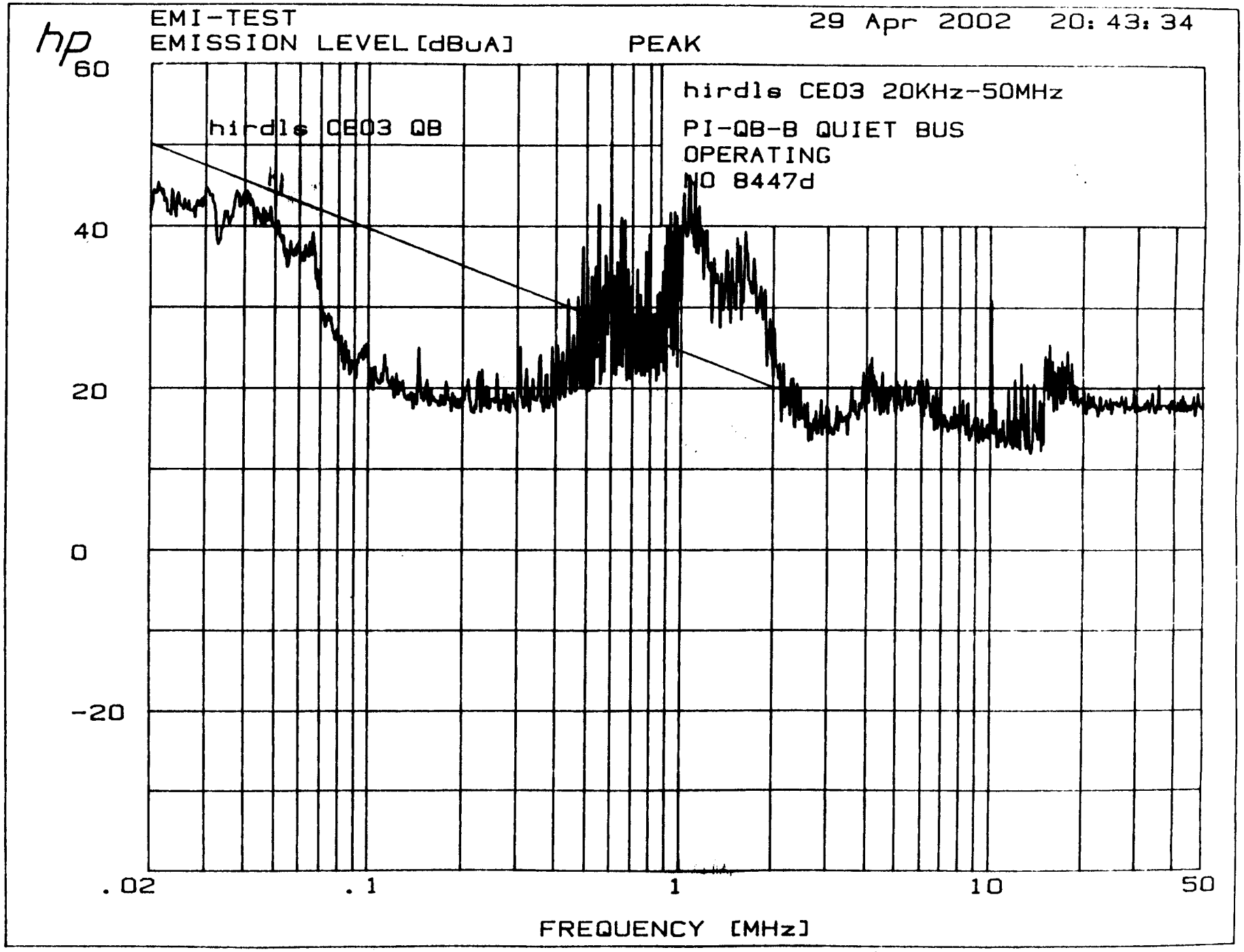


D
686894
PQC
APR 29 2002


EMI-TEST
29 Apr 2002 20:43:34
EMISSION LEVEL [dBuA]
PEAK
hp
60
40
20
0
-20
hirdls CE03 QB
hirdls CE03 20KHz-50MHz
PI-QB-B QUIET BUS
OPERATING
NO 8447d
.02
.1
1
10
50
FREQUENCY [MHz]

4/29/02 PGC

EMI-TEST 29 Apr 2002 20:43:34

1. hirdls emi test
1.13 hirdls CE03 20KHz-50MHz QB VER5

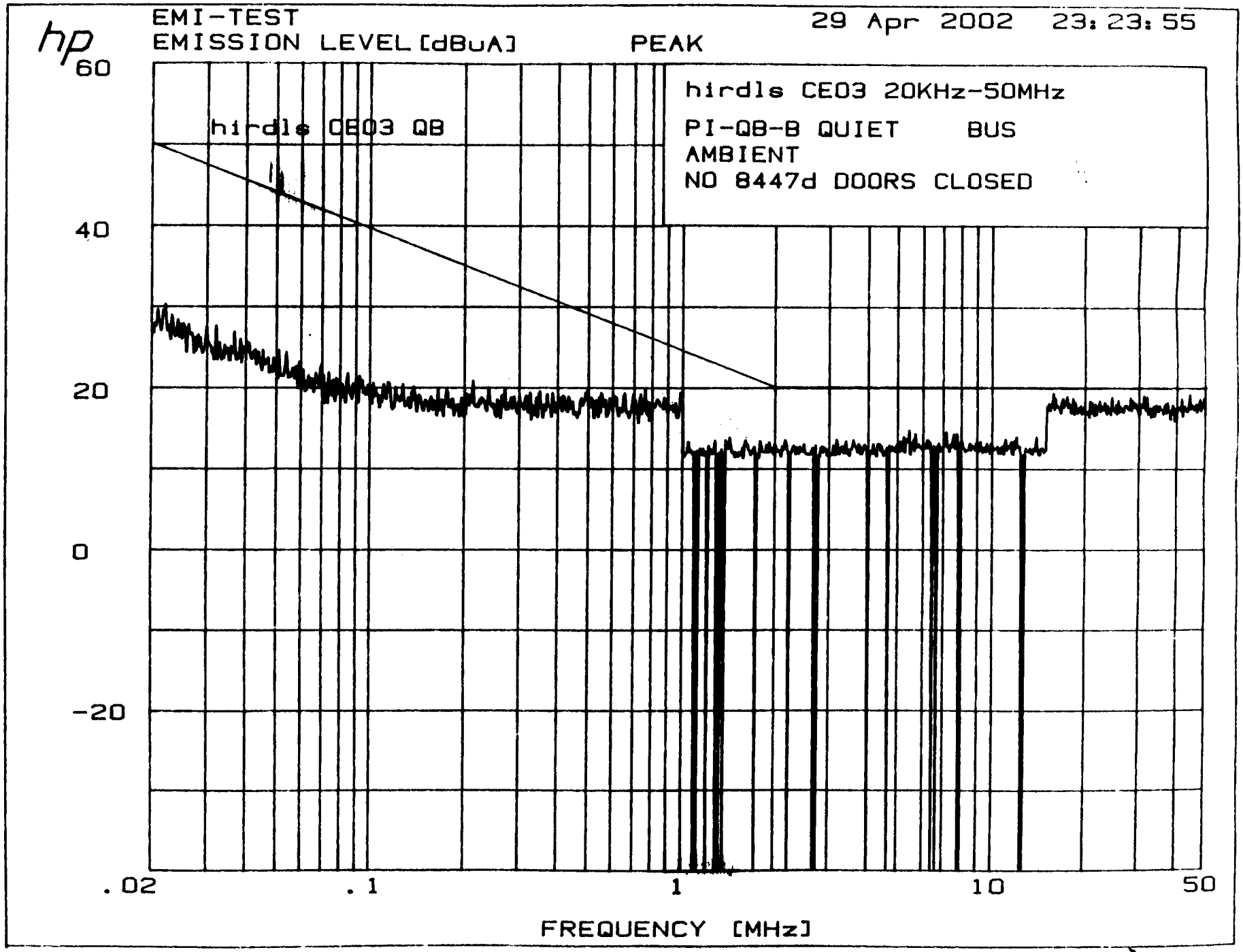
Peaks above 0 dB of Limit Line #1
peak criteria = 1 dB

PI-QB-B QUIET
NO 8447D

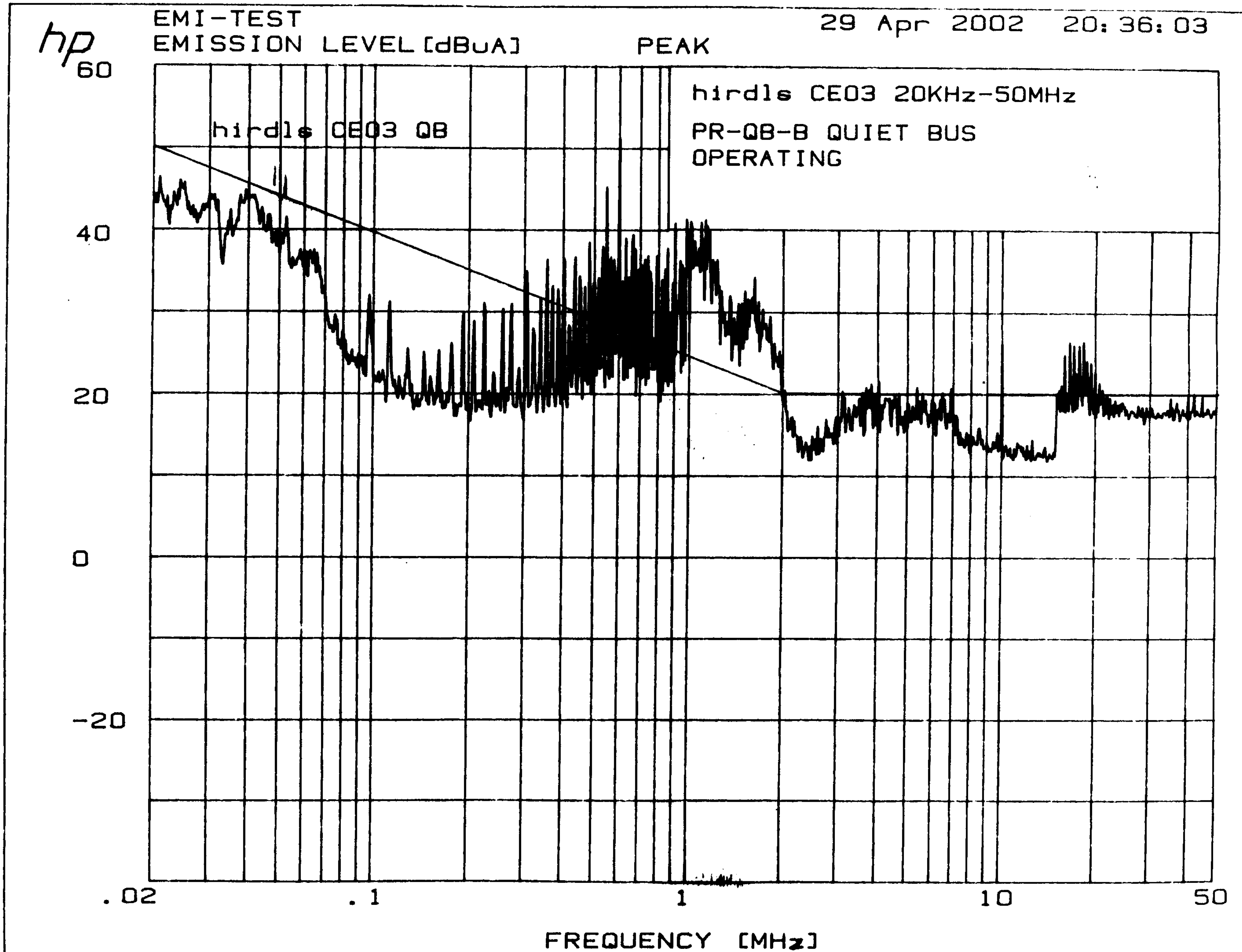
D 616071A 4/30/02

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.435	31	1.1
2	.4667	31.3	1.9
3	.4853	37.5	8.3
4	.5007	34.9	5.9
5	.5166	33.8	5.0
6	.533	35	6.4
7	.5414	42.7	14.2
8	.563	32.6	4.4
9	.5719	36.4	8.3
10	.5854	34.3	6.3
11	.5947	50.4	22.5
12	.6088	33.9	6.2
13	.6232	35.6	8.1
14	.643	41.1	13.8
15	.6583	40.8	13.6
16	.6739	34.7	7.7
17	.6899	32.6	5.7
18	.7062	29.1	2.4
19	.723	34.7	8.1
20	.7401	31.6	5.2
21	.7577	29.7	3.4
22	.7696	36.9	10.7
23	.7879	39	13.0
24	.8066	29.1	3.2
25	.8193	29.2	3.4
26	.8387	31.6	6.0
27	.8519	31.9	6.4
28	.8722	34.4	9.0
29	.8859	37.6	12.3
30	.8999	35.7	10.5
31	.9212	41.7	16.7
32	.9357	39.3	14.4
33	.9505	41.8	17.0
34	.9654	41.3	16.6
35	.9806	39.7	15.1
36	.9961	39.9	15.4
37	1.[redacted]	44.1	19.8
38	1.[redacted]	46.3	22.2
39	1.[redacted]	41.4	17.5
40	1.111	45.6	21.8
41	1.129	42.1	18.4
42	1.147	42.5	18.9
43	1.165	39.7	16.2
44	1.211	39.5	16.3
45	1.279	36.1	13.2
46	1.31	34.1	11.4
47	1.351	34.2	11.7
48	1.405	37.1	14.8
49	1.438	34.3	12.2
50	1.461	36.1	14.1
51	1.519	38.6	16.9

52	1.555	37.6	16.0
53	1.58	32.5	11.0
54	1.617	39.4	18.1
55	1.722	36.1	15.2
56	1.818	32.6	12.0
57	1.876	32.2	11.8
58	1.92[illegible]	27.2	7.0
59	1.95[illegible]	28.6	8.5
60	2.013	27.4	7.4
61	2.093	23	3.0
62	2.16	23.1	3.1
63	2.281	21.2	1.2
64	2.391	20.6	.6
65	3.589	20.2	.2
66	3.912	22	2.0
67	4.099	23	3.0
68	4.164	23.9	3.9
69	4.23	21.7	1.7
70	4.296	20.9	.9
71	4.502	22	2.0
72	4.793	20.3	.3
73	5.023	20.9	.9
74	5.102	20.4	.4
75	5.347	21	1.0
76	5.517	20.2	.2
77	5.873	21	1.0
78	6.06	20.9	.9
79	6.252	21.2	1.2
80	10.07	30.9	10.9
81	11.96	21.1	1.1
82	12.54	23.1	3.1
83	13.14	20.5	.5
84	13.77	20.6	.6
85	15	24.1	4.1
86	15.24	23.6	3.6
87	15.48	25.5	5.5
88	15.85	23.4	3.4
89	16.1	22.1	2.1
90	16.48	22.8	2.8
91	17	23.5	3.5
92	17.27	22.7	2.7
93	17.68	24.7	4.7
94	18.24	23.2	3.2
95	18.67	20.4	.4
96	18.97	20.2	.2
97	29.16	20.1	.1
98	35.[illegible]	20.5	.5


EMI-TEST
29 Apr 2002 23:23:55
EMISSION LEVEL [dBuA]
PEAK
hp
60
40
20
0
-20
hirdls CE03 QB
hirdls CE03 20KHz-50MHz
PI-QB-B QUIET BUS
AMBIENT
NO 8447d DOORS CLOSED
.02
.1
1
10
50
FREQUENCY [MHz]

POC 11/7/02


hp
EMI-TEST
EMISSION LEVEL [dBuA]
PEAK
29 Apr 2002 20:36:03
hirdls CE03 20KHz-50MHz
PR-QB-B QUIET BUS
OPERATING
hirdls CE03 QB
60
40
20
0
-20
.02
.1
1
10
50
FREQUENCY [MHz]

EMI-TEST 29 Apr 2002 20:36:03

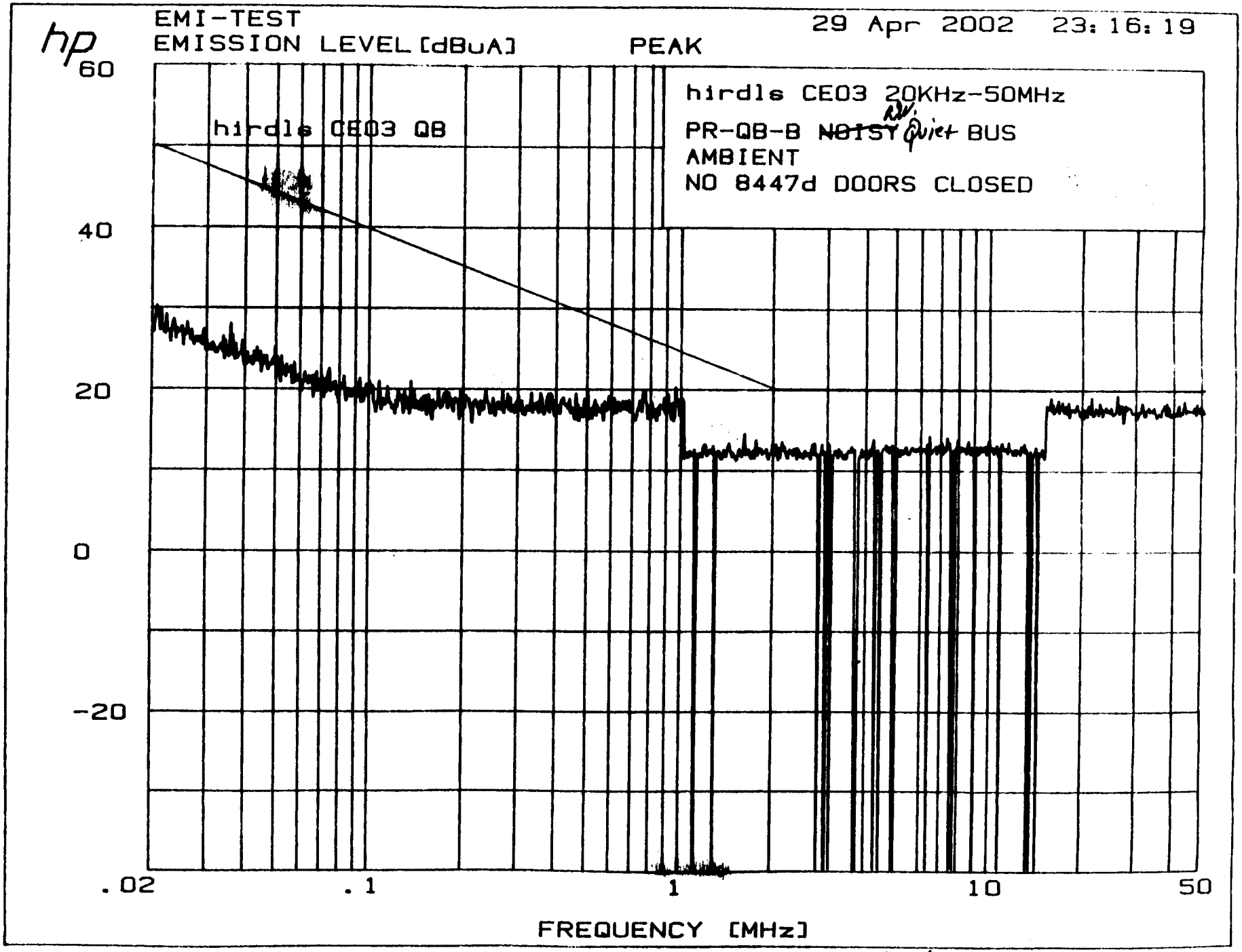
1. hirdls emi test
   1.13 hirdls CE03 20KHz-50MHz QB VER5 PR-QB-B

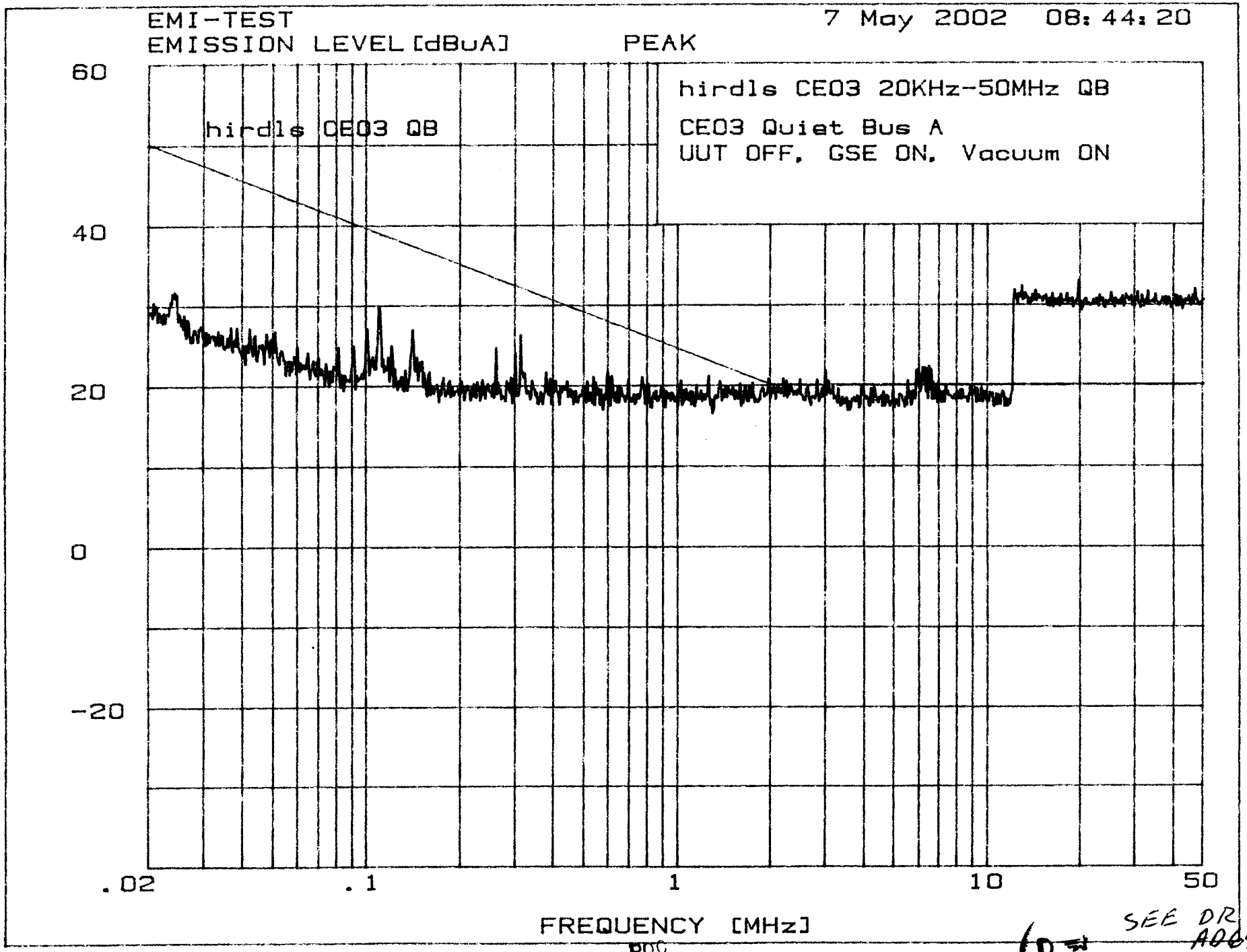
Peaks above 0 dB of Limit Line #1 OPER.
peak criteria = 1 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.306	35	2.8
2	.3387	31.6	.1
3	.355	36.4	5.2
4	.3691	33.2	2.2
5	.3839	32.8	2.1
6	.4023	36.5	6.1
7	.435	36.7	6.8
8	.4488	34.4	4.7
9	.4667	33.1	3.7
10	.4815	38.5	9.3
11	.5007	33.6	4.6
12	.5166	34.2	5.4
13	.533	38	9.4
14	.5457	45.3	16.9
15	.563	36.7	8.5
16	.5763	36.4	8.3
17	.5993	51.2	23.4
18	.6135	33.8	6.2
19	.6281	39	11.5
20	.643	34.3	7.0
21	.6634	39.4	12.3
22	.6739	37.7	10.7
23	.6899	35.2	8.3
24	.7062	35.8	9.1
25	.723	36.4	9.8
26	.7401	36.9	10.5
27	.7518	35	8.7
28	.7696	26.8	.6
29	.7879	36.9	10.9
30	.8003	27.6	1.7
31	.8193	34	8.2
32	.8387	35.3	9.7
33	.8519	37.8	12.3
34	.8654	29.6	4.2
35	.8[illegible]9	33.6	8.3
36	.[illegible]	40.9	15.7
37	.[illegible]	31.4	6.3
38	.[illegible]7	36.3	11.4
39	.9505	35.8	11.0
40	.9654	35.3	10.6
41	.9806	41.4	16.8
42	1.012	41.1	16.7
43	1.044	38.7	14.5
44	1.077	37.8	13.8
45	1.094	41	17.1
46	1.111	38.9	15.1
47	1.129	41.3	17.6
48	1.147	40.5	16.9
49	1.165	39.8	16.3
50	1.192	36.4	13.1
51	1.23	36.4	13.3

[redacted]
4/29/02

52	1.269	32.6	9.7
53	1.299	29.9	7.1
54	1.32	28.8	6.1
55	1.351	32	9.5
56	1.394	29.3	7.0
57	1.[illegible]	31.1	9.0
58	1.472	31.1	9.2
59	1.507	32.6	10.8
60	1.543	31.6	10.0
61	1.592	31.8	10.4
62	1.617	34.3	13.0
63	1.669	31.3	10.2
64	1.722	30.4	9.5
65	1.818	29.5	8.9
66	1.876	26.2	5.8
67	1.951	25.3	5.2
68	2.029	20.4	.4
69	3.094	20.4	.4
70	3.589	20.2	.2
71	3.674	20.9	.9
72	3.762	20.6	.6
73	3.821	21.3	1.3
74	3.912	20.1	.1
75	4.036	21.6	1.6
76	4.682	20.1	.1
77	5.347	20.9	.9
78	5.56	20.1	.1
79	6.451	20.2	.2
80	6.867	20.8	.8
81	9.993	26.2	6.2
82	15	20.2	.2
83	15.24	20.6	.6
84	15.48	21.2	1.2
85	15.85	24.9	4.9
86	16.1	20.3	.3
87	16.48	26.5	6.5
88	17	26.1	6.1
89	17.27	22.7	2.7
90	17.68	26.1	6.1
91	18.24	26.5	6.5
92	18.67	24.2	4.2
93	19.27	23.9	3.9
94	19.88	22.9	2.9
95	20.51	21.5	1.5
96	21	20.6	.6
97	41.[illegible]	20.1	.1

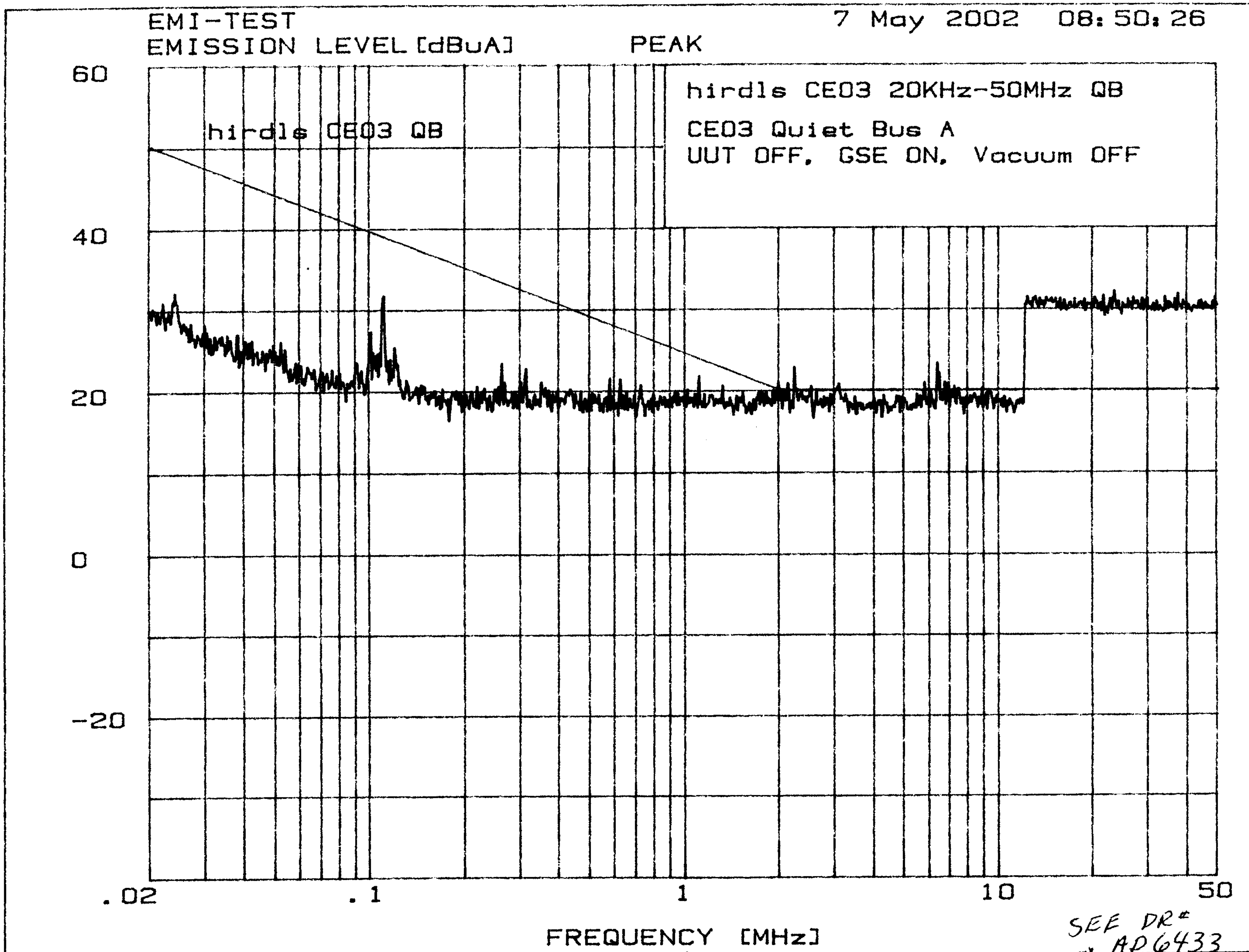

EMI-TEST
29 Apr 2002 23:16:19
EMISSION LEVEL [dBuA]
PEAK
hp
60
40
20
0
-20
hirdls CE03 QB
hirdls CE03 20KHz-50MHz
PR-QB-B ~~NOISY~~ Quiet BUS
AMBIENT
NO 8447d DOORS CLOSED
.02
.1
1
10
50
FREQUENCY [MHz]



PQC
601336 08 2002

SEE DR # A00433

D 686894 08 2002

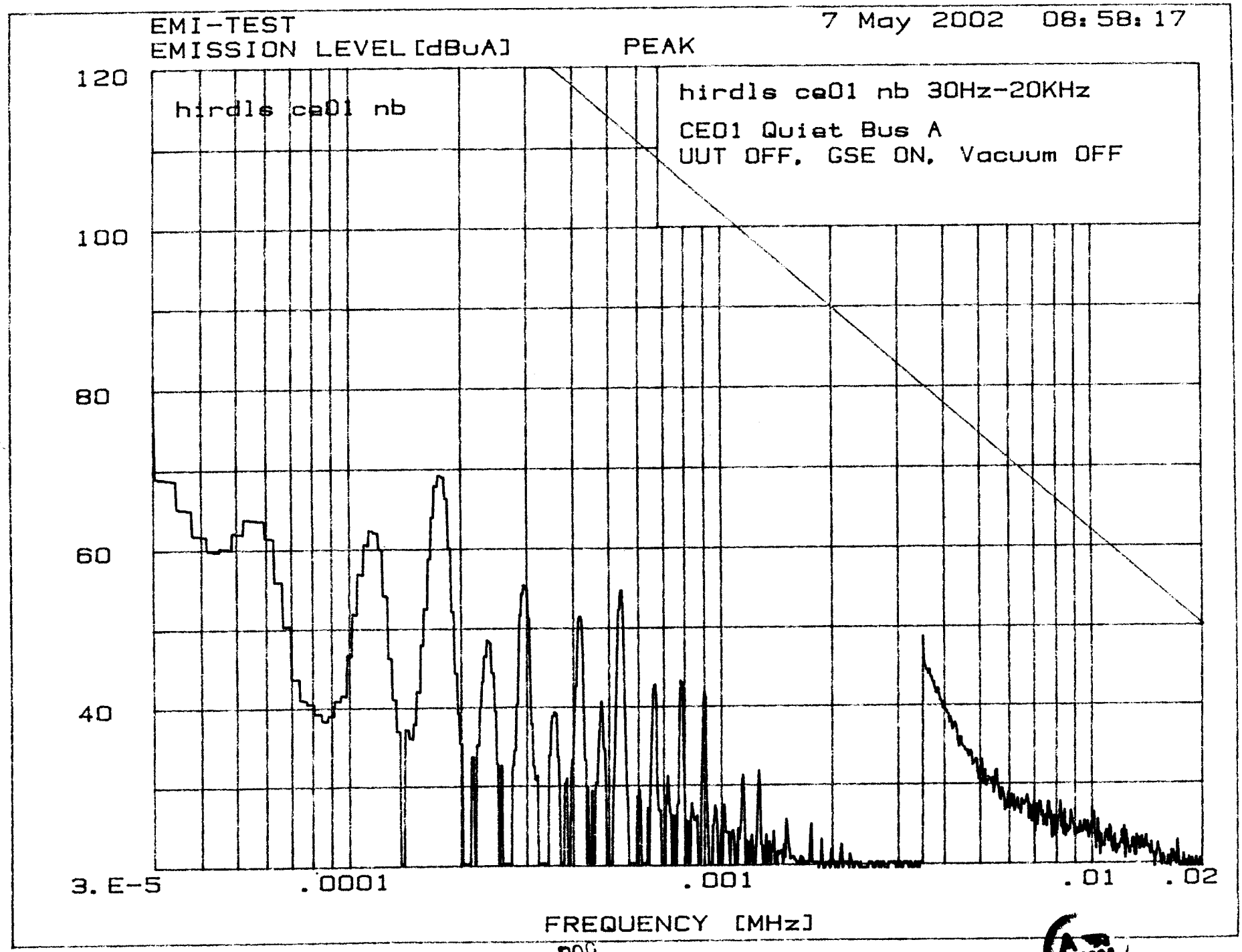


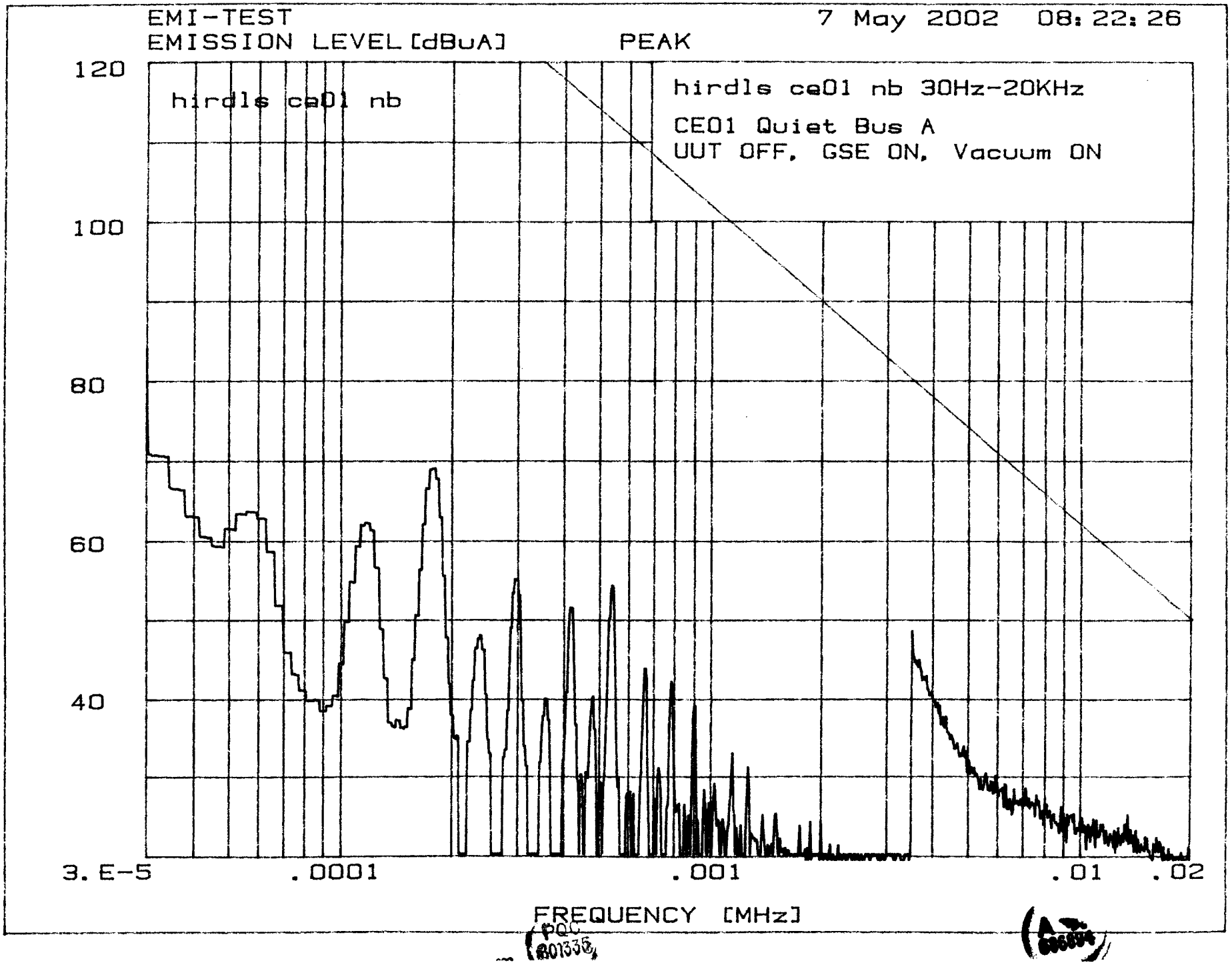
SEE DR# AD6433

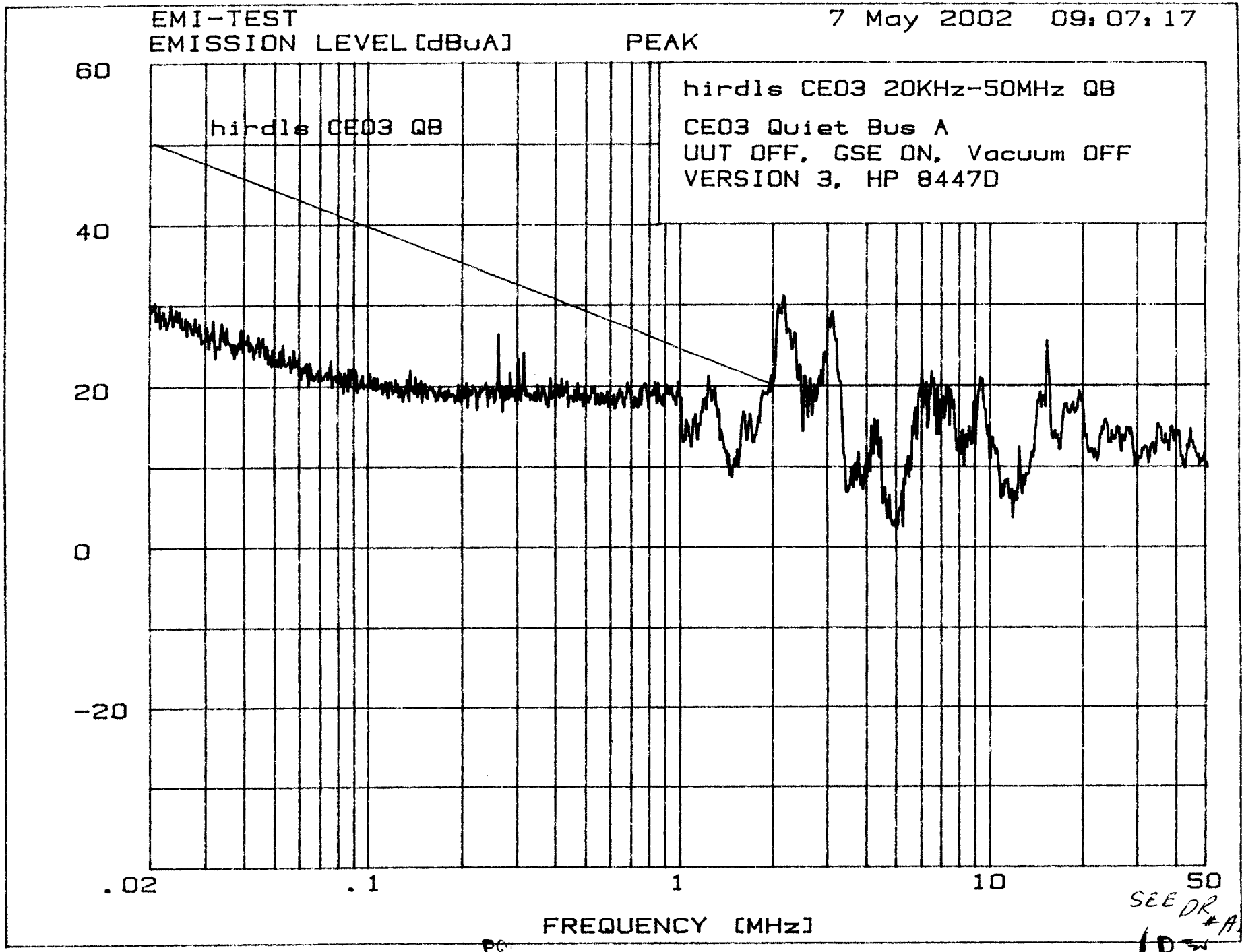
PQC 01335

D 686894

0 8 2002


EMI-TEST
7 May 2002 08:58:17
EMISSION LEVEL [dBuA]
PEAK
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
CE01 Quiet Bus A
UUT OFF, GSE ON, Vacuum OFF
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]


EMI-TEST
7 May 2002 08:22:26
EMISSION LEVEL [dBuA]
PEAK
hirdls ce01 nb
hirdls ce01 nb 30Hz-20KHz
CE01 Quiet Bus A
UUT OFF, GSE ON, Vacuum ON
120
100
80
60
40
3.E-5
.0001
.001
.01
.02
FREQUENCY [MHz]



SEE DR + AD 6433

PC 601335

D 686894

EMI-TEST 7 May 2002 09:07:17

1. hirdls emi test
   1.10 hirdls CE03 20KHz-50MHz VER3

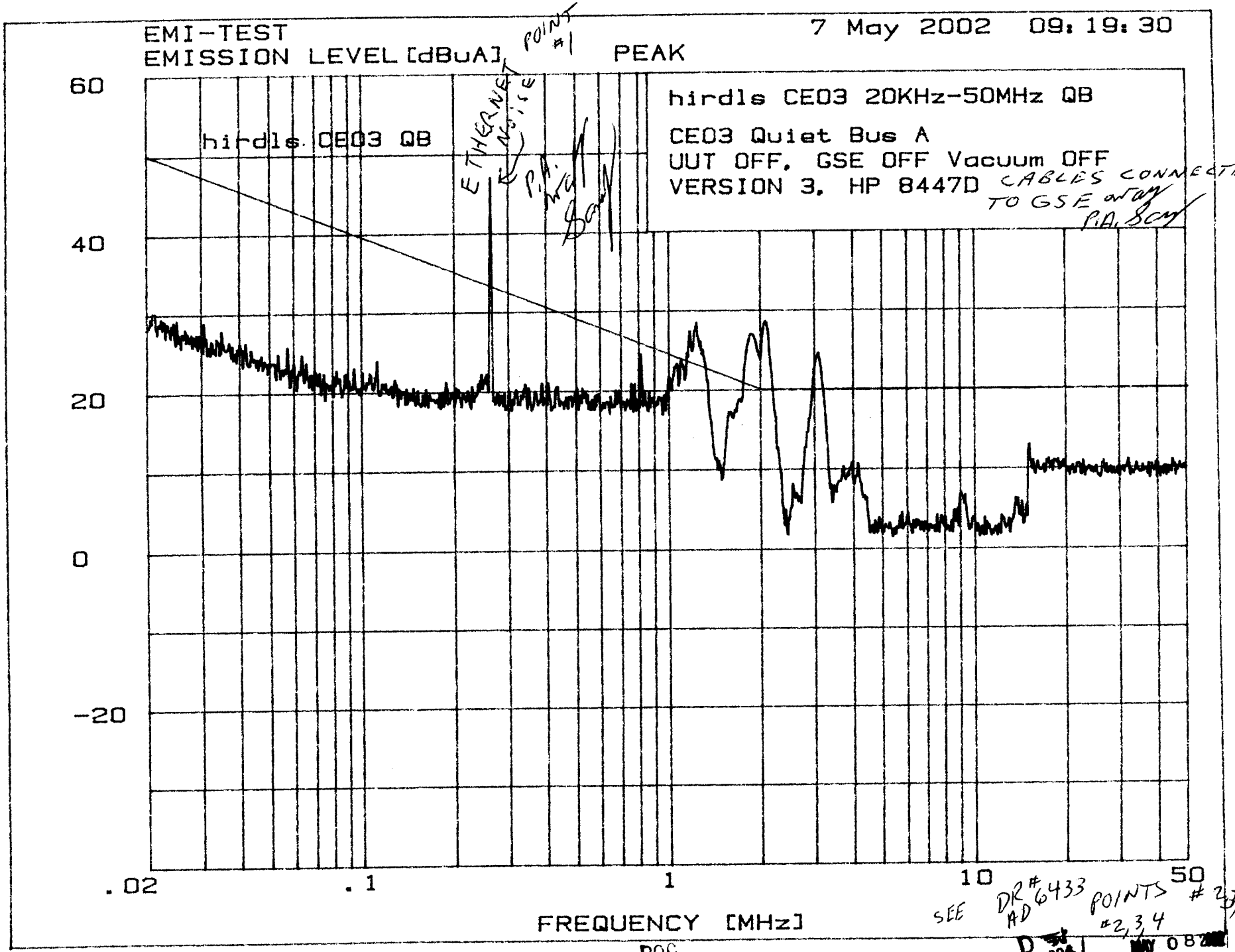
Peaks above 0 dB of Limit Line #1
peak criteria = 6 dB

PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	2.143	31.1	11.1
2	3.07	29.1	9.1
3	15	25.6	5.6
4	5.966	22	2.0
5	6.4	21.8	1.8
6	9.17	21	1.0

SEE DR# AD6433

PQC 601335 MAY 08 2002

DQ 686894 MAY 08 2002


EMI-TEST
7 May 2002 09:19:30
EMISSION LEVEL [dBuA] PEAK
hirdls CE03 QB
hirdls CE03 20KHz-50MHz QB
CE03 Quiet Bus A
UUT OFF, GSE OFF Vacuum OFF
VERSION 3, HP 8447D
CABLES CONNECTED TO GSE away
P.A. Scan
ETHERNET NOISE
POINT #1
P.A. Scan
60
40
20
0
-20
.02
.1
1
10
50
FREQUENCY [MHz]
SEE DR# AD6433 POINTS #2,3,4
#2,3,4
PQC
D 686894
MAY 08

CE03 5/9/02 09:25PST QUIET BUS A, GSE OFF, LLCT OFF, VACCUM OFF
WITH AMP ITP 8447D, VERSION 3

EMI-TEST 7 May 2002 09:19:30

1. hirdls emi test
   1.10 hirdls CE03 20KHz-50MHz VER3

Peaks above 0 dB of Limit Line #1
peak criteria = 6 dB

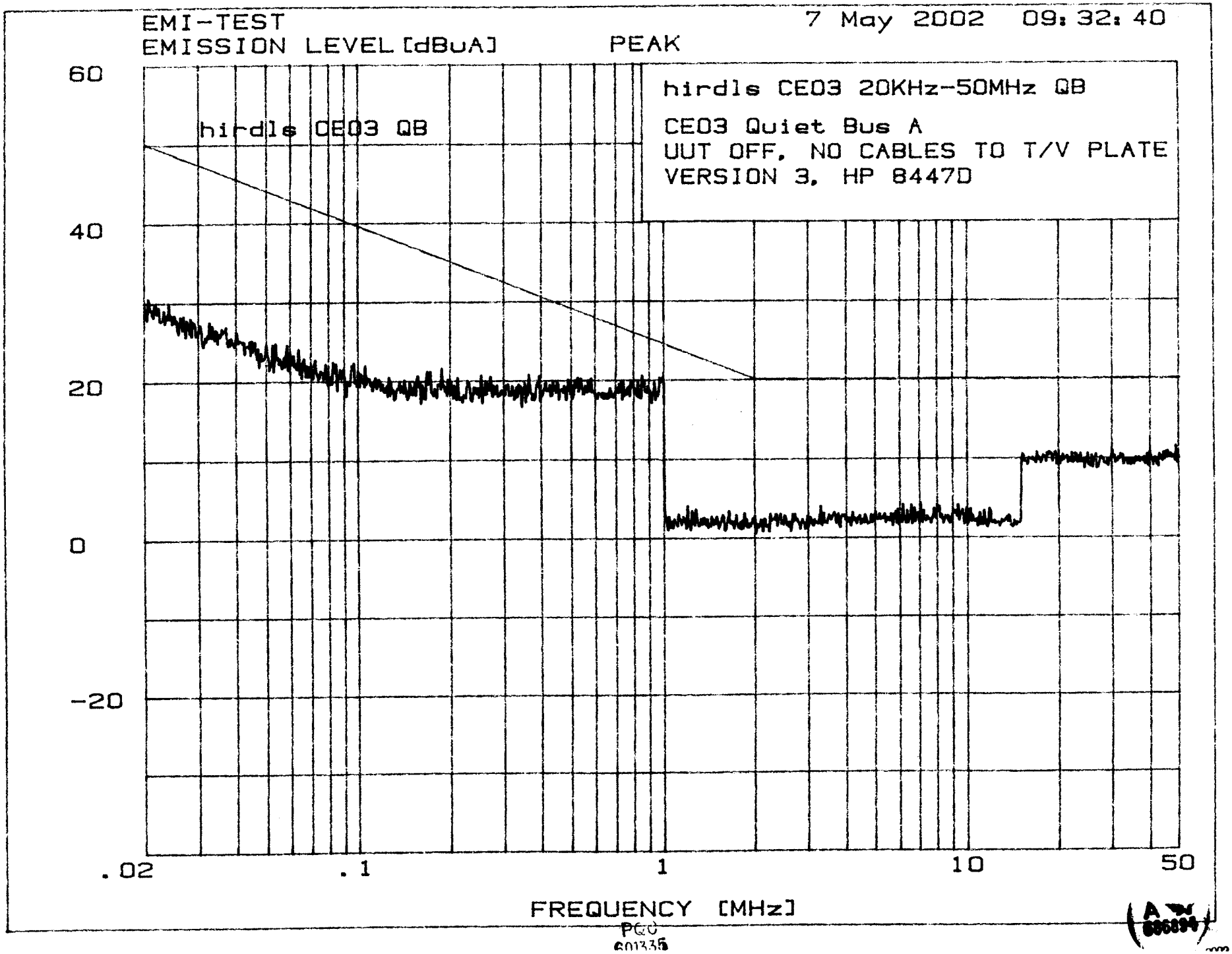
PEAK#	FREQ (MHz)	(dBuA)	DELTA
1	.2638	47.1	14.0
2	2.077	28.6	8.6
3	1.24	28.5	5.4
4	3.094	24.6	4.6

POINT #1 ETHERNET NOISE

POINTS #2, 3, 4 SEE DR # AD6433

P 601335 MAY 08 2002

D 686694 MAY 08 2002


EMI-TEST
7 May 2002 09:32:40
EMISSION LEVEL [dBuA]
PEAK
hirdls CE03 QB
hirdls CE03 20KHz-50MHz QB
CE03 Quiet Bus A
UUT OFF, NO CABLES TO T/V PLATE
VERSION 3, HP 8447D
60
40
20
0
-20
.02
.1
1
10
50
FREQUENCY [MHz]

PQC
601335

DR Index

INSTRUCTIONS: All DRs related to discrepancy items recorded in this Log Book will be documented below, along with appropriate cross-references.

#1 of 2

ITEM NO.	DR NUMBER	PART NUMBER	OPER. NO.	INSPECTION (POSTING) STAMP	INSPECTION (POSTING) DATE	✔ INDICATES COPY 2 IS IN BOOK	REMARKS	INSPECTION (COMPLETION)
1	AD6416	1A27800	3.9.7	D 686894	MAY 05 2002		TP-LOC-971-DP. ORDER FIXED BAGGING MATERIAL ON SUN SHELD	
2	AD6417	"	6.3 THER ENVR	D 686894	MAY 05 2002		O/O & TP-LOC-971 CCU-BOX-TEMP OVER 35°C	
3	AD6418	"	STEP 3.21.2	D 686894	MAY 05 2002		O/O & TP-LOC 971 CONVERTER TELEMETRY OSCILLATING	
4	AD6419	"	13.4	D 686894	MAY 05 2002		TP-LOC-820 NOISY BUS A FAILED CE01	
5	AD6426	"	13.4.9	D 686894	MAY 05 2002		TP-LOC-820 NOISY BUS NBA UNEXPECTED LOSS IN TELEMETRY CE01	
6	AD6433	"	13.4	D 686894	MAY 05 2002		TP-LOC-820 NOISY BUS POWER & RETURN FAILED CE03	
7	AD6442	HIRDLS IEGSE	VAR	D 686894	MAY 05 2002		TP-LOC-820 & WITHOUT HIRDLS INSTRUMEN- AMBIENT EMI ~~DATA~~ NBA CE03 O/L	
8	AD6464	1A27800	13.10	D 686894	MAY 05 2002		TP-LOC-820 DATA PACKET DROP OUTS RS03	
9	AD6471	"	13.8.5	D 686894	MAY 05 2002		TP-LOC-820 FOCAL PLANE TEMP. DROP RS01 30Hz-50Hz	
10	AD6487	"	13.11	D 686894	MAY 05 2002		TP-LOC-820 CS01 CCU LOSS OF POWER	
11	AD6490	"	13.11	D 686894	MAY 05 2002		TP-LOC-820 CS02 IPU RESET 39.7mHz	
12	AD6491	"	13.11	D 686894	MAY 05 2002		GYRO HEATERS (TO 5°C) NOT HEAT GYRO'S	
13	AD6494	"	13.11	D 686894	MAY 05 2002		TP-LOC-820 CS01 AD590 SHOWING SUSCEPTABILITY	
14	AD6495	"	13.11	D 686894	MAY 05 2002		CS02 " " "	
15	AD6496	"	13.12	D 686894	MAY 05 2002		CS06 " " "	
16	AD6497	1A27800	13.12	D 686894	MAY 05 2002		19.1V SURVIVAL BUS IEGSE SHUTOFF	

BOOK TITLE | UNIT SERIAL NO. | O.K. TO FILE | STAMP | DATE | PAGE | OF

DR Index

INSTRUCTIONS: All DRs related to discrepancy items recorded in this Log Book will be documented below, along with appropriate cross-references.

#2 of 2

ITEM NO.	DR NUMBER	PART NUMBER	OPER. NO.	INSPECTION (POSTING) STAMP	INSPECTION (POSTING) DATE	✓ INDICATES COPY 2 IS IN BOOK	REMARKS	INSPECTION (COMPLETION)
17	AD6510	HIRDLSIEGSE	13,5,7	D 686894	MAY 06 2002		ALL BACKGROUND EMISSIONS REQ'E NB LIMITS EXCEEDS	
18	AD6511	IA27800	13,5	D 686894	MAY 06 2002		POWER ON REQ'E EXCEEDS LIMITS	
19	AD6516	IA27800	R/L	D 686894	MAY 07 2002		COMPRESSOR STROKE @ 20 S/B 80% AFTER FINAL EMI 90K TEST REDLINE	

BOOK TITLE | UNIT SERIAL NO. | O.K. TO FILE | STAMP | DATE | PAGE | OF

Commo Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6416**	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A00781A	LOCKHEED MARTIN CORPORATION	EN	152	L911	1	1	1		X

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	3-9-7	Lucy LANHAM	636975	L150	27-APR-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT
Bagging material is resting on fixed sun shield and contacting sunshield door as it opens.

31 SHOULD BE TEXT
Sunshield door should not make contact with bagging material.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
BL	1A27800		N/A	1	1	PROCESS	ME - INADEQUATE	P5A	L320	PA	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
LUN99	ELECTRONICS TEST/BOX TEST//EMISSION/MISCELLANEOUS	N/A				0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 27-APR-2002 RECORDED BY NAME Lucy LANHAM

After commanding SSH door to open 10 deg, (TP-LOC-971, strp 3.9.7.1) observers noted that internal bag was draped over outer corner of fixed sunshield and SSH door posing a snag hazzard. Test Conductor notified notified and attempted to abort remainder of STOL proc. Abort failed and door continued to open to 60 deg (Step 3.9.9). Bag remained intact but rests on movable SSH door.

DATE 27-APR-2002 RECORDED BY NAME Armando CORTEZ

interim #1
Attempt to asses anomaly was made by Randy Kay & Don Wilson & Armano Cortez and could not confidently determine if anything anomalous had occured to the SSH Door through the bagging material. Contamination control was notified of the condition and will make modifications, as neccessary, to the inner bag for appropriate clearance prior to any additional SSU Door command movements. Additional assessment of Door and mechanism will be made at that time. As interim action, OK to proceed with other sections of CPT2.
concurrence: Eric Johnson, Randy Kay, Ray Von Savoye, Armando Cortez
via telecon: Dale Phelps, Althea Macfield

Comm[illegible]epancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6416**	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

29 DEFECT NUMBER 1 **OF** 1

50 CAUSE TEXT

DATE 27-APR-2002 **RECORDED BY NAME** Althea MCFIELD

Internal bag was draped over outer corner of fixed sunshield and SSH door posing a snag hazard/obstruction.

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6416**	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0				0	MRB accepted	27-APR-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6417**	1	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	3-3-3	Lucy LANHAM	636975	L150	27-APR-2002

29 DEFECT NUMBER 1 **OF** 2

30 IS TEXT
CCU box temperature (CCU_BOX_TMP) exceeded 35 deg C at GMT 2002/117-1840 (1140 PST 27 April 2002) The temperature reached 45 deg C within 2 hours.

31 SHOULD BE TEXT
The maximum operational temperature of the CCU box is specified to be 35 deg C.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	SP-HIR-034	F	6.3 Thermal Environment	1	1	PROCESS	EM - INADEQ MAINT	P3A	L941	PA	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGA85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/TEMPERATURE/OVER	N/A				0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	REPAIR						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 27-APR-2002 **RECORDED BY NAME** Lucy LANHAM

At 1840 GMT, approximately 1 hour after instrument power-on, the CCU box temperature exceeded its specified maximum operational temperature of 35 deg C. The box temperature continued to rise to 45 deg C when the CMU stroke was reduced. Additional venting was provided and the box temperature held steady at 44 deg C.

DATE 27-APR-2002 **RECORDED BY NAME** Armando CORTEZ

Additional venting provided marginal improvement. CCU temp returned to upper spec limit (35 deg C) when cryo-cooler compressor was commanded off.
Total duration of temp overlimit approx. 8 hours (11:40am to approx. 7:30pm).
OK to proceed with CPT2. Anomaly to be re-addressed prior to EMI/EMC.
Concurrence: Randy Kay, Armando Cortez, Ray Von Savoye
via tele: Dale Phelps.

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6417**	2	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

29 DEFECT NUMBER 1 OF 2

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 30-APR-2002 RECORDED BY NAME Althea MCFIELD

Armando CORTEZ 04/27/2002 08:30:45 PM
The inner bag was pulled away from the CCU and (GEU) and around the instrument baseplate to allow for the flow of nitrogen. However this was only marginally successful in lowering the box temperature. MRB authorization to remove the outer bag from the CCU, exposing it to a non-cleanroom environment, is required.

50 CAUSE TEXT

DATE 27-APR-2002 RECORDED BY NAME Althea MCFIELD

Inadequate venting due to double bagging of instrument required to ensure contamination control.

51 C/A TEXT

DATE 01-MAY-2002 RECORDED BY NAME Althea MCFIELD

C/A will be submitted by Contamination Control Engineer.

DATE 02-MAY-2002 RECORDED BY NAME Althea MCFIELD

C/A must include re-design of instrument bagging and cooling system that ensures CCU and all other subsytems are maintained at proper operational temperature during testing.

52 FINAL DISPOSITION TEXT

DATE 01-MAY-2002 RECORDED BY NAME Althea MCFIELD

In order to maintain the CCU at specified operational temperature, the MRB authorizes:

Cut instrument bag (interior and exterior) in the area of the CCU, exposing the box to ambient air.
Tape the periphery of the cutout area to maintain cleanliness of the rest of the instrument.
Apply external cooling to the CCU, as necessary to maintain proper operational temperature.
Continue with testing operations.

Additional Disposition

CCU and adjacent area must be re-cleaned at re-certified for cleanliness (see Defect #2).
Perform analysis to determine the effect of temperature excursion on the CCU. (Note: Temperature data is electronically attached to this DR)

Concurrence: Ray von Savoye (APM-Technical), Armando Cortez (QE), Althea McField (QE), Syndie Meyer (CCE), Lucy Lanham (SE)

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6417**	3	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

29 DEFECT NUMBER 2 **OF** 2

30 IS TEXT The Cooler Electronics Units was removed from Contaminations-controlled (Class 100) environment during EMI/EMC Testing (see Defect #1)

31 SHOULD BE TEXT The Cooler Electronics Unit maintained in a Class 100 environment

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
PR	PA-LOC-006	B	-	1	1	PROCESS	EM - INCAPABLE	P3D	L911	PA	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
TTJ49	TEST EQUIP/TEMP CHAMBER/FACILITY/LIQ NITRO/CONTAMINATION	N/A				0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	REWORK						

49 INTERIM TECHNICAL INVESTIGATION TEXT **DATE** 01-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

The MRB authorized the removal of the outer and inner bag to ensure adequate cooling of the CCU (see Defect #1). The CCU will require cleaning and re-certification prior to returning the HIRDLS instrument to the Class 100 Clean Room.

50 CAUSE TEXT **DATE** 01-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

See Defect #1

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Commo.. DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6417**	4	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB accepted	27-APR-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6418**	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC971		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	3-21	Lucy LANHAM	636975	L150	27-APR-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT
PSS_REG_28VA converter telemetry began oscillating between 29.2 and 31.1 Volts beginning at GMT 2002/118-02:21

31 SHOULD BE TEXT
PSS_REG_28VA converter telemetry should be stable at approximately 30.1V.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
OP	TP-LOC-971		Procedure step 3.21.2	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFC99	FINAL ASY & TST/SYSTEM TST/TELEMETRY/MISCELLANEOUS	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 27-APR-2002 RECORDED BY NAME Lucy LANHAM

PSS_REG_28VA began oscillating between 29.2 and 31.1 Volts beginning at GMT 2002/118-02:21:59. The start of the oscillation was coincident with the power down of the A-side of the instrument. The ocsillations continued until 28Reg was shut off at 22:23:59. This condition has been observed before and recorded on DR#: AB9576.

DATE 02-MAY-2002 RECORDED BY NAME Althea MCFIELD

Althea MCFIELD 04/27/2002 10:21:10 PM

MRB INTERIM TECHNICAL

Proceed with EMI/EMC testing. The MRB will investigate this defect and will assign CAUSE, C/A and FINAL DISPOSITION prior to the start of CPT1.

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6418**	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC971		

29 DEFECT NUMBER 1 OF 1

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 02-MAY-2002 RECORDED BY NAME Althea MCFIELD

Concurrence: Ray von Savoye (APM-Technical), Lucy Lanham (SE), Althea McField (QE), Armando Cortez (QE)

Note: The condition noted in this DR was observed previously and repairs were made in the IPU that were expected to eliminate the oscillations. A 1.0 K ohm load resistor was added to to the 28VREG input in the IPU Power Distribution Board.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Commo.. DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	'AGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6418**	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC971		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0				0	MRB investigation	02-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	**AD6419**	1	6

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A00781A	LOCKHEED MARTIN CORPORATION	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.4	Lucy LANHAM	636975	L150	28-APR-2002

29 DEFECT NUMBER 1 OF 4

30 IS TEXT

Noisy Bus A 28V power and return failed CE01. Measured emissions are up to 20dB over specified limits.

31 SHOULD BE TEXT

CE01 should be less than speficied limits per HIRDLS GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	USE AS IS						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 28-APR-2002 RECORDED BY NAME Lucy LANHAM

Both A and B sides failed CE01 NB testing. In both cases the emission curves closely resembled the results of the CSS subsystem testing.

DATE 29-APR-2002 RECORDED BY NAME Lucy LANHAM

Subsuquent testing (called "ambient" tests) with a) no power to instrument but with IEGSE and GSE operating and with b) all test instrument and test equipment power off showed no emissions from test equipment. All exceedances are attributable to HIRDLS instrument.

DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review CCU Subsytem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

REPORT DATE: 05-MAY-2002 12:49 PM

Comm. Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	**AD6419**	2	6

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 1 **OF** 4

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 29-APR-2002 **RECORDED BY NAME** Althea MCFIELD

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)
Technical Input: Paul Guy (NASA-GSFC), Ed Bielecki (NASA-GSFC)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Commo Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	**AD6419**	3	6

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 2 **OF** 4

30 IS TEXT Niosy Bus B 28V power and return failed CE01. Measured emissions up to 20 dB over specified limits.

31 SHOULD BE TEXT Emissions measured by CE01 tests should be less than specified limits per GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF84	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/UNDER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	USE AS IS						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 29-APR-2002 **RECORDED BY NAME** Lucy LANHAM

Subsuquent testing (called "ambient" tests) with a) no power to instrument but with IEGSE and GSE operating and with b) all test instrument and test equipment power off showed no emissions from test equipment. All exceedances are attributable to HIRDLS instrument.

DATE 29-APR-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review CCU Subsytem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Commc Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	**AD6419**	4	6

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 3 **OF** 4

30 IS TEXT Quiet Bus A 28V power and return failed CE01 testing. Measured emissions are up to 10 dB above specified limits from 3.5 to 10 KHz.

31 SHOULD BE TEXT CE01 emissions should be less than specified limits per GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-112-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	USE AS IS						

49 INTERIM TECHNICAL INVESTIGATION TEXT **DATE** 29-APR-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review IPU Subsytem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm. Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	**AD6419**	5	6

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 4 **OF** 4

30 IS TEXT Quiet Bus B 28V power and return failed CE01 testing. Signature is similar to Quiet Bus A test results.

31 SHOULD BE TEXT Emissions should be less than specified in GIRD for CE01 tests.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	*QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	USE AS IS						

49 INTERIM TECHNICAL INVESTIGATION TEXT **DATE** 29-APR-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review IPU Subsytem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Commo.. DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	**AD6419**	6	6

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB accepted	29-APR-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6426**	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	A		OPERATION ORDER	OOLOC-1023		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	PA	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	5.1.6	Althea MCFIELD	J18575	Q225	29-APR-2002

29 DEFECT NUMBER 1 **OF** 1

30 IS TEXT
Unexpected loss in telemetry during Noisy Bus B (NBB) EMI CE01 Narrowband test case

31 SHOULD BE TEXT
No loss of telemetry during EMI testing while instrument is powered on

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-820	NC	13.4.9	1	1	PROCESS	EM - BROKEN	P3C	L310	PA	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF99	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/MISCELLANEOUS	Verified				0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	REWORK						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

The DASH 8 data recorder indicated that the current was very noisy. The Test Conductor had difficulty powering on Quiet Bus A. An MRB was convened to review the anomaly.

DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

Interim Technical Investigation:

MRB Instructions:

1. Turn off the Quiet (QB), Noisy (NB) and Survival Buses (SB) at the SPC
2. Inspect capacitor connections at instrument interface: PI-NBA, PR-NBA, PI-QBA, PR-QBA, PR-NBB, and PI-NBB.
3. Report findings to the MRB.

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6426**	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	A		OPERATION ORDER	OOLOC-1023		

29 DEFECT NUMBER 1 OF 1

50 CAUSE TEXT

DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

Test Equipment damaged---Supply side of the Quiet Bus A (QBA) shunt capacitor banana jack lug broken.

51 C/A TEXT

DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

HIRDLS QA personnel will verify test equipment components and connections AFTER test facility EMI Technician and EMI Inspector.

52 FINAL DISPOSITION TEXT

DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

1. Remove the damaged capacitor, PR-QBA (QA witness required). Red tag "DO NOT USE" and remove from the test area.
2. QA shall verify that spare capacitor is free of defects
3. Replace damaged capacitor with spare. (QA witness required)
4. Power on the instrument and continue testing.

MRB Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE)
Technical Input: Tim Crews (CSE), Rick Brown (I & T Engineer), Ron Baraze (Software Developer), Gary Heyman (Software Developer)

DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

REWORK Test set-up.

Commo.. DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6426**	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	A		OPERATION ORDER	OOLOC-1023		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	REWORK						

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
1		MINOR		0	MRB accepted	29-APR-2002

60 PQC - NAME	DATE	61 PA NAME	DATE
		Althea MCFIELD	29-APR-2002

62 POST CLOSURE TEXT — DATE 29-APR-2002 — RECORDED BY Althea MCFIELD

Mike Bartolomei (Badge No. 616723), EMI Technician, removed and replaced defective capacitor.
Craig Bogle (Badge No. 616071), HIRDLS QA Inspector witnessed removal and replacement of capacitor. Defective capacitor was red-tagged capacitor and removed it from test area.

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6433**	1	8

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.4	Lucy LANHAM	636975	L150	29-APR-2002

29 DEFECT NUMBER: 1 OF 6

30 IS TEXT: Noisy Bus A 28V power and return failed CE03.

31 SHOULD BE TEXT: Emissions measured during CE03 testing should be less than the limits specified in the GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	USE AS IS						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review CCU Subsystem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)
Technical Input: Paul Guy (NASA-GSFC), Ed Bielecki (NASA-GSFC)

DATE 30-APR-2002 RECORDED BY NAME Althea MCFIELD

Reference DR AD6442--Ambient (HIRDLS instrument off) Noisy Bus A CE03 emissions exceeded specified limits.

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6433**	2	8

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 1 **OF** 6

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6433**	3	8

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 2 **OF** 6

30 IS TEXT Quiet Bus A 28 V power and return failed CE03

31 SHOULD BE TEXT Emissions measured during CE03 testing should be less that GIRD-specified limits

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	GSFC42-11-12-01	B	10.11.1	1	2	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 30-APR-2002 **RECORDED BY NAME** Althea MCFIELD

Reference DR AD6442--Ambient (HIRDLS instrument off) Quiet Bus A CE03 emissions exceeded specified limits.

DATE 30-APR-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review IPU Subsystem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)
Technical Input: Paul Guy (NASA-GSFC), Ed Bielecki (NASA-GSFC)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6433**	4	8

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 3 **OF** 6

30 IS TEXT Noisy Bus B 28V power and return failed CE03.

31 SHOULD BE TEXT Emissions measured during CE03 tests should be less than limits per HIRDLS GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 30-APR-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review CCU Subsystem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)
Technical Input: Paul Guy (NASA-GSFC), Ed Bielecki (NASA-GSFC)

DATE 30-APR-2002 **RECORDED BY NAME** Althea MCFIELD

Reference DR AD6442--Ambient (HIRDLS instrument off) Noisy Bus B CE03 emissions exceeded specified limits.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6433**	5	8

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 4 **OF** 6

30 IS TEXT
Quiet Bus B 28 V power and return failed CE03.

31 SHOULD BE TEXT
Emissions measured during CE03 testing should be less than the limits specified in the HIRDLS GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	433-11-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6433**	6	8

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 5 **OF** 6

30 IS TEXT Survival Bus A failed 28 Volt Power and RTN failed CE03

31 SHOULD BE TEXT Emissions measured during CE03 testing should be less than the limits specified in the GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	GSFC42211-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

REPORT DATE: 05-MAY-2002 01:19 PM

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6433**	7	8

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 6 **OF** 6

30 IS TEXT Survival Bus B 28 Volt Power and RTN failed CE03

31 SHOULD BE TEXT Emissions measured during CE03 testing should be less than the limits specified in the GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	GSFC42211-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm... DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6433**	8	8

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB accepted	29-APR-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Comm. Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	30-APR-2002	HARDWARE	**AD6442**	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS IEGSE		NON-END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	Var	Lucy LANHAM	636975	L150	30-APR-2002

29 DEFECT NUMBER 1 **OF** 2

30 IS TEXT
Ambient EMI data (without HIRDLS instrument) exceeds specified limits for CE03 Noisy Bus A (NBA)

31 SHOULD BE TEXT
Ambient EMI data, (without the HIRDLS instrument) be within specified limits

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-820	NC	-	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
TDD85	TEST EQUIP/SYSTEMS MAGE/SUPPORTS/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT **DATE** 03-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

INTERIM TECHNICAL DISPOSITION
Ambient EMI data showed out of specification condition that was unexpected. This background data will have to be evaluated against the UUT and subtracted out during analysis. Ref. DR AD6419 and AD6433.

Continue with EMI testing pending completion of test data analysis.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	30-APR-2002	HARDWARE	AD6442	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 2 **OF** 2

30 IS TEXT Ambient EMI data (without HIRDLS instrument) exceeds specified limits for CE03 Noisy Bus B (NBB)

31 SHOULD BE TEXT Ambient EMI data (without HIRDLS instrument) within specified limits

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-820	NC	-	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
TDD85	TEST EQUIP/SYSTEMS MAGE/SUPPORTS/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT **DATE** 03-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

INTERIM TECHNICAL DISPOSITION

Ambient EMI data showed out of specification condition that was unexpected. This background data will have to be evaluated against the UUT and subtracted out during analysis. Ref. DR AD6419 and AD6433.

Continue with EMI testing pending completion of test data analysis.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Commo.. DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	30-APR-2002	HARDWARE	**AD6442**	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			OPERATION ORDER	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0				0	MRB investigation	03-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm. Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE OF
ATC IN PALO ALTO	N/A	01-MAY-2002	HARDWARE	**AD6464**	1 3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L941	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.10	Althea MCFIELD	J18575	Q225	02-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT: Observed Minor Frame (MiF) data packet drop outs during EMI RS03 testing

31 SHOULD BE TEXT: No MiF data packet losses

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
PR	SW-LOC-113	NC	4.4.5	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFC34	FINAL ASY & TST/SYSTEM TST/TELEMETRY/MISSING/OMITTED	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE: 02-MAY-2002 — RECORDED BY NAME: Althea MCFIELD

During the RS03 test case five (5) MiF packet drop outs were noted. Times of occurrences are: Day 121 at 13:32, 14:29, 22:01, 22:08 and Day 122 at 13:30. The Day 121, 14:29 occurrence indicated no sequence gap.
The frequency sweep was repeated after the Day 121, 22:01 and 22:08, and on Day 122 at 13:30 occurrences. During this second sweep no MiF drop outs occurred.
In the instance Day 122 13:30 the number of packet dropped was 26.

Initial MRB Disposition:

Continue EMI testing. In the event of other MiF data packet drop outs, repeat frequency sweep at the level where the dropout occurred. Report findings to the MRB.

Cause and Corrective Action MUST be established post-EMI testing and prior to the start of CPT-2. A formal MRB must be convened to assign a Final

Comm. Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	01-MAY-2002	HARDWARE	**AD6464**	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER 1 **OF** 1

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 02-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

Disposition of this defect.

Concurreence: Ray von Savoye (APM-Technical), Althea McField (QE), Talin Kaloustian (I &T Manager), Wally Opyd (Chopper REE)

DATE 03-MAY-2002 **RECORDED BY NAME** James MCGILL

Sofware engineer Ron Baraze has examined the relevant data from days 121 and 122. In examining the data from day 121, he has found no evidence data dropouts, packet losses, or exceptions. He is suggesting that the tool used to determine the reported MiF drops be investigated for bugs. In examining the data from day 122, he has identified a data gap in the IEGSE file present at 13:30. After checking relevant indicators and counters, he has concluded that the data gap was caused by the IEGSE being overloaded with tasks and dropping a number of packets.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Commo.. DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	01-MAY-2002	HARDWARE	**AD6464**	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB investigation	02-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm. Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	**AD6471**	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L941	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.8	Althea MCFIELD	J18575	Q225	03-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT

Focal Plane temperature dropped by 0.5 Degrees and Compressor stroke reached it maximum during RS01 30 Hz - 520 Hz frequency sweep of the CCU

31 SHOULD BE TEXT

Focal Plane temperature stable and Compressor stroke must not exceed 80%

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-820	NC	13.8.5 (CCU)	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFJ85	FINAL ASY & TST/SYSTEM TST/OUTPUT SIGNAL/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT DATE 03-MAY-2002 RECORDED BY NAME Althea MCFIELD

At 05:56 GMT--During performance of the RS01 frequency sweep of the CCU using the magnetic coil, a clear drop on focal plane temperature was observed in telemetry. The temperature drop was 0.5 Deg C and the Compressor stroke reached it maximum pre-set level at 80% (start point was 78 %).

At 09:00 GMT--Confirmation of anomaly was performed. The magnetic coil was once again moved to the CCU and the drop in temperature was once again observed. It should be noted that there is a cooling fan in front of the CCU (Ref. DR AD6417) and the magnetic coil was place just in front of it during this testing.

At 09:20 GMT-- The magnetic coil was placed in front of the CCU and the focal point dropped 0.1 Deg C in 5 minutes
At 09:26 GMT--The magnetic coil was removed and the focal point temperature increased. There was no power on the amplifier at this point in time.

Preliminary analysis indicates that while this anomaly is not related to the EMI test, it does demonstrate a thermal anomalous condition that requires further evaluation and analysis.

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	**AD6471**	2	3

PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER 1 **OF** 1

49 INTERIM TECHNICAL INVESTIGATION TEXT **DATE** 03-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

The MRB authorizes continuing with the EMI test. Resolution of this anomaly must be completed prior to the start of CPT1.

Concurrence: Ray von Savoye (APM Technical), Dave Seidl (QE), Althea McField (QE), Wally Oyd (Chopper RPE)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Commo.. DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	**AD6471**	3	3

PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB investigation	03-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm… Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	**AD6487**	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L320	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.11	Althea MCFIELD	J18575	Q225	03-MAY-2002

29 DEFECT NUMBER 1 **OF** 1

30 IS TEXT Unexpected loss of power on Quiet Bus A accompanied by rattling sound eminating from CCU during CS01 testing.

31 SHOULD BE TEXT No loss of power during testing

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-820	NC	13.11	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XEG71	FINAL ASY & TST/ELEC SYS TST/CURRENT/FAILED	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT **DATE** 03-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

This anomaly occurred during the CS01 portion of the EMI testing, at 3.92 KHz, 3 V p-p (4 A max). The current in the chamber DID NOT exceed 1 A p-p on QBA, however the DASH-8 data recorder monitoring QBA recorded 9-10 A p-p. During the anomaly QB-A current loss occurred without a report of an over-voltage or an over-current condition. The Noisy Bus and Survival Bus were still operational. These buses were powered off manually at the IEGSE SPC switch.

An MRB was convened to review the anomaly and outline troubleshooting.

Troubleshooting operations are recorded in the test log and will be scanned into the DR electronically as an attachment.

MRB Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Dale Phelps --NASA GSFC Customer (per telecon)
Technical Input: Ed Bielecki (NASA GSFC), Don Lew (EMI RPE), Talin Kaloustian (I & T Manager)

Decision continue EMI testing. Failure believed to be localized to * IEGSE remote/local voltage compensation, which began oscillating.

REPORT DATE: 04 MAY 2002 07:29 AM

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	**AD6487**	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER 1 **OF** 1

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

REPORT DATE: 04 MAY 2002 07:29 AM

Comm... DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	**AD6487**	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0				0	MRB investigation	03-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	AD6490	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.
				CE03/QB-A	

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.11	Lucy LANHAM	636975	L150	04-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT

During instrument level CS02 testing the IPU reset at 39.7 MHz (2002/124 1540).

31 SHOULD BE TEXT

The IPU should not reset during susceptibility testing.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.3	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFC97	FINAL ASY & TST/SYSTEM TST/TELEMETRY/UNEXPECTED SHUTDOWN	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 04-MAY-2002 RECORDED BY NAME Lucy LANHAM

At 2002/124 1540 during CS03 testing QB-A power-return lines (3V P-P) at 39.7 MHz (injected signal) the IPU reset. All telemetry halted. The Dash-8 strip recorded showed only a slight change. There were no perceptible indicators of any other abnormal performance. The test was immediatly powered down and the instrument power-down sequence was initiated. A check of the data logs showed minor excursions in PCU temps beginning at 20 MHz and an encoder spike at 25.86MHz.

DATE 04-MAY-2002 RECORDED BY NAME Armando CORTEZ

Interim #1
Power up (reboot) per TP and continue CS02 to 100MHz.
Repstart CS02, sweep starting at 20MHz. thru to approx 45MHz at 2.5 V P-P.
If anomaly reoccurs, repeat above steps at reduced voltage to determine anomaly voltage threshold.
Document/attach result for final disposition.

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	**AD6490**	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 1 **OF** 1

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 04-MAY-2002 **RECORDED BY NAME** Armando CORTEZ

Concurrence: Ray vonSavoye, Althea McField, Lucy Lanham, Mike Spier

DATE 04-MAY-2002 **RECORDED BY NAME** Lucy LANHAM

Failures reoccured during CE02 test rerun. See test logbook for records.
Restarted at 50 MHz, starting at 0V, stopping at 0.5V, then reducied amplitude to 0V.
Moved freq to 55MHz, 1.0V then gradually increased amplitude to 2.0V. No susceptibility was observed.
Stepped freq to 60 MHz, 1.0V, increased amplitude to 3.0V. No susceptibility observed.
Continued sweep to 100MHz.

Note that Gyro heaters could not bring Gyros up to operational temperatures for this test. (See separate DR.)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm... DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	**AD6490**	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB investigation	05-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comn Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	**AD6491**	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE NOT OK	INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.11	Lucy LANHAM	636975	L150	04-MAY-2002

29 DEFECT NUMBER 1 OF 2

30 IS TEXT

Gyro heaters could not heat the Gyros to the minimum operational temperature.

31 SHOULD BE TEXT

Gyro heaters should be able to heat the gyros to 55deg C (spin motor start temperature).

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	SP-HIR-366		GSS Ops constraints	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGA85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/TEMPERATURE/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE: 04-MAY-2002 — RECORDED BY NAME: Lucy LANHAM

At the start of CS01 testing the Gyro temperatures increased more rapidly than normal during the warm-up phase. Then the temperature increase peaked well below the mimimum required to turn on the spin motors and stayed below that temperature for the remainder of the test in spite of extended warm-up times. Examination of the data indicates that the heaters were operational throughout the test with the exception of periods when they were affected by Conducted Susceptibility tests. While there is a correlation of temperature drops to heater turn-off, there is no explanation of the inability of the heaters to reach the spinup temps. Nor can an explanation can be found for the halt in temperature increase at 2002/124 0350. Surrounding box temperatures did not show similar temperature profiles.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	**AD6491**	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 2 **OF** 2

30 IS TEXT
Gyro3 heater would not operate during CS06 QB testing.

31 SHOULD BE TEXT
All four gyro heaters should operate on command.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
PR	OO-LOC-1063	B	3.6	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XAE94	FINAL ASY & TST/MAJ SYS & ASY/THERM CNTRL/HEATER/INOPERATIVE	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT **DATE** 05-MAY-2002 **RECORDED BY NAME** Lucy LANHAM

2002/125 12:57. Gyro heater 3 turned off during CS06 reconfiguration. Attempted to restart heater, but it immediatly switched off when the test inductors were connected in series with the power lines. Initial assessment is that the instantaneous demand for current by the heater produces a voltage spike from the inductor which trips the protection circuit in the gyro heater and switches it off.

Direction was given to continue with only three gyro heaters on. Gyro 3 heater will be restarted after the QB inductors are removed.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm... DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	**AD6491**	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	Initiate DR	04-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

C ..n Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	**AD6494**	1	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.11	Lucy LANHAM	636975	L150	05-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT

During CS01 tests, several AD590 temperature sensors showed susceptibility during QB, NB and SB tests.

31 SHOULD BE TEXT

There should be no noticible susceptibility.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.3	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFH47	FINAL ASY & TST/SYSTEM TST/OUTPUT DATA/CORRUPTED	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE 05-MAY-2002 — RECORDED BY NAME Lucy LANHAM

Several AD590s showed susceptibilities at multiple frequencies during QB testing. These susceptibilities were also observed during NB and SB tests at the same frequencies. Retesting confirmed the susceptibilities.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	AD6494	2	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	Initiate DR	05-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	**AD6495**	1	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.11	Lucy LANHAM	636975	L150	05-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT

During CS02 tests, several AD590s showed susceptibilities at multiple frequencies.

31 SHOULD BE TEXT

There should be no observed susceptibilities during CS02 tests.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.3	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XEE73	FINAL ASY & TST/ELEC SYS TST/TELEMETRY/UNSTABLE/DRIFTS	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE 05-MAY-2002 — RECORDED BY NAME Lucy LANHAM

Temperature sensors on the OBA and on electronics boxes showed susceptibility to CS02 QB, NB, SB tests.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Commo.. DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	**AD6495**	2	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0				0	Initiate DR	05-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	**AD6496**	1	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE NOT OK	INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.12	Lucy LANHAM	636975	L150	05-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT

Several AD590 and PRT temperature sensors showed susceptibilities during CS06 testing.

31 SHOULD BE TEXT

No susceptibilities should be observed.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.4	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFC99	FINAL ASY & TST/SYSTEM TST/TELEMETRY/MISCELLANEOUS	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE: 05-MAY-2002 — RECORDED BY NAME: Lucy LANHAM

During the 5 minute test spans for each bus, AD590 and PRT temp sensors showed anomalous behavior. Temperature spikes of 2-20 degrees C were observed with the larger spikes occuring toward the end of each dwell. This was observed on both QB and NB tests.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

REPORT DATE: 05 MAY-2002 04:40 PM

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	**AD6496**	2	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0				0	Initiate DR	05-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	AD6497	1	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE NOT OK INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.12	Lucy LANHAM	636975	L150	05-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT

During CS06 testing of the survival bus the IEGSE survival power shut off at an amplitude of 19.1V on both positive and negative polarities.

31 SHOULD BE TEXT

The IEGSE power should be available throughout CS06 tests.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
N/	N/A			1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
TNJ99	TEST EQUIP/VENDOR TEST CNSL/POWER SUPPLY/MISCELLANEOUS	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT DATE 05-MAY-2002 RECORDED BY NAME Lucy LANHAM

During the first run of the survival bus test (positive polarity) the IEGSE survival power switched off during the power-up stage of the test. Retesting localised the failure to slightly under 20V. The same failure occured during reversed polarity tests and was identifoed to occur at 19.1V. The IEGSE survival temp bus was restarted each time with no difficulty.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm... DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	**AD6497**	2	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0				0	Initiate DR	05-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Comm[illegible] Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	06-MAY-2002	HARDWARE	**AD6510**	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			TEST PROCEDURE	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS IEGSE	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L320	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.5	Althea MCFIELD	J18575	Q225	06-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT

Background (IEGSE on and HIRDLS instrument OFF) measured emissions exceed specified limits for RE02 EMI Narrowband test

31 SHOULD BE TEXT

Background emissions measurements within specified limits for RE02 EMI Narrowband test

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-820	NC	13.5.7	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 06-MAY-2002 RECORDED BY NAME Althea MCFIELD

The background emissions check (14 KHz to 18 GHz) for baseline with the IEGSE ON and the HIRDLS instrument OFF failed each test case, i.e. instrument +/ - Y side, antenna horizontal/vertical with HEPA filter OFF. (see DR Attachment)

With the HEPA filter blower turned off, other likely sources of the anomaly will have to be identified to close this DR.

The MRB authorizes continuation to EMI RE02 Narrowband Instrument testing.

Concurrence: Ray von Savoye (APM-Technical), Dave Seidl (QE), Althea McField (QE)

Comm. Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	06-MAY-2002	HARDWARE	**AD6510**	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER 1 OF 1

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Commo.. DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	06-MAY-2002	HARDWARE	**AD6510**	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			TEST PROCEDURE	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR			0 MRB investigation	06-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Comm. Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	06-MAY-2002	HARDWARE	**AD6511**	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L320	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.5	Althea MCFIELD	J18575	Q225	06-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT

Measured emissions with the HIRDLS Instrument powered ON exceeded specified limits for RE02 EMI Narrowband testing

31 SHOULD BE TEXT

Emissions levels within the GIRD specified limits

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	GSFC422-11-12-1	B	10.1.6	1	4	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE: 06-MAY-2002 — RECORDED BY NAME: Althea MCFIELD

1st Interim Technical

Each test case (Instrument +/- Y side, horizontal and vertical antenna for position) RE02 Narrowband testing exceeded GIRD-specified electric field emissions limit. The ambient baseline test, without the HIRDLS Instrument powered ON produced out of specification emissions level. (Ref. DR AD6410)

The MRB authorizes continuation of EMI testing. Cause, C/A and Final Disposition for this DR is required prior to the start of Instrument CPT.

Concurrence: Ray von Savoye (APM-Technical), Dave Seidl (QE), Althea McField (QE)

50 CAUSE TEXT

51 C/A TEXT

Comm. Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	06-MAY-2002	HARDWARE	**AD6511**	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER 1 OF 1

52 FINAL DISPOSITION TEXT

Comm... DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	06-MAY-2002	HARDWARE	**AD6511**	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR			0 MRB investigation	06-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Comm Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	AGE	OF
ATC IN PALO ALTO	N/A	07-MAY-2002	HARDWARE	**AD6516**	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING	CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-I&T	AMB QUAL TEST		IV

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L320	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	R/L	Althea MCFIELD	J18575	Q225	07-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT
CCU compressor stroke stayed at 20% during testing in Electonics Only mode during "90 K test"

31 SHOULD BE TEXT
CCU Compressor demanded stroke of 80%

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
PR	SP-HIR-034	NC	3.4.2.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFJ84	FINAL ASY & TST/SYSTEM TST/OUTPUT SIGNAL/UNDER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE 07-MAY-2002 — RECORDED BY NAME Althea MCFIELD

This test was redlined into the test procedure after the completion of the final EMI test (Magnetic Dipole).

The following CSTOL procedures were ran:

start_hir_css_elect
@hir_css_pidcoeff 75, 5, 0
@hir_css_freq 390, 650
@hir_css_setting 5, 900, 800, 800

At this point the compressor stroke stayed at 20% and allowed an overshoot in temperature to 96 K (set point was 90 K)

The commands were repeated per MRB direction, and this time the STOL procedures were successful

Comm. Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	07-MAY-2002	HARDWARE	**AD6516**	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER 1 **OF** 1

50 CAUSE TEXT

DATE 07-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

Identification of CAUSE is required prior to the start of CPT.

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Comm... DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	PAGE	OF
ATC IN PALO ALTO	N/A	07-MAY-2002	HARDWARE	AD6516	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB investigation	07-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

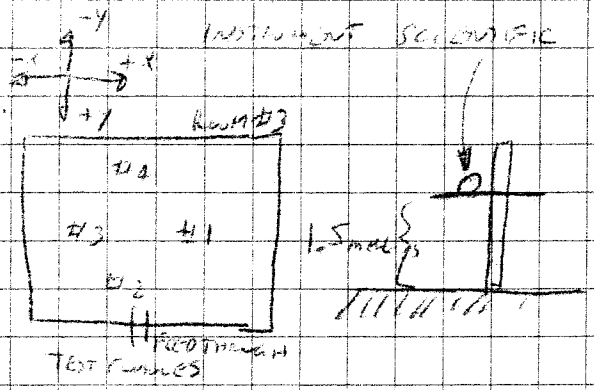
63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

1/4/02 MARKED FLOOR FOR POSSIBLE HIRDES UNIT PLACEMENT.
WANT TO DO MAGNETOMETER READINGS IN 4 POSITIONS
PER TP-LOC-620 Rev NC
PER # 13.7 DC MAGNETIC DIPOLE MOMENT



INSTRUMENT SCINTREX MAGNETOMETER FGM-3DTAA
C806057 NASA PROPERTY

CLOSE END OF SCANNER POINTS SOUTH

POSITION	X reading (nT)	Y (nT)	Z (nT)
4 (-Y)	23,204	-2,491	20,782
3 (-X)	20,368	-4,583	17,995
2 (+Y)	20,355	-5,398	20,412
1 (+X)	22,750	-5,640	23,180

1/28/02
Pushed up antennas from 182 and secured it up.
Had to rotate instrument 90° to attach to copper bench top with extended copper plate. Measure bonding of extended copper plate to bench top it was .003 milliohm
Setting up for CS01 with Wurfel caps.
Wurfel caps installed on:
PI-SB-A PI-NB-A
PR-SB-A PR-NB-A
PI-SB-B
PR-SB-B

APPROVAL	ORG.	DATE	IP-220-820 REV NC

4/28/02 Cont

0530 PI-SB-A connected to current probe, cool down started

0635 Ran PI-SB-A CEO1 (PLOT TIME IS 28APR02 04:38:16) PASS

0645 Ran PR-SB-A CEO1 (PLOT TIME IS 28 APR02 06:22:29) PASS

Ran PI-SB-B CEO1 PLOT TIME IS 28 APR02 06:29:08 PASS

Ran PR-SB-B CEO1 PLOT TIME IS 28 APR02 06:38:04 PASS

Ran PI-NB-A CEO1 PLOT TIME IS 28 APR02 06:44:47 Fail

Ran PR-NB-A CEO1 PLOT TIME IS 28 APR02 06:45:57 Fail

0735 Powering down for ambient runs for Noisy Bus failures.

0759 UUT POWERED DOWN FOR AMBIENT MEAS. ON NOISY BUS A.

0810 RAN AMBIENT ON NOISY BUS A PRIMARY (PI-NB-A) PASS

0821 RAN AMBIENT ON NOISY BUS A RETURN (PR-NB-A) PASS

AN A0080 TEST TO BE DONE IN PARALLEL WITH CE01 + CE03 IS RIPPLE. THE FOLLOWING EQUIPMENT WILL BE USED.

EQUIPMENT / NOMENCLATURE	PART #	S/N/MSL	CAL	
TEKTRONICS OSCILLOSCOPE	TDS 520C	LP015929	6/13/03	
TEK PROBE 10X	P6137	N/A	N/A	
HP PLOTTER	HP7475A	M1176846	N/A	
ISOLATION TRANSFORMER	TYPE 7032-1	NA	N/A	(OSCOPE)
ISOLATION TRANSFORMER	N/A	N/A	N/A	(PLOTTER)

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APPROVAL	ORG.	DATE	

14:30 HAD TO REDRESS BRAIDED SNIFFERS AROUND BREAKOUT CABLES DUE TO POSSIBLE SHORTING HAZARD

4/29/02 Lucy

1500 – Arrive for work, HIRDLS still removing cables.

1535 – HIRDLS removal complete, we are clamping current probe on PI-NB-B for CEØ1 and PI to PR-QB-A for ripple noise measurement. Waiting for HIRDLS power up.

1940 – PI-NB-B CEØ1 Completed - fail

1940 – PR-NB-B CEØ1 Completed - fail

1953 – PR-QB-B CEØ1 Completed - fail - Gyro's OFF

2008 – Waiting for Gyro's to be powered ON and will rerun PR-QB-B CEØ1

2043 – PR-QB-B CEØ1 Gyro's ON Completed - fail

2052 – PI-QB-B CEØ1 Gyro's ON Completed - fail
waiting for Power OFF to do PI-QB-B, PR-QB-B, PR-NB-B, and PI-NB-B Ambients

2201 – PI-NB-B CEØ1 Ambient 0V - pass

2209 – PR-NB-B CEØ1 Ambient 0V - pass

2215 – PR-QB-B CEØ1 Ambient 0V - pass

2221 – PI-QB-B CEØ1 Ambient 0V - pass

2230 – PI-QB-B CEØ1 Ambient 30V - pass

2237 – PI-NB-B CEØ1 Ambient 30V - pass

4/29/02 Grave

0130 – PR-QB-A CAPACITOR HAD A LOOSE/BROKEN BOARD JACK ON TERMINAL W/R CAPACITOR.

0200 – PROGRAM ADDED A DIRECT GROUND STRAP FROM STE TO INSTRUMENT GND PT

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4/29/02 GRAVE

1430: INSTALLED BREAKOUTS FOR: PJ-NB-A & PR-NB-A

0300: Power Up Sequence For HIRAD STARTED

~~Both~~ Setting up for RSØ3:
Using Hp 8165A Signal Generator as modulation source for Hp 3325A.
Hp 8165A set for 1 KHz Sine Wave, Amplitude set for 281 mV. Checked modulation index with spectrum analyzer at 14KHz, 10KHz, 1 MHz, index was 0.25 or 50% modulation.

0610 Wrong limits were used for Noisy Bus CEØ1 plots, however they still failed.
Relaxed in the constant limit on the Noisy Bus Plots

06:14	PR-QB-A	CEØ1	UUT OPER	STE ON	FAIL
07:04	PJ-QB-A	CEØ1	UUT OPER	STE ON	FAIL
07:18	PJ-NB-A	CEØ1	UUT OPER	STE ON	FAIL
07:25	PR-NB-A	CEØ1	UUT OPER	STE ON	FAIL
07:45	SETTING UP FOR CEØ3 NOISY BUS				CEØ3
08:06	PJ-NB-A	CEØ3	UUT OPER	STE ON	FAIL
09:13	PR-NB-A	CEØ3	UUT OPER	STE ON	FAIL
09:19	RERUN PJ-NB-A	CEØ3			FAIL

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APPROVAL	ORG.	DATE	

09:26 PR-QB-A QUIET BUS CCØ3 UUT OPER, STE ON FAIL

09:34 PI-QB-A CCØ3 UUT OPER, STE ON FAIL

10:20 IVAN PEARMAN A CCØ3 TEST TO INCORPORATE AN AMPLIFIER FOR QUIET BUS. FILE NAME? 1.9 HARDS CCØ3 20KHz - 50MHz QB VER 2

10:24 PI-QB-A CCØ3 UUT OPER, STE ON WITH HP 8447D PREAMP

RIPPLE MEASUREMENTS DONE:
PI-NB-A TO STRUCTURE
PI-NB-A TO PR-NB-A
PI-QB-A TO STRUCTURE
PI-QB-A TO PR-QB-A

10:39 PR-QB-A CCØ3 UUT OPER, STE ON WITH HP 8447D PREAMP

12:00 UUT POWERED DOWN

12:09 PI-QB-A CCØ3 AMBIENT, WITH HP8447D AMP

1.10 HARDS CCØ3 20KHz - 50MHz VER 3, 1MHz BREAK POINT TO ADD AMPLIFIER

12:44 PI-QB-A CCØ3 AMBIENT, WITH AMP, USING FILE 1.10 FAIL

12:46 PR-QB-A CCØ3 AMBIENT, WITH AMP USING FILE 1.10 FAIL

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APPROVAL	ORG.	DATE	

12:52 PI-NB-A CEØ3 AMBIENT, WITH AMP FAIL
USING FILE 1.10

12:57 PR-NB-A CEØ3 AMBIENT, WITH AMP FAIL
USING FILE 1.10

LOAD FILE 1.7 HIRDLS NOISY BUS CEØ1 30HZ-20KHz

13:12 PI-NB-A CEØ1 AMBIENT PASS

13:20 PR-NB-A CEØ1 AMBIENT PASS

LOAD FILE 1.1 HIRDLS CEØ1 nb 30HZ-20KHZ

13:32 PI-QB-A CEØ1 AMBIENT PASS

13:39 PR-QB-A CEØ1 AMBIENT PASS

13:45 SETTING UP FOR BUS B CEØ3 TESTING

OPEN TEST FILE: 1.10 HIRDLS CEØ3 20KHZ-50MHZ VER3

4/29/02 ~~Roger~~ Irving

1430 - Arrive for work, HIRDLS reconfiguring for CEØ3

1941 - Ready to start CEØ3 PI-NB-B

1943 - PI-NB-B CEØ3 fail

2006 - PR-NB-B CEØ3 fail

2036 - PR-QB-B CEØ3 Ver. 5 fail

2043 - PI-QB-B CEØ3 Ver 5 fail

2052 - PR-SB-B CEØ3 Ver. 5 fail

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4/29/02 CONT'

2058-PI-SB-B CE03 Ver.5 fail

made CE03 Version 5 diff. BW's and removed H.P. 8447D pre-Amp. but left manager - Ignore don't use 8447D with Version 5

2105 - Reran PI-SB-B CE03 Ver. 5 with doors closed there was no great difference, should not need to redo the other runs with door closed

we will now do all combinations for previous runs

2140 - PR-SB-A CE03 VER.5 Fail

2144 - PI-SB-A CE03 VER.5 Fail

2231 - PI-SB-A CE03 VER.5 AMB PASS

2237 - PR-SB-A CE03 Ver.5 AMB PASS

2243 - PR-NB-B CE03 VER.5 AMB FAIL DOORS OPEN

2250 - PR-NB-B CE03 VER.5 AMB FAIL DOORS CLOSED

2307 - PI-NB-B CE03 VER.5 AMB Fail DOORS CLOSED

2316 - PR-QB-B CE03 VER.5 AMB PASS " "

2323 - PI-QB-B CE03 VER.5 AMB PASS " "

2379 - PR-SB-B CE03 VER.5 AMB PASS " "

2385 - ~~PI~~ PI-SB-B CE03 VER.5 AMB FAIL " "

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4/29/02 SWING CONT'

2341 PROBE ONLY CE03 VER 5 AMB DOORS OPEN PASS

4/30/02 GRAVE SHIFT

Getting listing off of Laptop for failed CE03 Plots, Two listing Missing

0300 Setting up for RS03 SIDE A

0512 READY TO START RS03 FOR SIDE "A" Per Redline Dwg.

Attempted to point antenna at MATRIX POSITION A-RF-

FT 13,10 RS#3 ELECTRIC FIELD RADIATED SUSCEPTIBILITY TEST

- ALL TIMES ARE SHOWN IN UTC
- ANTENNA IS 1 METER FROM CMU SIDE (A-SIDE)

FREQUENCY	START	STOP	
14K	19:01:10	XXXX	
TO 250KHz	XXX	19:13	* AMA HIT POWER LIMIT, HAD TO
237KHz	XXX	19:43	SIDE AT 237KHz
237KHz	19:49	XXX	
TO 5MHz		19.51	
5MHz	19.58	—	
TO 20MHz		2006	
20 MHz	20'25	XX	VERTICAL POLARIZATION
~~200 MHz~~ 150MHz		21:26	

UUT GLITCH 94MHz
110MHz
115 MHz
129 MHz
141 MHz

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RS03 (CONT)

FREQUENCY	START	STOP	
150MHz	21:30	—	VERTICAL POLARIZATION
TO 200MHz	—	21:51	BICONICAL

UUT GLITCH

156MHz (NOISE)
169MHz
193MHz

20MHz	22:12	—	HORIZONTAL POLARIZATION
TO 150MHz	—	23:11	BICONICAL

UUT GLITCH 40MHz

~~NO GLITCHES~~ PIC

	START	STOP	
150MHz	23:14	—	HORIZONTAL POLARIZATION
TO 200MHz	—	23:34	BICONICAL

UUT GLITCHES

NO GLITCHES

Antenna Sweep (continuing RS03)

Number of glitches	Start	Stop	
140 - ~~150~~ MHz	2341	2346	Vertical Polarity
150 - 160 MHz	2349	2355	Biconical
180 - 200 MHz	2358	0006	using 5KHz steps
36 - 52 MHz	0013	0020	
41 "	0022	0027	
	Start	Stop	Log Periodic Vertical
200 - 420	0105	0234	5KHz ~~steps~~
~~420~~ - 520	0236	0259	→ changed to 10KHz steps
520 - 1000 MHz	0302	0441	
reconfigure for Horizontal Polarity			10KHz step size
200 - 520 MHz	0445	0552	"
520 - 1000 MHz	0554	~~0~~0734	" changed Amplifier

changed Pickup Field Probe, amplifier, and Xmit antenna

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May 1, 2002 Change

FREQUENCY	START	STOP	POLARITY / CHANGES
1GHz – 2 GHz	08:04:35	11:34	Vertical Pol 10K steps @ 1051 MHz to 70 degrees
	11:38:42		"821" changed @ 12:55 TSW FAULT STAT.
			Passive Thermal Sensor drops degrees @ 1666MHz
1GHz – 1.832GHz	11:38:42	14:26	Changed to Horizontal Pol
@ 1554 MHz @ 1332 had dropout in telemetry			

DAYS 14:26 STOP @ 1.832 GHz DUE TO BUTTON FALLING OFF

Band	START	STOP
1.832 TO 2.0GHz	14:26	14:29

DR # AD6464
QA.
05-05-02

HERDS PERFORMED ALIGNMENTS VIA SOFTWARE.

AS/S	FREQ	START	STOP	V/m	HORIZONTAL POL	HORN
					10 V/m	
	2.0 TO 2.2845	14:46	15:01	10	10 V/m	
	2.2845 TO 2.290GHz	15:02	15:03	20	20 V/m	~~SUPPORT~~ 50KHz STEPS
	2.290 TO 4.0GHz	15:03	15:02	10	10 V/m	75KHz STEPS
	4.0 TO 8GHz	16:12	19:15	10		75KHz STEPS

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APPROVAL—WITNESS SIGNATURE DATE

APPROVAL | ORG. | DATE 3/01/02

RSΦB (CONT) SIDE A

FREQ (GHz)	START	STOP	V/m	HORIZONTAL POL., HORN
8.0 TO 8.025	18:35	18:36	10 V/m	25 KHz STEP
8.025 TO 8.4 GHz	18:36	18:46	20 V/m	25 KHz STEP, DROP TO 100 KHz
8.4 TO 18 GHz	18:47		10 V/m	100 KHz STEP
14.754 GHz	HOLD 20:06	21:06		OUTPUT WOULD NOT GO HIGHER IN AMPLITUDE. CHANGES AT AMPLIFIER, USING LOG/PERIODS MODEL AL000/A
14.754 GHz TO 18 GHz	21:29	21:30		100 KHz STEP. STOP DUE TO NO DATA USING FAULT.
14.769 TO 18 GHz	21:34	22:47	10 V/m	100 KHz STEP

Swing 5/1/02

	Start	Stop	V/m	
Testing RSΦB	—			
15.7 GHz	2300		10 V/m	Starting Noise
15.7 - 16.1 GHz	2302	2310		Noise

reconfiguring for 14KHz - 20 MHz at location -Y on ANTA

14 KHz - 28 KHz	0024	0027	2 V/m	10 Hz step
28 KHz - 200 KHz	0027	0031		100 Hz steps
200 KHz - 1 MHz	0037	0041		500 Hz "
1 MHz - 5 MHz	0042	0045		5 KHz "
5 MHz - 20 MHz	0049	0056		" change Ant Switch
20 MHz - 80 MHz	0109	0135		" Pol. ANT, Vert. Pol.
119 - 160 MHz	0137	0154		"
180 - 190 MHz	0155	0159	2 V/m	"
40 - 49.75	0202	0221	Need to 0.7 V/m	threshold @ 42.75 MHz next test

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5-1-02 Survey (continued)

RS03 continuing on SIDE B
reconfigure for Horizontal Polarity

	Start	Stop	V/m	Pol	comments
~~20 MHz - 30 MHz~~					
20 MHz - 30 MHz	0234	0301	2	H	5KHz
1190 - 160M	0303	0320	2	H	5KHz change Amp.
180 - 190 M	0323	0327	2	H	5KHz
210M - 340M	0341	0418	2	V	10KHz Change Antenna
470M - 520M	0419	0430	2	V	10KHz
520M - 700M	0432	0509	2	V	10KHz Change Amp
210M - 390M	0515	0558	2	H	10KHz
470M - 520M	0559	0610	2	H	10KHz
~~520~~ M - 700M	0612	0649	2	H	10KHz Change Amp

5-2-02 Survey

EUT	start	stop	V/m - Pol	comments
1.56Hz - 2GHz	0715	0722	2 - V	> used 100Hz step very hard to control amplitude
1.56Hz - 2GHz	0725	0737	2 - H	
20 TO 2.2855 GHz	0747	0758	10 - H	50K steps
2285 - 2285 GHz	0759	0800	20 - H	25K steps
2285 GHz - 4 GH	0802	0917	10 - H	25K steps & 50K steps
2.0 TO 2.285.5 GHz	0922	0929	10 - V	75 KHz steps
2285.5 - 2285 GHz	0930	0931	20 - V	75 KHz steps
2285.5 - 4 GHz	0931	1013	10 - V	75 KHz steps
4 GHz to 8 GHz	1018	1156	10 - V	75 KHz steps
4 GHz to 8 GHz	1200	1313 Stopped 206	10 - H	75 KHz steps

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05-02-02 GRANE CONT.

FREQ	START TIME	STOP TIME	V/M	POL	COMMENTS
7097		1313			STOPPED SWEEP REQUEST BY TC
7097	1317	1334:57	10	HORIZ	RESTART

@ 7724 MHz HIRALS Reported a "gap" in their telemetry continuous Susceptibility Sweep.

Completed Sweep to 8GHz and holding Setup, ——

Stand @ 7650 @ 30KHz BW. Thunder Shooting Team Wrap out

7650 TO 8GHz	1405	14:07	10	HORIZ	30K STEP

* INSTRUCTIONS FROM MIKE SPICE & HIRALS TEAM: SWEEP FROM 4200 TO 4900 MHz, 75KHz STEP, 10 V/M

FREQ	START	STOP	V/M	POL	COMMENTS
4200 TO 4900MHz	14:48	15:12	10 V/m	H-POL	RESTART

FREQ	START	STOP	V/M	POL	COMMENTS
8.0 TO 8.025 GHz	15:32	15:33	10	H	20 KHz STEP
8.025 TO 8.4 GHz	15:34	15:38	20	H	20 KHz STEP
8.4 TO ~~8.6GHz~~ 14.741	15:39	16:41	10	H	200KHz
					CHANGE OUT TWT TO LOG/MULTI
14.741 TO 18GHz	16:54	17:36	10	H	200 KHz STEPS

10:40pst SETUP FOR V-POL RS03. WALT TOOK PHOTOS WITH HIRALS CAMERA.

FREQ	START	STOP	V/M	POL	COMMENTS
8.0 TO 8.025	17:55	17:55	10	V	200KHz SAMPLE
8.025 TO 8.4	17:57	18:02	20	V	20 KHz SAMPLE
8.4 TO 14.70GHz	19:03	19:06	10	V	200KHz STEP
14.7 TO 18GHz	19:17	20:02	10	V	200KHz STEP

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(+Y SIDE = A SIDE OF UUT)

13.0 Spot MOVED HORN TO 'A' SIDE TO RUN V-POL RS03 2-18 GHz

FREQ	START	STOP	V/M	POL	COMMENTS
14.7 TO 18 GHz	20:18	21:01	10	V	200 KHz STEP
8.0 TO 9.025 GHz	21:10	21:10	10	V	200 KHz STEP
8.025 TO 8.4 GHz	21:11	21:17	20	V	200 KHz STEP
8.4 TO 14.7	21:34	22:47	10	V	200

5/2/02 Swing (continuing RS03)

Freq	start	stop	V/m	Pol	
2.0 – 2.285 GHz	2257	2309	10	V	50 KHz
2.2855 – 2.2895 GHz	2310	2310	20	V	25 KHz
2.2895 – 4 GHz	2312	2352	10	V	75 KHz
4 – 8 GHz	2358	0135	10	V	75 KHz

Completed RS03 setting up for RS01 30 Hz to 200 KHz at 32 milliamperes (rms) on side A

(RS01)

Freq	Start	Stop	mA (rms)	Location
30 Hz – 200 KHz	0316	0352	32	+Y (AF 1)
480 Hz	0355	0406	32	
495 Hz	0407	0417	32	
505 Hz	0418	0428	32	
520 Hz	0429	0439	32	
30 Hz – 200K	0515	0556	32	–X (AF 2)
30 Hz – 200K	0617	0656	32	+X (AF 3)
Ground Shell				
30 Hz – 200K	0716	0751	32	–Y (AF 4)

Repeat "D" –X (AF-2) - Birdls reported a temperature reading anomaly @ 0220 AM PST.

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Crane 5-3-02 Cont.

0730 pm Hurdle reported fuel by mounting the loop antenna, they saw a temperature fluctuation. Did not see magnetic test. Hurdle conducting data review prior to power down.

0430 PST Data review over. OK to break configuration from RS03/RS07.

Made Redline Changes to CS01 T.P. was 30Hz - 15 kHz on data sheets to 30Hz - 50kHz. OE brought off readings.

0645 PST Completed installation of BOB & injection transformers with 1Ω SOW on Secondary

Procedure To HOT Switch Injection Transformer:

ON THE REOSTAT BOX:

1. Set reostat to 7Ω position
2. Plug in banana jacks across Isolation Xfmr Secondary
3. Install Shorting Plug across banana jacks (that went to injection beams)
4. Set reostat to 0Ω
5. Carefully remove Isolation Xfmr Lead from BOB (OR)
6. Move Isolation Xfmr Leads to MINUS SIDE (OR)
7. Pull Shorting Plug for MINUS SIDE (OR)
8. Dial in 7Ωs on Reostat Box
9. Pull out Reostat leads from BOB
10. HIRAILS & INJECTION CHECKED 'A' BUS SETUP.

8:45pst TURNED ON MCINTOSH POWER AMP, WAIT OFF. HIRAILS STARTING TO WARM-UP KLAT.

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05-03-02 FRIDAY

1334 HOURS. READY FOR CSO1 QUIET BUS A.
1339 STOPPED BY TEC. PROBLEM?

1422 READY AGAIN.

QB INPUT
2123 30 Hz

SUPPLE NEW CURRENT PLUG-IN REQUIRED. OLD ONE IS BROKEN

START
2209 RESTART CSO1 QUIET BUS HOT SIDE

3.922 KHz
2214 @ ~~39.22 Hz~~ HAD A FAILURE OF CIRC PUMP. AFTER PUMP STARTED MAKING NOISE VOLTAGE ON DSO SCOPE DUMPED FROM 3V p-p TO 5.16 V p-p. ADJUSTED
AUDIO DRIVE TO 0V p-p IMMEDIATELY

05-03-02 Friday

1850 - Repowering of AIRDLS ~~up~~ in progress.
The program personnel have asked for a second current probe to monitor DC current levels. Went to MSC to get one it is not finished being calibrated, MSC will call when Cal is completed.

RESTARTED CSO1 QUIET BUS

~~Quiet Bus CSO1~~

			STEPS	START	STOP	
1 Vp-p	30 Hz	-40 Hz	.1Hz	0426	0433	STOP @ 40 Hz
1 Vp-p	40 Hz	-10 KHz	1 Hz	0456	0504	10 Hz STEP @ 4K Hz
2 Vp-p	30 Hz	- 10 K	.1Hz	0506	0521	1Hz @ 400 Hz, 10Hz @ 4K Hz
3 Vp-p	30 Hz	- 50K	.1Hz	0536	0600	1Hz @ 400, 10Hz @ 4K Hz
3V p-p						

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5/3/02 During (Continued)

CS01 Quiet BUS A, 30Hz - 50KHz completed, we are going to revisit 1890 Hz & 42 KHz

Freq (Hz)	start	stop	V_{a-b}
1890			3 V gyros off
1890			2.5V
1890			2.0V
1890			1.75
1890			1.5
1890			1.25
1890			1.0 gyros ON Threshold
42k			1.0
42K			0.75
42K			0.50
42K			0.25
42K			0.10 Threshold

5/3/02 GMUE

CS02 NOISY BUS SETUP

30Hz White @ .1Hz, White - 4K @ 1Hz, 1KHz 10KHz

Freq Start Stop

CS15 ON/

Subscriptions @

1K	4.3 V p-p 10K	19K - 0V Threshold
	4.0 V	
	3.52 V	
	3.01 V	
	2.5 V	
	2.08 V	
	1.52 V	
	1.01 V	
19K	480 mV	

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5/3/02 Grave Shift

Setup for Survival Bus A High Freq

FREQ	START	STOP
30-50KHz	0x26	0x51

1400

	START	STOP	LINE
34-54KHz	926	957	Quiet Bus A RTN Line

THRESHOLDING @ 23K for Quiet Bus A RTN LINE

Voltage	1011 Start	1046 finish
2.56V	C.L.	
2.0V	15.6mV	current 2A/10mV
1.52V	12mV	current 2A/10mV
1.04V	7.6mV	current 2A/10mV
560mV	4mV	current 2A/10mV

Setup for Noisy Bus A RTN Line for CSU1

	START	STOP	STOP
30-50KHz	1027	1100	1107

⇒29.7K Susceptibility

3.4V
3.04V
2.48V
2.0V
1.52V
1.1V
560mV Threshold

Setup for Survival Bus B RTN LINE

	START	STOP
30-50KHz	1115	1137

No anomalies

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5/4/02 Dave Ahl

Setting up for CSØ2
for Quiet Bus A Plus to Return

START FREQ / START TIME — STOP FREQ / STOP TIME
50K — 1318

5/4/02 DATA

CONTINUING WITH CSØ2 QUIET BUS A, PLUS LEAD. 1KHz STEP

15'41 - STOP CSØ2 QUIET BUS A PLUS LEAD. ~~TO CHANGE 5 KT AMPLITUDE~~ DUE TO HIRDLS LOOSING LOCK. EMI'S INPUT LEVEL 3.0V, CURRENT BELOW LIMITS. FREQ AT ~~39.375 MHz~~ 39,735 MHz WHEN STOPPED. POWER 'OFF'

HIRDLS IS POWERING DOWN QUIET THEN WILL POWER BACK.

FREQ (MHz)	START	STOP	COMMENTS
39.735 TO	20:39		HIRDLS SAID TO START AT 39.735 MHz. 5KHz STEP
50.460 MHz	20:44	HOLD	HIRDLS ANOMALY, SIGNAL OFF.
~~48.00~~ ~~50.46~~ MHz TO	22:03	22:04 HOLD, RAISING VOLTAGE AND STOPPED AT 1.5Vpp DUE TO SOMETHING BECOMING OF VOLTAGE. HIRDLS SAID TO STOP	1) TOLD BY HIRDLS (RAY) TO RUN AT 2Vpp FROM 50.460 MHz TO 100 MHz. 2) RECENT RUNS THROUGH TROUBLE FREQS STARTING FROM 5 MHz BELOW TO 5 MHz ABOVE AT 2Vpp LEVEL, 1KHz STEPS

- TOLD BY HIRDLS TO TURN OFF PWR 22:07. AMP OFF

5/4/02 Seving

We have a plan. When HIRDLS is ready to test again, we will start on CSØ2 injection at 50 MHz at 0.5V if no problem, go to 55 MHz and start at 1.0V, then 1.5V, then 2.0V if no problems.

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5/4/02 Swing (continued) (CP07-)

Then we will go to 60 MHz and start at 2.0V then 2.5V then 3.0V if no problems we will continue sweeping to 100 MHz change Amps and continue to 400 MHz.

QUIET BUS +LINE TO RETURN

Frequency	start	stop	Comments
50 MHz	2321		@ 0.5 V p-p
55 MHz	2323	2	1.0V
55 MHz	2327		1.5V
55 MHz	2328	2331	2.0V
60 MHz	2331		2.0V
60 MHz	2332		2.5V
60 MHz	2333	2334	3.0V
60MHz - 100MHz	2334	2343	3.0V 10KHz steps
100MHz - 175MHz	2347	0004	3.0V 10kHz Steps, Change Amps
175MHz - 178MHz	0004	0005	3.0V 20KHz steps
178MHz - 400MHz	0005	0036	3.0V 15KHz steps
			Current Limit @ 222 back to voltage @ 225

COMPLETE

QUIET BUS RETURN-TO-CHASSIS

Frequency	Start	Stop	Comments
400 MHz	0127	0211	3.0V p-p 15KHz Steps
			Current Limit 176-174
			change to 10KHz steps @ 172 M
100MHz - 44.9MHz	0213	0224	3.0Vpp 10KHz Steps
44.9MHz - 42.0MHz	0226	- 0227	3.0Vpp 10KHz Steps
35.0MHz - 15. MHz	0229	0233	3.0Vpp 10kHz Steps
15 MHz - 1.88MHz	0233	0236	3.0Vpp 10KHz Steps
1.88MHz - 515KHz	0236	0245	3.0Vpp 5KHz Steps
			Current Limit @ 760 KHz back to 520 KHz 1KHz step size
515 KHz - 100kHz	0245	0247	3.0 Vpp change Signal Comm for Amp

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515 KHz - 100KHz (Continued) Current Limit 84.5-50K

Frequency	Start	Stop	Comments	
35 MHz - 42MHz	0251	0253	1 Vp-p	10 KHz Step
35 MHz - 42 MHz	0254	0255	1.5 Vp-p	10 KHz Step
35 MHz - 42 MHz	0256	0257	2.0 Vp-p	10KHz Step
35 MHz - 42 MHz	0258	0259	2.5 Vp-p	10KHz Step
35 MHz - 42 MHz	0300	0302	3.0 Vp-p	10 KHz Step

0815 Quiet BUS + line to return and return line to chassis completed setting up for Noisy BUS + line to return

NOISY BUS PLUS LINE TO RETURN

Frequency	Start	Stop	Comments	
50KHz - 25 KHz	0331	0336	3VPP	1KHZ Step
Changing Step Size to 5KHz				
25 KHz - 2 5MHz	0337	0344	3VPP	1 KHz Step
25 MHz - 15 MHz	0344	0350	3VPP	5KHz Step
15 MHz - 175MHz	0436	0517	3Vpp	Changed Amp, Current Changed 1MHz Step @ 30 MHz
				102 MHz @ 0500
				146 MHz @ 0510
175MHz - 400MHz	0517	0540	3 Vp-p	Changed to 5KHz step
				Current Limit @ 206MHz
				Back to Voltage @ 213MHz
				Current Limit @ 237MHz
				Back to Voltage @ 251MHz
				Current Limit @ 292 MHz
				Back to Voltage @ 300MHz

NOISY BUS RETURN-TO-CHASSIS

Frequency	Start	Stop	Comments	
50KHz - 25 KHz	X-17	X-15	Changing Steps	3VPP 1KHz Steps
				Current Limit @ 74KHz
25 KHz - 2 MHz	X-15	X-19	3VPP	1 KHz Steps
2 MHz -	X-19		← Back To Voltage Limit @ 460KHz	
			3VPP	5 KHz Steps

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NOISY BUS RETURN-TO-CHASSIS (CONT.)

Frequency	Start	Stop	Comments
2 mHz - 30 mHz	X619	X630	3 vpp 5KHz STEPS
30 mHz - 1.25 mHz	X630	X641	3 vpp 15 KHz STEPS
	Changing Amps		BIG CURRENT LIMIT @ 33 mHz
1.25 mHz - 400 MHz	X642	724 [redacted]	

GRAVE 5-5-92

SET FOR CS02 RUN SURVIVAL BUS PLUS to Return

50K - 250K	744	749
250K - 100 MHz	753	844
100 MHz - 400 MHz	846	931

CURRENT LIMIT @ 50 MHz
- 56 MHz
CURRENT LIMIT @ 74 MHz
CURRENT LIMIT @ 294 MHz
to 307 MHz

SURVIVAL BUS RETURN TO CHASSIS SETUP

50K - 250K	948	953
250K - 100 MHz	956	1015
100 mHz - 400 mHz	1046	1130
Repeat 46 mHz	1133	1140

CL - 75 MHz

@ 2.5 V
@ 2 V
@ 1.5 V
@ 1 V
@ .5 V
@ 0 V Threshold

0500 Setting up for CS06
0645 +29 V transient into Quiet Bus

Voltage	Start time	end time	
+29	13:44	13:50	QUIET BUS
-29	14:31	14:37	QUIET BUS

0815 Start SETUP FOR CS06 NOISY BUS

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CS#6

VOLTAGE	AT LEVEL START TIME	END TIME	COMMENTS
-29 V (ON scanner)	14:58	15:03	- NOISY BUS AGC - HIRELS HAD PROBLEMS WITH SPIKES, INSTRUCTED TO START AT LOW VOLTAGE AND INCREASE UP IN 4 STEPS TO -29 V.
-9V (ON scanner)	15:12	15:15	- HIRELS SAW SPIKES AT THIS LEVEL
+29V	15:25	15:30	- NOISY BUS +29V

S/C Base Setup for Solarium Bus CS#6

CS#6

	VOLTAGE	AT LEVEL START TIME	END TIME	COMMENTS
	+29	15:41	15:48	Solarium Bus, Hirels had Glitch.
	+29 (repeat)	15:53	15:53	Repeat, Brought level down no hard copy, Hirels
ramped voltage	+9V	15:55		Repeat, Approx 1/3 voltage level.
	↓	↓		Move level up to +15
	+15V	15:57		- Hard copy, This is Timeline
	+20V	15:58		
ramped voltage	-10V	16:13		- Step to -10V
	-15V	16:14		- ramp to -15V
	-~~20~~ 19.2V	16:16		- ramp to -20V, Hard copy this is the Timeline

16:38 Hirels started Power Down

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REØ2

AMBIENT

13:25 PST Running REØ2. Found white box fan causing low freq emissions so it is turned off. (+Y SIDE B)

14:45 PST Completed both H & V Polarizations for REØ2 Ambient

AMBIENT PLOTS

REØ2 VERTICAL: Did not do monopole because it was done in horizontal
Did Biconical, YAGI & Horn

REØ2 HORIZONTAL: 2 Plots Done. - 1 Plot has YAGI & Horn
2nd Plot has Monopol & Biconical

15:15 PST Running REØ2 Ambient on (-Y SIDE A).

~~5/5/02 Swing~~

1500 - Arrive at work station, REØ2 Ambient on -Y, SIDE "A" ongoing. At antenna change day personal notice plot looks ~~that~~ good to be true - find that cable connector backshell to ground (shield) is no good, ~~replace~~ found replacement cable which we checked on spectrum analyzer for frequency response 100kHz to 18GHz, cable is good, Replaced bad cable and remain REØ2 ambient on -Y SIDE "B" completed at 16:16 gone HIRDLS personel OK to power up for operation REØ2 test runs.

2400 - Still waiting on EVT Power Up, gyro's not reading correct ~~temperature~~. Going Home for night.

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5-6 02 [redacted] GAIN

STARTING REEL @ 0120

START TIME	B-SIDE REEL 2
0819 - 0821	Rod Antenna
0824 - 0825	Bi-Conical Vert
0827 - 0828	Log Periodic Vert
0829 - 0830	Horn Antenna Vert
0844 - 0846	Bi-Conical Horiz
0848 - 0849	Log Periodic Horiz
0850 - 0851	Horn Antenna Horiz

START TIME / STOP	A-SIDE REEL 2
0909 - 0911	Rod Antenna
0913 - 0915	Biconical Vertical
0917 - 0918	Log Periodic Vertical
0920 - 0921	Horn Antenna Vertical
0934 - 0934	Biconical Horizontal Horizontal
0936 - 0936	Log Periodic Horizontal
0934 - 0940	Horn Antenna Horizontal

REEL 1 Running Tape with SRS loop for RF-1 + RF-2 3 AXIS

1139 - 1140 Parallel to RF-2

1201 - 1203 Perpendicular to RF-2

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Draves

1211 – 1213 Horizontal to face of RE-2

1221 – 1223 Perpendicular to RF-1 Side A

1230 1232 Perpendicular (vertical to RF-1 Side A

1238 – 1240 Horizontal to RF-1 Side A

RE04

16:53 START RE04, B SIDE USING BBH 500 PROBE, SN 229
300HZ TO 50KHZ PARALLEL TO INSTRUMENT, A, LO, LO.
FAN OFF

FREQ	START	STOP	LOCATION	ANT. POS	COMMENTS
300HZ TO 50KHZ	17:04	17:05	B SIDE (-Y SIDE)	PERPENDICULAR	A, LO, LO, BBH 500 FAN OFF
300HZ TO 50KHZ	17:22	17:23	A SIDE (+Y)	PARALLEL	A, LO, LO FAN OFF
300HZ TO 50KHZ	17:32	17:33	A SIDE (+Y)	PERPENDICULAR	A, LO, LO FAN OFF
20HZ TO 300HZ	18:00	18:00	A SIDE (+Y)	PARALLEL	LOOP
20HZ TO 300HZ	18:04	18:04	A SIDE (+Y)	PERPENDICULAR	LOOP
20HZ TO 300HZ	18:10	18:10	B SIDE (-Y)	PARALLEL	LOOP
20HZ TO 300HZ	~~18:13~~ 18:16	~~18:13~~ 18:17	B SIDE (-Y)	PERPENDICULAR	LOOP

11:25PST SETTING UP FOR RE02 NOTCH RETEST

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REV2 NOTCH TEST RF NOTCH

TRACK START/STOP	START	STOP	LOCATION	ANT + POLAR	COMMENTS
2 TO 2.4 GHz	19:42	19:45	B SIDE (-Y)	HORN H-POL	RF NOTCH TEST 6 SEC/OCT FAN OFF
2 TO 2.4 GHz	19:53	19:56	B SIDE (-Y)	HORN V-POL	RF NOTCH FAN OFF
2 TO 2.4 GHz	19:09	19:11	A SIDE (+Y)	HORN V-POL	RF NOTCH FAN OFF ON
2 TO 2.4 GHz	19:15	19:18	A SIDE (+Y)	HORN H-POL	RF NOTCH FAN OFF

DID NOT HAVE A CALIBRATED GAUSS METER TO MEASURE MAGNETIC FIELD IN LARGE COIL. JIM LUKASH + DAVE MOSS USED THE CALIBRATED HALLIKER SCIENTIFIC TO MEASURE A 'LOW' MAGNETIC FIELD LEVEL BY TAKING A FEW LOW CURRENT MEASUREMENTS (FROM D.C. SUPPLY) THEN INTERPOLATING TO A 20 AMP CURRENT.

5/6/02 Sunday

1500 - Arrive for work. Trying to verify that 20 Amps is correct

1842 - Ready to start DC Magnetic Field Susceptibility at location X1

	Start	Stop	Location	Polarity
1906	0206	0211	X1	(+) to (+) (+) to red, (-) to black
1943	0243	0248	X2	(+) to (+) " "
2006	0306	0307	X3	(+) to (+) " "
2015	0315	0316	X3	(+) to (-) (+) to black, (-) to red
2020	0320	0321	X2	(+) to (-) " "
2023	0323	0324	X1	(+) to (-) " "

Now we will rotate coil to Y direction

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5/6/02 Lunch (Continued)

Setting up to run the Y Axis test. Dwell changed to 1 minute.

	Start	stop	Location	Polarity	Comments
2115 -	0445	0447	Y1	(+) to (-), (+) to black, (-) to red	
2122 -	0422	0423	Y2	(+) to (-), (+) to black, (-) to red	
2129 -	0429	0430	Y3	" " "	
2135 -	0435	0436	Y3	(+) to (+), (+) to red, (-) to black	
2138 -	0438	0439	Y2	" " "	
2140 -	0440	0441	Y1	" " "	

X & Y Axis completed Will be setting up the metal frame to perform Z Axis Magnetic Susceptibility next

2320 - Z Axis setup ready, waiting for test unit to be ready for test

	Start	Stop	Location	Polarity	Comments
2358 -	0658	0700	Z1	(+) to (+), (+) to Red, (-) to black	
2404 -	0704	0705	Z2	" " "	
2409	0709	0710	Z3	" " "	
→ 2415	0714	0716	Z3	(+) to (-), (+) to black, (-) to red	
	0732	0737	Z2	" " "	
	0744	0745	Z1	" " "	

AM

TIME STARTED

SA	0736	0737	
10	A	0737	02
15	A	0737	30
20	A	0737	56
15	A	0738	30
10	A	0738	45
5	A	0739	10
0	A	0739	22

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Group 5-7-02 Continued

On 2 axis @ Position Z2 with positive polarity

		Start	Stop
20	A	0753 0	0754
15	A	0754 10	
10	A	0754 40	
5	A	0755 ?	
0	A	0755 20	
5	A	0755 45	
10	A	0756 10	
15	A	0756 35	
20	A	0757 -	0757 20

- at position Z2 with positive polarity, looking for Thresholding. 0-10 Amps

Changed V/D to 20mV @ 2Amp/DIV.

	Time				
0A					
1A	8:11:41				
2A →	8:12:12	1.5A/8:12:55	1.25A/8:13:33	1.75A/8:14:20	0A/8:14:45
3A	N/A				
4A	N/A				
5A	N/A				
6A	N/A				

Susceptibility Threshold @ 1.75 Amps

Setup for Mag Dipole

Position	Instrument	X Reading mG	Y Reading mG	Z Reading mG
-X	90cm	27.22	253.64 mG	289.46 mG
-X	143cm	22.56	235.6 mG	257.88 mG
+Y	90cm	336.44	-65.22 mG	111.95 mG
+Y	143cm	226.36	+35.35 mG	218.59 mG
+X	90cm	25.62	-230.53 mG	151.74 mG
+X	143cm	-6.92	-210.77	127.52 mG
-Y	143cm	-235.40	12.60	219.05
-Y	90	-215.55	-7.07	258.52 mG

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5-7-02 GRAVES CONTINUED

ID PACE MOMENT MEASUREMENTS COMPLETED WITH POWER ON.
HIRAM RUNNING SPECIAL TESTS WHILE BB READY FOR
AMBIENT DIPOLE MEASUREMENTS UNTIL 0800 HRS

15:31 UCT TESTING CABLE 101, QUIET BUS A CE ϕ1. USING CURRENT CLAMP PCL10.
LIGHT ALL SYSTEMS BEING BROUGHT DOWN INDIVIDUALLY TO USE CLAMP
IS CAUSING CE ϕ1 PROBLEMS. LIGHT OFF, GSE ON, VACUUM ON

15:41 START CE ϕ1 QUIET BUS A

15:51 START CE ϕ3 QUIET BUS A LIGHT OFF, GSE ON, VACUUM ON
15:52 STOP

15:59 START CE ϕ5 QUIET BUS LIGHT OFF, GSE ON, VACUUM OFF
16:01 STOP

16:05 START CE ϕ1 QUIET BUS LIGHT OFF, GSE ON, VACUUM OFF
16:09 STOP

16:13 START CE ϕ3 QUIET BUS A LIGHT OFF, GSE ON, VACUUM OFF AMP 84470 ON
16:15 STOP RUN VERSION 3

09:25 PST START CE ϕ3 QUIET BUS A LIGHT OFF, GSE OFF, VACUUM OFF WITH AMP 84470 ON
09:27 PST STOP RUN VERSION 3

09:34 PST START CE ϕ3 QUIET BUS A LIGHT OFF, GSE OFF, VACUUM OFF, WITH ~~AMP~~ AMP
ALL CABLE FEED THROUGHS DISCONNECTED DUE TO SPIKE AROUND 263KHz

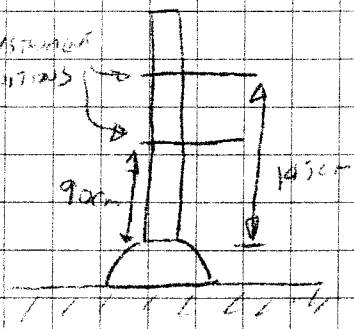
ORIGINAL (YELLOW) COPY—REMAINS BOUND IN NOTEBOOK
2ND (WHITE)—SUBJECT FILE COPY OR
3RD (PINK)—REQUESTER COPY OR
FORM LMMS 938A-4

ORIGINATOR'S SIGNATURE	DATE
APPROVAL—WITNESS SIGNATURE	DATE

APPROVAL	ORG.	DATE	

MAGNETIC DIPOLE MOMENT TEST, UUT OFF, GSE OFF,

INSTRUMENT POSITION	X READING mG	Y READING mG	Z READING mG
-Y 193 Cm	-235.65	+1.72	+218.06
-Y 90 Cm	-217.03	-27.61	+252.92
+X 90 Cm	+28.10	-235.77	+139.85
+X 143 Cm	-22.27	-208.87	+151.58
+Y 143 Cm	+230.62	-24.41	+223.64
+Y 90 Cm	+322.90	-42.01	+53.47
-X 90 Cm	+30.61	+258.03	+287.09
-X 143 Cm	+43.81	+234.69	+257.44

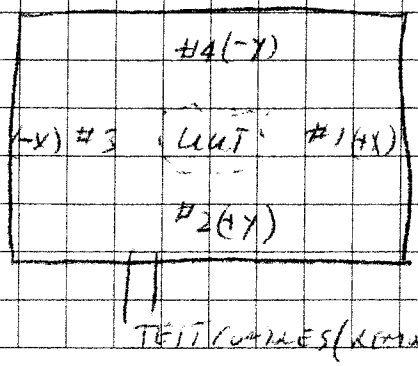


EACH OF THE MEASUREMENTS HAD THE SENSOR POINTED AT THE UUT.

13:45 PST UUT LEFT ROOM #3 TEST AREA

14:30 PST SETTING UP FOR AMBIENT, POST UUT REMOVAL MAGNETIC MOMENT TEST.

COMPARE TO READINGS TAKEN 4/25/02 PAGE 4094709



ROOM #3

* PROBE 1.5 METERS ABOVE FLOOR

TEST DATA

ORIGINAL (YELLOW) COPY—REMAINS BOUND IN NOTEBOOK	ORIGINATOR'S SIGNATURE	DATE
2ND (WHITE)—SUBJECT FILE COPY OR	APPROVAL—WITNESS SIGNATURE	DATE
3RD (PINK)—REQUESTER COPY OR		

FORM LMMS 938A-4

MAGNETIC MOMENT (μT)

(nanoTesla)

INSTRUMENT POSITION	X READING (nT)	Y READING (nT)	Z READING (nT)
#4 (+Y)	23,113	157	23,325
#3 (-X)	20,960	-2,982	16,988
#2 (+Y)	19,548	-3,128	19,370
#1 (+X)	23,405	-1,627	24,920

(milliGauss)

INSTRUMENT POSITION	X reading (mG)	Y READING (mG)	Z READING (mG)
#4 (-Y)	231.17	1.59	1.58
#3 (-X)	209.54	-29.44	170.40
#2 (+Y)	193.43	-29.28	193.90
#1 (+X)	234.04	-16.24	249.24

NOTES: 1) PROBE 1.5 METERS FROM FLOOR
2) PROBE +X DIRECTION POINTING TO FACILITY NORTH
3) MANUFR. SCIENTIFIC FGM-3D TAN TAG (C30605) 12/27/02

ORIGINAL (YELLOW) COPY—REMAINS BOUND IN NOTEBOOK
COPY (WHITE)—SUBJECT FILE COPY OR
COPY (PINK)—REQUESTER COPY OR
FORM MMS 938A-4

ORIGINATOR'S SIGNATURE DATE
APPROVAL—WITNESS SIGNATURE

Date	Test Type	Time PST	Time GMT	Notes
04/28/02	CE01			Start CE01
04/28/02	CE01	4:33:16	11:33:16	Start PI-SR-A, (CE01)
04/28/02	CE01	6:22:29	13:22:29	End PI-SR-A, (CE01)
04/28/02	CE01	6:22:29	13:22:29	Start PR-SR-A, (CE01)
04/28/02	CE01	6:29:08	13:29:08	, (CE01)
04/28/02	CE01	6:29:08	13:29:08	Start PI-SB-B, Note power is A-Side Bus, (CE01)
04/28/02	CE01	6:38:04	13:38:04	End PI-SB-B, Note power is A-Side Bus, (CE01)
04/28/02	CE01	6:38:04	13:38:04	Start PR-SB-B, Note power is A-Side Bus, (CE01)
04/28/02	CE01	6:44:41	13:44:41	End PR-SB-B, Note power is A-Side Bus, (CE01)
04/28/02	CE01	6:44:41	13:44:41	Start PI-NB-A, (CE01)
04/28/02	CE01	6:54:57	13:54:57	End PI-NB-A, (CE01)
04/28/02	CE01	6:54:57	13:54:57	Start PR-NB-A, (CE01)
04/28/02	CE01	7:35:00	14:35:00	End PR-NB-A, (CE01)
04/28/02	CE01	7:35:00	14:35:00	Power Down for Ambient on Noisy Bus A, (CE01)
	CE01	7:59:00	14:59:00	UUT power down, ambient on noisy bus
04/28/02	CE01	8:10:00	15:10:00	Ambient on Noisy Bus A PI-NB-A, (CE01)
04/28/02	CE01	8:21:00	15:21:00	Ambient on Noisy Bus A PR-NB-A, (CE01)
04/28/02	CE01	14:30:00	21:30:00	Rederss braided shield around breakout cables due to possible shorting hazard., (CE01)
04/28/02	CE01	15:35:00	22:35:00	Current Clamp on PI-NB-B (CE01), Power-up, Pi to PR-QB-A monitor for ripple noise., (CE01)
04/28/02	CE01	19:20:00	2:20:00	PI-NB-B (CE01) Fail, (CE01)
04/28/02	CE01	19:40:00	2:40:00	PR-NB-B (CE01) Fail, (CE01)
04/28/02	CE01	19:53:00	2:53:00	PR-QB-B (CE01) Fail Gyro's OFF, (CE01)
04/28/02	CE01	20:08:00	3:08:00	PI-QB-B (CE01) Fail Gyro's is powering Up, (CE01)
04/28/02	CE01	20:43:00	3:43:00	PI-QB-B (CE01) Gyro On completed Fail, (CE01)
04/28/02	CE01	20:52:00	3:52:00	PI-QB-B)CE01) Fail Powering OFF, (CE01)
04/28/02	CE01	22:01:00	4:01:00	PI-NB-B (CE01) Ambient 0V - Pass, (CE01)
04/28/02	CE01	22:08:00	4:08:00	PR-NB-B (CE01) Ambient 0V - Pass, (CE01)
04/28/02	CE01	22:15:00	4:15:00	PI-QB-B (CE01) Ambient 0V - Pass, (CE01)
04/28/02	CE01	22:21:00	4:21:00	PR-QB-B (CE01) Ambient 0V - Pass, (CE01)
04/28/02	CE01	22:30:00	4:30:00	PI-QB-B (CE01) Ambient 30V - Pass, (CE01)
04/28/02	CE01	22:37:00	4:37:00	PR-NB-B (CE01) Ambient 30V - Pass, (CE01)
04/29/02	CE01	1:30:00	8:30:00	PR-QB-A capacitor has loose/broken banana jack on terminal, (CE01)
04/29/02	CE01	2:00:00	9:00:00	Program added a direct ground strap from IEGSE to Instrument ground U7, (CE01)
04/29/02	CE01	2:30:00	9:30:00	Installed Breakouts for PI-NB-A & PR-NB-A, (CE01)
04/29/02	CE01	3:00:00	10:00:00	Power sequence for HIRDLS Will start set-up for (CE01)
04/29/02	CE01	6:14:00	13:14:00	PR-QB-A (CE01) Fail, (CE01)
04/29/02	CE01	7:04:00	14:04:00	PI-QB-A (CE01) Fail, (CE01)
04/29/02	CE01	7:13:00	14:13:00	PI-NB-A (CE01) Fail, (CE01)
04/29/02	CE01	7:25:00	14:25:00	PR-NB-A (CE01) Fail, (CE01)
04/29/02	CE03	7:45:00	14:45:00	Set-Up for CE03
04/29/02	CE03	8:06:00	15:06:00	PI-NB-A (CE03) Fail
04/29/02	CE03	8:13:00	15:13:00	PR-NB-A (CE03) Fail
04/29/02	CE03	8:19:00	15:19:00	Retest PR-NB-A (CE03) Fail

Date	Test Type	Time PST	Time GMT	Notes
04/29/02	CE03	9:26:00	16:26:00	PI-QB-A (CE03) Fail
04/29/02	CE03	9:34:00	16:34:00	PR-QB-A (CE03) Fail
04/29/02	CE03	10:20:00	17:20:00	Installed pre-amplifier for CE03 from 20 KHz to 50 MHz
04/29/02	CE03	10:24:00	17:24:00	PI-QB-A for CE03, with pre-amp
04/29/02	CE03	10:38:00	17:38:00	PR-QB-A for CE03, with pre-amp
04/29/02	CE03	12:00:00	19:00:00	Power Down Instrument
04/29/02	CE03	12:08:00	19:08:00	PI-QB-A for CE03, Ambient, with pre-amp
04/29/02	CE03	12:44:00	19:44:00	PI-QB-A for CE03, Ambient, with pre-amp Fail
04/29/02	CE03	12:46:00	19:46:00	PR-QB-A for CE03, Ambient, with pre-amp Fail
04/29/02	CE03	12:52:00	19:52:00	PI-NB-A for CE03, Ambient, with pre-amp Fail
04/29/02	CE03	12:57:00	19:57:00	PR-NB-A for CE03, Ambient, with pre-amp Fail
04/29/02	CE03	13:12:00	20:12:00	PI-NB-A for CE03, Ambient, with pre-amp Fail
04/29/02	CE03	13:20:00	20:20:00	PR-NB-A for CE03, Ambient, with pre-amp PASS
04/29/02	CE03	13:32:00	20:32:00	PI-QB-A for CE03, Ambient, with pre-amp PASS
04/29/02	CE03	13:35:00	20:35:00	PR-QB-A for CE03, Ambient, with pre-amp PASS
04/29/02	CE03	13:45:00	20:45:00	set-Up for Bus B, CE03
04/29/02	CE03	19:43:00	2:43:00	PI-NB-B for CE03, Ambient, Fail
04/29/02	CE03	20:11:00	3:11:00	PR-NB-B for CE03, Ambient, Fail
04/29/02	CE03	20:36:00	3:36:00	PI-NB-B for CE03, Ver. 5, Fail (Ver. 5 diff. BW & remove pre-amp)
04/29/02	CE03	20:43:00	3:43:00	PR-NB-B for CE03, Ver. 5, Fail (Ver. 5 diff. BW & remove pre-amp)
04/29/02	CE03	20:52:00	3:52:00	PI-NB-B for CE03, Ver. 5, Fail (Ver. 5 diff. BW & remove pre-amp)
04/29/02	CE03	20:58:00	3:58:00	PR-NB-B for CE03, Ver. 5, Fail (Ver. 5 diff. BW & remove pre-amp)
04/29/02	CE03	21:40:00	4:40:00	PI-SB-B for CE03, Ver. 5, Fail (Ver. 5 diff. BW & remove pre-amp)
04/29/02	CE03	22:42:31	5:42:00	PR-SB-B for CE03, Ver. 5, Fail (Ver. 5 diff. BW & remove pre-amp)
04/29/02	CE03	22:31:00	5:31:00	PI-SB-B for CE03, Ver. 5, PASS (Ver. 5 diff. BW & remove pre-amp)
04/29/02	CE03	22:37:00	5:37:00	PR-SB-B for CE03, Ver. 5, PASS (Ver. 5 diff. BW & remove pre-amp)
04/29/02	CE03	22:43:00	5:43:00	PR-NB-B for CE03, Ver. 5, Ambient, Fail (Ver. 5 diff. BW & remove pre-amp) doors open
04/29/02	CE03	22:50:00	5:50:00	PR-NB-B for CE03, Ver. 5, Ambient, Fail (Ver. 5 diff. BW & remove pre-amp) doors close
04/29/02	CE03	23:07:00	6:07:00	PI-NB-B for CE03, Ver. 5, Ambient, Fail (Ver. 5 diff. BW & remove pre-amp) doors close
04/29/02	CE03	23:16:00	6:16:00	PR-QB-B for CE03, Ver. 5, Ambient, PASS (Ver. 5 diff. BW & remove pre-amp) doors close
04/29/02	CE03	23:23:00	6:23:00	PI-QB-B for CE03, Ver. 5, Ambient, PASS (Ver. 5 diff. BW & remove pre-amp) doors close
04/29/02	CE03	23:29:00	6:29:00	PR-SB-B for CE03, Ver. 5, Ambient, PASS (Ver. 5 diff. BW & remove pre-amp) doors close
04/29/02	CE03	23:35:00	6:35:00	PI-SB-B for CE03, Ver. 5, Ambient, Fail (Ver. 5 diff. BW & remove pre-amp) doors close
04/29/02	CE03	23:41:00	6:41:00	Probe only test PASS
04/30/02	RS03	3:00:00	10:00:00	Set-Up for RS03
04/30/02	RS03	5:12:00	12:12:00	Power Bus A, Antenna to point at area A1-RF, (RS03)
04/30/02	RS03	12:01:10	19:01:10	Start sweep @14 KHz Vertical Polarization. (Area A1-RF), (RS03)
04/30/02	RS03	12:43:00	19:43:00	Hold sweep @ 237 KHz, Amp hit power limit (Area 1-RF1), (RS03)
04/30/02	RS03		19:49:00	Start sweep @ 273 KHz (Area 1-RF1), (RS03)
04/30/02	RS03		19:51:00	Stop sweep @ 5 MHz (Area 1-RF1), (RS03)
04/30/02	RS03		19:58:00	Start sweep @ 5 MHz (Area 1-RF1), (RS03)
04/30/02	RS03		20:06:00	Stop sweep @ 20 MHz (Area 1-RF1), (RS03)
04/30/02	RS03		20:25:00	Start sweep @ 20 MHz Glitch noted @ 94, 110, 115, 129, 141 MHz (Area 1-RF1), (RS03)
04/30/02	RS03		21:26:00	stop sweep @ 150 MHz (Area 1-RF1), (RS03)

Date	Test Type	Time PST	Time GMT	Notes
04/30/02	RS03		21:30:00	Start sweep @ 150 MHz Glitch noted @ 156, 169, 193 MHz (Area 1-RF1), (RS03)
04/30/02	RS03		21:51:00	stop sweep @ 200 MHz Vert. Plzn. (Area 1-RF1), (RS03)
04/30/02	RS03		22:12:00	Start sweep @20 MHz Horizontal Plzn. (Area 1-RF1), (RS03)
04/30/02	RS03		23:11:00	Hold sweep @ 150 MHz Glitch noted @ 40 MHz Horiz. Plzn. (Area 1-RF1), (RS03)
04/30/02	RS03		23:14:00	Start sweep @ 150 MHz Vert. Plzn. (Area 1-RF1), (RS03)
04/30/02	RS03		23:34:00	Stop sweep @ 200 MHz (Area A1-RF), (RS03)
04/30/02	RS03		23:41:00	Start sweep @ 140 MHz (Area 1-RF1), (RS03)
04/30/02	RS03		23:46:00	stop sweep @ 150 MHz (Area 1-RF1), (RS03)
04/30/02	RS03		23:49:00	Start sweep @ 150 MHz (Area 1-RF1), (RS03)
04/30/02	RS03		23:55:00	stop sweep @ 160 MHz (Area 1-RF1), (RS03)
04/30/02	RS03	16:58:00	23:58:00	Start sweep @ 180 MHz (Area 1-RF1), (RS03)
05/01/02	RS03		0:06:00	stop sweep @ 200 MHz Vert. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		0:13:00	Start @ 41 MHz Vert. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		0:27:00	Stop @ 41 MHz Vert. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		1:05:00	Start sweep @ 200 MHz Vert. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		2:34:00	Stop sweep @ 420 MHz Vert. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		2:36:00	Start sweep @ 420 MHz Vert. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		2:59:00	Stop sweep @ 520 MHz Vert. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		3:02:00	Start sweep @ 520 MHz Vert. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		4:41:00	Stop sweep @ 1000 MHz Vert. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		4:45:00	Start sweep @ 200 MHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		5:52:00	Stop sweep @ 520 MHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03	10:54:00	5:54:00	Start sweep @ 520 MHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03	0:34:00	7:34:00	Stop sweep @ 1000 MHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03	1:04:35	8:04:35	Start sweep @ 1 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		11:34:00	Stop sweep @ 1.832 GHz Horiz. Plzn. Note: 1551 MHz, time 13:32:00, telemetry dropout (Area 1-RF1), (RS03)
05/01/02	RS03		14:28:00	Start sweep @ 1832 MHz Horiz. Plzn. (Area A1-RF), (RS03)
05/01/02	RS03		14:29:00	Stop sweep @ 2000 MHz Horiz. Plzn. Note DR# AD6464 (Area 1-RF1), (RS03)
05/01/02	RS03		14:46:00	Start sweep @ 2.0 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		15:01:00	Stop sweep @ 2.2845 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		15:02:00	Start sweep @ 2.2845 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		15:03:00	Stop sweep @ 2.2906 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		15:03:00	Start sweep @ 2.290 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		15:12:00	Stop sweep @ 4.0 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		15:12:00	Start sweep @ 4.0 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		18:15:00	Stop sweep @ 8.0 GHz Horiz. Plzn. (Area 1-RF1),
05/01/02	RS03		18:35:00	Start sweep @ 8.0 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		18:36:00	Stop sweep @ 8.025 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		18:36:00	Start sweep @ 8.025 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		18:46:00	Stop sweep @ 8.4 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		18:47:00	Start sweep @ 8.4 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		20:06:00	Stop sweep @ 18 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		20:06:00	Start @ 14.754 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		21:06:00	Stop @ 14.754 GHz Horiz. Plzn. (Area 1-RF1), (RS03)

Date	Test Type	Time PST	Time GMT	Notes
05/01/02	RS03		21:28:00	Start @ 14.754 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		21:30:00	Stop @ 14.769 GHz Horiz. Plzn. Note stopped TWTA VSWR fault (Area 1-RF1), (RS03)
05/01/02	RS03		21:34:00	Start sweep @ 14.769 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		22:47:00	Stop sweep @ 18 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		23:00:00	Start @ 15.7 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		23:02:00	Stop @ 15.7 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		23:02:00	Start sweep @ 15.7 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		23:10:00	Stop sweep @ 16.1 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	RS03		0:24:00	Start sweep @ 14 KHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		0:27:00	Stop sweep @ 28.0 KHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		0:27:00	Start sweep @ 28.0 KHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		0:31:00	Stop sweep @ 200.0 KHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		0:37:00	Start sweep @ 200.0 KHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		0:41:00	Stop sweep @ 1.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		0:42:00	Start sweep @ 1.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		0:45:00	Stop sweep @ 5.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		0:49:00	Start sweep @ 5.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		0:56:00	Stop sweep @ 20.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		1:09:00	Start sweep @ 20.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		1:35:00	Stop sweep @ 80.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		1:37:00	Start sweep @ 119.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		1:54:00	Stop sweep @ 160.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		1:55:00	Start sweep @ 180.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		1:59:00	Stop sweep @ 190.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		2:02:00	Start sweep @ 4.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		2:21:00	Stop sweep @ 48.75 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		2:34:00	Start sweep @ 20.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		3:01:00	Stop sweep @ 80.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		3:03:00	Start sweep @ 119.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		3:20:00	Stop sweep @ 160.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		3:23:00	Start sweep @ 180.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		3:27:00	Stop sweep @ 190.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		3:41:00	Start sweep @ 210.0 MHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		4:18:00	Stop sweep @ 340.0 MHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		4:19:00	Start sweep @ 470.0 MHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		4:30:00	Stop sweep @ 520.0 MHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		4:32:00	Start sweep @ 520.0 MHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		5:09:00	Stop sweep @ 700.0 MHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		5:15:00	Start sweep @ 210.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		5:58:00	Stop sweep @ 390.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		5:59:00	Start sweep @ 470.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		6:10:00	Stop sweep @ 520.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		6:12:00	Start sweep @ 520.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	RS03		6:49:00	Stop sweep @ 700.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)

Date	Test Type	Time PST	Time GMT	Notes
05/02/02	RS03		7:15:00	Start sweep @ 1.56 GHz Vert Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		7:22:00	Stop sweep @ 2.0 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		7:25:00	Start sweep @ 1.56 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		7:37:00	Stop sweep @ 2.0 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		7:47:00	Start sweep @ 2.0 GHz Horiz Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		7:58:00	Stop sweep @ 2.285 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		7:59:00	Start sweep @ 2.2855 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		8:00:00	Stop sweep @ 2.2895 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		8:02:00	Start sweep @ 2.2895 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		9:17:00	Stop sweep @ 4.0 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		9:22:00	Start sweep @ 2.0 GHz Vert Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		9:29:00	Stop sweep @ 2.2855 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		9:30:00	Start sweep @ 2.2855 GHz Vert Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		9:31:00	Stop sweep @ 2.02.2895 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		9:31:00	Start sweep @ 2.2895 GHz Vert Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		10:13:00	Stop sweep @ 4.0 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		10:18:00	Start sweep @ 4.0 GHz Vert Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		11:56:00	Stop sweep @ 8.0 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		12:00	Start sweep @ 4.0 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		13:13:00	Stop sweep @ 8.0 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		13:17:00	Start @ 7097 MHz Note: Stop sweep requested, telemetry drop-outs. Horiz. Plzn., (RS03)
05/02/02	RS03		13:31:57	Stop @ 7097 MHz, (RS03)
05/02/02	RS03		14:05:00	Start sweep @ 7.650 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		14:27:00	Stop sweep @ 8.0 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		14:48:00	Start sweep @ 4200 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		15:12:00	Stop sweep @ 4900 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		15:32:00	Start sweep @ 8.0 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		15:33:00	Stop sweep @ 8.025 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		15:38:00	Start sweep @ 8.025 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		16:41:00	Stop sweep @ 8.4 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		16:54:00	Start sweep @ 8.4 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		17:36:00	Stop sweep @ 14.741 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		16:54:00	Start sweep @ 14.741 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		17:36:00	Stop sweep @ 18.0 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		17:55:00	Start sweep @ 8.0 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		17:55:00	Stop sweep @ 8.025 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		17:57:00	Start sweep @ 8.025 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		18:02:00	Stop sweep @ 8.4 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		18:03:00	Start sweep @ 8.4 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		19:06:00	Stop sweep @ 14.7 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		19:17:00	Start sweep @ 14.7 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		20:02:00	Stop sweep @ 18.0 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		20:18:00	Start sweep @ 14.7 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		21:01:00	Stop sweep @ 18.0 GHz Vert. Plzn. (Area 2-RF2), (RS03)

Date	Test	Time	Time	Notes
	Type	PST	GMT	
05/02/02	RS03		21:10:00	Start sweep @ 8.0 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		21:10:00	Stop sweep @ 8.025 GHz Vert. Plzn. (Area 2-RF2). (RS03)
05/02/02	RS03		21:11:00	Start sweep @ 8.025 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		21:17:00	Stop sweep @ 8.4 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		21:34:00	Start sweep @ 8.4 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		22:47:00	Stop sweep @ 14.7 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		22:57:00	Start sweep @ 2.0 GHz Vert Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		23:09:00	Stop sweep @ 2.285 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		23:10:00	Start sweep @ 2.2895 GHz Vert Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		23:10:00	Stop sweep @ 2.02.2895 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		23:12:00	Start sweep @ 2.2895 GHz Vert Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		23:52:00	Stop sweep @ 4.0 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		23:58:00	Start sweep @ 4.0 GHz Vert Plzn. (Area 2-RF2), (RS03)
05/02/02	RS03		1:35:00	Stop sweep @ 8.0 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	RS01		3:16:00	Start sweep @ 30.0 Hz (Area 2-RF2), (RS01)
05/02/02	RS01		3:52:00	Stop sweep @ 200.0 KHz (Area 2-RF2), (RS01)
05/02/02	RS01		3:55:00	Start @ 480.0 Hz (Area 1-RF1), (RS01)
05/02/02	RS01		4:06:00	Stop @ 480.0 Hz (Area 1-RF1), (RS01)
05/02/02	RS01		4:07:00	Start @ 495.0 Hz (Area 1-RF1), (RS01)
05/02/02	RS01		4:17:00	Stop @ 495.0 Hz (Area 1-RF1), (RS01)
05/02/02	RS01		4:18:00	Start @ 505.0 Hz (Area 1-RF1), (RS01)
05/02/02	RS01		4:28:00	Stop @ 505.0 Hz (Area 1-RF1), (RS01)
05/02/02	RS01		4:29:00	Start @ 520.0 Hz (Area 1-RF1), (RS01)
05/02/02	RS01		4:39:00	Stop @ 520.0 Hz (Area 1-RF1), (RS01)
05/02/02	RS01		5:15:00	Start sweep @ 30.0 Hz (Area 2-RF2), (RS01)
05/02/02	RS01		5:56:00	Stop sweep @ 200.0 KHz (Area 2-RF2), (RS01)
05/02/02	RS01		6:17:00	Start sweep @ 30.0 Hz (Area 3-RF3), (RS01)
05/02/02	RS01		6:56:00	Stop sweep @ 200.0 KHz (Area 3-RF3), (RS01)
05/03/02	RS01		7:16:00	Start sweep @ 30.0 Hz (Area 4-RF4), (RS01)
05/03/02	RS01		7:51:00	Stop sweep @ 200.0 KHz (Area 4-RF4), (RS01)
05/03/02	CS01		22:09:00	Start sweep 30 Hz, PI-QB-A, Test stopped, QB off line, Gyro pump making noisy, banging, switch power off, (CS01)
05/03/02	CS01		22:14:00	Bus problem @ 3.922 KHz, signal generator output 3V, input jumped to 5.16V, input voltage switch off, (CS01)
05/03/02	CS01		4:56:00	Start sweep @ 30.0 Hz, 1V p-p, QB, (CS01)
05/03/02	CS01		5:04:00	Stop sweep @ 400.0 Hz, 1V p-p, QB, (CS01)
05/03/02	CS01		4:56:00	Start sweep @ 400.0 Hz, 1V p-p, QB, (CS01)
05/03/02	CS01		5:04:00	Stop sweep @ 10.0 Hz, 1V p-p, QB, (CS01)
05/03/02	CS01		5:06:00	Start sweep @ 30.0 Hz, 1V p-p, QB, (CS01)
05/03/02	CS01		5:21:00	Stop sweep @ 10.0 KHz, 1V p-p, QB, (CS01)
05/03/02	CS01		5:36:00	Start sweep @ 30.0 Hz, 1V p-p, PI-QB-A, (CS01)
05/03/02	CS01		6:00:00	Stop sweep @ 50.0 KHz, 1V p-p, PI-QB-A, (CS01)
05/03/02	CS01		6:05:00	Run 1890 Hz, 3.00 V, PI-QB-A, no time listed, (CS01)
05/03/02	CS01		6:10:00	Run 1890 Hz, 2.50 V, PI-QB-A, no time listed, (CS01)
05/03/02	CS01		6:15:00	Run 1890 Hz, 2.00 V, PI-QB-A, no time listed, (CS01)
05/03/02	CS01		6:20:00	Run 1890 Hz, 1.75 V, PI-QB-A, no time listed, (CS01)

Date	Test Type	Time PST	Time GMT	Notes
05/03/02	CS01		6:25:00	Run 1890 Hz, 1.25 V, PI-QB-A, no time listed, (CS01)
05/03/02	CS01		6:30:00	Run 1890 Hz, 1.00 V, PI-QB-A, no time listed, (CS01)
05/03/02	CS01		6:35:00	Run 42 Hz, 1.00 V, PI-QB-A, no time listed, (CS01)
05/03/02	CS01		6:40:00	Run 42 Hz, 0.75 V, PI-QB-A, no time listed, (CS01)
05/03/02	CS01		6:45:00	Run 42 Hz, 0.50 V, PI-QB-A, no time listed, (CS01)
05/03/02	CS01		6:50:00	Run 42 Hz, 0.25 V, PI-QB-A, no time listed, (CS01)
05/03/02	CS01		6:55:00	Run 42 Hz, 1.00 V, PI-QB-A, no time listed, (CS01)
05/03/02	CS01		7:00:00	Run 42 Hz, 0.00 V, PI-QB-A, no time listed, (CS01)
05/04/02	CS01		7:15:00	Start sweep @ 30.0 Hz, 1V p-p, PI-QB-A, (CS01)
05/04/02	CS01		8:04:00	Stop sweep @ 50.0 KHz, 1V p-p, PI-QB-A, (CS01)
05/04/02	CS01		8:26:00	Start sweep @ 30.0 Hz, 3V p-p, PI-QB-A, (CS01)
05/04/02	CS01		8:51:00	Stop sweep @ 50.0 KHz, 3V p-p, PI-QB-A, (CS01)
05/04/02	CS01		9:26:00	Start sweep @ 30.0 Hz, 3V p-p, PR-QB-A, (CS01)
05/04/02	CS01		9:57:00	Stop sweep @ 50.0 KHz, 3V p-p, PR-QB-A Note:Thresholding @ 23KHz, (CS01)
05/04/02	CS01		10:11:00	23KHz @ 2.56 V p-p, PR-QB-A, current limit, (CS01)
05/04/02	CS01		10:12:00	23KHz @ 2.0 V p-p, PR-QB-A, 18.6 mV, current 2 amps/10 mV, (CS01)
05/04/02	CS01		10:14:00	23KHz @ 1.52 V p-p, PR-QB-A, 12 mV, current 2 amps/10 mV, (CS01)
05/04/02	CS01		10:15:00	23KHz @ 1.04 V p-p, PR-QB-A, 7.6 mV, current 2 amps/10 mV, (CS01)
05/04/02	CS01		10:16:00	23KHz @ 560 mV p-p, PR-QB-A, 4 mV, current 2 amps/10 mV, (CS01)
05/04/02	CS01		10:27:00	Start sweep @ 30.0 Hz, PR-NB-A, (CS01)
05/04/02	CS01		11:07:00	Stop sweep @ 50.0 KHz, PR-NB-A, (CS01)
05/04/02	CS01		11:07:00	susceptibility @ 29.7 KHz, PR-NB-A, 3.4 V, 3.04 V, 2.48 V, 2.0 V, 1.52 V, 1.1 V, 560 mV threshold, (CS01)
05/04/02	CS01		11:15:00	Start sweep @ 30.0 Hz, PR-SB-A, (CS01)
05/04/02	CS01		11:37:00	Stop sweep @ 50.0 KHz, PR-SB-A, (CS01)
05/04/02	CS02		13:18:00	Start sweep @ 50.0 KHz, PI-QB-A, Pulse lead to Return lead, (CS02)
05/04/02	CS02		15:41:00	Stop sweep @ 39.735 MHz, 3.0 V p-p, PI-QB-A, Fault, loss of encoders, powering HIRDLS down , (CS02)
05/04/02	CS02		20:37:00	Start sweep @ 39.735 MHz, PI-QB-A, Pulse lead to Return lead, (CS02)
05/04/02	CS02		20:44:00	Stop sweep @ 50.460 MHz, 3.0 V p-p, PI-QB-A, Fault, HIRDLS anomaly , (CS02)
05/04/02	CS02		22:03:00	Start sweep @ 48.0 MHz, PI-QB-A, (CS02)
05/04/02	CS02		22:04:00	Stop sweep @ 50.460 MHz, 3.0 V p-p, PI-QB-A, Fault, HIRDLS anomaly , (CS02)
05/04/02	CS02		22:04:00	Start sweep @ 50.460 MHz, PI-QB-A, Input 2.0 V p-p up100 MHz , (CS02)
05/04/02	CS02		22:07:00	Stop sweep @ ??? MHz not listed, 3.0 V p-p, PI-QB-A, Fault, HIRDLS anomaly, told to stop, (CS02)
05/04/02	CS02		23:21:00	Start @ 50.0 MHz, PI-QB-A, input 0.5 V p-p , (CS02)
05/04/02	CS02		23:23:00	Stop @ 50.0 MHz, PI-QB-A, input 0.5 V p-p, (CS02)
05/04/02	CS02		23:23:00	Start @ 55.0 MHz, PI-QB-A, input 1.0 V p-p , (CS02)
05/04/02	CS02		23:27:00	Stop @ 55.0 MHz, PI-QB-A, input 1.0 V p-p, (CS02)
05/04/02	CS02		23:28:00	Start @ 55.0 MHz, PI-QB-A, input 1.5 V p-p , (CS02)
05/04/02	CS02		23:31:00	Stop @ 55.0 MHz, PI-QB-A, input 1.5 V p-p, (CS02)
05/04/02	CS02		23:31:00	Start @ 55.0 MHz, PI-QB-A, input 2.0 V p-p , (CS02)
05/04/02	CS02		23:32:00	Stop @ 55.0 MHz, PI-QB-A, input 2.0 V p-p, (CS02)
05/04/02	CS02		23:31:00	Start @ 60.0 MHz, PI-QB-A, input 2.0 V p-p , (CS02)
05/04/02	CS02		23:31:00	Stop @ 60.0 MHz, PI-QB-A, input 2.0 V p-p, (CS02)
05/04/02	CS02		23:32:00	Start @ 60.0 MHz, PI-QB-A, input 2.5 V p-p , (CS02)
05/04/02	CS02		23:33:00	Stop @ 60.0 MHz, PI-QB-A, input 2.5 V p-p, (CS02)

Date	Test	Time	Time	Notes
	Type	PST	GMT	
05/04/02	CS02		23:33:00	Start @ 60.0 MHz, PI-QB-A, input 3.0 V p-p , (CS02)
05/04/02	CS02		23:34:00	Stop @ 60.0 MHz, PI-QB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		32:34:00	Start sweep @ 60.0 MHz, PI-QB-A, input 3.0 V p-p , (CS02)
05/04/02	CS02		23:43:00	Stop sweep @ 100.0 MHz, PI-QB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		23:47:00	Start sweep @ 100.0 MHz, PI-QB-A, input 3.0 V p-p , (CS02)
05/04/02	CS02		0:04:00	Stop sweep @ 175.0 MHz, PI-QB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		0:04:00	Start sweep @ 175.0 MHz, PI-QB-A, input 3.0 V p-p , (CS02)
05/04/02	CS02		0:05:00	Stop sweep @ 178.0 MHz, PI-QB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		0:05:00	Start sweep @ 178.0 MHz, PI-QB-A, input 3.0 V p-p , (CS02)
05/04/02	CS02		0:36:00	Stop sweep @ 400.0 MHz, PI-QB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		1:27:00	Start @ 400.0 MHz, PR-QB-A, input 3.0 V p-p (Return to Chassis), Current Limit174-176 MHz, (CS02)
05/04/02	CS02		2:11:00	Stop @ 400.0 MHz, PR-QB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/04/02	CS02		2:13:00	Start sweep @ 100.0 MHz, PR-QB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/04/02	CS02		2:24:00	Stop sweep @ 44.0 MHz, PR-QB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		2:26:00	Start sweep @ 100.0 MHz, PR-QB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/04/02	CS02		2:27:00	Stop sweep @ 44.0 MHz, PR-QB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		2:28:00	Start sweep @ 44.0 MHz, PR-QB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/04/02	CS02		2:33:00	Stop sweep @ 42.0 MHz, PR-QB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		2:33:00	Start sweep @ 35.0 MHz, PR-QB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/04/02	CS02		2:36:00	Stop sweep @ 15.0 MHz, PR-QB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		2:36:00	Start sweep @ 15.0 MHz, PR-QB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/04/02	CS02		2:45:00	Stop sweep @ 1.88 MHz, PR-QB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		2:45:00	Start sweep @ 1.88 MHz, PR-QB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/04/02	CS02		2:47:00	Stop sweep @ 515 KHz, PR-QB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		2:51:00	Start sweep @ 35.0 MHz, PR-QB-A, input 1.0 V p-p (Return to Chassis), (CS02)
05/04/02	CS02		2:53:00	Stop sweep @ 42.0 KHz, PR-QB-A, input 1.0 V p-p, (CS02)
05/04/02	CS02		2:54:00	Start sweep @ 35.0 MHz, PR-QB-A, input 1.5 V p-p (Return to Chassis), (CS02)
05/04/02	CS02		2:55:00	Stop sweep @ 42.0 KHz, PR-QB-A, input 1.5 V p-p, (CS02)
05/04/02	CS02		2:56:00	Start sweep @ 35.0 MHz, PR-QB-A, input 2.0 V p-p (Return to Chassis), (CS02)
05/04/02	CS02		2:57:00	Stop sweep @ 42.0 KHz, PR-QB-A, input 2.0 V p-p, (CS02)
05/04/02	CS02		2:58:00	Start sweep @ 35.0 MHz, PR-QB-A, input 2.5 V p-p (Return to Chassis), (CS02)
05/04/02	CS02		2:59:00	Stop sweep @ 42.0 KHz, PR-QB-A, input 2.5 V p-p, (CS02)
05/04/02	CS02		3:00:00	Start sweep @ 35.0 MHz, PR-QB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/04/02	CS02		3:02:00	Stop sweep @ 42.0 KHz, PR-QB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		3:31:00	Start sweep @ 50.0 KHz, PI-NB-A, input 3.0 V p-p , (CS02)
05/04/02	CS02		3:36:00	Stop sweep @ 251.0 KHz, PI-NB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		3:39:00	Start sweep @ 251.0 KHz, PI-NB-A, input 3.0 V p-p , (CS02)
05/04/02	CS02		3:44:00	Stop sweep @ 2.5 KHz, PI-NB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		3:44:00	Start sweep @ 2.5 MHz, PI-NB-A, input 3.0 V p-p , (CS02)
05/04/02	CS02		3:50:00	Stop sweep @ 15.0 KHz, PI-NB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		4:36:00	Start sweep @ 15.0 MHz, PI-NB-A, input 3.0 V p-p , (CS02)
05/04/02	CS02		5:17:00	Stop sweep @ 175.0 KHz, PI-NB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		5:17:00	Start sweep @ 175.0 MHz, PI-NB-A, input 3.0 V p-p , (CS02)
05/04/02	CS02		5:48:00	Stop sweep @ 400.0 KHz, PI-NB-A, input 3.0 V p-p, current limit 206, 237, 292 MHz, (CS02)

Date	Test Type	Time PST	Time GMT	Notes
05/04/02	CS02		6:07:00	Start sweep @ 50.0 KHz, PR-NB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/04/02	CS02		6:10:00	Stop sweep @ 250.0 KHz, PR-NB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		6:15:00	Start sweep @ 250.0 KHz, PR-NB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/04/02	CS02		6:19:00	Stop sweep @ 2.0 MHz, PR-NB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		6:19:00	Start sweep @ 2.0 MHz, PR-NB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/04/02	CS02		6:30:00	Stop sweep @ 30.0 MHz, PR-NB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		6:30:00	Start sweep @ 30.0 MHz, PR-NB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/04/02	CS02		6:41:00	Stop sweep @ 155.0 MHz, PR-NB-A, input 3.0 V p-p, (CS02)
05/04/02	CS02		6:42:00	Start sweep @ 155.0 MHz, PR-NB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/05/02	CS02		7:24:00	Stop sweep @ 400.0 MHz, PR-NB-A, input 3.0 V p-p, (CS02)
05/05/02	CS02		7:44:00	Start sweep @ 50.0 KHz, PI-SB-A, input 3.0 V p-p, (CS02)
05/05/02	CS02		7:49:00	Stop sweep @ 250.0 KHz, PI-SB-A, input 3.0 V p-p, (CS02)
05/05/02	CS02		7:53:00	Start sweep @ 250.0 KHz, PI-SB-A, input 3.0 V p-p, (CS02)
05/05/02	CS02		8:44:00	Stop sweep @ 100.0 MHz, PI-SB-A, input 3.0 V p-p, current limit @52 MHz, (CS02)
05/05/02	CS02		8:46:00	Start sweep @ 100.0 MHz, PI-SB-A, input 3.0 V p-p, (CS02)
05/05/02	CS02		9:31:00	Stop sweep @ 400 MHz, PI-SB-A, input 3.0 V p-p, current limit @ 56, 76, 296-303 MHz, (CS02)
05/05/02	CS02		9:48:00	Start sweep @ 50.0 KHz, PR-SB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/05/02	CS02		9:53:00	Stop sweep @ 250.0 KHz, PR-SB-A, input 3.0 V p-p, current limit @ 75 MHz, (CS02)
05/05/02	CS02		9:56:00	Start sweep @ 250.0 KHz, PR-SB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/05/02	CS02		10:45:00	Stop sweep @ 100.0 MHz, PR-SB-A, input 3.0 V p-p, (CS02)
05/05/02	CS02		10:46:00	Start sweep @ 100.0 MHz, PR-SB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/05/02	CS02		11:30:00	Stop sweep @ 400.0 MHz, PR-SB-A, input 3.0 V p-p, (CS02)
05/05/02	CS02		11:33:00	Start @ 46.0 MHz, PR-SB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/05/02	CS02		11:40:00	Stop @ 46.0 MHz, PR-SB-A, input 3.0 V p-p, 2.5, 2.0, 1.5, 1.0, 0.5, 0.0 V p-p threshold, (CS02)
05/05/02	CS06		13:44:00	Start @ +29.0 V p Spikes , 10micro-Sec., PI-QB-A, (CS06)
05/05/02	CS06		13:50:00	Stop @ +29.0 V p Spikes , 10micro-Sec., PI-QB-A, (CS06)
05/05/02	CS06		14:31:00	Start @ -29.0 V p Spikes , 10micro-Sec., PI-QB-A, (CS06)
05/05/02	CS06		14:37:00	Stop @ -29.0 V p Spikes , 10micro-Sec., PI-QB-A, (CS06)
05/05/02	CS06		14:58:00	Start @ -29.0 V p Spikes , 10micro-Sec., PI-NB-A, Fault, (CS06)
05/05/02	CS06		15:03:00	Stop @ -29.0 V p Spikes , 10micro-Sec., PI-NB-A, Fault, (CS06)
05/05/02	CS06		15:12:00	Start @ -9.0 V p Spikes , 10micro-Sec., PI-NB-A, Fault, (CS06)
05/05/02	CS06		15:15:00	Stop @ -9.0 V p Spikes , 10micro-Sec., PI-NB-A, Fault, (CS06)
05/05/02	CS06		15:25:00	Start @ +29.0 V p Spikes , 10micro-Sec., PI-NB-A, (CS06)
05/05/02	CS06		15:30:00	Stop @ +29.0 V p Spikes , 10micro-Sec., PI-NB-A, (CS06)
05/05/02	CS06		15:41:00	Start @ +29.0 V p Spikes , 10micro-Sec., PI-SB-A, Fault, glitch, (CS06)
05/05/02	CS06		15:48:00	Stop @ +29.0 V p Spikes , 10micro-Sec., PI-SB-A, Fault, glitch, (CS06)
05/05/02	CS06		15:53:00	Start @ +29.0 V p Spikes , 10micro-Sec., PI-SB-A, Repeat, Fault, glitch, (CS06)
05/05/02	CS06		15:53:00	Stop @ +29.0 V p Spikes , 10micro-Sec., PI-SB-A, Repeat, Fault, glitch, (CS06)
05/05/02	CS06		15:55:00	Start @ +9.0 V p Spikes , 10micro-Sec., PI-SB-A,(CS06)
05/05/02	CS06		15:57:00	Stop @ +9.0 V p Spikes , 10micro-Sec., PI-SB-A,(CS06)
05/05/02	CS06		15:57:00	Start @ +15.0 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/05/02	CS06		15:58:00	Stop @ +15.0 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/05/02	CS06		16:13:00	Start @ +20.0 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/05/02	CS06		16:13:00	Stop @ +20.0 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)

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05/05/02	CS06		16:13:00	Start @ -10.0 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/05/02	CS06		16:14:00	Stop @ -10.0 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/05/02	CS06		16:14:00	Start @ -15.0 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/05/02	CS06		16:16:00	Stop @ -15.0 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/05/02	CS06		16:16:00	Start @ -19.2 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/05/02	CS06		16:38:00	Stop @ -19.2 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/05/02	CS06		16:38:00	HIRDLS Instrument power down, (CS06)
05/06/02	CS06	12:00:00	7:00:00	HIRDLS Instrument power Up, (CS06)
05/06/02	RE02		8:19:00	Start RE02, B-side, Antenna Red
05/06/02	RE02		8:21:00	Stop RE02, -Y, B-side, Antenna Red
05/06/02	RE02		8:24:00	Start RE02, -Y, B-side, Antenna Bi Conical, Vert. Plzn.
05/06/02	RE02		8:25:00	Stop RE02, -Y, B-side, Antenna Bi Conical. Vert. Plzn.
05/06/02	RE02		8:27:00	Start RE02,-Y, B-side, Antenna Log Period, Vert. Plzn.
05/06/02	RE02		8:28:00	Stop RE02, -Y, B-side, Antenna Log Period, Vert. Plzn.
05/06/02	RE02		8:29:00	Start RE02, -Y, B-side, Antenna Horn Antenna, Vert. Plzn.
05/06/02	RE02		8:30:00	Stop RE02, -Y, B-side, Antenna Horn Antenna, Vert. Plzn.
05/06/02	RE02		8:45:00	Start RE02, -Y, B-side, Antenna Bi Conical, Horiz. Plzn.
05/06/02	RE02		8:46:00	Stop RE02, -Y, B-side, Antenna Bi Conical. Horiz. Plzn.
05/06/02	RE02		8:48:00	Start RE02, -Y, B-side, Antenna Log Period, Horiz. Plzn.
05/06/02	RE02		8:49:00	Stop RE02, -Y, B-side, Antenna Log Period, Horiz. Plzn.
05/06/02	RE02		8:50:00	Start RE02, -Y, B-side, Antenna Horn Antenna, Horiz. Plzn.
05/06/02	RE02		8:51:00	Stop RE02, -Y, B-side, Antenna Horn Antenna, Horiz. Plzn.
05/06/02	RE02		9:09:00	Start RE02, +Y, A-side, Antenna Red
05/06/02	RE02		9:11:00	Stop RE02, +Y, A-side, Antenna Red
05/06/02	RE02		9:13:00	Start RE02, +Y, A-side, Antenna Bi Conical, Vert. Plzn.
05/06/02	RE02		9:15:00	Stop RE02, +Y, A-side, Antenna Bi Conical. Vert. Plzn.
05/06/02	RE02		9:17:00	Start RE02, +Y, A-side, Antenna Log Period, Vert. Plzn.
05/06/02	RE02		9:18:00	Stop RE02, +Y, A-side, Antenna Log Period, Vert. Plzn.
05/06/02	RE02		9:20:00	Start RE02, +Y, A-side, Antenna Horn Antenna, Vert. Plzn.
05/06/02	RE02		9:21:00	Stop RE02, +Y, A-side, Antenna Horn Antenna, Vert. Plzn.
05/06/02	RE02		9:34:00	Start RE02, +Y, A-side, Antenna Blue Conical, Horiz. Plzn.
05/06/02	RE02		9:34:00	Stop RE02, +Y, A-side, Antenna Blue Conical. Horiz. Plzn.
05/06/02	RE02		9:36:00	Start RE02, +Y, A-side, Antenna Log Period, Horiz. Plzn.
05/06/02	RE02		9:36:00	Stop RE02, +Y, A-side, Antenna Log Period, Horiz. Plzn.
05/06/02	RE02		9:39:00	Start RE02, +Y, A-side, Antenna Horn Antenna, Horiz. Plzn.
05/06/02	RE02		9:40:00	Stop RE02, +Y, A-side, Antenna Horn Antenna, Horiz. Plzn.
05/06/02	RE04		11:39:00	Start RE04, -Y, B-side, Loop Antenna, Parallel Plzn.
05/06/02	RE04		11:40:00	Stop RE04, -Y, B-side, Loop Antenna, Parallel Plzn.
05/06/02	RE04		12:01:00	Start RE04, -Y, B-side, Loop Antenna, Perpendicular Plzn.
05/06/02	RE04		12:03:00	Stop RE04, -Y, B-side, Loop Antenna, Perpendicular Plzn.
05/06/02	RE04		12:11:00	Start RE04, -Y, B-side, Loop Antenna, Horiz. Plzn.
05/06/02	RE04		12:13:00	Stop RE04, -Y, B-side, Loop Antenna, Horiz. Plzn.
05/06/02	RE04		12:21:00	Start RE04, +Y, A-side, Loop Antenna, Parallel Plzn.
05/06/02	RE04		12:23:00	Stop RE04, +Y, A-side, Loop Antenna, Parallel Plzn.

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05/06/02	RE04		12:30:00	Start RE04, +Y, A-side, Loop Antenna, Perpendicular Plzn.
05/06/02	RE04		12:32:00	Stop RE04, +Y, A-side, Loop Antenna, Perpendicular Plzn.
05/06/02	RE04		12:38:00	Start RE04, +Y, A-side, Loop Antenna, Horiz. Plzn.
05/06/02	RE04		12:40:00	Stop RE04, +Y, A-side, Loop Antenna, Horiz. Plzn.
05/06/02	RE04		17:04:00	Start RE04, 300 Hz to 50.0 KHz, -Y, B-side, Loop Antenna, Perpendicular Plzn.
05/06/02	RE04		17:05:00	Stop RE04, 300 Hz to 50.0 KHz, -Y, B-side, Loop Antenna, Perpendicular Plzn.
05/06/02	RE04		17:22:00	Start RE04, 300 Hz to 50.0 KHz, +Y, A-side, Loop Antenna, Parallel Plzn.
05/06/02	RE04		17:23:00	Stop RE04, 300 Hz to 50.0 KHz, +Y, A-side, Loop Antenna, Parallel Plzn.
05/06/02	RE04		17:32:00	Start RE04, 300 Hz to 50.0 KHz, +Y, A-side, Loop Antenna, Perpendicular Plzn.
05/06/02	RE04		17:33:00	Stop RE04, 300 Hz to 50.0 KHz, +Y, A-side, Loop Antenna, Perpendicular Plzn.
05/06/02	RE04		18:00:00	Start RE04, 20 Hz to 300 Hz, +Y, A-side, Loop Antenna, Parallel Plzn.
05/06/02	RE04		18:00:00	Stop RE04, 20 Hz to 300 Hz, +Y, A-side, Loop Antenna, Parallel Plzn.
05/06/02	RE04		18:04:00	Start RE04, 20 Hz to 300 Hz, +Y, A-side, Loop Antenna, Perpendicular Plzn.
05/06/02	RE04		18:04:00	Stop RE04, 20 Hz to 300 Hz, +Y, A-side, Loop Antenna, Perpendicular Plzn.
05/06/02	RE04		18:10:00	Start RE04, 20 Hz to 300 Hz, -Y, B-side, Loop Antenna, Parallel Plzn.
05/06/02	RE04		18:10:00	Stop RE04, 20 Hz to 300 Hz, -Y, B-side, Loop Antenna, Parallel Plzn.
05/06/02	RE04		18:16:00	Start RE04, 20 Hz to 300 Hz, -Y, B-side, Loop Antenna, Perpendicular Plzn.
05/06/02	RE04		18:17:00	Stop RE04, 20 Hz to 300 Hz, -Y, B-side, Loop Antenna, Perpendicular Plzn.
05/06/02	RE02		18:42:00	Start @ 2.0 to 2.4 GHz, RE02, -Y, B-side, Horn Antenna, Horiz. Plzn.
05/06/02	RE02		18:45:00	Stop @ 2.0 to 2.4.GHz, RE02, -Y, B-side, Horn Antenna, Horiz. Plzn.
05/06/02	RE02		18:53:00	Start @ 2.0 to 2.4 GHz, RE02, -Y, B-side, Horn Antenna, Vert. Plzn.
05/06/02	RE02		18:56:00	Stop @ 2.0 to 2.4.GHz, RE02, -Y, B-side, Horn Antenna, Vert. Plzn.
05/06/02	RE02		19:09:00	Start @ 2.0 to 2.4 GHz, RE02, +Y, A-side, Horn Antenna, Vert. Plzn.
05/06/02	RE02		19:11:00	Stop @ 2.0 to 2.4.GHz, RE02, +Y, A-side, Horn Antenna, Vert. Plzn.
05/06/02	RE02		19:15:00	Start @ 2.0 to 2.4 GHz, RE02, +Y, A-side, Horn Antenna, Horiz. Plzn.
05/06/02	RE02		19:18:00	Stop @ 2.0 to 2.4.GHz, RE02, +Y, A-side, Horn Antenna, Horiz. Plzn.
05/06/02	DCMT		2:06:00	Start DC Magnetic Test, 20 Amp, + field, Location X1
05/06/02	DCMT		2:11:00	Stop DC Magnetic Test, 20 Amp, + field, Location X1
05/06/02	DCMT		2:43:00	Start DC Magnetic Test, 20 Amp, + field, Location X2
05/06/02	DCMT		2:48:00	Stop DC Magnetic Test, 20 Amp, + field, Location X2
05/06/02	DCMT		3:06:00	Start DC Magnetic Test, 20 Amp, + field, Location X3
05/06/02	DCMT		3:07:00	Stop DC Magnetic Test, 20 Amp, + field, Location X3
05/06/02	DCMT		3:15:00	Start DC Magnetic Test, 20 Amp, - field, Location X3
05/06/02	DCMT		3:16:00	Stop DC Magnetic Test, 20 Amp, - field, Location X3
05/06/02	DCMT		3:20:00	Start DC Magnetic Test, 20 Amp, - field, Location X2
05/06/02	DCMT		3:21:00	Stop DC Magnetic Test, 20 Amp, - field, Location X2
05/06/02	DCMT		3:23:00	Start DC Magnetic Test, 20 Amp, - field, Location X1
05/06/02	DCMT		3:24:00	Stop DC Magnetic Test, 20 Amp, - field, Location X1
05/06/02	DCMT		4:15:00	Start DC Magnetic Test, 20 Amp, + field, Location Y1
05/06/02	DCMT		4:17:00	Stop DC Magnetic Test, 20 Amp, + field, Location Y1
05/06/02	DCMT		4:22:00	Start DC Magnetic Test, 20 Amp, + field, Location Y2
05/06/02	DCMT		4:23:00	Stop DC Magnetic Test, 20 Amp, + field, Location Y2
05/06/02	DCMT		4:29:00	Start DC Magnetic Test, 20 Amp, + field, Location Y3
05/06/02	DCMT		4:30:00	Stop DC Magnetic Test, 20 Amp, + field, Location Y3

Date	Test Type	Time PST	Time GMT	Notes
05/06/02	DCMT		4:35:00	Start DC Magnetic Test, 20 Amp, - field, Location Y3
05/06/02	DCMT		4:36:00	Stop DC Magnetic Test, 20 Amp, - field, Location Y3
05/06/02	DCMT		4:38:00	Start DC Magnetic Test, 20 Amp, - field, Location Y2
05/06/02	DCMT		4:39:00	Stop DC Magnetic Test, 20 Amp, - field, Location Y2
05/06/02	DCMT		4:40:00	Start DC Magnetic Test, 20 Amp, - field, Location Y1
05/06/02	DCMT		4:41:00	Stop DC Magnetic Test, 20 Amp, - field, Location Y1
05/06/02	DCMT		6:58:00	Start DC Magnetic Test, 20 Amp, + field, Location Z1
05/07/02	DCMT		7:00:00	Stop DC Magnetic Test, 20 Amp, + field, Location Z1
05/07/02	DCMT		7:04:00	Start DC Magnetic Test, 20 Amp, + field, Location Z2
05/07/02	DCMT		7:05:00	Stop DC Magnetic Test, 20 Amp, + field, Location Z2
05/07/02	DCMT		7:09:00	Start DC Magnetic Test, 20 Amp, + field, Location Z3
05/07/02	DCMT		7:10:00	Stop DC Magnetic Test, 20 Amp, + field, Location Z3
05/07/02	DCMT		7:14:00	Start DC Magnetic Test, 20 Amp, - field, Location Z3
05/07/02	DCMT		7:16:00	Stop DC Magnetic Test, 20 Amp, - field, Location Z3
05/07/02	DCMT		7:32:00	Start DC Magnetic Test, 20 Amp, - field, Location Z2
05/07/02	DCMT		7:37:00	Stop DC Magnetic Test, 20 Amp, - field, Location Z2
05/07/02	DCMT		7:44:00	Start DC Magnetic Test, 20 Amp, - field, Location Z1
05/07/02	DCMT		7:45:00	Stop DC Magnetic Test, 20 Amp, - field, Location Z1
05/07/02	DCMT		7:36:00	Start DC Magnetic Test, 5.0 Amp, - field, Location Z3
05/07/02	DCMT		7:37:02	Stop DC Magnetic Test, 5.0 Amp, - field, Location Z3
05/07/02	DCMT		7:37:02	Start DC Magnetic Test, 10 Amp, - field, Location Z3
05/07/02	DCMT		7:37:30	Stop DC Magnetic Test, 10 Amp, - field, Location Z3
05/07/02	DCMT		7:37:30	Start DC Magnetic Test, 15 Amp, - field, Location Z3
05/07/02	DCMT		7:37:56	Stop DC Magnetic Test, 15 Amp, - field, Location Z3
05/07/02	DCMT		7:37:56	Start DC Magnetic Test, 20 Amp, - field, Location Z3
05/07/02	DCMT		7:38:20	Stop DC Magnetic Test, 20 Amp, - field, Location Z3
05/07/02	DCMT		7:38:20	Start DC Magnetic Test, 15 Amp, - field, Location Z3
05/07/02	DCMT		7:38:45	Stop DC Magnetic Test, 15 Amp, - field, Location Z3
05/07/02	DCMT		7:38:45	Start DC Magnetic Test, 10 Amp, - field, Location Z3
05/07/02	DCMT		7:39:10	Stop DC Magnetic Test, 10 Amp, - field, Location Z3
05/07/02	DCMT		7:39:10	Start DC Magnetic Test, 5.0 Amp, - field, Location Z3
05/07/02	DCMT		7:39:22	Stop DC Magnetic Test, 5.0 Amp, - field, Location Z3
05/07/02	DCMT		7:39:22	Start DC Magnetic Test, 0.0 Amp, - field, Location Z3
05/07/02	DCMT		7:39:22	Stop DC Magnetic Test, 0.0 Amp, - field, Location Z3
05/07/02	DCMT		7:53:00	Start DC Magnetic Test, 20 Amp, + field, Location Z2
05/07/02	DCMT		7:54:10	Stop DC Magnetic Test, 20 Amp, + field, Location Z2
05/07/02	DCMT		7:54:10	Start DC Magnetic Test, 15 Amp, + field, Location Z2
05/07/02	DCMT		7:54:40	Stop DC Magnetic Test, 15 Amp, + field, Location Z2
05/07/02	DCMT		7:54:40	Start DC Magnetic Test, 10 Amp, + field, Location Z2
05/07/02	DCMT		7:55:00	Stop DC Magnetic Test, 10 Amp, + field, Location Z2
05/07/02	DCMT		7:55:00	Start DC Magnetic Test, 5.0 Amp, + field, Location Z2
05/07/02	DCMT		7:55:20	Stop DC Magnetic Test, 5.0 Amp, + field, Location Z2
05/07/02	DCMT		7:55:20	Start DC Magnetic Test, 0.0 Amp, + field, Location Z2
05/07/02	DCMT		7:55:45	Stop DC Magnetic Test, 0.0 Amp, + field, Location Z2

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05/07/02	DCMT		7:55:45	Start DC Magnetic Test, 5.0 Amp, + field, Location Z2
05/07/02	DCMT		7:56:10	Stop DC Magnetic Test, 5.0 Amp, + field, Location Z2
05/07/02	DCMT		7:56:10	Start DC Magnetic Test, 10 Amp, + field, Location Z2
05/07/02	DCMT		7:56:35	Stop DC Magnetic Test, 10 Amp, + field, Location Z2
05/07/02	DCMT		7:57:00	Start DC Magnetic Test, 20 Amp, + field, Location Z2
05/07/02	DCMT		7:57:20	Stop DC Magnetic Test, 20 Amp, + field, Location Z2
05/07/02	DCMT		8:11:44	Start DC Magnetic Test, 1.0 Amp, + field, Location Z2
05/07/02	DCMT		8:12:01	Stop DC Magnetic Test, 1.0 Amp, + field, Location Z2
05/07/02	DCMT		8:12:01	Start DC Magnetic Test, 2.0 Amp, + field, Location Z2
05/07/02	DCMT		8:12:55	Stop DC Magnetic Test, 2.0 Amp, + field, Location Z2
05/07/02	DCMT		8:12:55	Start DC Magnetic Test, 1.5 Amp, + field, Location Z2
05/07/02	DCMT		8:13:33	Stop DC Magnetic Test, 1.5 Amp, + field, Location Z2
05/07/02	DCMT		8:13:33	Start DC Magnetic Test, 1.25 Amp, + field, Location Z2
05/07/02	DCMT		8:14:20	Stop DC Magnetic Test, 1.25 Amp, + field, Location Z2
05/07/02	DCMT		8:14:20	Start DC Magnetic Test, 1.75 Amp, + field, Location Z2
05/07/02	DCMT		8:14:45	Stop DC Magnetic Test, 1.75 Amp, + field, Location Z2, Threshole @ 1.75 Amp.
05/07/02	DCMT		8:14:45	Start DC Magnetic Test, 0.0 Amp, + field, Location Z2
05/07/02	DCMT		8:15:30	Stop DC Magnetic Test, 0.0 Amp, + field, Location Z2
05/07/02	DMT		8:30:00	Start Dipole Moment Test
05/07/02	DMT		9:30:00	End Dipole Moment Test
05/07/02	CE01		15:31:00	Ambient Test, CE01, PI-QB-A, UUT Off, Vacuum Pump On,
05/07/02	CE01		15:41:00	Ambient Test, CE01, PI-QB-A, UUT Off, Vacuum Pump Off,
05/07/02	CE03		15:15:00	Ambient Test, CE03, PI-QB-A, UUT Off, Vacuum Pump On
05/07/02	CE03		15:59:00	Ambient Test, CE03, PI-QB-A, UUT Off, Vacuum Pump Off,
05/07/02	CE01		16:05:00	Ambient Test, CE01, PI-QB-A, UUT Off, Vacuum Pump Off,
05/07/02	CE01		16:13:00	Ambient Test, CE01, PI-QB-A, UUT Off, Vacuum Pump Off,
05/07/02	CE03		9:25:00	Ambient Test, CE03, PI-QB-A, UUT Off, Vacuum Pump Off,
05/07/02	CE03		9:34:00	Ambient Test, CE03, PI-QB-A, UUT Off, Vacuum Pump Off,
05/07/02	DMT		10:00:00	End Dipole Moment Test, UUT Off, Vacuum pump Off
05/07/02	END		13:25:00	END of testing, UUT removed from Room

HIRDLS

HIGH RESOLUTION DYNAMICS LIMB SOUNDER

Originator: Don Wilson Date: 18-July-2002

Subject / Title: **EMI/EMC Test Time Line, HIRDLS Instrument**

Contents / Description / Summary:
This time line outlines the tests events and time they took place during EMI/EMC testing of the HIRDLS Instrument.

Keywords: HIRDLS Instrument, EMI/EMC Test, Time Line

Purpose: To connect log book events during EMI/EMC Testing to GMT time for data correlation.

Reference:

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
04/28/02	118	CE01	ETOL	6:22:29	13:22:29	Stop (end) PI-SR-A, (CE01)
04/28/02	118	CE01	ETOL	6:22:29	13:22:29	Start PR-SR-A, (CE01)
04/28/02	118	CE01	ETOL	6:29:08	13:29:08	Stop (end) PR-SR-A, (CE01)
04/28/02	118	CE01	ETOL	6:29:08	13:29:08	Start PI-SB-B, Note power is A-Side Bus, (CE01)
04/28/02	118	CE01	ETOL	6:38:04	13:38:04	Stop (end) PI-SB-B, Note power is A-Side Bus, (CE01)
04/28/02	118	CE01	ETOL	6:38:04	13:38:04	Start PR-SB-B, Note power is A-Side Bus, (CE01)
04/28/02	118	CE01	ETOL	6:44:41	13:44:41	Stop (end) PR-SB-B, Note power is A-Side Bus, (CE01)
04/28/02	118	CE01	ETOL	6:44:41	13:44:41	Start PI-NB-A, (CE01)
04/28/02	118	CE01	ETOL	6:54:57	13:54:57	Stop (end) PI-NB-A, (CE01)
04/28/02	118	CE01	ETOL	6:54:57	13:54:57	Start PR-NB-A, (CE01)
04/28/02	118	CE01	ETOL	7:35:00	14:35:00	Stop (end) PR-NB-A, (CE01)
04/28/02	118	CE01	ETOL	7:35:00	14:35:00	Power Down for Ambient on Noisy Bus A, (CE01)
04/28/02	118	CE01	ETOL	7:59:00	14:59:00	UUT power down, ambient on noisy bus
04/28/02	118	CE01	ETOL	8:10:00	15:10:00	Ambient on Noisy Bus A PI-NB-A, (CE01)
04/28/02	118	CE01	ETOL	8:21:00	15:21:00	Ambient on Noisy Bus A PR-NB-A, (CE01)
04/28/02	118	CE01	ETOL	14:30:00	21:30:00	Re-dress braided shield around breakout cables due to possible shorting hazard., (CE01)
04/28/02	118	CE01	ETOL	15:35:00	22:35:00	Current Clamp on PI-NB-B (CE01), Power-up, Pi to PR-QB-A monitor for ripple noise., (CE01)
04/28/02	119	CE01	HIOL		1:45:00	2002/119-01:45 (1845 PDT) Facility A/C rep called to verify that A/C is on (light is off) & that it is set to 68 F
04/28/02	119	CE01	HIOL		2:10:00	2002/119-02:10 Started CE01 NBB
04/28/02	119	CE01	ETOL	19:20:00	2:20:00	PI-NB-B (CE01) Fail, (CE01)
04/28/02	119	CE01	ETOL	19:40:00	2:40:00	PR-NB-B (CE01) Fail, (CE01)
04/28/02	119	CE01	HIOL		2:45:00	2002/119-02:45 (1745 PDT) Facility A/C rep arrived
04/28/02	119	CE01	HIOL		2:45:00	2002/119-02:45 failed CE01 NBB; will finish QBB prior to power down
04/28/02	119	CE01	HIOL		2:45:00	2002/119-02:15 exceeded ccu_box_tmp; max should be 37; currently (119-03:15) 38.644962 C M. Spier notified
04/28/02	119	CE01	ETOL	19:53:00	2:53:00	PR-QB-B (CE01) Fail Gyro's OFF, (CE01)
04/28/02	119	CE01	ETOL	20:08:00	3:08:00	PI-QB-B (CE01) Fail Gyro's is powering Up, (CE01)
04/28/02	119	CE01	HIOL		3:33:00	2002/119-03:33 start hir_gss_mtron
04/28/02	119	CE01	ETOL	20:43:00	3:43:00	PI-QB-B (CE01) Gyro On completed Fail, (CE01)
04/28/02	119	CE01	ETOL	20:52:00	3:52:00	PI-QB-B)CE01) Fail Powering OFF, (CE01)
04/28/02	119	CE01	ETOL	22:01:00	4:01:00	PI-NB-B (CE01) Ambient 0V - Pass, (CE01)
04/28/02	119	CE01	HIOL		4:02:00	2002/119-04:26 Ran hir_css_warmup, waiting for cryo-tip temp to get to 100K
04/28/02	119	CE01	HIOL		4:06:00	2002/119-04:06 Failed on QBB
04/28/02	119	CE01	HIOL		4:08:00	2002/119-0408 Start power down on side B.
04/28/02	119	CE01	ETOL	22:08:00	4:08:00	PR-NB-B (CE01) Ambient 0V - Pass, (CE01)
04/28/02	119	CE01	ETOL	22:15:00	4:15:00	PI-QB-B (CE01) Ambient 0V - Pass, (CE01)
04/28/02	119	CE01	ETOL	22:21:00	4:21:00	PR-QB-B (CE01) Ambient 0V - Pass, (CE01)
04/28/02	119	CE01	HIOL		4:27:00	2002/119-04:27 Decided to continue with power down with cryo-tip temp at about 81 K.
04/28/02	119	CE01	HIOL		4:27:00	2002/119-04:27 Instrument powered down on side B.
04/28/02	119	CE01	ETOL	22:30:00	4:30:00	PI-QB-B (CE01) Ambient 30V - Pass, (CE01)
04/28/02	119	CE01	ETOL	22:37:00	4:37:00	PR-NB-B (CE01) Ambient 30V - Pass, (CE01)
04/28/02	119	CE01	HIOL		5:29:00	2002/119-05:29 Running CE01 ambient with HP power supplies on but set to local so no current sent to instrument.
04/28/02	119	CE01	HIOL		5:29:00	SB = 29.000v, QB = 29.000v and NB = 28.999v.
04/28/02	119	CE01	HIOL		5:46:00	2002/119-05:46 Windows system on fraser locked up due to Netscape being started, couldn't kill it.
04/28/02	119	CE01	HIOL		5:46:00	Netscape processed was stopped by remote login.

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
04/28/02	119	CE01	HIOL		5:52:00	2002/119-05:52 Start power up on side A.
04/28/02	119	CE01	HIOL		5:56:40	2002/119-05:56:40 Telemetry FAILED: PWR_Q_CURRENT > 0.5, < 1.2 actual 9.91565e-05
04/28/02	119	CE01	HIOL		6:00:00	After about 5 minutes current came up, SUROM started, SUROM telemetry started, then stopped (J. Serafin).
04/28/02	119	CE01	HIOL		6:26:20	2002/119-06:26:20 Telemetry FAILED: HIR_TSB_STATE = 4 actual 6
04/28/02	119	CE01	HIOL		6:26:20	Ask-Question> Continue after FAILURE (y or n)?
04/28/02	119	CE01	HIOL		6:26:20	Received error before, continuing with proc.
04/28/02	119	CE01	HIOL		6:28:32	2002/119-06:28:32 Telemetry FAILED: HIR_TSB_EEPROM_ON = 1 actual 0
04/28/02	119	CE01	HIOL		6:28:32	Ask-Question> Continue after FAILURE (y or n)? Continuing.
04/28/02	119	CE01	HIOL		6:45:30	2002/119-06:45:30 Command FAILED: @HIR_PSS_SWITCH 22, 1:
04/28/02	119	CE01	HIOL		6:45:30	No HIR_SCCMDS_RCVCT increment (47)
04/28/02	119	CE01	HIOL		6:45:30	Ask-Question> Continue after FAILURE (y or n)?
04/28/02	119	CE01	HIOL		6:46:00	2002/119-06:46 IPU reset. Ron B notices on DASH 8 recording that current is very noisey around the time when we
04/28/02	119	CE01	HIOL		6:46:00	had trouble powering on QBA. It appears it may be an intermittent line on the cable or test setup.
04/28/02	119	CE01	HIOL		6:46:00	DR AD6426 opened.
04/28/02	119	CE01	HIOL		6:46:00	Telecon with Ray von Savoye, directed to power off IEGSE by flipping off Noisy, Quiet, and Survival switches on the
04/28/02	119	CE01	HIOL		6:46:00	front of the SPC. Visually inspected capacitor connections at instrument I/F panel.
04/28/02	119	CE01	HIOL		6:46:00	Spoke to Althea and Ray per telecon and discussed observations of setup. Supply side of QBA was connected to a GSE
04/28/02	119	CE01	HIOL		6:46:00	shunt capacitor. The lug on the capacitor appeard to be loose compared to other capacitors. We were given
04/28/02	119	CE01	HIOL		6:46:00	direction to investigate capacitor connection further.
04/28/02	119	CE01	HIOL		6:46:00	It was also found during investigation that the IEGSE and instrument were not grounded to the same point. This
04/28/02	119	CE01	HIOL		6:46:00	means the instrument and IEGSE could be at different potentials. Mike Bishop was given permission to fix ground
04/28/02	119	CE01	HIOL		6:46:00	connection.
04/28/02	119	CE01	HIOL		6:46:00	Upon further investigation, we discovered the lug on the capacitor was broken. The EMI team swapped out the
04/28/02	119	CE01	HIOL		6:46:00	capacitor with a spare. This was not an IPU reset but a broken connection in the setup. After inspection of setup
04/28/02	119	CE01	HIOL		6:46:00	by QA, we were given permission to power on.
04/28/02	119	CE01	HIOL		6:46:00	Starting new power on A side from OO-LOC-1023 binder.
04/29/02	119	CE01	ETOL	1:30:00	8:30:00	PR-QB-A capacitor has loose/broken banana jack on terminal, (CE01)
04/29/02	119	CE01	ETOL	2:00:00	9:00:00	Program added a direct ground strap from IEGSE to Instrument ground U7, (CE01)
04/29/02	119	CE01	ETOL	2:30:00	9:30:00	Installed Breakouts for PI-NB-A & PR-NB-A, (CE01)
04/28/02	119	CE01	HIOL		9:43:28	2002/119-09:43:28 Telemetry FAILED: PWR_N_CURRENT < 0.1 actual 0.516585
04/28/02	119	CE01	HIOL		9:43:28	Ask-Question> Continue after FAILURE (y or n)?
04/28/02	119	CE01	HIOL		9:43:28	Continued after speaking to Ray. Since our last power down wasn't a clean power off, a relay is probably latched
04/28/02	119	CE01	HIOL		9:43:28	on and therefore we're drawing 0.5 amps.
04/28/02	119	CE01	HIOL		9:59:35	2002/119-09:59:35 Telemetry FAILED: HIR_TSU_LIOTRES = 0x0 actual X#8
04/28/02	119	CE01	HIOL		9:59:35	Ask-Question> Continue after FAILURE (y or n)?
04/29/02	119	CE01	ETOL	3:00:00	10:00:00	Power sequence for HIRDLS Will start set-up for (CE01)
04/28/02	119	CE01	HIOL		10:09:06	Continued after talking to Ron B.
04/28/02	119	CE01	HIOL		10:09:06	2002/119-10:09:06 Telemetry FAILED: HIR_TSB_STATE = 4 actual 6
04/28/02	119	CE01	HIOL		10:09:06	Ask-Question> Continue after FAILURE (y or n)?
04/28/02	119	CE01	HIOL		10:09:06	Continued. Seen this error before as noted earlier in log.
04/28/02	119	CE01	HIOL		10:09:49	2002/119-10:09:49 Telemetry FAILED: HIR_TSB_EEPROM_ON = 1 actual 0
04/28/02	119	CE01	HIOL		10:09:49	Ask-Question> Continue after FAILURE (y or n)?
04/28/02	119	CE01	HIOL		10:09:49	Continued. Seen this error before as noted earlier in log.
04/28/02	119	CE01	HIOL		11:43:43	2002/119-11:43:43 CCU box temp is 35.127 deg C
04/28/02	119	CE01	HIOL		11:52:20	2002/119-11:52:20 CCU box temp is now 35.616 deg C

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
04/28/02	119	CE01	HIOL		11:57:05	2002/119-11:57:50 CCU box temp is now 34.97 deg C
04/28/02	119	CE01	HIOL		11:57:05	Fan was reposition to pull air away from CCU. Changed its position to be more inline with CCU
04/28/02	119	CE01	HIOL		13:01:00	2002/119-13:01 Fan isn't helping much. CCU is at 37.4 C.
04/29/02	119	CE01	ETOL	6:14:00	13:14:00	PR-QB-A (CE01) Fail, (CE01)
04/28/02	119	CE01	HIOL		13:17:18	2002/119-13:17:18 Started gss motors.
04/28/02	119	CE01	HIOL		13:22:46	2002/119-13:22:46 Telemetry FAILED: HIR_GYS3_PWR_MODE = 0 actual 1
04/28/02	119	CE01	HIOL		13:22:46	Ask-Question> Continue after FAILURE (y or n)?
04/28/02	119	CE01	HIOL		13:22:46	Continued. Seen this error before in previous testing at B/202.
04/29/02	119	CE01	ETOL	7:04:00	14:04:00	PI-QB-A (CE01) Fail, (CE01)
04/29/02	119	CE01	ETOL	7:13:00	14:13:00	PI-NB-A (CE01) Fail, (CE01)
04/29/02	119	CE01	ETOL	7:25:00	14:25:00	PR-NB-A (CE01) Fail, (CE01)
04/29/02	119	CE03	ETOL	7:45:00	14:45:00	Set-Up for CE03
04/29/02	119	CE03	ETOL	8:06:00	15:06:00	PI-NB-A (CE03) Fail
04/29/02	119	CE03	ETOL	8:13:00	15:13:00	PR-NB-A (CE03) Fail
04/29/02	119	CE03	ETOL	8:19:00	15:19:00	Retest PR-NB-A (CE03) Fail
04/28/02	119	CE03	HIOL		15:25:00	2002/119-15:25 (29 April 2002 0825 PDT)
04/28/02	119	CE03	HIOL		15:25:00	M. Barker, L. Lanham, F. Zele, C. Wilda
04/29/02	119	CE03	ETOL	9:26:00	16:26:00	PI-QB-A (CE03) Fail
04/29/02	119	CE03	ETOL	9:34:00	16:34:00	PR-QB-A (CE03) Fail
04/28/02	119	CE03	HIOL		17:15:00	2002/119-17:15 Still performing CE03 A side ccu_box_temp 39.1 C; coming down because room chillers on full
04/29/02	119	CE03	ETOL	10:20:00	17:20:00	Installed pre-amplifier for CE03 from 20 KHz to 50 MHz
04/29/02	119	CE03	ETOL	10:24:00	17:24:00	PI-QB-A for CE03, with pre-amp
04/29/02	119	CE03	ETOL	10:38:00	17:38:00	PR-QB-A for CE03, with pre-amp
04/28/02	119	CE03	HIOL		17:57:00	2002/119-17:57 Starting B side power down
04/28/02	119	CE03	HIOL		18:45:00	2002/119-18:45 Powered down side A, but need IPU on to monitor temperature of cold tip, so
04/28/02	119	CE03	HIOL		18:45:00	powered up QBB & manually booted IPU; then R. von Savoye informed us that we do not need to
04/28/02	119	CE03	HIOL		18:45:00	monitor cryotip temp after all, so powered down QBB
04/29/02	119	CE03	ETOL	12:00:00	19:00:00	Power Down Instrument
04/29/02	119	CE03	ETOL	12:08:00	19:08:00	PI-QB-A for CE03, Ambient, with pre-amp
04/29/02	119	CE03	ETOL	12:44:00	19:44:00	PI-QB-A for CE03, Ambient, with pre-amp Fail
04/29/02	119	CE03	ETOL	12:46:00	19:46:00	PR-QB-A for CE03, Ambient, with pre-amp Fail
04/29/02	119	CE03	ETOL	12:52:00	19:52:00	PI-NB-A for CE03, Ambient, with pre-amp Fail
04/29/02	119	CE03	ETOL	12:57:00	19:57:00	PR-NB-A for CE03, Ambient, with pre-amp Fail
04/29/02	119	CE03	ETOL	13:12:00	20:12:00	PI-NB-A for CE03, Ambient, with pre-amp Fail
04/29/02	119	CE03	ETOL	13:20:00	20:20:00	PR-NB-A for CE03, Ambient, with pre-amp PASS
04/29/02	119	CE03	ETOL	13:32:00	20:32:00	PI-QB-A for CE03, Ambient, with pre-amp PASS
04/29/02	119	CE03	ETOL	13:35:00	20:35:00	PR-QB-A for CE03, Ambient, with pre-amp PASS
04/29/02	119	CE03	ETOL	13:45:00	20:45:00	set-Up for Bus B, CE03
04/29/02	120	CE03	HIOL		0:53:00	2002/120-00:53 Cryotip temp is now 79.2. CCU_BOX_TMP is 33.7 C, Set CSS to 80% stroke
04/29/02	120	CE03	HIOL		0:53:00	hir_css_therm Time created : Tue 30 Apr 2002 00:53:16 GMT (2002/120 00:53:16)
04/29/02	120	CE03	HIOL		1:52:00	2002/120-01:52 GSS Temp inhibits are all 0. Cintinuing on with GSS motors on script.
04/29/02	120	CE03	HIOL		1:52:00	hir_gss_mtron Time created : Tue 30 Apr 2002 01:53:59 GMT (2002/120 01:53:59)
04/29/02	120	CE03	HIOL		1:59:09	2002/120-01:59:09 Telemetry FAILED: HIR_GYS3_PWR_MODE = 0 actual 1
04/29/02	120	CE03	HIOL		1:59:09	Gyr3 remained in high power mode for longer than one minute causing a telemetry check failure
04/29/02	120	CE03	HIOL		1:59:09	. Noted in log file and continued on

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
04/29/02	120	CE03	HIOL		1:59:09	Going into mission mode...
04/29/02	120	CE03	HIOL		2:31:18	hir_tlm_tmplog Time created : Tue 30 Apr 2002 02:31:18 GMT (2002/120 02:31:18)
04/29/02	120	CE03	HIOL		2:31:27	hir_sai_glbscn Time created : Tue 30 Apr 2002 02:31:27 GMT (2002/120 02:31:27)
04/29/02	120	CE03	HIOL		2:31:27	In mission mode. Waiting for emission test to complete.
04/29/02	120	CE03	HIOL		2:31:27	Completed testing of B side. Powering down and then bringing up on A side to get a survival
04/29/02	120	CE03	HIOL		2:31:27	bus measurement that was missed on A side testing.
04/29/02	120	CE03	ETOL	19:43:00	2:43:00	PI-NB-B for CE03, Ambient, Fail
04/29/02	120	CE03	ETOL	20:11:00	3:11:00	PR-NB-B for CE03, Ambient, Fail
04/29/02	120	CE03	ETOL	20:36:00	3:36:00	PI-NB-B for CE03, Ver. 5, Fail (Ver. 5 diff. BW & remove pre-amp)
04/29/02	120	CE03	ETOL	20:43:00	3:43:00	PR-NB-B for CE03, Ver. 5, Fail (Ver. 5 diff. BW & remove pre-amp)
04/29/02	120	CE03	ETOL	20:52:00	3:52:00	PI-NB-B for CE03, Ver. 5, Fail (Ver. 5 diff. BW & remove pre-amp)
04/29/02	120	CE03	ETOL	20:58:00	3:58:00	PR-NB-B for CE03, Ver. 5, Fail (Ver. 5 diff. BW & remove pre-amp)
04/29/02	120	CE03	HIOL		4:11:41	hir_sai_scnstp.log:Time created : Tue 30 Apr 2002 04:11:41 GMT (2002/120 04:11:41)
04/29/02	120	CE03	HIOL		4:14:09	hir_tlm_scidft.log:Time created : Tue 30 Apr 2002 04:14:09 GMT (2002/120 04:14:09)
04/29/02	120	CE03	HIOL		4:14:09	Since both Survival heaters sides are running, we can get the test data for Survival side A.
04/29/02	120	CE03	HIOL		4:14:09	putting the instrument back into mission mode.
04/29/02	120	CE03	ETOL	21:40:00	4:40:00	PI-SB-B for CE03, Ver. 5, Fail (Ver. 5 diff. BW & remove pre-amp)
04/30/02	120	RS03	HIOL		5:30:21	Peter completed CE03 Power down Time : Tue 30 Apr 2002 05:30:21 GMT
04/29/02	120	CE03	ETOL	22:31:00	5:31:00	PI-SB-B for CE03, Ver. 5, PASS (Ver. 5 diff. BW & remove pre-amp)
04/29/02	120	CE03	ETOL	22:37:00	5:37:00	PR-SB-B for CE03, Ver. 5, PASS (Ver. 5 diff. BW & remove pre-amp)
04/29/02	120	CE03	ETOL	22:42:31	5:42:00	PR-SB-B for CE03, Ver. 5, Fail (Ver. 5 diff. BW & remove pre-amp)
04/29/02	120	CE03	ETOL	22:43:00	5:43:00	PR-NB-B for CE03, Ver. 5, Ambient, Fail (Ver. 5 diff. BW & remove pre-amp) doors open
04/29/02	120	CE03	ETOL	22:50:00	5:50:00	PR-NB-B for CE03, Ver. 5, Ambient, Fail (Ver. 5 diff. BW & remove pre-amp) doors close
04/29/02	120	CE03	ETOL	23:07:00	6:07:00	PI-NB-B for CE03, Ver. 5, Ambient, Fail (Ver. 5 diff. BW & remove pre-amp) doors close
04/29/02	120	CE03	ETOL	23:16:00	6:16:00	PR-QB-B for CE03, Ver. 5, Ambient, PASS (Ver. 5 diff. BW & remove pre-amp) doors close
04/29/02	120	CE03	ETOL	23:23:00	6:23:00	PI-QB-B for CE03, Ver. 5, Ambient, PASS (Ver. 5 diff. BW & remove pre-amp) doors close
04/29/02	120	CE03	ETOL	23:29:00	6:29:00	PR-SB-B for CE03, Ver. 5, Ambient, PASS (Ver. 5 diff. BW & remove pre-amp) doors close
04/29/02	120	CE03	ETOL	23:35:00	6:35:00	PI-SB-B for CE03, Ver. 5, Ambient, Fail (Ver. 5 diff. BW & remove pre-amp) doors close
04/29/02	120	CE03	ETOL	23:41:00	6:41:00	Probe only test PASS
04/30/02	120	RS03	ETOL	3:00:00	10:00:00	Set-Up for RS03
04/30/02	120	RS03	HIOL		10:14:28	2002/120-10:14:28 Preparing for the RS03: OO-LOC-1023/TP-LOC-820 Step 13.10.3
04/30/02	120	RS03	HIOL		10:30:00	HIRDLS EMI Test Log 4/28/2002-10:30
04/30/02	120	RS03	HIOL		10:33:27	2002/120 10:33:27 started to Power up on A side.
04/30/02	120	RS03	HIOL		10:35:13	2002/120 10:35:13 Told to power up on B-side
04/30/02	120	RS03	HIOL		10:35:13	Typed 'return' in the ctsol window twice quickly and killed the survival; power
04/30/02	120	RS03	HIOL		10:35:13	up and the CPT2 stol
04/30/02	120	RS03	HIOL		10:35:13	Started to powerup but typed go instead of goto...
04/30/02	120	RS03	HIOL		10:35:13	Typed 'return' in the ctsol window twice quickly and killed the survival; power
04/30/02	120	RS03	HIOL		10:35:13	up and the CPT2 stol
04/30/02	120	RS03	HIOL		10:51:38	2002/120 10:51:38 Started hir_cpt2_test
04/30/02	120	RS03	HIOL		11:01:49	2002/120-11:01:49 Telemetry FAILED: HIR_TSU_LIOTRES = 0x0 actual X#8
04/30/02	120	RS03	HIOL		11:01:49	Ask-Question> Continue after FAILURE (y or n)? NO
04/30/02	120	RS03	ETOL	5:12:00	12:12:00	Power Bus A, Antenna to point at area A1-RF, (RS03)
04/30/02	120	RS03	HIOTL	7:58:00	14:58:00	Start RS03 testing IEGSE DR6442 &DR6433, vertical plzn
04/30/02	120	RS03	HIOL		14:58:54	2002/120-14:58:54 Gyro temps reached 55 C. Started gss_mtron and passed. Ran

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
04/30/02	120	RS03	HIOL		14:58:54	css__therm and passed. Waiting for Gyro temps to reach 70 C.
04/30/02	120	RS03	HIOL		14:58:54	Decided to start when 2 gyro temps reached 65.
04/30/02	120	RS03	HIOL		18:53:09	2002/120-18:53:09 Started Mission Mode - Global Scan Sequence. Stayed in this
04/30/02	120	RS03	HIOL		18:53:09	mode for 1 minute.
04/30/02	120	RS03	HIOL		18:53:09	Start sai_scnstp.
04/30/02	120	RS03	HIOL		18:53:09	Start tc_teu_scnup_ifc_static.
04/30/02	120	RS03	HIOL		18:53:09	@hir_tss_start.
04/30/02	120	RS03	HIOTL		18:58:00	Start RS03 Side A/+X, vertical plzn
04/30/02	120	RS03	HIOTL		19:00:50	Start Sweep, RS03, 14 KHz to 50 KHz,2 v p-p, vertical plzn
04/30/02	120	RS03	ETOL	12:01:10	19:01:10	Start sweep @14 KHz Vertical Polarization. (Area A1-RF), (RS03)
04/30/02	120	RS03	HIOL		19:01:10	2002/120-19:01:10 Start RS03 test 2 V/m 14 kHz. Sweep Test TP-LOC-820 step 13.10.6. Instrument configuration to diagram A (+y wall grid
04/30/02	120	RS03	HIOL		19:01:10	position D4)
04/30/02	120	RS03	HIOTL		19:14:00	Cont. Sweep, RS03, 85.7 KHz,2 v p-p, vertical plzn
04/30/02	120	RS03	HIOTL		19:20:00	Cont. Sweep, RS03, 113 KHz,2 v p-p, vertical plzn
04/30/02	120	RS03	HIOTL		19:25:00	Cont. Sweep, RS03, 141 KHz,2 v p-p, vertical plzn
04/30/02	120	RS03	HIOTL		19:30:00	Cont. Sweep, RS03, 169 KHz,2 v p-p, vertical plzn
04/30/02	120	RS03	HIOTL		19:35:00	Cont. Sweep, RS03, 196 KHz,2 v p-p, vertical plzn
04/30/02	120	RS03	HIOTL		19:40:00	Cont. Sweep, RS03, 224 KHz,2 v p-p, vertical plzn
04/30/02	120	RS03	ETOL	12:43:00	19:43:00	Stop (hold) sweep @ 237 KHz, Amp hit power limit (Area 1-RF1), (RS03)
04/30/02	120	RS03	HIOTL		19:43:00	Cont. Sweep, RS03, 237 KHz,2 v p-p Amp change, vertical plzn
04/30/02	120	RS03	ETOL		19:49:00	Start sweep @ 273 KHz (Area 1-RF1), (RS03)
04/30/02	120	RS03	HIOTL		19:49:00	Restart Sweep, RS03, 237 KHz,2 v p-p, vertical plzn
04/30/02	120	RS03	ETOL		19:51:00	Stop sweep @ 5 MHz (Area 1-RF1), (RS03)
04/30/02	120	RS03	HIOTL		19:52:00	Stop Sweep, RS03, 5.0 MHz,2 v p-p, vertical plzn
04/30/02	120	RS03	ETOL		19:58:00	Start sweep @ 5 MHz (Area 1-RF1), (RS03)
04/30/02	120	RS03	HIOTL		19:58:00	Start Sweep, RS03,5.0 MHz,2 v p-p, vertical plzn
04/30/02	120	RS03	HIOTL		20:04:00	Cont. Sweep, RS03, 15.0 KHz,2 v p-p, Problem Temp data glich@2002-2004, vertical plzn
04/30/02	120	RS03	ETOL		20:06:00	Stop sweep @ 20 MHz (Area 1-RF1), (RS03)
04/30/02	120	RS03	HIOTL		20:06:00	Stop Sweep @ 20 MHz, antenna change, vertical plzn
04/30/02	120	RS03	ETOL		20:25:00	Start sweep @ 20 MHz Glitch noted @ 94, 110, 115, 129, 141 MHz (Area 1-RF1), (RS03)
04/30/02	120	RS03	HIOTL		20:25:00	Start Sweep, RS03, 20.0 MHz, 2 v p-p, vertical plzn
04/30/02	120	RS03	HIOTL		20:30:00	Cont. Sweep, RS03, 27.0 KHz, 2 v p-p, Problem change in stroke 78.3% to 78.6%, vertical plzn
04/30/02	120	RS03	HIOTL		20:35:00	Cont. Sweep, RS03, 32.0 KHz, 2 v p-p , vertical plzn
04/30/02	120	RS03	HIOTL		20:40:00	Cont. Sweep, RS03, Problem calminor Tem 1/ dropped 26 to 18 @ recovered, vertical plzn
04/30/02	120	RS03	HIOTL		20:40:00	Cont. Sweep, RS03, Problem calminor Tem 2/ dropped, 42 MHz, changes in com. disp. temp., vertical plzn
04/30/02	120	RS03	HIOTL		20:45:00	Cont. Sweep, RS03, 52.0 MHz, 2 v p-p , vertical plzn
04/30/02	120	RS03	HIOTL		20:50:00	Cont. Sweep, RS03, 64.0 MHz, 2 v p-p , vertical plzn
04/30/02	120	RS03	HIOTL		20:55:00	Cont. Sweep, RS03, 75.0 MHz, 2 v p-p , vertical plzn
04/30/02	120	RS03	HIOTL		21:00:00	Cont. Sweep, RS03, 87.0 MHz, 2 v p-p , vertical plzn
04/30/02	120	RS03	HIOTL		21:02:00	Cont. Sweep, RS03, 94.0 MHz, 2 v p-p, continue to see comp & dep gliches
04/30/02	120	RS03	HIOTL		21:05:00	Cont. Sweep, RS03, 101.0 MHz, 2 v p-p, suggest Eranf check GMU power vs channel 5 reading lcns1_temp
04/30/02	120	RS03	HIOTL		21:09:00	Cont. Sweep, RS03, 110.0 MHz, 2 v p-p, suggest Eranf check GMU power vs channel 5 reading lcns1_temp
04/30/02	120	RS03	HIOTL		21:11:00	Cont. Sweep, RS03, 115.0 MHz, 2 v p-p, suggest Eranf check GMU power vs channel 5 reading comp & disp_temp
04/30/02	120	RS03	HIOTL		21:15:00	Cont. Sweep, RS03, 123.0 MHz, 2 v p-p

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
04/30/02	120	RS03	HIOTL		21:17:00	Cont. Sweep, RS03, 129.0 MHz, 2 v p-p, suggest Eranf check GMU power vs channel 5 reading sm_temp1
04/30/02	120	RS03	HIOTL		21:20:00	Cont. Sweep, RS03, 136.0 MHz, 2 v p-p, vertical plzn
04/30/02	120	RS03	HIOTL		21:22:00	Cont. Sweep, RS03, 141.0 MHz, 2 v p-p, suggest Eranf check GMU power vs channel 5 reading col_mirror temp
04/30/02	120	RS03	HIOTL		21:25:00	Cont. Sweep, RS03, 148.0 MHz, 2 v p-p, vertical plzn
04/30/02	120	RS03	ETOL		21:26:00	Stop sweep @ 150 MHz (Area 1-RF1), (RS03)
04/30/02	120	RS03	HIOTL		21:26:00	Cont. Sweep, RS03, 150.0 MHz, 2 v p-p, power off ! , suggest Eranf check GMU power vs channel 5 reading geyu_box
04/30/02	120	RS03	ETOL		21:30:00	Start sweep @ 150 MHz Glitch noted @ 156, 169, 193 MHz (Area 1-RF1), (RS03)
04/30/02	120	RS03	HIOTL		21:30:00	Cont. Sweep, RS03, 150.0 MHz, 2 v p-p, vertical plzn
04/30/02	120	RS03	HIOTL		21:33:00	Cont. Sweep, RS03, 156.0 MHz, 2 v p-p, stopped gliching , vertical plzn
04/30/02	120	RS03	HIOTL		21:35:00	Cont. Sweep, RS03, 159.0 MHz, 2 v p-p , starting to see drift, vertical plzn
04/30/02	120	RS03	HIOTL		21:36:00	Cont. Sweep, RS03, 164.0 MHz, 2 v p-p , no imu gliching, starting to see drift in channel 5 data from 2010 to 2020
04/30/02	120	RS03	HIOTL		21:38:00	Cont. Sweep, RS03, 169.0 MHz, 2 v p-p , vertical plzn
04/30/02	120	RS03	HIOTL		21:40:00	Cont. Sweep, RS03, 172.0 MHz, 2 v p-p , vertical plzn, more noise on radient data
04/30/02	120	RS03	HIOTL		21:42:00	Cont. Sweep, RS03, 179.0 MHz, 2 v p-p , vertical plzn
04/30/02	120	RS03	HIOTL		21:45:00	Cont. Sweep, RS03, 184.0 MHz, 2 v p-p , vertical plzn jump in cryotip temp no
04/30/02	120	RS03	HIOTL		21:47:00	Cont. Sweep, RS03, 191.0 MHz, 2 v p-p , vertical plzn, channel 5 setteling down
04/30/02	120	RS03	HIOTL		21:48:00	Cont. Sweep, RS03, 193.0 MHz, 2 v p-p , vertical plzn, jump in
04/30/02	120	RS03	HIOTL		21:50:00	Cont. Sweep, RS03, 197.0 MHz, 2 v p-p , vertical plzn, cryotip jimping
04/30/02	120	RS03	ETOL		21:51:00	Stop sweep @ 200 MHz Vert. Plzn. (Area 1-RF1), (RS03)
04/30/02	120	RS03	HIOTL		21:51:00	Stop Sweep @ 200 MHz, antenna change, vertical plzn, jumps in cryotip, channel 5 is 2015 counts, chennel 1is 2004
04/30/02	120	RS03	ETOL		22:12:00	Start sweep @20 MHz Horizontal Plzn. (Area 1-RF1), (RS03)
04/30/02	120	RS03	HIOTL		22:12:00	Start Sweep, RS03, 20.0 MHz, 2 v p-p, Horiz. Plzn., problem cryotip temp is toggling, radiance datahas shifted most col 1 channels have counts <2000
04/30/02	120	RS03	HIOL		22:15:00	2002/120-22:15 Finished RS03 test from 14kHz to 200 mHz test with vertical polarization.
04/30/02	120	RS03	HIOL		22:15:00	Starting RS03 test for horizontal polarization from 20mHz to 200 mHz
04/30/02	120	RS03	HIOTL		22:20:00	Cont. Sweep, RS03, 37 MHz, 2 v p-p, Problem lns1 glich cryotip still toggling, Horiz. Plzn.
04/30/02	120	RS03	HIOTL		22:21:00	Cont. Sweep, RS03, 40 MHz, 2 v p-p, Problem still toggling glich cal_mir_tmp1, Horiz. Plzn.
04/30/02	120	RS03	HIOTL		22:25:00	Cont. Sweep, RS03, 46 MHz, 2 v p-p, Horiz. Plzn.
04/30/02	120	RS03	HIOTL		22:26:00	Cont. Sweep, RS03, 48 MHz, com / disp tmp gliching starting back up
04/30/02	120	RS03	HIOTL		22:30:00	Cont. Sweep, RS03, 56 MHz, toggling Dess frequency on cryotip. temp., vertical plzn
04/30/02	120	RS03	HIOTL		22:35:00	Cont. Sweep, RS03, 65 MHz, 2 v p-p, toggling cryotip, Horiz. Plzn.
04/30/02	120	RS03	HIOTL		22:40:00	Cont. Sweep, RS03, 77 MHz, 2 v p-p , Horiz. Plzn.
04/30/02	120	RS03	HIOTL		22:44:00	Cont. Sweep, RS03, Horiz. Plzn.
04/30/02	120	RS03	HIOTL		22:45:00	Cont. Sweep, RS03, 87 MHz, 2 v p-p , Horiz. Plzn.
04/30/02	120	RS03	HIOTL		22:50:00	Cont. Sweep, RS03, 100 MHz, 2 v p-p, no toggle, all temperatures normal, Horiz. Plzn.
04/30/02	120	RS03	HIOTL		22:55:00	Cont. Sweep, RS03, 111 MHz, 2 v p-p, suggest Eranf check GMU power vs channel 5 reading lcns1_temp
04/30/02	120	RS03	HIOTL		23:00:00	Cont. Sweep, RS03, 119 MHz, 2 v p-p, Cal Mir 1 started to rise, went from 26 to 27 deg C
04/30/02	120	RS03	HIOL		23:01:00	2002/120-23:14 Beginning sweep at 150 MHz.
04/30/02	120	RS03	HIOTL		23:02:00	Cont. Sweep, RS03, 123 MHz, 2 v p-p, suggest Eranf check GMU power vs channel 5 reading comp & disp_temp
04/30/02	120	RS03	HIOTL		23:05:00	Cont. Sweep, RS03, 130 MHz, 2 v p-p , Horiz. Plzn.
04/30/02	120	RS03	HIOTL		23:07:00	Cont. Sweep, RS03, 136 MHz, 2 v p-p, 23 and 28, sth-2 also toggle 0 bit.
04/30/02	120	RS03	HIOTL		23:10:00	Cont. Sweep, RS03, 141 MHz, 2 v p-p, Horiz. Plzn., calmir moving back down to 26 from 27
04/30/02	120	RS03	ETOL		23:11:00	Stop (hold) sweep @ 150 MHz Glitch noted @ 40 MHz Horiz. Plzn. (Area 1-RF1), (RS03)
04/30/02	120	RS03	HIOTL		23:11:00	Cont. Sweep, RS03, 148 MHz, 2 v p-p, au temp nominal
04/30/02	120	RS03	HIOL		23:11:00	2002/120-23:11 Completed sweep up to 150 MHz. Changing Amps.

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04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
04/30/02	120	RS03	ETOL		23:14:00	Start sweep @ 150 MHz Vert. Plzn. (Area 1-RF1), (RS03)
04/30/02	120	RS03	HIOTL		23:14:00	Cont. Sweep, RS03, 150 MHz, 2 v p-p, Horiz. Plzn., amp. Switch
04/30/02	120	RS03	HIOTL		23:20:00	Cont. Sweep, RS03, 163 MHz, 2 v p-p,
04/30/02	120	RS03	HIOTL		23:25:00	Cont. Sweep, RS03, 177 MHz, 2 v p-p, Horiz. Plzn.
04/30/02	120	RS03	HIOTL		23:30:00	Cont. Sweep, RS03, 189 MHz, 2 v p-p, Horiz. Plzn.
04/30/02	120	RS03	ETOL		23:34:00	Stop sweep @ 200 MHz (Area A1-RF), (RS03)
04/30/02	120	RS03	HIOTL		23:34:00	End Sweep, RS03, 200 MHz, 2 v p-p , completed, Horiz. Plzn.
04/30/02	120	RS03	HIOL		23:34:00	2002/120-23:34 Comnpleted up to 200 MHz sweep horizontal polarization test.
04/30/02	120	RS03	ETOL		23:41:00	Start sweep @ 140 MHz (Area 1-RF1), (RS03)
04/30/02	120	RS03	HIOTL		23:41:00	Start Retest Sweep, RS03, 140 MHz, 2 v p-p , Retest 140-200 MHz
04/30/02	120	RS03	HIOL		23:41:00	2002/120-23:41 Repeating vertical polarization test sweep from 140-200MHz at 2 V/m until we
04/30/02	120	RS03	HIOL		23:41:00	reach the failure point.
04/30/02	120	RS03	HIOTL		23:44:00	Cont. Sweep, RS03, 144 MHz, 2 v p-p , Horiz. Plzn., FPA tm1_A loggling be
04/30/02	120	RS03	ETOL		23:46:00	Stop sweep @ 150 MHz (Area 1-RF1), (RS03)
04/30/02	120	RS03	HIOTL		23:46:00	Cont. Sweep, RS03, 150 MHz, 2 v p-p , Horiz. Plzn., 8590 show same ran noise 2 deg
04/30/02	120	RS03	HIOL		23:46:00	2002/120-23:46 Pause and hold at 150 MHz
04/30/02	120	RS03	ETOL		23:49:00	Start sweep @ 150 MHz (Area 1-RF1), (RS03)
04/30/02	120	RS03	HIOTL		23:49:00	Cont. Sweep, RS03, 150 MHz, 2 v p-p , Horiz. Plzn.
04/30/02	120	RS03	HIOL		23:49:00	2002/120-23:49 Continuing sweep.
04/30/02	120	RS03	HIOTL		23:52:00	Cont. Sweep, RS03, 157 MHz, 2 v p-p , Horiz. Plzn., toggle in fpa_tmp1
04/30/02	120	RS03	ETOL		23:55:00	Stop sweep @ 160 MHz (Area 1-RF1), (RS03)
04/30/02	120	RS03	HIOTL		23:55:00	Cont. Sweep, RS03, 165 MHz, 2 v p-p ,, Horiz. Plzn.
04/30/02	120	RS03	HIOL		23:56:00	2002/120-23:56 Configuring for 180 MHz - 200 MHz sweep.
04/30/02	120	RS03	ETOL	16:58:00	23:58:00	Start sweep @ 180 MHz (Area 1-RF1), (RS03)
04/30/02	120	RS03	HIOTL		23:58:00	Cont. Sweep, RS03, 180 MHz, 2 v p-p, Horiz. Plzn.
04/30/02	120	RS03	HIOTL		23:59:00	Cont. Sweep, RS03, 184 MHz, 2 v p-p , Horiz. Plzn., susceptabiltitey at 2 v/m
05/01/02	121	RS03	HIOL		0:00:00	2002/121-00:00 Day roll, continuing with vertical polarization at 2 V/m 180 MHz
05/01/02	121	RS03	HIOTL		0:05:00	Cont. Sweep, RS03, 197 MHz, 2 v p-p , Horiz. Plzn., dss plcor
05/01/02	121	RS03	ETOL		0:06:00	Stop sweep @ 200 MHz Vert. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOTL		0:06:00	Stop Sweep @ 200 MHz, completed , Horiz. Plzn.,
05/01/02	121	RS03	HIOL		0:06:00	2002/121-00:06 Completed up 180-200 MHz sweep. Reconfiguring for 36 MHz to
05/01/02	121	RS03	ETOL		0:13:00	Start @ 41 MHz Vert. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOTL		0:13:00	Start Retest Sweep, RS03, 36 MHz, 2 v p-p , Retest
05/01/02	121	RS03	HIOTL		0:15:00	Cont. Sweep, RS03, 41 MHz, 2 v p-p , calmar_tmp2 went down to 24 deg C, starting back up agen to 26 deg
05/01/02	121	RS03	HIOTL		0:16:00	Cont. Sweep, RS03, 44 MHz, 2 v p-p , calmir_tmp2 went down to 23 deg. and back to 23 deg.
05/01/02	121	RS03	HIOTL		0:17:00	Cont. Sweep, RS03, 45 MHz, 2 v p-p , Horiz. Plzn.
05/01/02	121	RS03	HIOTL		0:20:00	Cont. Sweep, RS03, 52 MHz, 2 v p-p , Horiz. Plzn., toggle in fpa_tmp1
05/01/02	121	RS03	HIOL		0:20:00	2002/121-00:20 Completed sweep up to 52 MHz. Re configuring for 41 MHz.
05/01/02	121	RS03	HIOTL		0:22:00	Cont. Sweep, RS03, 41 MHz, 2 v p-p ,, Horiz. Plzn.
05/01/02	121	RS03	HIOL		0:22:00	2002/121-00:22 Start at 41 MHz and holding.
05/01/02	121	RS03	ETOL		0:27:00	Stop @ 41 MHz Vert. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOTL		0:27:00	Stop Sweep, RS03, End test
05/01/02	121	RS03	HIOL		0:27:00	2002/121-00:27 Completed test. Did not see any cryotip fluctuations.
05/01/02	121	RS03	ETOL		1:05:00	Start sweep @ 200 MHz Vert. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOTL		1:05:00	Cont. Sweep, RS03, 184 MHz, 2 v p-p , Horiz. Plzn., susceptabiltitey at 2 v/m

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/01/02	121	RS03	HIOL		1:05:00	2002/121-01:05 starting at 200 MHz Verticle Polarization and sweeping up at 2 V/m.
05/01/02	121	RS03	HIOTL		1:10:00	Cont. Sweep, RS03, 197 MHz, 2 v p-p , Horiz. Plzn., dss plcor
05/01/02	121	RS03	HIOTL		1:15:00	Stop Sweep @ 200 MHz, completed , Horiz. Plzn.,
05/01/02	121	RS03	ETOL		2:34:00	Stop sweep @ 420 MHz Vert. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		2:34:00	2002/121-02:34 All niminal up to now Doubling the sweep rate to 10 KHz.
05/01/02	121	RS03	ETOL		2:36:00	Start sweep @ 420 MHz Vert. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		2:36:00	2002/121-02:36 atarting sweep at 420 MHz
05/01/02	121	RS03	ETOL		2:59:00	Stop sweep @ 520 MHz Vert. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		2:59:00	2002/121-02:59 520 MHz - pausing test to make an equipment change...
05/01/02	121	RS03	ETOL		3:02:00	Start sweep @ 520 MHz Vert. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		3:02:00	2002/121-03:02 Starting sweep again at 520 MHz.
05/01/02	121	RS03	HIOL		3:20:00	2002/121-03:20 FPA_TMP_A and Cryotip_TMP_D0 starting to toggle. freq = 600 MHz.
05/01/02	121	RS03	HIOL		3:33:00	2002/121-03:33 Cryotip_TMP_D0 stabilized, freq = 663 MHz
05/01/02	121	RS03	ETOL		4:41:00	Stop sweep @ 1000 MHz Vert. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		4:41:00	2002/121-04:41 Reached 2 GHz. Powering off and reconfiguring for horizontal
05/01/02	121	RS03	ETOL		4:45:00	Start sweep @ 200 MHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		4:45:00	2002/121-04:45 Starting at 200MHz and stepping at 10KHz rate up to 2 GH
05/01/02	121	RS03	ETOL		5:52:00	Stop sweep @ 520 MHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		5:52:00	2002/121-05:52 Reached 500 MHz. Pausing test to switch amplifier.
05/01/02	121	RS03	ETOL	10:54:00	5:54:00	Start sweep @ 520 MHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		5:54:00	2002/121-05:54 Starting at 500 MHz and sweeping up to 2 GHz.
05/01/02	121	RS03	ETOL	0:34:00	7:34:00	Stop sweep @ 1000 MHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		7:34:00	2002/121-07:34 Completed scan to 1-GHz start changing configuration
05/01/02	121	RS03	ETOL	1:04:35	8:04:35	Start sweep @ 1 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		8:04:35	2002/121-08:04:35 Continue scan to 2-GHz with new antenna
05/01/02	121	RS03	HIOL		8:21:54	2002/121-08:21:54 the TSW_FAULT_STAT changed from 0 to 512 & back.
05/01/02	121	RS03	ETOL		11:34:00	Stop sweep @ 1.832 GHz.,Horiz. Plzn.,Note: 1551 MHz, time 13:32:00, telemetry dropout,(Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		11:34:20	2002/121-11:34:20 Scan to 2-GHz Complete. They are going in to flip the antenna.
05/01/02	121	RS03	HIOL		11:35:00	2002/121-11:35:00 Door opens. Cell temperature 64 degrees F & the DSS Vacuum is 1.3E-6
05/01/02	121	RS03	HIOL		11:38:42	2002/121-11:38:42 Scan starts at 1-GHz to 2-Ghz
05/01/02	121	RS03	HIOL		13:32:00	A possible tlm gap was noted about 2002/121-13:32. Look at data - put results into fraser directory: /fraser_data2/users/hirdls/2002_119, enc -g -t 2002/121-13:30 -n 100 -f enc.dat
05/01/02	121	RS03	HIOL		14:26:00	Continuing RS03 TP-LOC-820 Step 13.10.5 (OO-LOC-1023 Step 5.9.5) , 2002/121-14:26 turned off RF
05/01/02	121	RS03	ETOL		14:28:00	Start sweep @ 1832 MHz Horiz. Plzn. (Area A1-RF), (RS03)
05/01/02	121	RS03	HIOL		14:28:00	2002/121-14:28 resumed sweep @ 1.832 GHz
05/01/02	121	RS03	ETOL		14:29:00	Stop sweep @ 2000 MHz Horiz. Plzn. Note DR# AD6464 (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		14:29:00	2002/121-14:29 completed sweep @ 2.0 GHz
05/01/02	121	RS03	ETOL		14:46:00	Start sweep @ 2.0 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		14:46:00	2002/121-14:46 start TP-LOC-820 Step 13.10.6 2-18 GHz @ 10 V/m
05/01/02	121	RS03	ETOL		15:01:00	Stop sweep @ 2.2845 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		15:01:00	2002/121-15:01 stop sweep; changing level
05/01/02	121	RS03	ETOL		15:02:00	Start sweep @ 2.2845 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		15:02:00	2002/121-15:02 start sweep @ 2.2845 GHz @ 20 V/m
05/01/02	121	RS03	ETOL		15:03:00	Stop sweep @ 2.2906 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	ETOL		15:03:00	Start sweep @ 2.290 GHz Horiz. Plzn. (Area 1-RF1), (RS03)

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/01/02	121	RS03	HIOL		15:03:00	2002/121-15:03 stop sweep; changing level
05/01/02	121	RS03	HIOL		15:03:00	2002/121-15:03 start sweep @ 2.29024 GHz @ 10 V/m
05/01/02	121	RS03	ETOL		15:12:00	Stop sweep @ 4.0 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	ETOL		15:12:00	Start sweep @ 4.0 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	ETOL		18:15:00	Stop sweep @ 8.0 GHz Horiz. Plzn. (Area 1-RF1),
05/01/02	121	RS03	HIOL		18:15:27	18:15:27 powered off at 8Ghz, waiting for configuration change to support sweep
05/01/02	121	RS03	ETOL		18:35:00	Start sweep @ 8.0 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		18:35:20	18:35:20 8-8.025Ghz
05/01/02	121	RS03	ETOL		18:36:00	Stop sweep @ 8.025 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	ETOL		18:36:00	Start sweep @ 8.025 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		18:36:54	18:36:54 8-8.4Ghz 20m/V
05/01/02	121	RS03	ETOL		18:46:00	Stop sweep @ 8.4 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	ETOL		18:47:00	Start sweep @ 8.4 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		18:59:00	2002/121-18:59 TC Operator change: Frank Zele
05/01/02	121	RS03	ETOL		20:06:00	Stop sweep @ 18 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	ETOL		20:06:00	Start @ 14.754 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	ETOL		21:06:00	Stop @ 14.754 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		21:06:00	2002/121-21:06 test on hold: equipment change. Frequency at 14.754GHz.
05/01/02	121	RS03	ETOL		21:28:00	Start @ 14.754 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		21:28:00	2002/121-21:28 resume sweep at 14.754GHZ.
05/01/02	121	RS03	ETOL		21:30:00	Stop @ 14.769 GHz Horiz. Plzn. Note stopped TWTA VSWR fault (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		21:31:00	2002/121-21:31 test stopped at 14.769GHz to change amplifier.
05/01/02	121	RS03	ETOL		21:34:00	Start sweep @ 14.769 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		21:34:00	2002/121-21:34 resume test at 14.769GHz.
05/01/02	121	RS03	HIOL		22:01:41	2002/121-22:01:41 126271.280610 1632 4594 0 1315314
05/01/02	121	RS03	HIOL		22:08:42	2002/121-22:08:42 126692.337882 1632 8980 0 1319700
05/01/02	121	RS03	ETOL		22:47:00	Stop sweep @ 18 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	ETOL		23:00:00	Start @ 15.7 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	HIOL		23:00:00	2002/121-23:00 rerun of sweep from 15.700 to 16.100GHz due to packet drops at
05/01/02	121	RS03	ETOL		23:02:00	Stop @ 15.7 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	ETOL		23:02:00	Start sweep @ 15.7 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	121	RS03	ETOL		23:10:00	Stop sweep @ 16.1 GHz Horiz. Plzn. (Area 1-RF1), (RS03)
05/01/02	122	RS03	ETOL		0:24:00	Start sweep @ 14 KHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		0:24:00	2002/122-00:24 Start sweep at 14 KHz
05/01/02	122	RS03	ETOL		0:27:00	Stop sweep @ 28.0 KHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	ETOL		0:27:00	Start sweep @ 28.0 KHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	ETOL		0:31:00	Stop sweep @ 200.0 KHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	ETOL		0:37:00	Start sweep @ 200.0 KHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	ETOL		0:41:00	Stop sweep @ 1.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	ETOL		0:42:00	Start sweep @ 1.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	ETOL		0:45:00	Stop sweep @ 5.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	ETOL		0:49:00	Start sweep @ 5.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	ETOL		0:56:00	Stop sweep @ 20.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	ETOL		1:09:00	Start sweep @ 20.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	ETOL		1:35:00	Stop sweep @ 80.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/01/02	122	RS03	ETOL		1:37:00	Start sweep @ 119.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	ETOL		1:54:00	Stop sweep @ 160.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	ETOL		1:55:00	Start sweep @ 180.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	ETOL		1:59:00	Stop sweep @ 190.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		1:59:00	2002/122-01:59 Completed sweep from 14 KHz - 190 MHz. Repetint 40-62 MHz.
05/01/02	122	RS03	ETOL		2:02:00	Start sweep @ 4.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		2:02:00	2002/122-02:02 starting at 40...got anomalies at 48 MHz.
05/01/02	122	RS03	ETOL		2:21:00	Stop sweep @ 48.75 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		2:22:00	2002/122-02:22 power off and switch antena.
05/01/02	122	RS03	ETOL		2:34:00	Start sweep @ 20.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		2:34:00	2002/122-02:34 starting horizontal test at 20 MHz. level 2 v/m 20MHz to 80 MHz.
05/01/02	122	RS03	ETOL		3:01:00	Stop sweep @ 80.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		3:01:00	2002/122-03:01 stopped at 80 MHz. switching amplifiers.
05/01/02	122	RS03	ETOL		3:03:00	Start sweep @ 119.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		3:03:00	2002/122-03:03 starting at 119 MHz and sweeping up.
05/01/02	122	RS03	ETOL		3:20:00	Stop sweep @ 160.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		3:20:00	2002/122-03:20 stopped sweep at 160 MHZ. reconfiguring for 180MHz.
05/01/02	122	RS03	ETOL		3:23:00	Start sweep @ 180.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		3:23:00	2002/122-03:23 starting sweep at 180 MHz
05/01/02	122	RS03	ETOL		3:27:00	Stop sweep @ 190.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		3:27:00	2002/122-03:27 stopped at 190 MHz
05/01/02	122	RS03	ETOL		3:41:00	Start sweep @ 210.0 MHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		3:41:00	2002/122-03:41 starting sweep at 210-390 MHz vertical polarization at 2 v/m
05/01/02	122	RS03	ETOL		4:18:00	Stop sweep @ 340.0 MHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		4:18:00	2002/122-04:18 completed up to 390MHz. Switching equipment.
05/01/02	122	RS03	ETOL		4:19:00	Start sweep @ 470.0 MHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		4:19:00	2002/122-04:19 Starting sweep 470-700MHz.
05/01/02	122	RS03	ETOL		4:30:00	Stop sweep @ 520.0 MHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		4:30:00	2002/122-04:30 Paused sweep to change amps.
05/01/02	122	RS03	ETOL		4:32:00	Start sweep @ 520.0 MHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		4:32:00	2002/122-04:32 Resuming sweep at 500MHz.
05/01/02	122	RS03	ETOL		5:09:00	Stop sweep @ 700.0 MHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		5:09:00	2002/122-05:09 Completed sweep up to 700MHz. Reconfiguring for horizontal polarization.
05/01/02	122	RS03	ETOL		5:15:00	Start sweep @ 210.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		5:15:00	2002/122-05:15 Started sweep 210-390 MHz. Horizontal Polarization at 2 v/m.
05/01/02	122	RS03	ETOL		5:58:00	Stop sweep @ 390.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		5:58:00	2002/122-05:58 Completed sweep up to 390 MHz. Reconfiguring for 470-700 MHz.
05/01/02	122	RS03	ETOL		5:59:00	Start sweep @ 470.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		5:59:00	2002/122-05:59 Started sweep from 470-700MHz. Horizontal polarization at 2 v/m
05/01/02	122	RS03	ETOL		6:10:00	Stop sweep @ 520.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		6:10:00	2002/122-06:10 Completed sweep up to 520 MHz. Changing Amps.
05/01/02	122	RS03	ETOL		6:12:00	Start sweep @ 520.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		6:12:00	2002/122-06:12 Resuming sweep at 520MHz.
05/01/02	122	RS03	ETOL		6:49:00	Stop sweep @ 700.0 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		6:49:00	2002/122-06:49 Completed sweep up to 700 MHz. Setting up for 1.5 GHz

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/02/02	122	RS03	ETOL		7:15:00	Start sweep @ 1.56 GHz Vert Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		7:15:00	2002/122-07:15 Starting sweep from 1.5GHz - 2GHz in vertical polarization at 2 v/m
05/02/02	122	RS03	ETOL		7:22:00	Stop sweep @ 2.0 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		7:22:00	2002/122-07:22 Starting at 1.5 GHz in horizontal polarization.
05/02/02	122	RS03	ETOL		7:25:00	Start sweep @ 1.56 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	122	RS03	ETOL		7:37:00	Stop sweep @ 2.0 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		7:37:00	2002/122-07:37 Stopping at 2 GHz to change amplifier.
05/02/02	122	RS03	ETOL		7:47:00	Start sweep @ 2.0 GHz Horiz Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		7:47:00	2002/122-07:47 Starting sweep at 2GHz, horizontal polarity, 10 V/m
05/02/02	122	RS03	ETOL		7:58:00	Stop sweep @ 2.285 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		7:58:00	2002/122-07:58 Increase signal strength to 20 V/m
05/02/02	122	RS03	ETOL		7:59:00	Start sweep @ 2.2855 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/02/02	122	RS03	ETOL		8:00:00	Stop sweep @ 2.2895 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		8:00:00	2002/122-08:00 Stopped sweep at 2289.6 MHz with level at 20 V/m.
05/02/02	122	RS03	ETOL		8:02:00	Start sweep @ 2.2895 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		8:02:00	2002/122-08:02 Starting sweep to 4 GHz at 10 V/m
05/02/02	122	RS03	ETOL		9:17:00	Stop sweep @ 4.0 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		9:17:00	2002/122-09:17 Stopped sweep at 4GHz to change antenna polarization. Reloaded DASH8 with more paper.
05/02/02	122	RS03	ETOL		9:22:00	Start sweep @ 2.0 GHz Vert Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		9:22:00	2002/122-09:22 Starting vertical polarization sweep at 2 GHz
05/02/02	122	RS03	ETOL		9:29:00	Stop sweep @ 2.2855 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	122	RS03	ETOL		9:30:00	Start sweep @ 2.2855 GHz Vert Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		9:30:00	2002/122-09:30 Increasing field strength to 20 V/m
05/02/02	122	RS03	ETOL		9:31:00	Stop sweep @ 2.02.2895 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	122	RS03	ETOL		9:31:00	Start sweep @ 2.2895 GHz Vert Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		9:31:00	2002/122-09:31 Decreased to 10 V/m and beginning sweep again.
05/02/02	122	RS03	ETOL		10:13:00	Stop sweep @ 4.0 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		10:13:00	2002/122-10:13 Reached 4 GHz on the vertical polarization sweep, stopping to change amplifiers.
05/02/02	122	RS03	ETOL		10:18:00	Start sweep @ 4.0 GHz Vert Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		10:18:00	2002/122-10:18 Starting sweep from 4 to 8 GHz, vertical polarization, 10 V/m
05/01/02	122	RS03	HIOL		10:30:00	2002/122-10:30 Noticed AZ and EL plots have changed.The hir_sci_tsw window shows that both AZ and EL CMD points are set to 0 deg.This is different from earlier setting.
05/01/02	122	RS03	HIOL		11:00:00	2002/122-11:00 Noticed TEU_A on the passive temp display has dropped from 309K to 308K. All other passives have not changed. TEU_A has stablilized at 308K. This temperature drop appears to have happened at the same time we noticed the AZ and EL positions go back to 0.00 d.
05/02/02	122	RS03	ETOL		11:56:00	Stop sweep @ 8.0 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		11:56:00	2002/122-11:56 Stopped at 8GHz to change to Horizontal Polariztation.
05/02/02	122	RS03	ETOL		12:00:00	Start sweep @ 4.0 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		12:00:00	2002/122-12:00 Starting sweep at 4GHz with Horizontal polarization. Noticed AZ_HSG_1 temp has dropped about 0.5 C from 28 to 27.5 C.
05/02/02	122	RS03	ETOL		13:13:00	Stop sweep @ 8.0 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		13:13:00	2002/122-13:13 Stopped frequency sweep at 7097MHz to restart IFC static scan.
05/02/02	122	RS03	ETOL		13:17:00	Start @ 7097 MHz Note: Stop sweep requested, telemetry drop-outs. Horiz. Plzn., (RS03)
05/01/02	122	RS03	HIOL		13:17:00	2002/122-13:17 Restarted frequency sweep.
05/01/02	122	RS03	HIOL		13:31:00	2002/122-13:31 Gap in telemetry (about 4 sec) - all nimbus displays. Frequency 7720 MHz.

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/02/02	122	RS03	ETOL		13:31:57	Stop @ 7097 MHz, (RS03)
05/01/02	122	RS03	HIOL		13:39:00	2002/122-13:39 reached 8000MHz. Stopped sweep.
05/02/02	122	RS03	ETOL		14:05:00	Start sweep @ 7.650 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		14:05:00	2002/122-14:05 Starting sweep from 7650MHz at 30KHz increments looking for another telemetry drop out.(Further analysis will be done later to determine if this was a real ocurrence of a drop out)
05/01/02	122	RS03	HIOL		14:11:00	2002/122-14:11 Passed 7720MHz and did not see telemetry drop-out
05/02/02	122	RS03	ETOL		14:27:00	Stop sweep @ 8.0 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		14:27:00	2002/122-14:27 Reached 8GHz on second sweep. Stopping sweep.
05/02/02	122	RS03	ETOL		14:48:00	Start sweep @ 4200 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		14:49:00	2002/122-14:49 Repeat sweep from 4200MHz to 4900MHz. Increments: 75KHz. 10V/m.
05/02/02	122	RS03	ETOL		15:12:00	Stop sweep @ 4900 MHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		15:12:00	2002/122-15:12 Reached 4900MHz. Stopped sweep.
05/01/02	122	RS03	HIOL		15:31:00	2002/122-15:31 Temperature of vehicle is 63 Fahrenheit
05/02/02	122	RS03	ETOL		15:32:00	Start sweep @ 8.0 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		15:32:00	2002/122-15:32 Start sweep from 8GHz to 8.025GHz. 10V/m. Horizontal polarization.
05/02/02	122	RS03	ETOL		15:33:00	Stop sweep @ 8.025 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		15:33:00	2002/122-15:33 Reached 8.025GHz. Stopped sweep.
05/02/02	122	RS03	ETOL		15:34:00	Start sweep @ 8.025 GHz Horiz. Plzn. (Area 2-RF2), (RS03) time corrected from SysEngr log
05/01/02	122	RS03	HIOL		15:34:00	2002/122-15:34 Start sweep from 8.025GHz to 8.4GHz.
05/02/02	122	RS03	ETOL		15:38:00	Stop sweep @ 8.4 GHz Horiz. Plzn. (Area 2-RF2), (RS03) time corrected from SysEngr log
05/01/02	122	RS03	HIOL		15:38:00	2002/122-15-38 Reached 8.4GHz. Stopped sweep.
05/02/02	122	RS03	ETOL		15:39:00	Start sweep @ 8.4 GHz Horiz. Plzn. (Area 2-RF2), (RS03) time corrected from SysEngr log
05/01/02	122	RS03	HIOL		15:39:00	2002/122-15-39 Start sweep from 8.4GHz to 18GHz. 10V/m
05/02/02	122	RS03	ETOL		16:41:00	Stop sweep @ 14.741 GHz Horiz. Plzn. (Area 2-RF2), (RS03) time corrected from SysEngr log
05/01/02	122	RS03	HIOL		16:41:00	2002/122-16:41 Stopped sweep to change power amplifier at Freq. 14.741GHz
05/02/02	122	RS03	ETOL		16:54:00	Start sweep @ 14.741 GHz Horiz. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		16:54:00	2002/122-16:54 Restart sweep at Freq. 14.741GHz
05/02/02	122	RS03	ETOL		17:37:00	Stop sweep @ 18.0 GHz Horiz. Plzn. (Area 2-RF2), (RS03) time corrected from SysEngr log
05/01/02	122	RS03	HIOL		17:37:00	2002/122-17:37 Reached 18GHz. Stopped to change polarization to vertical.
05/02/02	122	RS03	ETOL		17:55:00	Start sweep @ 8.0 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	122	RS03	ETOL		17:55:00	Stop sweep @ 8.025 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		17:55:00	2002/122-17:55 Start sweep from 8.0GHz to 8.025 GHz. Vertical polarization.
05/01/02	122	RS03	HIOL		17:55:00	2002/122-17:55 Reached 8.025 GHz. Stopped sweep.
05/02/02	122	RS03	ETOL		17:57:00	Start sweep @ 8.025 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		17:57:00	2002/122-17:57 Start sweep from 8.025 GHz to 8.4 GHz. 20V/m
05/02/02	122	RS03	ETOL		18:02:00	Stop sweep @ 8.4 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		18:02:00	2002/122-18:02 Reached 8.4 GHz. Stopped sweep.
05/02/02	122	RS03	ETOL		18:03:00	Start sweep @ 8.4 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		18:03:00	2002/122-18:03 Start sweep from 8.4GHz to 18.0 GHz.
05/02/02	122	RS03	ETOL		19:06:00	Stop sweep @ 14.7 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		19:06:00	2002/122-19:06 Stopped sweep at frequency 14.7 GHz.
05/02/02	122	RS03	ETOL		19:17:00	Start sweep @ 14.7 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		19:17:00	2002/122-19:17 Restarted sweep starting at 14.7 GHz.
05/02/02	122	RS03	ETOL		20:02:00	Stop sweep @ 18.0 GHz Vert. Plzn. (Area 2-RF2), (RS03)

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/01/02	122	RS03	HIOL		20:02:00	2002/122-20:02 Reached 18.0 GHz. Stopped sweep. Move antenna to instrument +Y side again for the missed vertical polarization sweep.
05/02/02	122	RS03	ETOL		20:18:00	Start sweep @ 14.7 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		20:18:00	2002/122-20:18 Start sweep from 14.7 GHz to 18.0 GHz.
05/02/02	122	RS03	ETOL		21:01:00	Stop sweep @ 18.0 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		21:01:00	2002/122-21:01 Reached 18.0 GHz. Stopped sweep.
05/02/02	122	RS03	ETOL		21:10:00	Start sweep @ 8.0 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	122	RS03	ETOL		21:10:00	Stop sweep @ 8.025 GHz Vert. Plzn. (Area 2-RF2). (RS03)
05/01/02	122	RS03	HIOL		21:10:00	2002/122-21:10 Start sweep from 8.0GHz to 8.025 GHz. Vertical polarization.
05/01/02	122	RS03	HIOL		21:10:00	2002/122-21:10 Reached 8.025 GHz. Stopped sweep.
05/02/02	122	RS03	ETOL		21:11:00	Start sweep @ 8.025 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		21:11:00	2002/122-21:11 Start sweep from 8.025 GHz to 8.4 GHz. 20V/m
05/02/02	122	RS03	ETOL		21:17:00	Stop sweep @ 8.4 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		21:17:00	2002/122-21:17 Reached 8.4 GHz. Stopped sweep.
05/02/02	122	RS03	ETOL		21:34:00	Start sweep @ 8.4 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		21:34:00	2002/122-21:34 Start sweep from 8.4GHz to 14.7 GHz.
05/02/02	122	RS03	ETOL		22:47:00	Stop sweep @ 14.7 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		22:47:00	2002/122-22:47 Completed sweep up to 14.7 GHz.
05/02/02	122	RS03	ETOL		22:57:00	Start sweep @ 2.0 GHz Vert Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		22:57:00	2002/122-22:57 Starting sweep 2.0 GHz, sweeping up to 2.85 GHz at 10 V/m. vertical polarization
05/02/02	122	RS03	ETOL		23:09:00	Stop sweep @ 2.285 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	122	RS03	ETOL		23:10:00	Start sweep @ 2.2895 GHz Vert Plzn. (Area 2-RF2), (RS03)
05/02/02	122	RS03	ETOL		23:10:00	Stop sweep @ 2.02.2895 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		23:10:00	2002/122-23:10 Starting at 2.2855 GHZ going to 2.2895 at 20 V/m. vertical polarization
05/01/02	122	RS03	HIOL		23:10:00	2002/122-23:10 Finished at 2.2895. going back to 10 V/m
05/02/02	122	RS03	ETOL		23:12:00	Start sweep @ 2.2895 GHz Vert Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		23:12:00	2002/122-23:12 Starting sweep at 2.2895 and going up to 4 GHz at 10 V/m. vertical polarization
05/02/02	122	RS03	ETOL		23:52:00	Stop sweep @ 4.0 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		23:52:00	2002/122-23:52 Completed sweep up to 4.0 GHz. Changing Amps for next sweep.
05/02/02	122	RS03	ETOL		23:58:00	Start sweep @ 4.0 GHz Vert Plzn. (Area 2-RF2), (RS03)
05/01/02	122	RS03	HIOL		23:58:00	2002/122-23:58 Starting Sweep at 4.0GHz and going up to 8GHz at 10 V/m stepping in 75 KHz steps. vertical polarization
05/02/02	123	RS03	ETOL		1:35:00	Stop sweep @ 8.0 GHz Vert. Plzn. (Area 2-RF2), (RS03)
05/02/02	123	RS01	HIOL		1:35:00	2002/123-01:35 Completed sweep up to 8 GHz. Completed RS03. Configuring for RS01
05/02/02	123	RS01	ETOL		3:16:00	Start sweep @ 30.0 Hz (Area 2-RF2), (RS01)
05/02/02	123	RS01	HIOL		3:16:00	2002/123-03:16 Starting AC Magnetic field test at 30Hz +y (Side A) sweep up to 200 KHz
05/02/02	123	RS01	ETOL		3:52:00	Stop sweep @ 200.0 KHz (Area 2-RF2), (RS01)
05/02/02	123	RS01	HIOL		3:52:00	2002/123-03:52 Completed sweep up to 200KHz
05/02/02	123	RS01	ETOL		3:55:00	Start @ 480.0 Hz (Area 1-RF1), (RS01)
05/02/02	123	RS01	HIOL		3:55:00	2002/123-03:55 Started static test of 480 Hz AC magnetic field
05/02/02	123	RS01	ETOL		4:06:00	Stop @ 480.0 Hz (Area 1-RF1), (RS01)
05/02/02	123	RS01	HIOL		4:06:00	2002/123-04:06 Completed 480 HZ test.
05/02/02	123	RS01	ETOL		4:07:00	Start @ 495.0 Hz (Area 1-RF1), (RS01)
05/02/02	123	RS01	HIOL		4:07:00	2002/123-04:07 Started static test of 495 Hz AC magnetic field
05/02/02	123	RS01	ETOL		4:17:00	Stop @ 495.0 Hz (Area 1-RF1), (RS01)
05/02/02	123	RS01	HIOL		4:17:00	2002/123-04:17 Completed 495 HZ test.

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/02/02	123	RS01	ETOL		4:18:00	Start @ 505.0 Hz (Area 1-RF1), (RS01)
05/02/02	123	RS01	HIOL		4:18:00	2002/123-04:18 Started static test of 505 Hz AC magnetic field
05/02/02	123	RS01	ETOL		4:28:00	Stop @ 505.0 Hz (Area 1-RF1), (RS01)
05/02/02	123	RS01	HIOL		4:28:00	2002/123-04:28 Completed 505 HZ test.
05/02/02	123	RS01	ETOL		4:29:00	Start @ 520.0 Hz (Area 1-RF1), (RS01)
05/02/02	123	RS01	HIOL		4:29:00	2002/123-04:29 Started static test of 520 Hz AC magnetic field
05/02/02	123	RS01	ETOL		4:39:00	Stop @ 520.0 Hz (Area 1-RF1), (RS01)
05/02/02	123	RS01	HIOL		4:39:00	2002/123-04:39 Completed 520 HZ test.
05/02/02	123	RS01	ETOL		5:15:00	Start sweep @ 30.0 Hz (Area 2-RF2), (RS01)
05/02/02	123	RS01	ETOL		5:56:00	Stop sweep @ 200.0 KHz (Area 2-RF2), (RS01)
05/02/02	123	RS01	ETOL		6:17:00	Start sweep @ 30.0 Hz (Area 3-RF3), (RS01)
05/02/02	123	RS01	HIOL		6:17:00	2002/123-06:17 Starting sweep at 30Hz on +X side of instrument.
05/02/02	123	RS01	ETOL		6:56:00	Stop sweep @ 200.0 KHz (Area 3-RF3), (RS01)
05/02/02	123	RS01	HIOL		6:56:00	2002/123-06:56 Stopping at 200KHz on +X side and relocating coil.
05/03/02	123	RS01	ETOL		7:16:00	Start sweep @ 30.0 Hz (Area 4-RF4), (RS01)
05/02/02	123	RS01	HIOL		7:16:00	2002/123-07:16 Starting sweep at 30Hz on -Y side of instrument.
05/03/02	123	RS01	ETOL		7:51:00	Stop sweep @ 200.0 KHz (Area 4-RF4), (RS01)
05/02/02	123	RS01	HIOL		7:51:00	2002/123-07:51 Reached end of sweep 200KHz
05/02/02	123	RS01	HIOL		8:00:00	2002/123-08:00 Stopping Gyro motors to allow 20 minutes of data collection.
05/02/02	123	RS01	HIOL		8:22:00	2002/123-08:22 started gyros again
05/02/02	123	RS01	HIOL		9:00:00	2002/123-09:00 Starting to setup EMI equipment on -X side (CCU) Going to observe any changes in FPA temp. Did not sweep frequency or turn on amplifier.
05/02/02	123	RS01	HIOL		9:14:00	2002/123-09:14 FPA_TMP_A started to fall to 62.2588 from 62.2805 K.
05/02/02	123	RS01	HIOL		9:26:00	2002/123-09:26 Started to remove coil from CCU and FPA temp rate of change has slowed.
05/02/02	123	RS01	HIOL		11:21:17	2002/123-11:21:17 Command FAILED: @HIR_SAI_ERASE 4: HIR_SCCMDS_REJCT incremented (1) HIR_SCCMD_LAST_RC = X#1fe2 HIR_SCCMD_LAST_CN = 35 , Ask-Question> Continue after FAILURE (y or n)? Y
05/02/02	123	RS01	HIOL		11:22:00	2002/123-11:22 TDR gave OK to break configuration. Powering down on B side.
05/02/02	123	RS01	HIOL		11:23:09	2002/123-11:23:09 Command FAILED: @HIR_SAI_ERASE 4: HIR_SAIL_CMD_ERR flag (1) Ask-Question> Continue after FAILURE (y or n)? Y
05/02/02	123	RS01	HIOL		11:27:00	2002/123-11:27 sent @hir_tss_safe
05/02/02	123	RS01	HIOL		11:59:02	2002/123-11:59:02 Command FAILED: @HIR_SAI_STOP 0xDEAD: HIR_SAIL_CMD_ERR flag (1) Ask-Question> Continue after FAILURE (y or n)? Y,
05/02/02	123	RS01	HIOL		12:02:00	2002/123-12:02 Completed Side B power down.
05/02/02	123	RS01	HIOL		14:54:00	2002/123-14-54 Start Power-on Side A.
05/02/02	123	RS01	HIOL		15:05:51	2002/123-15:05:51 Telemetry FAILED: HIR_TSU_LIOTRES = 0x0 actual X#8 , Ask-Question> Continue after FAILURE (y or n)?
05/02/02	123	RS01	HIOL		15:06:49	2002/123-15:06:49 Telemetry FAILED: HIR_TSB_STATE = 4 actual 6 , Ask-Question> Continue after FAILURE (y or n)?
05/02/02	123	RS01	HIOL		15:07:29	2002/123-15:07:29 Continue selected by test conductor after failure...
05/02/02	123	RS01	HIOL		15:07:46	2002/123-15:07:46 Telemetry FAILED: HIR_TSB_EEPROM_ON = 1 actual 0 , Ask-Question> Continue after FAILURE (y or n)?
05/02/02	123	RS01	HIOL		16:00:00	2002/123-16:00 Waiting for TEMP-INHIBs to go to 0.
05/02/02	123	RS01	HIOL		18:58:00	2002/123-18:58 Gyro temps reached 55 C. All TEMP-INHIBs are 0. Proceed to a_hir_tlm_sciopr_2:
05/02/02	123	RS01	HIOL		19:26:03	2002/123-19:26:03 Telemetry FAILED: HIR_GYS3_PWR_MODE = 0 actual 1 Ask-Question> Continue after FAILURE (y or n)?
05/02/02	123	RS01	HIOL		20:22:00	2002/123-20:22 Completed Power-on Side A.
05/02/02	123	RS01	HIOL		21:21:00	2002/123-21:21 Room Temperature 65 Deg. Instrument ready.
05/02/02	123	RS01	HIOL		21:23:00	2002/123-21:23 Start sweep. CS01 test. Freq. 30Hz.
05/02/02	123	RS01	HIOL		21:25:00	2002/123-21:25 Stop sweep. Setup equipment.

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/02/02	123	RS01	HIOL		22:08:00	2002/123-22:08 Room temperature 62 Deg. Still setting up.
05/03/02	123	CS01	ETOL		22:09:00	Start sweep 30 Hz, PI-QB-A, Test stopped, QB off line, Gyro pump making noisy, banging, switch power off, (CS01)
05/02/02	123	RS01	HIOL		22:09:00	2002/123-22:09 Start sweep 30Hz - 50 kHz.
05/03/02	123	CS01	ETOL		22:14:00	Stop: Bus problem @ 3.922 KHz, signal generator output 3V, input jumped to 5.16V, input voltage switch off, (CS01)
05/02/02	123	RS01	HIOL		22:17:00	2002/123-22:17 Powered off CMU. Loud rattling noise.
5/3/2002	124	RS01	HIOL		0:09:37	Powering up quiet bus with the IPU attached. Checking IPU and PCU. Going toreset the PCU to all load and converts off.
5/3/2002	124	RS01	HIOL		0:25:29	Powering up the CSS to see if it is stil functioning.
5/3/2002	124	RS01	HIOL		0:36:57	Powering down CSS.
5/3/2002	124	RS01	HIOL		0:50:47	Powering instrument to reconfigure for the test.
5/3/2002	124	RS01	HIOL		0:54:03	Reconfiguring the instrument to restart the test.
5/3/2002	124	RS01	HIOL		1:11:19	Aborting the previously run CPT2.
5/3/2002	124	RS01	HIOL		1:13:33	Powering up the instrument
5/3/2002	124	RS01	HIOL		1:16:39	The hir_ipu_mnboot script faile to come up because or limited PTY's. Closed inactive windows and proceeded on
5/3/2002	124	RS01	HIOL		1:18:56	Paused the PSS on scripte to manually issue the commands to load FLT SW and
5/3/2002	124	RS01	HIOL		1:24:45	The TSS manual boot script failed. TSS autobooted already. Aborted proc.
5/3/2002	124	RS01	HIOL		1:30:00	It appears that the 28 reg proc did not initiate. There was a problem with the amount ot PTY's. I had to pause the CSS on scripts and run hir_pss_28ron
5/3/2002	124	RS01	HIOL		2:02:29	completed initial power on. Waiting for the Gyros to warm up. Cryotip temp is now 80K so skipping to step 3.11 to change the stroke rate to 80% max.
5/3/2002	124	RS01	HIOL		2:02:29	Cryotip temp is now 80K so skipping to step 3.11 to change the stroke rate to 80% max.
5/3/2002	124	RS01	HIOL		2:02:29	The quiet bus and noisy bus were on remote sensing. Toggled the switch to change the sensing to local.
5/3/2002	124	RS01	HIOL		2:02:29	Starting diagnostic test 30 Hz to 10 KHz test again. Starting at 1V. We have Dave Seidl stations at the Dash-8, monitoring current. Frank Adams monitoring the graphs, and Talin stationed at the door to relay messages to the EMC team.
5/3/2002	124	RS01	HIOL		4:23:00	2002/124-04:23 - Temporarily switching to remote sensing.
5/3/2002	124	RS01	HIOL		4:24:00	2002/124-04:24 - Going back to local sensing.
5/3/2002	124	RS01	HIOL		4:25:00	2002/124-04:25 Starting test
05/03/02	124	CS01	ETOL		4:26:00	Start sweep @ 30.0 Hz, 1V p-p, QB, (CS01)
5/3/2002	124	CS01	HIOL		4:26:00	2002/124-04:26 Starting Sweep at 30Hz
5/3/2002	124	CS01	HIOL		4:33:00	2002/124-04:33 Stopped sweep at 400 Hz
05/03/02	124	CS01	ETOL		4:33:50	Stop sweep @ 400.0 Hz, 1V p-p, QB, (CS01)
5/3/2002	124	CS01	HIOL		4:56:00	2002/124-04:56 Started sweep at 400 Hz 1 V peak to peak.
05/03/02	124	CS01	ETOL		4:56:10	Start sweep @ 400.0 Hz, 1V p-p, QB, (CS01)
5/3/2002	124	CS01	HIOL		4:57:00	2002/124-04:57 Reached 1 KHz.
5/3/2002	124	CS01	HIOL		4:59:00	2002/124-04:59 Reached 2 KHz.
5/3/2002	124	CS01	HIOL		5:01:00	2002/124-05:01 Reached 3 KHz.
5/3/2002	124	CS01	HIOL		5:02:00	2002/124-05:02 Reached 4 KHz.
5/3/2002	124	CS01	HIOL		5:04:00	2002/124-05:04 Stopped at 10 KHz.
05/03/02	124	CS01	ETOL		5:04:35	Stop sweep @ 10.0 Hz, 1V p-p, QB, (CS01)
05/03/02	124	CS01	ETOL		5:06:00	Start sweep @ 30.0 Hz, 1V p-p, QB, (CS01)
5/3/2002	124	CS01	HIOL		5:06:00	2002/124-05:06 Starting 30Hz to 10 KHz 2 V PtP
05/03/02	124	CS01	ETOL		5:21:00	Stop sweep @ 10.0 KHz, 1V p-p, QB, (CS01)
5/3/2002	124	CS01	HIOL		5:21:00	2002/124-05:21 Finished sweep at 10 KHz
5/3/2002	124	CS01	HIOL		5:21:00	Noticed that the GYR1 and GYR3 heater were off. Sent command to turn GYR1 and GYR£ back on…
5/3/2002	124	CS01	HIOL		5:24:18	Gyro Heaters came back on.
05/03/02	124	CS01	ETOL		5:36:00	Start sweep @ 30.0 Hz, 1V p-p, PI-QB-A, (CS01)

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
5/3/2002	124	CS01	HIOL		5:40:00	Around 5:40 noticed the GYR1 and GYR3 heaters were off again.
5/3/2002	124	CS01	HIOL		5:47:00	Around 5:47 GYR2 heater shut off.
5/3/2002	124	CS01	HIOL		5:47:15	Sent commands to turn on the gyro heaters...
5/3/2002	124	CS01	HIOL		5:50:37	Heaters did not go on.
5/3/2002	124	CS01	HIOL		5:50:48	GYR2 and GYR3 heaters turned on. GYR1 heater did not go on.
5/3/2002	124	CS01	HIOL		5:52:19	Sent the command to turn the GYR1 heater on. This time the GYR1 heater turned on.
5/3/2002	124	CS01	HIOL		5:52:19	This time the GYR1 heater turned on.
05/03/02	124	CS01	ETOL		6:00:30	Stop sweep @ 50.0 KHz, 1V p-p, PI-QB-A, (CS01)
05/03/02	124	CS01	ETOL		6:30:00	Start: Run 1890 Hz, 3.00 V, PI-QB-A, no time listed, (CS01)
5/3/2002	124	CS01	HIOL		6:30:00	2002/124-06:30 Gyro heaters 1, 2, 3 went off at 3 Vpp
05/03/02	124	CS01	ETOL		6:31:00	Run 1890 Hz, 2.50 V, PI-QB-A, no time listed, (CS01)
5/3/2002	124	CS01	HIOL		6:31:22	Heaters 1 and 3 did not respond. Sent commands again and decrease to 2.5 Vpp
05/03/02	124	CS01	ETOL		6:31:30	Run 1890 Hz, 2.00 V, PI-QB-A, no time listed, (CS01)
05/03/02	124	CS01	ETOL		6:32:15	Run 1890 Hz, 1.75 V, PI-QB-A, no time listed, (CS01)
5/3/2002	124	CS01	HIOL		6:32:17	Heaters 1 and 3 did not respond. Sent commands again and decreased to 2 Vpp
05/03/02	124	CS01	ETOL		6:32:36	1.5 V (line inserted from System Engineering log)
5/3/2002	124	CS01	HIOL		6:32:38	Heaters 1 and 3 did not respond. Sent commands again and decreased to 1.75 Vpp
5/3/2002	124	CS01	HIOL		6:32:56	Heater 1 went on but 3 did not. Sent command again and decreased to 1.5 Vpp
05/03/02	124	CS01	ETOL		6:33:18	Run 1890 Hz, 1.25 V, PI-QB-A, no time listed, (CS01)
05/03/02	124	CS01	ETOL		6:33:40	Run 1890 Hz, 1.00 V, PI-QB-A, no time listed, (CS01)
5/3/2002	124	CS01	HIOL		6:34:56	Heater 3 did not respond. Sent command again and decreased to 1 Vpp
05/03/02	124	CS01	ETOL		6:35:00	Run 42 kHz, 1.00 V, PI-QB-A, no time listed, (CS01)
5/3/2002	124	CS01	HIOL		6:35:00	Heater 3 responded this time but went off again.
5/3/2002	124	CS01	HIOL		6:35:00	2002/124-06:35 Setup up at 42KHz and observed 6-7 deg Cpp noise on CALMIR and
5/3/2002	124	CS01	HIOL		6:35:00	2002/124-06:35 decrease amplitude from 1V to 0.75V. Noise changed to 5-6 deg
05/03/02	124	CS01	ETOL		6:35:51	Run 42 kHz, 0.75 V, PI-QB-A, no time listed, (CS01)
5/3/2002	124	CS01	HIOL		6:36:00	2002/124-06:36 decrease amplitude to 0.5V. Noise changed to 3 deg Cpp.
05/03/02	124	CS01	ETOL		6:36:46	Run 42 kHz, 0.50 V, PI-QB-A, no time listed, (CS01)
5/3/2002	124	CS01	HIOL		6:37:00	2002/124-06:37 decrease amplitude to 0.25V. Noise changed to 2 deg Cpp.
05/03/02	124	CS01	ETOL		6:37:48	Run 42 kHz, 0.25 V, PI-QB-A, no time listed, (CS01)
5/3/2002	124	CS01	HIOL		6:39:00	2002/124-06:39 decrease amplitude to 0.1V. Graphs appear nominal again.
05/03/02	124	CS01	ETOL		6:39:40	Run 42 kHz, **0.1 V**, PI-QB-A, no time listed, (CS01) (voltage corrected from System Engineering log)
5/3/2002	124	CS01	HIOL		6:40:00	2002/124-06:40 Stopped test to reconfigure on return side of Noisy bus CS01.
05/03/02	124	CS01	ETOL		7:00:00	Stop: Run 42 kHz, 0.00 V, PI-QB-A, no time listed, (CS01)
5/3/2002	124	CS01	HIOL		7:03:39	2002/124-07:03:39 CSTOL: operator: @hir_tss_start to restart ifc static scan.
05/04/02	124	CS01	ETOL		7:15:00	Start sweep @ 30.0 Hz, 1V p-p, PI-QB-A, (CS01)
5/3/2002	124	CS01	HIOL		7:15:00	2002/124-07:15 Starting test for Noisy Bus high side of CS01. 30Hz - 50 KHz.
5/3/2002	124	CS01	HIOL		7:19:00	2002/124-07:19 Noticed channel counts in SPU window read between 1300 - 1600. Normally its around 2000.
5/3/2002	124	CS01	HIOL		7:40:00	2002/124-07:40 Channel counts are still around 1300-1700 counts.
5/3/2002	124	CS01	HIOL		7:56:00	2002/124-07:56 Variation in CLAMIR and LNS1_WF temp sensors is 3-4 deg Cpp.
5/3/2002	124	CS01	HIOL		7:59:00	2002/124-07:59 Variation is decreasing.
5/3/2002	124	CS01	HIOL		8:03:00	2002/124-08:03 Variation was nearing normal but slightly increase at 44.069 KHz
05/04/02	124	CS01	ETOL		8:04:00	Stop sweep @ 50.0 KHz, 1V p-p, PI-QB-A, (CS01)
5/3/2002	124	CS01	HIOL		8:04:00	2002/124-08:04 Reached 50KHz and temperature variation has subsided.

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
5/3/2002	124	CS01	HIOL		8:04:40	2002/124-08: Retest at 19KHz and observing temperatures. 4 Vpp 7-8 deg Cpp variation , 3.52 Vpp 6-7 deg Cpp variation , 3.04 Vpp 5-6 deg Cpp variation , 2.48 Vpp 4 deg Cpp variation , 2.08 Vpp 4 deg Cpp variation , 1.52 Vpp still around 4 deg C variation , 1.04 Vpp about 2 deg Cpp variation , 0.48 Vpp about 1-2 deg Cpp variation
5/3/2002	124	CS01	HIOL		8:14:00	2002/124-08:14 Stopped retest and reconfigure for SBA high side CS01
5/3/2002	124	CS01	HIOL		8:16:00	2002/124-08:16 changing connections from NBA low side to SBA high side on BOB setup.
05/04/02	124	CS01	ETOL		8:26:00	Start sweep @ 30.0 Hz, 3V p-p, PI-QB-A, (CS01)
5/3/2002	124	CS01	HIOL		8:26:00	2002/124-08:26 starting test at 30Hz - 50KHz on NBA high side.
5/3/2002	124	CS01	HIOL		8:43:00	2002/124-08:43 CALMIR and LNS1_FW are slightly noisy, about 1 deg Cpp at 8KHz
5/3/2002	124	CS01	HIOL		8:45:00	2002/124-08:45 17KHz AZ posiition enc plot is very noisy. Temps still at 1 deg Cpp noise
5/3/2002	124	CS01	HIOL		8:49:00	2002/124-08:49 43KHz temperature plot noise is 1.5 deg Cpp
05/04/02	124	CS01	ETOL		8:51:00	Stop sweep @ 50.0 KHz, 3V p-p, PI-QB-A, (CS01)
5/3/2002	124	CS01	HIOL		8:51:00	2002/124-08:51 stopped test, reached 50KHz
5/3/2002	124	CS01	HIOL		8:55:00	2002/124-08:55 Performing special test. Room as quiet as possible, turning hepa filter off while doing IFC static scan.
5/3/2002	124	CS01	HIOL		8:59:00	2002/124-08:59 Completed special test. Reconfiguring for CS01, moving transformers to return side of every bus.
5/3/2002	124	CS01	HIOL		9:25:00	2002/124-09:25 Gyro 3 heater was glitched off during reconfig. Had to restart.
05/04/02	124	CS01	ETOL		9:26:00	Start sweep @ 30.0 Hz, 3V p-p, PR-QB-A, (CS01)
5/3/2002	124	CS01	HIOL		9:26:00	2002/124-09:26 Starting CS01 on Quiet bus return side.
5/3/2002	124	CS01	HIOL		9:27:39	Unable to restart heater 3
5/3/2002	124	CS01	HIOL		9:31:00	2002/124-09:31 Lost Heater 1 and unable to restart it. At this time both 1 and 3 is off.
5/3/2002	124	CS01	HIOL		9:40:00	2002/124-09:40 Heater 2 went off at 1.357KHz. Unable to restart heater, currently GYRO heaters 1, 2, and 3 are off.
5/3/2002	124	CS01	HIOL		9:42:00	2002/124-09:42 Observation: all channels now read between 1800 - 1900 counts in SPU window.
5/3/2002	124	CS01	HIOL		9:44:00	2002/124-09:44 still unable to restart GYRO heaters 1, 2 and 3 after repeated attempts.
5/3/2002	124	CS01	HIOL		9:46:00	2002/124-09:46 Was able to start GYRO 2 heater. 1 and 3 still off.
5/3/2002	124	CS01	HIOL		9:47:00	2002/124-09:47 Started GYRO 3, freq was 6.8 KHz. Gyro 1 still off.
5/3/2002	124	CS01	HIOL		9:48:00	2002/124-09:48 Started GYRO 1 heater, 11KHz All heaters are now on.
5/3/2002	124	CS01	HIOL		9:50:00	2002/124-09:50 16KHz, started to get noticeable noise on the CALMIR and LNS1 temp graph. (Currently around 2 deg Cpp)
5/3/2002	124	CS01	HIOL		9:51:00	2002/124-09:51 23 KHz, 12-20 dec Cpp noise on temp plots.
5/3/2002	124	CS01	HIOL		9:54:00	2002/124-09:54 33KHz, noise on temp is now 10-15 deg Cpp.
5/3/2002	124	CS01	HIOL		9:54:00	2002/124-09:54 Temp sensors on displacer and comp_head are very noisy, bouncing at 10 - 15 degrees.
05/04/02	124	CS01	ETOL		9:57:00	Stop sweep @ 50.0 KHz, 3V p-p, PR-QB-A Note:Thresholding @ 23KHz, (CS01)
5/3/2002	124	CS01	HIOL		9:57:00	2002/124-09:57 Reached 50KHz, stopped test.
05/04/02	124	CS01	ETOL		10:11:00	Start: 23KHz @ 2.56 V p-p, PR-QB-A, current limit, (CS01)
5/3/2002	124	CS01	HIOL		10:11:00	2002/124-10:11 Going to repeat test at 23KHz at 4Vpp and observe temp plot. Currently waiting for power resistor to cool down before proceeding with retest. 2.56 Vpp 8 deg Cpp noise , 2 Vpp 6 deg Cpp noise , 1.52 Vpp 2 deg Cpp noise , 1.04 Vpp 1 deg Cpp noise on plots , 0.56 Vpp Just about nominal, approx. 0.5 deg noise
05/04/02	124	CS01	ETOL		10:12:00	23KHz @ 2.0 V p-p, PR-QB-A, 18.6 mV, current 2 amps/10 mV, (CS01)
05/04/02	124	CS01	ETOL		10:14:00	23KHz @ 1.52 V p-p, PR-QB-A, 12 mV, current 2 amps/10 mV, (CS01)
05/04/02	124	CS01	ETOL		10:15:00	23KHz @ 1.04 V p-p, PR-QB-A, 7.6 mV, current 2 amps/10 mV, (CS01)
05/04/02	124	CS01	ETOL		10:16:00	23KHz @ 560 mV p-p, PR-QB-A, 4 mV, current 2 amps/10 mV, (CS01)
5/3/2002	124	CS01	HIOL		10:16:00	2002/124-10:16 Completed retest at 23KHz.
05/04/02	124	CS01	ETOL		10:18:00	Stop: (line inserted; time invented by FWA from earlier lines)
05/04/02	124	CS01	ETOL		10:27:00	Start sweep @ 30.0 Hz, PR-NB-A, (CS01)
5/3/2002	124	CS01	HIOL		10:27:00	2002/124-10:27 Starting CS01 test on Noisy Bus return. 30Hz
5/3/2002	124	CS01	HIOL		10:30:00	2002/124-10:30 Observation: all channels read between 1960-2000 counts. Appears nominal.
5/3/2002	124	CS01	HIOL		10:40:00	2002/124-10:40 Notice max of 9 App on the DASH8 recorder for Noisy Bus current.

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04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
5/3/2002	124	CS01	HIOL		10:52:00	2002/124-10:52 12.1KHz, noise on temp plot is increasing to about 1 deg Cpp.
5/3/2002	124	CS01	HIOL		10:53:00	2002/124-10:53 18.7KHz noise on temp plot has increase to 2 deg Cpp.
5/3/2002	124	CS01	HIOL		10:55:00	2002/124-10:55 26.8KHz, noise is at 4 deg Cpp on temp plot.
5/3/2002	124	CS01	HIOL		10:56:00	2002/124-10:56 29.7KHz, noise is at 6 deg Cpp
5/3/2002	124	CS01	HIOL		10:57:00	2002/124-10:57 35.6KHz, noise is decreasing to 2 deg Cpp.
5/3/2002	124	CS01	HIOL		10:59:00	2002/124-10:59 47.9KHz, noise has increased to 6 deg Cpp.
05/04/02	124	CS01	ETOL		11:00:00	Stop sweep @ 50.0 KHz, PR-NB-A, (CS01) (time corrected from System Engineering log)
5/3/2002	124	CS01	HIOL		11:00:00	2002/124-11:00 Reached 50KHz, stopping test. Noise stayed at 6 deg Cpp.
05/04/02	124	CS01	ETOL		11:03:00	Start: susceptibility @ 29.7 KHz, PR-NB-A, 3.4 V, 3.04 V, 2.48 V, 2.0 V, 1.52 V, 1.1 V, 560 mV threshold, (CS01)
5/3/2002	124	CS01	HIOL		11:03:00	2002/124-11:03 Repeating 29.7KHz and decreasing amplitude of injected signal and observer changes. 3.4 Vpp 6 deg Cpp , 3.04 Vpp 6 deg Cpp , 2.48 Vpp 4-5 deg Cpp , 2 Vpp 4 deg Cpp , 1.52 Vpp 3 deg Cpp , 1.1 Vpp 2 deg Cpp , 0.56 2 deg approx 1 dec Cpp
05/04/02	124	CS01	ETOL		11:07:00	Stop: (line inserted; start and stop times from System Engineering log)
5/3/2002	124	CS01	HIOL		11:07:00	2002/124-11:07 Completed retest at 29.7KHz. Reconfiguring for SBA return side for CS01.
05/04/02	124	CS01	ETOL		11:15:00	Start sweep @ 30.0 Hz, PR-SB-A, (CS01)
5/3/2002	124	CS01	HIOL		11:15:00	2002/124-11:15 Starting CS01 Survival Bus Return Side 30 Hz - 50 kHz [Entered by JTC TJC :-)]
5/3/2002	124	CS01	HIOL		11:27:00	2002/124-11:27 Observation: All SPU channels are displaying 2000-2090 counts. Nominal on all channels.
5/3/2002	124	CS01	HIOL		11:27:00	2002/124-11:27 3.7KHz, noticing about 1 deg Cpp noise on temp plots.
5/3/2002	124	CS01	HIOL		11:33:00	2002/124-11:33 30.7KHz noise steady at 1 deg Cpp on temp plots
5/3/2002	124	CS01	HIOL		11:35:00	2002/124-11:35 40.4KHz noise is at 1.5 deg Cpp.
5/3/2002	124	CS01	HIOL		11:36:00	2002/124-11:36 48KHz, noise is at 2.5 deg Cpp.
05/04/02	124	CS01	ETOL		11:37:00	Stop sweep @ 50.0 KHz, PR-SB-A, (CS01)
5/3/2002	124	CS01	HIOL		11:37:00	2002/124-11:37 Reached 50KHz. Stopping test. Ready to reconfig for CS02. Swapping transformers out and replacing with capacitors.
5/3/2002	124	CS01	HIOL		13:17:00	2002/124-13:17 Sent @hir_tss_start to restart IFC static scan.
05/04/02	124	CS02	ETOL		13:18:00	Start sweep @ 50.0 KHz, PI-QB-A, Pulse lead to Return lead, (CS02)
5/3/2002	124	CS02	HIOL		13:18:00	2002/124-13:18 Starting CS02 on QBA high side to return, 50KHz
5/3/2002	124	CS02	HIOL		13:40:00	2002/124-13:40 Changing Amps. Restart at 250KHz
5/3/2002	124	CS02	HIOL		13:52:00	2002/124-13:52 Frequency of 640 KHz, AD590s are quiet.
5/3/2002	124	CS02	HIOL		15:00:00	2002/124-15:00 Seeing about 1 C drop on the PCU temp dd
5/3/2002	124	CS02	HIOL		15:40:00	2002/124-15:40 IPU Reset, CSS current normal, slight variation on the QBA current
05/04/02	124	CS02	ETOL		15:41:00	Stop sweep @ 39.735 MHz, 3.0 V p-p, PI-QB-A, Fault, loss of encoders, powering HIRDLS down , (CS02)
5/3/2002	124	CS02	HIOL		15:47:45	2002/124 15:47:45 Did an hir_ipu_mnboot
5/3/2002	124	CS02	HIOL		15:47:45	CSS normal. TEU normal, still staring at the IFC. GSS normal in the same state, but the GSS FM was disabled.
5/3/2002	124	CS02	HIOL		15:59:37	2002/124 15:59:37 Perform a 'normal' power down.
5/3/2002	124	CS02	HIOL		17:56:19	waiting for CRYOTIP_TMP_D0 to get below 80 K
5/3/2002	124	CS02	HIOL		18:21:51	2002/124-18:21:51 jumpo to << sidea_start_csstherm: >> Section 3.11, Waiting for the GSS motors to get warm enough to start at least 1. Looking at the GSS warm up rates. They are taking way too long. Looking at the GSS warm up rates. They are taking way too long.
05/04/02	124	CS02	ETOL		20:37:00	Start sweep @ 39.735 MHz, PI-QB-A, Pulse lead to Return lead, (CS02)
5/3/2002	124	CS02	HIOL		20:38:00	2002/124-20:38 Start sweep without gyros motors spun up
5/3/2002	124	CS02	HIOL		20:42:00	2002/124-20:42 System Freezes. QB constant 3.982 A NB down to 0.531 A
05/04/02	124	CS02	ETOL		20:44:00	Stop sweep @ 50.460 MHz, 3.0 V p-p, PI-QB-A, Fault, HIRDLS anomaly , (CS02)
5/3/2002	124	CS02	HIOL		20:45:19	2002/124 20:45:19 Power down buses
5/3/2002	124	CS02	HIOL		20:56:37	2002/124-20:56:37 start again

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
5/3/2002	124	CS02	HIOL		21:25:00	2002/124-21:25 chn 13 oscillating
5/3/2002	124	CS02	HIOL		21:58:51	2002/124-21:58:51 CSTOL: operator: goto sidea_start_csstherm: Goto 80% & start test
05/04/02	124	CS02	ETOL		22:03:00	Start sweep @ 48.0 MHz, PI-QB-A, (CS02)
5/3/2002	124	CS02	HIOL		22:03:00	2002/124-22:03 restart Cs02 test
05/04/02	124	CS02	ETOL		22:04:00	Stop sweep @ 50.460 MHz, 3.0 V p-p, PI-QB-A, Fault, HIRDLS anomaly , (CS02)
05/04/02	124	CS02	ETOL		22:04:00	Start sweep @ 50.460 MHz, PI-QB-A, Input 2.0 V p-p up100 MHz , (CS02)
5/3/2002	124	CS02	HIOL		22:04:00	2002/124-22:04 stop cs02 Test -- Telemetry freeze Qb about 3.1 A Nb abotu 0.51 A
05/04/02	124	CS02	ETOL		22:07:00	Stop sweep @ ??? MHz not listed, 3.0 V p-p, PI-QB-A, Fault, HIRDLS anomaly, told to stop, (CS02) SysEngr log: stopped at 1.5 V while ramping up power at initial frequency
5/3/2002	124	CS02	HIOL		22:08:54	2002/124-22:08:54 Restart hir_cpt2_test (forget to stop old one)
5/3/2002	124	CS02	HIOL		22:37:56	2002/124-22:37:56 CSTOL: operator: return Kill new cpt2
5/3/2002	124	CS02	HIOL		22:38:27	2002/124-22:38:27 CSTOL: operator: return Kill old CPT2
5/3/2002	124	CS02	HIOL		22:38:45	2002/124-22:38:45 CSTOL: operator: start hir_cpt2_test restart
5/3/2002	124	CS02	HIOL		22:39:48	2002/124-22:39:48 CSTOL: operator: goto sidea_start_dsscooldown: jump to jump to dss cool down
5/3/2002	124	CS02	HIOL		22:54:04	Turned on IFC and OPH to 8% power duty cycle.
5/3/2002	124	CS02	HIOL		22:54:27	2002/124-22:54:27 CSTOL: operator: goto sidea_init_teu: Initializing TEU
5/3/2002	124	CS02	HIOL		23:11:11	Telemetry check faild =2 actual 0. Timing issue. Checked the TLM point and it was 2. Continued on wth proc.
5/3/2002	124	CS02	HIOL		23:11:32	2002/124-23:11:32 CSTOL: operator: @hir_tss_start, Started 20 hour static ifc stare.
5/3/2002	124	CS02	HIOL		23:17:00	2002/124-23:17 starting test 50 MHz ramping up to 0.5 V
05/04/02	124	CS02	ETOL		23:21:00	Start @ 50.0 MHz, PI-QB-A, input 0.5 V p-p , (CS02)
5/3/2002	124	CS02	HIOL		23:21:00	2002/124-23:21 Reached 0.5 V.
5/3/2002	124	CS02	HIOL		23:22:00	2002/124-23:22 Ramped down to 0V Set for 55 MHz
05/04/02	124	CS02	ETOL		23:23:00	Stop @ 50.0 MHz, PI-QB-A, input 0.5 V p-p, (CS02)
05/04/02	124	CS02	ETOL		23:23:00	Start @ 55.0 MHz, PI-QB-A, input 1.0 V p-p , (CS02)
5/3/2002	124	CS02	HIOL		23:23:00	2002/124-23:23 Ramping up to 1 V at 55 MHz
5/3/2002	124	CS02	HIOL		23:25:03	2002/124-23:25:3 CSTOL: operator: goto sidea_start_csstherm: Setting the stroke rate to 80%
05/04/02	124	CS02	ETOL		23:27:00	Stop @ 55.0 MHz, PI-QB-A, input 1.0 V p-p, (CS02)
5/3/2002	124	CS02	HIOL		23:27:00	2002/124-23:27 Ramped up to 1.5 V at 55MHz.
05/04/02	124	CS02	ETOL		23:28:00	Start @ 55.0 MHz, PI-QB-A, input 1.5 V p-p , (CS02)
5/3/2002	124	CS02	HIOL		23:28:00	2002/124-23:28 Ramping up to 2 V at 55 MHz
05/04/02	124	CS02	ETOL		23:31:00	Stop @ 55.0 MHz, PI-QB-A, input 1.5 V p-p, (CS02)
05/04/02	124	CS02	ETOL		23:31:00	Start @ 55.0 MHz, PI-QB-A, input 2.0 V p-p , (CS02)
05/04/02	124	CS02	ETOL		23:31:00	Start @ 60.0 MHz, PI-QB-A, input 2.0 V p-p , (CS02)
05/04/02	124	CS02	ETOL		23:31:00	Stop @ 60.0 MHz, PI-QB-A, input 2.0 V p-p, (CS02)
5/3/2002	124	CS02	HIOL		23:31:00	2002/124-23:31 Dropping to 0V
5/3/2002	124	CS02	HIOL		23:31:00	2002/124-23:31 at 0 V setting to 60 MHz.
05/04/02	124	CS02	ETOL		23:32:00	Stop @ 55.0 MHz, PI-QB-A, input 2.0 V p-p, (CS02)
05/04/02	124	CS02	ETOL		23:32:00	Start @ 60.0 MHz, PI-QB-A, input 2.5 V p-p , (CS02)
5/3/2002	124	CS02	HIOL		23:32:00	2002/124-23:32 Ramping up to 2 V.
05/04/02	124	CS02	ETOL		23:33:00	Stop @ 60.0 MHz, PI-QB-A, input 2.5 V p-p, (CS02)
05/04/02	124	CS02	ETOL		23:33:00	Start @ 60.0 MHz, PI-QB-A, input 3.0 V p-p , (CS02)
5/3/2002	124	CS02	HIOL		23:33:00	2002/124-23:33 Ramping up to 3V.
05/04/02	124	CS02	ETOL		23:34:00	Stop @ 60.0 MHz, PI-QB-A, input 3.0 V p-p, (CS02)
05/04/02	124	CS02	ETOL		23:34:00	Start sweep @ 60.0 MHz, PI-QB-A, input 3.0 V p-p , (CS02)
5/3/2002	124	CS02	HIOL		23:34:00	2002/124-23:34 Sweeping up to 100 MHz 5-10 KHz rate.

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/04/02	124	CS02	ETOL		23:43:00	Stop sweep @ 100.0 MHz, PI-QB-A, input 3.0 V p-p, (CS02)
5/3/2002	124	CS02	HIOL		23:43:00	2002/124-23:43 Readched 100MHz. Changing Amps.
05/04/02	124	CS02	ETOL		23:47:00	Start sweep @ 100.0 MHz, PI-QB-A, input 3.0 V p-p , (CS02)
5/3/2002	124	CS02	HIOL		23:47:00	2002/124-23:47 Powering on up to 3V 100MHz and sweeping up to ? at 10 KHz rate.
05/04/02	125	CS02	ETOL		0:04:00	Stop sweep @ 175.0 MHz, PI-QB-A, input 3.0 V p-p, (CS02)
05/04/02	125	CS02	ETOL		0:04:00	Start sweep @ 175.0 MHz, PI-QB-A, input 3.0 V p-p , (CS02)
05/04/02	125	CS02	ETOL		0:05:00	Stop sweep @ 178.0 MHz, PI-QB-A, input 3.0 V p-p, (CS02)
05/04/02	125	CS02	ETOL		0:05:00	Start sweep @ 178.0 MHz, PI-QB-A, input 3.0 V p-p , (CS02)
05/04/02	125	CS02	ETOL		0:36:00	Stop sweep @ 400.0 MHz, PI-QB-A, input 3.0 V p-p, (CS02)
05/03/02	125	CS02	HIOL		0:36:00	2002/125-00:36 Completed CS02 sweep up to 400 MHz. Configuring for the next test.
05/03/02	125	CS02	HIOL		1:25:00	2002/125-01:25 Starting test on the return side of the quiet bus. Going from 400MHz down to 100 MHz at 3 V.
05/04/02	125	CS02	ETOL		1:27:00	Start @ 400.0 MHz, PR-QB-A, input 3.0 V p-p (Return to Chassis), Current Limit174-176 MHz, (CS02)
05/03/02	125	CS02	HIOL		1:27:00	2002/125-01:27 Starting sweep down to 400 MHz
05/04/02	125	CS02	ETOL		2:11:00	Stop @ 400.0 MHz, PR-QB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		2:11:00	2002/125-02:11 Stopped sweep at 100 MHz. Switching Amps.
05/04/02	125	CS02	ETOL		2:13:00	Start sweep @ 100.0 MHz, PR-QB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		2:13:00	2002/125-02:13 Starting sweep at 100 MHz at 3 V
05/04/02	125	CS02	ETOL		2:24:00	Stop sweep @ 44.0 MHz, PR-QB-A, input 3.0 V p-p, (CS02)
05/03/02	125	CS02	HIOL		2:24:00	2002/125-02:24 stopped at 44.8 MHz
05/04/02	125	CS02	ETOL		2:26:00	Start sweep @ 100.0 MHz, PR-QB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		2:26:00	2002/125-02:26 starting sweep form 44.8 MHz down to 42 MHz
05/04/02	125	CS02	ETOL		2:27:00	Stop sweep @ 44.0 MHz, PR-QB-A, input 3.0 V p-p, (CS02)
05/03/02	125	CS02	HIOL		2:27:00	2002/125-02:27 Stopped sweep at 42 MHz.
05/04/02	125	CS02	ETOL		2:28:00	Start sweep @ 44.0 MHz, PR-QB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		2:28:00	2002/125-02:28 starting sweep 35 MHZ down to
05/04/02	125	CS02	ETOL		2:33:00	Stop sweep @ 42.0 MHz, PR-QB-A, input 3.0 V p-p, (CS02)
05/04/02	125	CS02	ETOL		2:33:00	Start sweep @ 35.0 MHz, PR-QB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		2:33:00	2002/125-02:33 stopping at 14.8 to change current probes.
05/03/02	125	CS02	HIOL		2:33:00	2002/125-02:33 continuing on with sweep.
05/04/02	125	CS02	ETOL		2:36:00	Stop sweep @ 15.0 MHz, PR-QB-A, input 3.0 V p-p, (CS02)
05/04/02	125	CS02	ETOL		2:36:00	Start sweep @ 15.0 MHz, PR-QB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		2:36:00	2002/125-02:36 Changing frequency steps to 5 KHz.
05/03/02	125	CS02	HIOL		2:39:00	2002/125-02:39 Changing freq steps to 1KHz.
05/03/02	125	CS02	HIOL		2:41:00	2002/125-02:41 Stoppong at 100 KHz.
05/04/02	125	CS02	ETOL		2:45:00	Stop sweep @ 1.88 MHz, PR-QB-A, input 3.0 V p-p, (CS02)
05/04/02	125	CS02	ETOL		2:45:00	Start sweep @ 1.88 MHz, PR-QB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		2:45:00	2002/125-02:45 starting at 100KHz.
05/04/02	125	CS02	ETOL		2:47:00	Stop sweep @ 515 KHz, PR-QB-A, input 3.0 V p-p, (CS02)
05/03/02	125	CS02	HIOL		2:47:00	2002/125-02:47 Stopping at 50 KHz
05/04/02	125	CS02	ETOL		2:51:00	Start sweep @ 35.0 MHz, PR-QB-A, input 1.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		2:51:00	2002/125-02:51 starting sweep from 35-42 MHz at 1 V.
05/04/02	125	CS02	ETOL		2:53:00	Stop sweep @ 42.0 KHz, PR-QB-A, input 1.0 V p-p, (CS02)
05/03/02	125	CS02	HIOL		2:53:00	2002/125-02:53 stopping at 42 MHz.
05/04/02	125	CS02	ETOL		2:54:00	Start sweep @ 35.0 MHz, PR-QB-A, input 1.5 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		2:54:00	2002/125-02:54 starting sweep from 35-42 MHz at 1.5 V.

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/04/02	125	CS02	ETOL		2:55:00	Stop sweep @ 42.0 KHz, PR-QB-A, input 1.5 V p-p, (CS02)
05/03/02	125	CS02	HIOL		2:55:00	2002/125-02:55 stopping at 42 MHz.
05/04/02	125	CS02	ETOL		2:56:00	Start sweep @ 35.0 MHz, PR-QB-A, input 2.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		2:56:00	2002/125-02:56 starting sweep from 35-42 MHz at 2.0 V.
05/04/02	125	CS02	ETOL		2:57:00	Stop sweep @ 42.0 KHz, PR-QB-A, input 2.0 V p-p, (CS02)
05/03/02	125	CS02	HIOL		2:57:00	2002/125-02:57 stopping at 42 MHz.
05/04/02	125	CS02	ETOL		2:58:00	Start sweep @ 35.0 MHz, PR-QB-A, input 2.5 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		2:58:00	2002/125-02:58 starting sweep from 35-42 MHz at 2.5 V.
05/04/02	125	CS02	ETOL		2:59:00	Stop sweep @ 42.0 KHz, PR-QB-A, input 2.5 V p-p, (CS02)
05/03/02	125	CS02	HIOL		2:59:50	2002/125-02:59:50 stopping at 42 MHz.
05/04/02	125	CS02	ETOL		3:00:00	Start sweep @ 35.0 MHz, PR-QB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		3:00:00	2002/125-03:00 starting sweep from 35-42 MHz at 3.0 V.
05/04/02	125	CS02	ETOL		3:02:00	Stop sweep @ 42.0 KHz, PR-QB-A, input 3.0 V p-p, (CS02)
05/03/02	125	CS02	HIOL		3:02:00	2002/125-03:02 stopping at 42 MHz.
05/03/02	125	CS02	HIOL		3:02:00	Reconfiguring for Noisy Bus testing.
05/04/02	125	CS02	ETOL		3:31:00	Start sweep @ 50.0 KHz, PI-NB-A, input 3.0 V p-p , (CS02)
05/03/02	125	CS02	HIOL		3:31:00	2002/125-03:31 Starting sweep at 50 KHz at 3 V.
05/04/02	125	CS02	ETOL		3:36:00	Stop sweep @ 251.0 KHz, PI-NB-A, input 3.0 V p-p, (CS02)
05/03/02	125	CS02	HIOL		3:36:00	2002/125-03:36 stopped at 251 KHz to change amplifiers.
05/03/02	125	CS02	HIOL		3:36:00	2002/125-03:36 Stopped at ?? KHz to change amplifiers.
05/04/02	125	CS02	ETOL		3:39:00	Start sweep @ 251.0 KHz, PI-NB-A, input 3.0 V p-p , (CS02)
05/03/02	125	CS02	HIOL		3:39:00	2002/125-03:39 Starting sweep at 251 KHz at 3 V.
05/04/02	125	CS02	ETOL		3:44:00	Stop sweep @ 2.5 KHz, PI-NB-A, input 3.0 V p-p, (CS02)
05/04/02	125	CS02	ETOL		3:44:00	Start sweep @ 2.5 MHz, PI-NB-A, input 3.0 V p-p , (CS02)
05/04/02	125	CS02	ETOL		3:50:00	Stop sweep @ 15.0 KHz, PI-NB-A, input 3.0 V p-p, (CS02)
05/03/02	125	CS02	HIOL		3:50:00	2002/125-03:50 Stopping at 15 MHz for "lunch".
05/04/02	125	CS02	ETOL		4:36:00	Start sweep @ 15.0 MHz, PI-NB-A, input 3.0 V p-p , (CS02)
05/03/02	125	CS02	HIOL		4:36:00	2002/125-04:36 Starting sweep at 15 MHz and going up.
05/04/02	125	CS02	ETOL		5:17:00	Stop sweep @ 175.0 KHz, PI-NB-A, input 3.0 V p-p, (CS02)
05/04/02	125	CS02	ETOL		5:17:00	Start sweep @ 175.0 MHz, PI-NB-A, input 3.0 V p-p , (CS02)
05/04/02	125	CS02	ETOL		5:48:00	Stop sweep @ 400.0 KHz, PI-NB-A, input 3.0 V p-p, current limit 206, 237, 292 MHz, (CS02)
05/03/02	125	CS02	HIOL		5:48:00	2002/125-05:48 Completed sweep up to 400 MHz.
05/03/02	125	CS02	HIOL		5:48:00	Switching to the Return line of the noisy bus.
05/04/02	125	CS02	ETOL		6:07:00	Start sweep @ 50.0 KHz, PR-NB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		6:07:00	2002/125-06:07 Starting at 50 KHz sweep up to 400 MHz. Noisy Bus Return side.
05/03/02	125	CS02	HIOL		6:08:00	2002/125-06:08 About 8 degrees of noise on the CALMIR and LNS1_WF temp plots
05/04/02	125	CS02	ETOL		6:10:00	Stop sweep @ 250.0 KHz, PR-NB-A, input 3.0 V p-p, (CS02)
05/03/02	125	CS02	HIOL		6:12:00	2002/125-06:12 Stopping at 250KHz to change amps.
05/03/02	125	CS02	HIOL		6:14:00	2002/125-06:14 Changing signal generator.
05/04/02	125	CS02	ETOL		6:15:00	Start sweep @ 250.0 KHz, PR-NB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		6:15:00	2002/125-06:15 Starting sweep at 250KHz
05/03/02	125	CS02	HIOL		6:17:00	2002/125-06:17 Reached 1MHz in sweep.
05/04/02	125	CS02	ETOL		6:19:00	Stop sweep @ 2.0 MHz, PR-NB-A, input 3.0 V p-p, (CS02)
05/04/02	125	CS02	ETOL		6:19:00	Start sweep @ 2.0 MHz, PR-NB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		6:19:00	2002/125-06:19 Changing freq. steps to 2 MHz

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04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/03/02	125	CS02	HIOL		6:22:00	2002/125-06:22 Reached 10 MHz
05/03/02	125	CS02	HIOL		6:25:00	2002/125-06:25 Reached 17 MHz
05/04/02	125	CS02	ETOL		6:30:00	Stop sweep @ 30.0 MHz, PR-NB-A, input 3.0 V p-p, (CS02)
05/04/02	125	CS02	ETOL		6:30:00	Start sweep @ 30.0 MHz, PR-NB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		6:30:00	2002/125-06:30 27MHz, Changing Steps to 15KHz
05/04/02	125	CS02	ETOL		6:41:00	Stop sweep @ 155.0 MHz, PR-NB-A, input 3.0 V p-p, (CS02)
05/03/02	125	CS02	HIOL		6:41:00	2002/125-06:41 Stopping at 105MHz to change amps.
05/04/02	125	CS02	ETOL		6:42:00	Start sweep @ 155.0 MHz, PR-NB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		6:42:00	2002/125-06:42 Starting sweep at 105MHz.
05/03/02	125	CS02	HIOL		6:42:15	2002/125-06:42:15 CSTOL: operator: @hir_tss_start
05/05/02	125	CS02	ETOL		7:24:00	Stop sweep @ 400.0 MHz, PR-NB-A, input 3.0 V p-p, (CS02)
05/03/02	125	CS02	HIOL		7:24:00	2002/125-07:24 Stopping sweep, reached 400MHz Changing from noisy to survival bus positive side for CS02.
05/05/02	125	CS02	ETOL		7:44:00	Start sweep @ 50.0 KHz, PI-SB-A, input 3.0 V p-p, (CS02)
05/03/02	125	CS02	HIOL		7:44:00	2002/125-07:44 Starting CS02 on Survival bus positive side, 55KHz
05/03/02	125	CS02	HIOL		7:45:00	2002/125-07:45 Noticing small amount of noise on temp plots (About 1 deg C)
05/05/02	125	CS02	ETOL		7:49:00	Stop sweep @ 250.0 KHz, PI-SB-A, input 3.0 V p-p, (CS02)
05/03/02	125	CS02	HIOL		7:49:00	2002/125-07:49 Stopping at 250KHz to change amplifiers.
05/05/02	125	CS02	ETOL		7:53:00	Start sweep @ 250.0 KHz, PI-SB-A, input 3.0 V p-p, (CS02)
05/03/02	125	CS02	HIOL		7:53:00	2002/125-07:53 Starting sweep again.
05/03/02	125	CS02	HIOL		7:55:00	2002/125-07:55 319KHZ, noise still shown on temp plots. (~1.5 C)
05/03/02	125	CS02	HIOL		8:22:00	2002/125-08:22 8.9MHz, SM_TMP1 dropped from around 26 to about 25 C, all other temps stayed nominal.
05/03/02	125	CS02	HIOL		8:28:00	2002/125-08:28 33MHz, SM_TMP1 dropped from 26 to 10C for a brief instance.
05/03/02	125	CS02	HIOL		8:30:00	2002/125-08:30 47MHz, CALMIR_TMP2 dropped from around 25 to 10 C.
05/03/02	125	CS02	HIOL		8:30:00	2002/125-08:30 Noticed on temp plots for CMP_HEAD has dropped from 24.8 to 22.6 deg C.
05/03/02	125	CS02	HIOL		8:42:00	2002/125-08:42 87MHz, CALMIR_TMP2 has dropped from 26 to 24 C.
05/05/02	125	CS02	ETOL		8:44:00	Stop sweep @ 100.0 MHz, PI-SB-A, input 3.0 V p-p, current limit @52 MHz, (CS02)
05/03/02	125	CS02	HIOL		8:44:00	2002/125-08:44 100MHz, stopping to change amplifiers.
05/05/02	125	CS02	ETOL		8:46:00	Start sweep @ 100.0 MHz, PI-SB-A, input 3.0 V p-p, (CS02)
05/03/02	125	CS02	HIOL		8:46:00	2002/125-08:46 Starting sweep again.
05/05/02	125	CS02	ETOL		9:31:00	Stop sweep @ 400 MHz, PI-SB-A, input 3.0 V p-p, current limit @ 56, 76, 296-303 MHz, (CS02)
05/03/02	125	CS02	HIOL		9:31:00	2002/125-09:31 Reached end of sweep, 400MHz Reconfigure for return side of SBA.
05/05/02	125	CS02	ETOL		9:48:00	Start sweep @ 50.0 KHz, PR-SB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		9:48:00	2002/125-09:48 starting sweep at 50KHz. Observing 8 degrees pp noise on temp plot of CALMIR and LNS1_TMP.
05/05/02	125	CS02	ETOL		9:53:00	Stop sweep @ 250.0 KHz, PR-SB-A, input 3.0 V p-p, current limit @ 75 MHz, (CS02)
05/03/02	125	CS02	HIOL		9:53:00	2002/125-09:53 250KHz, notice few degrees (4 max) on DISPL2 TMP, stopping to change amps
05/05/02	125	CS02	ETOL		9:56:00	Start sweep @ 250.0 KHz, PR-SB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		9:56:00	2002/125-09:56 Stating Sweep
05/03/02	125	CS02	HIOL		10:00:00	2002/125-10:00 416KHz, still observing about 6-7 deg pp noise on temp plots
05/03/02	125	CS02	HIOL		10:05:00	2002/125-10:05 652KHz, noise is around 4 degrees pp on temp plots.
05/03/02	125	CS02	HIOL		10:13:00	2002/125-10:13 2.8MHz, noticed noise on temp. plots is back to nominal.
05/03/02	125	CS02	HIOL		10:20:00	2002/125-10:20 12.2MHz, SM_TMP1 briefly dropped from 26 to 24 C
05/03/02	125	CS02	HIOL		10:32:00	2002/125-10:32 42MHz, SM_TMP1 dropped from 26 to 24C.
05/03/02	125	CS02	HIOL		10:33:00	2002/125-10:33 44MHz, SM_TMP1 dropped from 24 to 17 C.
05/03/02	125	CS02	HIOL		10:34:00	2002/125-10:34 46.4MHz, SM_TMP1 dropped from 24 to 12C
05/05/02	125	CS02	ETOL		10:45:00	Stop sweep @ 100.0 MHz, PR-SB-A, input 3.0 V p-p, (CS02)

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04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/03/02	125	CS02	HIOL		10:45:00	2002/125-10:45 100MHz stopping to change amps
05/05/02	125	CS02	ETOL		10:46:00	Start sweep @ 100.0 MHz, PR-SB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		10:46:00	2002/125-10:46 Starting sweep again from 100MHz
05/05/02	125	CS02	ETOL		11:30:00	Stop sweep @ 400.0 MHz, PR-SB-A, input 3.0 V p-p, (CS02)
05/03/02	125	CS02	HIOL		11:30:00	2002/125-11:30 Stopped test, reached 400MHz
05/05/02	125	CS02	ETOL		11:33:00	Start @ 46.0 MHz, PR-SB-A, input 3.0 V p-p (Return to Chassis), (CS02)
05/03/02	125	CS02	HIOL		11:33:00	2002/125-11:33 Retesting at 46MHz to observe tmp plot for SM_TMP1 3 Vpp - SM_TMP1 drops to 20C from 26C, 2.56 Vpp - now at 23C, 2.0 Vpp - now at 24C, 1.52 Vpp - now at 25C, 1.04 Vpp - now at 25.5C, 0.52 Vpp - now at 26C, 0.0 Vpp - still at 26C
05/05/02	125	CS02	ETOL		11:40:00	Stop @ 46.0 MHz, PR-SB-A, input 3.0 V p-p, 2.5, 2.0, 1.5, 1.0, 0.5, 0.0 V p-p threshold, (CS02)
05/03/02	125	CS02	HIOL		11:40:00	002/125-11:40 Stopped retest. Reconfigure for CS06, installing inductors and transient generator on Quiet bus.
05/03/02	125	CS02	HIOL		12:08:00	2002/125-12:08 During reconfig, gyro3 heater was glitched off. had to send command twice before heater came on. Then it immediately turned off. Did this serveral times and always saw the gyro turn off after turning it back on. Ray shorted out inductor on return side of quiet bus in test set up, commanded gyro3 on and it stayed on. Ray replaced short with 1 Ohm resistor, 50W which was mistakenly thought to be 50 Ohm. Powered heater 3 off to test new config.
05/03/02	125	CS02	HIOL		12:28:37	2002/125-12:28:37 CSTOL: operator: @HIR_GSS_CONTROL 7, 2, 0. Turned on heater 3 and it stayed on.
05/03/02	125	CS02	HIOL		12:28:44	2002/125-12:28:44 CSTOL: operator: @HIR_GSS_CONTROL 7, 3, 0. Realized resistor was not 50 Ohms and removed from setup. Heater 3 glitched off again when removing resistor. Unable to restart Gyro3 heater with inductor in line. The instantaneous demand for current from the heater produces a voltage spike from the inductor which trips the protection circuit in the gyro heater and switches it back off.
05/03/02	125	CS02	HIOL		12:56:00	2002/125-12:56 decided to continue with only 3 heaters on and Gyro 3 heater off.
05/03/02	125	CS02	HIOL		13:06:53	2002/125-13:06:53 CSTOL: operator: @hir_tss_start
05/03/02	125	CS02	HIOL		13:32:00	2002/125-13:32:00 actual start of test, Try turn gyr3 heater again
05/05/02	125	CS06	ETOL		13:44:00	Start @ +29.0 V p Spikes , 10micro-Sec., PI-QB-A, (CS06)
05/03/02	125	CS06	HIOL		13:44:50	2002/125-13:44:50 Start test, CS06 sending 29 V spikes for 5 minutes on QB
05/03/02	125	CS06	HIOL		13:45:00	Seeing a little spikes on the ad590s
05/05/02	125	CS06	ETOL		13:50:00	Stop @ +29.0 V p Spikes , 10micro-Sec., PI-QB-A, (CS06)
05/03/02	125	CS06	HIOL		13:51:00	2002/125-13:51 test complete - EMI team is reviewing data.
05/05/02	125	CS06	ETOL		14:31:00	Start @ -29.0 V p Spikes , 10micro-Sec., PI-QB-A, (CS06)
05/03/02	125	CS06	HIOL		14:31:00	2002/125-14:31:00 Cs06 continue: sending -29 V spikes for 5 minutes on QB
05/03/02	125	CS06	HIOL		14:35:20	2002/125-14:35:20 CSTOL: operator: @HIR_GSS_CONTROL 7, 3, 0. did not turn on, saw minor spikes on the AD590s
05/05/02	125	CS06	ETOL		14:37:00	Stop @ -29.0 V p Spikes , 10micro-Sec., PI-QB-A, (CS06)
05/03/02	125	CS06	HIOL		14:37:00	2002/125-14:37 Cs06 -29V Complete, Try turn gyr3 heater again
05/03/02	125	CS06	HIOL		14:38:35	2002/125-14:38:35 CSTOL: operator: @HIR_GSS_CONTROL 7, 3, 0. did not turn on, Reconfiguring for Cs06 on NB: sending -29V spikes, Inductor no longer on QB (it is on NB), try turn gyr3 heater again
05/03/02	125	CS06	HIOL		14:53:11	2002/125-14:53:11 CSTOL: operator: @HIR_GSS_CONTROL 7, 3, 0. Turned on
05/05/02	125	CS06	ETOL		14:58:00	Start @ -29.0 V p Spikes , 10micro-Sec., PI-NB-A, Fault, (CS06)
05/03/02	125	CS06	HIOL		14:58:15	2002/125-14:58:15 Start test, approx 5 C spike on Ad590s, some were as high a 30 C
05/05/02	125	CS06	ETOL		15:03:00	Stop @ -29.0 V p Spikes , 10micro-Sec., PI-NB-A, Fault, (CS06)
05/03/02	125	CS06	HIOL		15:03:15	2002/125-15:03:15 Test complete but amiplitude still up
05/03/02	125	CS06	HIOL		15:05:00	2002/125-15:05 Amplitude down to 0. Retest at lower level approx 10 V spikes
05/05/02	125	CS06	ETOL		15:12:00	Start @ -9.0 V p Spikes , 10micro-Sec., PI-NB-A, Fault, (CS06)
05/03/02	125	CS06	HIOL		15:12:36	2002/125-15:12:36 Start low ramp up to 10 V
05/03/02	125	CS06	HIOL		15:13:45	2002/125-15:13:45 at 10V
05/05/02	125	CS06	ETOL		15:15:00	Stop @ -9.0 V p Spikes , 10micro-Sec., PI-NB-A, Fault, (CS06)

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/03/02	125	CS06	HIOL		15:15:15	2002/125-15:15:15 Test Complete,
05/03/02	125	CS06	HIOL		15:24:15	2002/125-15:24:15 Start ramp up, CS06 on NB: sending +29V spikes
05/05/02	125	CS06	ETOL		15:25:00	Start @ +29.0 V p Spikes , 10micro-Sec., PI-NB-A, (CS06)
05/03/02	125	CS06	HIOL		15:25:00	2002/125-15:25:00 At full power. Some spikes on the AD590s. fewer than the NB -29V. One skipe on the PRTs
05/05/02	125	CS06	ETOL		15:30:00	Stop @ +29.0 V p Spikes , 10micro-Sec., PI-NB-A, (CS06)
05/03/02	125	CS06	HIOL		15:30:04	2002/125-15:30:04 Test complete
05/03/02	125	CS06	HIOL		15:31:00	2002/125-15:31:00 amplitude down to 0, Reconfigure to the SB
05/03/02	125	CS06	HIOL		15:40:50	2002/125-15:40:50 Start ramp up , CS06 on SB sending +29V spikes
05/05/02	125	CS06	ETOL		15:41:00	Start @ +29.0 V p Spikes , 10micro-Sec., PI-SB-A, Fault, glitch, (CS06)
05/03/02	125	CS06	HIOL		15:41:40	2002/125-15:41:40 At full amplitude, start test
05/03/02	125	CS06	HIOL		15:43:51	2002/125-15:43:51 Spikes on CALMIR_tmp2
05/05/02	125	CS06	ETOL		15:48:00	Stop @ +29.0 V p Spikes , 10micro-Sec., PI-SB-A, Fault, glitch, (CS06)
05/03/02	125	CS06	HIOL		15:49:00	2002/125-15:49 Noticed the SB power off - Ramp amp down, power down SB
05/03/02	125	CS06	HIOL		15:49:38	2002/125-15:49:38 CSTOL: operator: start hir_sb_off, Aborted (no power - duh)
05/03/02	125	CS06	HIOL		15:50:04	2002/125-15:50:4 CSTOL: operator: start hir_sbab_on, Power up ok
05/03/02	125	CS06	HIOL		15:52:30	2002/125-15:52:30 Ramp up , restart test
05/03/02	125	CS06	HIOL		15:52:55	2002/125-15:52:55 SB power off itself -- Ramp Down
05/05/02	125	CS06	ETOL		15:53:00	Start @ +29.0 V p Spikes , 10micro-Sec., PI-SB-A, Repeat, Fault, glitch, (CS06)
05/05/02	125	CS06	ETOL		15:53:00	Stop @ +29.0 V p Spikes , 10micro-Sec., PI-SB-A, Repeat, Fault, glitch, (CS06)
05/03/02	125	CS06	HIOL		15:53:46	2002/125-15:53:46 CSTOL: operator: start hir_sbab_on Power up ok
05/03/02	125	CS06	HIOL		15:54:00	2002/125-15:54:00 start ramp up to 9 V
05/05/02	125	CS06	ETOL		15:55:00	Start @ +9.0 V p Spikes , 10micro-Sec., PI-SB-A,(CS06)
05/03/02	125	CS06	HIOL		15:55:00	2002/125-15:55:00 At 9V
05/03/02	125	CS06	HIOL		15:56:43	2002/125-15:56:43 ramp to 15V
05/05/02	125	CS06	ETOL		15:57:00	Stop @ +9.0 V p Spikes , 10micro-Sec., PI-SB-A,(CS06)
05/05/02	125	CS06	ETOL		15:57:00	Start @ +15.0 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/03/02	125	CS06	HIOL		15:57:10	2002/125-15:57:10 at 15v
05/03/02	125	CS06	HIOL		15:57:26	2002/125-15:57:26 ramp to 20v
05/05/02	125	CS06	ETOL		15:58:00	Stop @ +15.0 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/03/02	125	CS06	HIOL		15:58:20	2002/125-15:58:20 Ramp down to 0
05/03/02	125	CS06	HIOL		16:12:06	2002/125-16:12:6 CSTOL: operator: start hir_sbab_on, Power up ok, Continue Cs02 on SB -29V Spikes - Ramp up in step on 5v and hold for 0ne-minute.
05/03/02	125	CS06	HIOL		16:12:43	2002/125-16:12:43 ramp to -10V
05/05/02	125	CS06	ETOL		16:13:00	Start @ +20.0 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/05/02	125	CS06	ETOL		16:13:00	Stop @ +20.0 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/05/02	125	CS06	ETOL		16:13:00	Start @ -10.0 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/03/02	125	CS06	HIOL		16:13:18	2002/125-16:13:18 at -10v
05/05/02	125	CS06	ETOL		16:14:00	Stop @ -10.0 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/05/02	125	CS06	ETOL		16:14:00	Start @ -15.0 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/03/02	125	CS06	HIOL		16:14:20	2002/125-16:14:20 Ramp to -15v
05/03/02	125	CS06	HIOL		16:14:50	2002/125-16:14:50 at -15v
05/03/02	125	CS06	HIOL		16:15:50	2002/125-16:15:50 ramp to -20v
05/05/02	125	CS06	ETOL		16:16:00	Stop @ -15.0 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/05/02	125	CS06	ETOL		16:16:00	Start @ -19.2 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/03/02	125	CS06	HIOL		16:16:00	2002/125-16:16:00 SB powered off

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/03/02	125	CS06	HIOL		16:16:20	2002/125-16:16:20 amp down , CS06 test complete
05/03/02	125	CS06	HIOL		16:23:04	2002/125-16:23:4 CSTOL: operator: start hir_sbab_on, Power up ok, Waiting for Test Data Review, Ray directed a power down:
05/03/02	125	CS06	HIOL		0.686111111	2002/125-15:88:00 at 19.2v and SB powered off
05/05/02	125	CS06	ETOL		16:38:00	Stop @ -19.2 V p Spikes , 10micro-Sec., PI-SB-A, (CS06)
05/05/02	125	CS06	ETOL		16:38:00	HIRDLS Instrument power down, (CS06)
05/03/02	125	CS06	HIOL		16:40:46	2002/125 16:40:46 start powering down the Instrument
05/03/02	125	CS06	HIOL		17:11:46	2002/125 17:11:46 power down complete
05/05/02	126	CS06	HIOL		0:14:16	We need everything runnung during this test. The Gyro motors are not heating up
05/05/02	126	CS06	HIOL		0:14:16	We need everything runnung during this test. The Gyro motors are not heating up
05/05/02	126	CS06	HIOL		3:37:19	2002/126-03:37:19 CSTOL: operator: goto sidea_missionmode:Starting Global Scan. THis may help to heat up the interior and bring up the gyro temps.
05/05/02	126	CS06	HIOL		3:37:19	2002/126-03:37:19 CSTOL: operator: goto sidea_missionmode:Starting Global Scan. THis may help to heat up the interior and bring up the gyro temps.
05/05/02	126	CS06	HIOL		4:55:00	2002/126-04:55 Raised the temperature of the chiller plat to 15 dec C. Hopefully this will help the Gyro temps rise.
05/05/02	126	CS06	HIOL		4:55:00	2002/126-04:55 Raised the temperature of the chiller plat to 15 dec C. Hopefully this will help the Gyro temps rise.
05/05/02	126	CS06	HIOL		5:20:00	2002/126-05:20 Raised the temperature of the chiller plat to 20 dec C. GYR1 temp inhibit = 0. Starting gyro 1 spin motor.
05/05/02	126	CS06	HIOL		5:20:00	2002/126-05:20 Raised the temperature of the chiller plat to 20 dec C. GYR1 temp inhibit = 0. Starting gyro 1 spin motor.
05/05/02	126	CS06	HIOL		6:31:00	2002/126-06:31 Lowered the temperature of the chiller plat to 17 dec C. CCU box tmp is 31 deg C. Yellow limit is 32 deg C. Closing chamber door to cool off the room.
05/05/02	126	CS06	HIOL		6:31:00	2002/126-06:31 Lowered the temperature of the chiller plat to 17 dec C. CCU box tmp is 31 deg C. Yellow limit is 32 deg C. Closing chamber door to cool off the room.
05/06/02	126	CS06	ETOL	12:00:00	7:00:00	HIRDLS Instrument power Up, (CS06)
05/05/02	126	CS06	HIOL		7:25:00	2002/126-07:25 Lowered temp on chiller plate to 15deg
05/05/02	126	CS06	HIOL		7:25:00	2002/126-07:25 Lowered temp on chiller plate to 15deg
05/05/02	126	CS06	HIOL		7:39:34	2002/126-07:39:34 Telemetry FAILED: HIR_SSH_DR_OPEN = 1 actual 0, Ask-Question> Continue after FAILURE (y or n)? Y
05/05/02	126	CS06	HIOL		7:39:34	2002/126-07:39:34 Telemetry FAILED: HIR_SSH_DR_OPEN = 1 actual 0, Ask-Question> Continue after FAILURE (y or n)? Y
05/05/02	126	CS06	HIOL		7:41:45	2002/126-07:41:45 Telemetry FAILED: HIR_SSH_DR_NOPEN = 0 actual 1
05/05/02	126	CS06	HIOL		7:41:45	2002/126-07:41:45 Telemetry FAILED: HIR_SSH_DR_NOPEN = 0 actual 1
05/05/02	126	CS06	HIOL		7:42:24	2002/126-07:42:24 Telemetry FAILED: HIR_DOOR_POT > 125.0 actual 87.8524 , Ask-Question> Continue after FAILURE (y or n)? Y , The door did bump the nylon bagging material when it was opened. This was observed by Wally Opyd, Dave Siedl, and Mike Spier.
05/05/02	126	CS06	HIOL		7:42:24	2002/126-07:42:24 Telemetry FAILED: HIR_DOOR_POT > 125.0 actual 87.8524 , Ask-Question> Continue after FAILURE (y or n)? Y , The door did bump the nylon bagging material when it was opened. This was observed by Wally Opyd, Dave Siedl, and Mike Spier.
05/05/02	126	CS06	HIOL		7:48:00	2002/126-07:48 CCU box tmp is 31.78 C, currently waiting for that to decrease before turning off fan for EMI Test. Turned down chiller plate again to about 13 C on the dial.
05/05/02	126	CS06	HIOL		7:48:00	2002/126-07:48 CCU box tmp is 31.78 C, currently waiting for that to decrease before turning off fan for EMI Test. Turned down chiller plate again to about 13 C on the dial.
05/05/02	126	CS06	HIOL		7:55:00	2002/126-07:55 Turned down chiller plate to 10C on dial. CCU is at 31.80 C
05/05/02	126	CS06	HIOL		7:55:00	2002/126-07:55 Turned down chiller plate to 10C on dial. CCU is at 31.80 C
05/06/02	126	RE02	ETOL		8:19:00	Start RE02, B-side, Antenna Red
05/05/02	126	RE02	HIOL		8:19:00	2002/126-08:19 Shut off CCU cooling fan and starting RE02 test.
05/05/02	126	RE02	HIOL		8:19:00	2002/126-08:19 Shut off CCU cooling fan and starting RE02 test.
05/06/02	126	RE02	ETOL		8:21:00	Stop RE02, -Y, B-side, Antenna Red

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04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/05/02	126	RE02	HIOL		8:22:00	2002/126-08:22 Pause to change antennas, fan on
05/05/02	126	RE02	HIOL		8:22:00	2002/126-08:22 Pause to change antennas, fan on
05/06/02	126	RE02	ETOL		8:24:00	Start RE02, -Y, B-side, Antenna Bi Conical, Vert. Plzn.
05/05/02	126	RE02	HIOL		8:24:00	2002/126-08:24 Continuing test, fan off
05/05/02	126	RE02	HIOL		8:24:00	2002/126-08:24 Continuing test, fan off
05/06/02	126	RE02	ETOL		8:25:00	Stop RE02, -Y, B-side, Antenna Bi Conical. Vert. Plzn.
05/05/02	126	RE02	HIOL		8:25:00	2002/126-08:25 Pause to change antennas
05/05/02	126	RE02	HIOL		8:25:00	2002/126-08:25 Pause to change antennas
05/06/02	126	RE02	ETOL		8:27:00	Start RE02,-Y, B-side, Antenna Log Period, Vert. Plzn.
05/05/02	126	RE02	HIOL		8:27:00	2002/126-08:27 Continuing test with log periodic antenna.
05/05/02	126	RE02	HIOL		8:27:00	2002/126-08:27 Continuing test with log periodic antenna.
05/06/02	126	RE02	ETOL		8:28:00	Stop RE02, -Y, B-side, Antenna Log Period, Vert. Plzn.
05/05/02	126	RE02	HIOL		8:28:00	2002/126-08:28 Pause to change antennas
05/05/02	126	RE02	HIOL		8:28:00	2002/126-08:28 Pause to change antennas
05/06/02	126	RE02	ETOL		8:29:00	Start RE02, -Y, B-side, Antenna Horn Antenna, Vert. Plzn.
05/05/02	126	RE02	HIOL		8:29:00	2002/126-08:29 Continuing test with horn antenna.
05/05/02	126	RE02	HIOL		8:29:00	2002/126-08:29 Continuing test with horn antenna.
05/06/02	126	RE02	ETOL		8:30:00	Stop RE02, -Y, B-side, Antenna Horn Antenna, Vert. Plzn.
05/05/02	126	RE02	HIOL		8:30:00	2002/126-08:30 RE02 complete for -Y side, vertical polar.
05/05/02	126	RE02	HIOL		8:30:00	2002/126-08:30 RE02 complete for -Y side, vertical polar.
05/06/02	126	RE02	ETOL		8:45:00	Start RE02, -Y, B-side, Antenna Bi Conical, Horiz. Plzn.
05/05/02	126	RE02	HIOL		8:45:00	2002/126-08:45 Starting RE02 Horiz. Polarization at 30MHz.
05/05/02	126	RE02	HIOL		8:45:00	2002/126-08:45 Starting RE02 Horiz. Polarization at 30MHz.
05/06/02	126	RE02	ETOL		8:46:00	Stop RE02, -Y, B-side, Antenna Bi Conical. Horiz. Plzn.
05/05/02	126	RE02	HIOL		8:46:00	2002/126-08:46 Pausing to change antennas.
05/05/02	126	RE02	HIOL		8:46:00	2002/126-08:46 Pausing to change antennas.
05/06/02	126	RE02	ETOL		8:48:00	Start RE02, -Y, B-side, Antenna Log Period, Horiz. Plzn.
05/05/02	126	RE02	HIOL		8:48:00	2002/126-08:48 Continuing test with log per. antenna.
05/05/02	126	RE02	HIOL		8:48:00	2002/126-08:48 Continuing test with log per. antenna.
05/06/02	126	RE02	ETOL		8:49:00	Stop RE02, -Y, B-side, Antenna Log Period, Horiz. Plzn.
05/05/02	126	RE02	HIOL		8:49:00	2002/126-08:49 Pausing to change antennas.
05/05/02	126	RE02	HIOL		8:49:00	2002/126-08:49 Pausing to change antennas.
05/06/02	126	RE02	ETOL		8:50:00	Start RE02, -Y, B-side, Antenna Horn Antenna, Horiz. Plzn.
05/05/02	126	RE02	HIOL		8:50:00	2002/126-08:50 Continuing test with horn antenna.
05/05/02	126	RE02	HIOL		8:50:00	2002/126-08:50 Continuing test with horn antenna.
05/06/02	126	RE02	ETOL		8:51:00	Stop RE02, -Y, B-side, Antenna Horn Antenna, Horiz. Plzn.
05/05/02	126	RE02	HIOL		8:51:00	2002/126-08:51 RE02 complete for -Y side, horiz. polar.
05/05/02	126	RE02	HIOL		8:51:00	2002/126-08:51 RE02 complete for -Y side, horiz. polar.
05/06/02	126	RE02	ETOL		9:09:00	Start RE02, +Y, A-side, Antenna Red
05/05/02	126	RE02	HIOL		9:09:00	2002/126-09:09 Starting RE02 with vertical rod antenna on +Y side.
05/05/02	126	RE02	HIOL		9:09:00	2002/126-09:09 Starting RE02 with vertical rod antenna on +Y side.
05/06/02	126	RE02	ETOL		9:11:00	Stop RE02, +Y, A-side, Antenna Red
05/05/02	126	RE02	HIOL		9:11:00	2002/126-09:11 Pausing to change antennas.
05/05/02	126	RE02	HIOL		9:11:00	2002/126-09:11 Pausing to change antennas.
05/06/02	126	RE02	ETOL		9:13:00	Start RE02, +Y, A-side, Antenna Bi Conical, Vert. Plzn.

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/05/02	126	RE02	HIOL		9:13:00	2002/126-09:13 Continuing test with Biconnical antenna.
05/05/02	126	RE02	HIOL		9:13:00	2002/126-09:13 Continuing test with Biconnical antenna.
05/06/02	126	RE02	ETOL		9:15:00	Stop RE02, +Y, A-side, Antenna Bi Conical. Vert. Plzn.
05/05/02	126	RE02	HIOL		9:15:00	2002/126-09:15 Pausing to change antennas.
05/05/02	126	RE02	HIOL		9:15:00	2002/126-09:15 Pausing to change antennas.
05/06/02	126	RE02	ETOL		9:17:00	Start RE02, +Y, A-side, Antenna Log Period, Vert. Plzn.
05/05/02	126	RE02	HIOL		9:17:00	2002/126-09:17 Continuing test with Log Periodic antenna.
05/05/02	126	RE02	HIOL		9:17:00	2002/126-09:17 Continuing test with Log Periodic antenna.
05/06/02	126	RE02	ETOL		9:18:00	Stop RE02, +Y, A-side, Antenna Log Period, Vert. Plzn.
05/05/02	126	RE02	HIOL		9:18:00	2002/126-09:18 Pausing to change antenna.
05/05/02	126	RE02	HIOL		9:18:00	2002/126-09:18 Pausing to change antenna.
05/06/02	126	RE02	ETOL		9:20:00	Start RE02, +Y, A-side, Antenna Horn Antenna, Vert. Plzn.
05/05/02	126	RE02	HIOL		9:20:00	2002/126-09:20 Continuing with Horn antenna.
05/05/02	126	RE02	HIOL		9:20:00	2002/126-09:20 Continuing with Horn antenna.
05/06/02	126	RE02	ETOL		9:21:00	Stop RE02, +Y, A-side, Antenna Horn Antenna, Vert. Plzn.
05/05/02	126	RE02	HIOL		9:21:00	2002/126-09:21 RE02 completed on +Y side for vert. polar.
05/05/02	126	RE02	HIOL		9:21:00	2002/126-09:21 RE02 completed on +Y side for vert. polar.
05/05/02	126	RE02	HIOL		9:22:25	2002/126-09:22:25 CSTOL: operator: write ccu_box_tmp 33.063583 C
05/05/02	126	RE02	HIOL		9:22:25	2002/126-09:22:25 CSTOL: operator: write ccu_box_tmp 33.063583 C
05/05/02	126	RE02	HIOL		9:30:00	2002/126- Approx 09:30 Moved nylon material closer to CCU to funnel air
05/05/02	126	RE02	HIOL		9:30:00	2002/126- Approx 09:30 Moved nylon material closer to CCU to funnel air
05/06/02	126	RE02	ETOL		9:34:00	Start RE02, +Y, A-side, Antenna Blue Conical, Horiz. Plzn.
05/06/02	126	RE02	ETOL		9:34:00	Stop RE02, +Y, A-side, Antenna Blue Conical. Horiz. Plzn.
05/05/02	126	RE02	HIOL		9:34:00	2002/126-09:34 Starting RE02 with Biconnical antenna in Horiz. Polarization.
05/05/02	126	RE02	HIOL		9:34:00	2002/126-09:34 Pausing sweep to change antenna.
05/05/02	126	RE02	HIOL		9:34:00	2002/126-09:34 Starting RE02 with Biconnical antenna in Horiz. Polarization.
05/05/02	126	RE02	HIOL		9:34:00	2002/126-09:34 Pausing sweep to change antenna.
05/05/02	126	RE02	HIOL		9:35:04	2002/126-09:35:4 CSTOL: operator: write ccu_box_tmp 33.153214 C
05/05/02	126	RE02	HIOL		9:35:04	2002/126-09:35:4 CSTOL: operator: write ccu_box_tmp 32.979389 C
05/05/02	126	RE02	HIOL		9:35:04	2002/126-09:35:4 CSTOL: operator: write ccu_box_tmp 33.153214 C
05/05/02	126	RE02	HIOL		9:35:04	2002/126-09:35:4 CSTOL: operator: write ccu_box_tmp 32.979389 C
05/06/02	126	RE02	ETOL		9:36:00	Start RE02, +Y, A-side, Antenna Log Period, Horiz. Plzn.
05/06/02	126	RE02	ETOL		9:36:00	Stop RE02, +Y, A-side, Antenna Log Period, Horiz. Plzn.
05/05/02	126	RE02	HIOL		9:36:00	2002/126-09:36 Continuing test with Log. Periodic antenna.
05/05/02	126	RE02	HIOL		9:36:00	2002/126-09:36 Pausing to change antenna.
05/05/02	126	RE02	HIOL		9:36:00	2002/126-09:36 Continuing test with Log. Periodic antenna.
05/05/02	126	RE02	HIOL		9:36:00	2002/126-09:36 Pausing to change antenna.
05/06/02	126	RE02	ETOL		9:39:00	Start RE02, +Y, A-side, Antenna Horn Antenna, Horiz. Plzn.
05/05/02	126	RE02	HIOL		9:39:00	2002/126-09:39 Continuing test with horn antenna.
05/05/02	126	RE02	HIOL		9:39:00	2002/126-09:39 Continuing test with horn antenna.
05/06/02	126	RE02	ETOL		9:40:00	Stop RE02, +Y, A-side, Antenna Horn Antenna, Horiz. Plzn.
05/05/02	126	RE02	HIOL		9:40:00	2002/126-09:40 Completed REO2, +Y side Horiz. Polarization;
05/05/02	126	RE02	HIOL		9:40:00	2002/126-09:40 Completed REO2, +Y side Horiz. Polarization;
05/06/02	126	RE04	ETOL		11:39:00	Start RE04, -Y, B-side, Loop Antenna, Parallel Plzn.
05/05/02	126	RE04	HIOL		11:39:00	Cooling fan off

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/05/02	126	RE04	HIOL		11:39:00	2002/126-11:39 Starting sweep with loop antenna vertically parallel to -Y plane
05/05/02	126	RE04	HIOL		11:39:00	Cooling fan off
05/05/02	126	RE04	HIOL		11:39:00	2002/126-11:39 Starting sweep with loop antenna vertically parallel to -Y plane
05/06/02	126	RE04	ETOL		11:40:00	Stop RE04, -Y, B-side, Loop Antenna, Parallel Plzn.
05/05/02	126	RE04	HIOL		11:40:00	2002/126-11:40 Completed sweep
05/05/02	126	RE04	HIOL		11:40:00	2002/126-11:40 Completed sweep
05/06/02	126	RE04	ETOL		12:01:00	Start RE04, -Y, B-side, Loop Antenna, Perpendicular Plzn.
05/05/02	126	RE04	HIOL		12:01:00	2002/126-12:01 Starting sweep with loop antenna vertically perpendicular to -Y plane
05/05/02	126	RE04	HIOL		12:01:00	2002/126-12:01 Starting sweep with loop antenna vertically perpendicular to -Y plane
05/06/02	126	RE04	ETOL		12:03:00	Stop RE04, -Y, B-side, Loop Antenna, Perpendicular Plzn.
05/05/02	126	RE04	HIOL		12:03:00	2002/126-12:03 Completed sweep
05/05/02	126	RE04	HIOL		12:03:00	2002/126-12:03 Completed sweep
05/06/02	126	RE04	ETOL		12:11:00	Start RE04, -Y, B-side, Loop Antenna, Horiz. Plzn.
05/05/02	126	RE04	HIOL		12:11:00	2002/126-12:11 Starting sweep with loop antenna horizontally perpendicular to -Y plane
05/05/02	126	RE04	HIOL		12:11:00	2002/126-12:11 Starting sweep with loop antenna horizontally perpendicular to -Y plane
05/06/02	126	RE04	ETOL		12:13:00	Stop RE04, -Y, B-side, Loop Antenna, Horiz. Plzn.
05/05/02	126	RE04	HIOL		12:13:00	2002/126-12:13 Completed sweep
05/05/02	126	RE04	HIOL		12:13:00	2002/126-12:13 Completed sweep
05/06/02	126	RE04	ETOL		12:21:00	Start RE04, +Y, A-side, Loop Antenna, Parallel Plzn.
05/05/02	126	RE04	HIOL		12:21:00	2002/126-12:21 starting sweep with antenna vertically parallel. to +Y side
05/05/02	126	RE04	HIOL		12:21:00	2002/126-12:21 starting sweep with antenna vertically parallel. to +Y side
05/06/02	126	RE04	ETOL		12:23:00	Stop RE04, +Y, A-side, Loop Antenna, Parallel Plzn.
05/05/02	126	RE04	HIOL		12:23:00	2002/126-12:23 Completed sweep.
05/05/02	126	RE04	HIOL		12:23:00	2002/126-12:23 Completed sweep.
05/06/02	126	RE04	ETOL		12:30:00	Start RE04, +Y, A-side, Loop Antenna, Perpendicular Plzn.
05/05/02	126	RE04	HIOL		12:30:00	2002/126-12:30 starting sweep with antenna vert. perpendicular to +Y side
05/05/02	126	RE04	HIOL		12:30:00	2002/126-12:30 starting sweep with antenna vert. perpendicular to +Y side
05/06/02	126	RE04	ETOL		12:32:00	Stop RE04, +Y, A-side, Loop Antenna, Perpendicular Plzn.
05/05/02	126	RE04	HIOL		12:32:00	2002/126-12:32 completed sweep
05/05/02	126	RE04	HIOL		12:32:00	2002/126-12:32 completed sweep
05/06/02	126	RE04	ETOL		12:38:00	Start RE04, +Y, A-side, Loop Antenna, Horiz. Plzn.
05/05/02	126	RE04	HIOL		12:38:00	2002/126-12:38 starting sweep with antenna horz. perpendicular to +Y side
05/05/02	126	RE04	HIOL		12:38:00	2002/126-12:38 starting sweep with antenna horz. perpendicular to +Y side
05/06/02	126	RE04	ETOL		12:40:00	Stop RE04, +Y, A-side, Loop Antenna, Horiz. Plzn.
05/05/02	126	RE04	HIOL		12:40:00	2002/126-12:40 completed sweep. Data shows high signal levels at low frequency end of spectrum. The spectrum analyzer used for test has a lower limit of 100Hz. Therefore it is believed that the analyzer may be picking up some local oscillator feed thru at the lower frequency end of spectrum below 100Hz.
05/05/02	126	RE04	HIOL		12:40:00	Using another analyzer with a lower limit of 30Hz, EMI team measured background noise near the vac pump with everything on. We did not see high signal levels at the lower spectrum. Data that has been taken is suspected to be invalid.
05/05/02	126	RE04	HIOL		12:40:00	2002/126-12:40 completed sweep. Data shows high signal levels at low frequency end of spectrum. The spectrum analyzer used for test has a lower limit of 100Hz. Therefore it is believed that the analyzer may be picking up some local oscillator feed thru at the lower frequency end of spectrum below 100Hz.
05/05/02	126	RE04	HIOL		12:40:00	Using another analyzer with a lower limit of 30Hz, EMI team measured background noise near the vac pump with everything on. We did not see high signal levels at the lower spectrum. Data that has been taken is suspected to be invalid.
05/05/02	126	RE04	HIOL		14:40:00	2002/126-14:40 Ivan Beck stated that they used the wrong antenna for Re04 test.

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/05/02	126	RE04	HIOL		14:40:00	2002/126-14:40 Ivan Beck stated that they used the wrong antenna for Re04 test.
05/05/02	126	RE04	HIOL		15:00:00	2002/126-15:00 Changed U11b display to include the CCU_BOX_TMP, IPU_BOX_TMP, FPA_TMP_A, FPA_TMP_B and SVA_MTGPLT_TMP. The radiance data is largely reading 0 because the SVA temperature (as read by SVA_MTGPLT_TMP and SVA_DORMOT_TMP) is higher than most of the object the dector is looking during a global scan. So reset the SPU to compensate.
05/05/02	126	RE04	HIOL		15:00:00	2002/126-15:00 Changed U11b display to include the CCU_BOX_TMP, IPU_BOX_TMP, FPA_TMP_A, FPA_TMP_B and SVA_MTGPLT_TMP. The radiance data is largely reading 0 because the SVA temperature (as read by SVA_MTGPLT_TMP and SVA_DORMOT_TMP) is higher than most of the object the dector is looking during a global scan. So reset the SPU to compensate.
05/05/02	126	RE04	HIOL		16:07:19	16:07:19 ERROR: rtn_recv: Unexpected seq number 11142 (11113)
05/05/02	126	RE04	HIOL		16:07:19	16:07:19 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:19	16:07:19 ERROR: rtn_recv: Unexpected seq number 11142 (11113)
05/05/02	126	RE04	HIOL		16:07:19	16:07:19 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 INFO: rtn_recv: Created data file : /hirdls_data/data/2002_126/SCIENCE/_2002_126.39
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: rtn_recv: Unexpected seq number 7335 (7330)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 INFO: rtn_recv: Created data file : /hirdls_data/data/2002_126/IEGSE/rt002_126.9

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: watchdog: Change of state : pid 17567 (IEGSE latest data interfaprocess) = DANGER
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: watchdog: No response from pid 17567 (IEGSE latest data interfacrocess) for 9.14 seconds : Danger because no response to signal received
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 INFO: systask: Watchdog message: 17567 4
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: rtn_recv: Unexpected seq number 11878 (11877)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 INFO: rtn_recv: Created data file : /hirdls_data/data/2002_126/IEGSE/an002_126.3
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 INFO: rtn_recv: Created data file : /hirdls_data/data/2002_126/SCIENCE/_2002_126.39
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: rtn_recv: Unexpected seq number 7335 (7330)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: ldata: Checksum XOR error on science packet efc fbf7 (830)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 INFO: rtn_recv: Created data file : /hirdls_data/data/2002_126/IEGSE/rt002_126.9
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: watchdog: Change of state : pid 17567 (IEGSE latest data interfaprocess) = DANGER
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: watchdog: No response from pid 17567 (IEGSE latest data interfacrocess) for 9.14 seconds : Danger because no response to signal received
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 INFO: systask: Watchdog message: 17567 4
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 ERROR: rtn_recv: Unexpected seq number 11878 (11877)
05/05/02	126	RE04	HIOL		16:07:20	16:07:20 INFO: rtn_recv: Created data file : /hirdls_data/data/2002_126/IEGSE/an002_126.3
05/05/02	126	RE04	HIOL		16:07:21	16:07:21 INFO: watchdog: Change of state : pid 17567 (IEGSE latest data interfacrocess) = RUNNING

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/05/02	126	RE04	HIOL		16:07:21	16:07:21 INFO: systask: Watchdog message: 17567 1
05/05/02	126	RE04	HIOL		16:07:21	16:07:21 INFO: watchdog: Change of state : pid 17567 (IEGSE latest data interfacrocess) = RUNNING
05/05/02	126	RE04	HIOL		16:07:21	16:07:21 INFO: systask: Watchdog message: 17567 1
05/05/02	126	RE04	HIOL		16:07:33	16:07:33 INFO: systask: System task controller (pid = 17810) running
05/05/02	126	RE04	HIOL		16:07:33	16:07:33 INFO: systask: System task controller (pid = 17810) running
05/05/02	126	RE04	HIOL		16:52:00	2002/126-16:52 Turn off the CCU fan EMI Team is continuing to perform Checkout tests
05/05/02	126	RE04	HIOL		16:52:00	2002/126-16:52 Turn off the CCU fan EMI Team is continuing to perform Checkout tests
05/05/02	126	RE04	HIOL		16:53:00	2002/126-16:53 Starting sweep with ferrte antenna parallel to -Y plane (EMI B side), 300Hz to 50KHz Sweep
05/05/02	126	RE04	HIOL		16:53:00	2002/126-16:53 Starting sweep with ferrte antenna parallel to -Y plane (EMI B side), 300Hz to 50KHz Sweep
05/05/02	126	RE04	HIOL		17:03:48	2002/126-17:03:48 -- ccu_box_tmp 30.765848 C , Cooling fan off
05/05/02	126	RE04	HIOL		17:03:48	2002/126-17:03:48 -- ccu_box_tmp 30.765848 C , Cooling fan off
05/06/02	126	RE04	ETOL		17:04:00	Start RE04, 300 Hz to 50.0 KHz, -Y, B-side, Loop Antenna, Perpendicular Plzn.
05/05/02	126	RE04	HIOL		17:04:05	2002/126-17:04:05 Starting sweep with ferrite antenna perpendicular to -Y plane (EMI B side)
05/05/02	126	RE04	HIOL		17:04:05	2002/126-17:04:05 Starting sweep with ferrite antenna perpendicular to -Y plane (EMI B side)
05/06/02	126	RE04	ETOL		17:05:00	Stop RE04, 300 Hz to 50.0 KHz, -Y, B-side, Loop Antenna, Perpendicular Plzn.
05/05/02	126	RE04	HIOL		17:05:22	2002/126-17:05:22 Sweep Complete
05/05/02	126	RE04	HIOL		17:05:22	2002/126-17:05:22 Fan on
05/05/02	126	RE04	HIOL		17:05:22	2002/126-17:05:22 Sweep Complete
05/05/02	126	RE04	HIOL		17:05:22	2002/126-17:05:22 Fan on
05/05/02	126	RE04	HIOL		17:05:46	2002/126-17:05:46 Fan on -- ccu_box_tmp 31.034733 C
05/05/02	126	RE04	HIOL		17:05:46	2002/126-17:05:46 Fan on -- ccu_box_tmp 31.034733 C
05/06/02	126	RE04	ETOL		17:22:00	Start RE04, 300 Hz to 50.0 KHz, +Y, A-side, Loop Antenna, Parallel Plzn.
05/05/02	126	RE04	HIOL		17:22:27	2002/126-17:22:27 Cooling fan off -- ccu_box_tmp 30.138453 C
05/05/02	126	RE04	HIOL		17:22:27	2002/126-17:22:27 Starting sweep with ferrite antenna parallel to +Y plane (EMI A side)
05/05/02	126	RE04	HIOL		17:22:27	2002/126-17:22:27 Cooling fan off -- ccu_box_tmp 30.138453 C
05/05/02	126	RE04	HIOL		17:22:27	2002/126-17:22:27 Starting sweep with ferrite antenna parallel to +Y plane (EMI A side)
05/06/02	126	RE04	ETOL		17:23:00	Stop RE04, 300 Hz to 50.0 KHz, +Y, A-side, Loop Antenna, Parallel Plzn.
05/05/02	126	RE04	HIOL		17:24:31	2002/126-17:24:31 Completed sweep
05/05/02	126	RE04	HIOL		17:24:31	2002/126-17:24:31 Completed sweep
05/05/02	126	RE04	HIOL		17:25:30	2002/126-17:25:30 Cooling fan on -- ccu_box_tmp 30.488815 C
05/05/02	126	RE04	HIOL		17:25:30	2002/126-17:25:30 Cooling fan on -- ccu_box_tmp 30.488815 C
05/06/02	126	RE04	ETOL		17:32:00	Start RE04, 300 Hz to 50.0 KHz, +Y, A-side, Loop Antenna, Perpendicular Plzn.
05/05/02	126	RE04	HIOL		17:32:36	2002/126-17:32:36 Cooling fan off -- ccu_box_tmp 30.171043 C
05/05/02	126	RE04	HIOL		17:32:36	2002/126-17:32:36 Starting sweep with ferrite antenna perpendicular to +Y plane (EMI A side)
05/05/02	126	RE04	HIOL		17:32:36	2002/126-17:32:36 Cooling fan off -- ccu_box_tmp 30.171043 C
05/05/02	126	RE04	HIOL		17:32:36	2002/126-17:32:36 Starting sweep with ferrite antenna perpendicular to +Y plane (EMI A side)
05/06/02	126	RE04	ETOL		17:33:00	Stop RE04, 300 Hz to 50.0 KHz, +Y, A-side, Loop Antenna, Perpendicular Plzn.
05/05/02	126	RE04	HIOL		17:33:31	2002/126-17:33:31 Completed sweep
05/05/02	126	RE04	HIOL		17:33:31	2002/126-17:33:31 Completed sweep
05/05/02	126	RE04	HIOL		17:34:02	2002/126-17:34:02 Cooling fan On -- ccu_box_tmp 30.304129 C
05/05/02	126	RE04	HIOL		17:34:02	2002/126-17:34:02 Cooling fan On -- ccu_box_tmp 30.304129 C
05/05/02	126	RE04	HIOL		17:50:46	2002/126-17:50:46 -- ccu_box_tmp 29.315504 C
05/05/02	126	RE04	HIOL		17:50:46	2002/126-17:50:46 -- ccu_box_tmp 29.315504 C
05/05/02	126	RE04	HIOL		17:59:48	2002/126-17:59:48 - Cooling fan off -- ccu_box_tmp 29.500193 C
05/05/02	126	RE04	HIOL		17:59:48	2002/126-17:59:48 - Cooling fan off -- ccu_box_tmp 29.500193 C

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/06/02	126	RE04	ETOL		18:00:00	Start RE04, 20 Hz to 300 Hz, +Y, A-side, Loop Antenna, Parallel Plzn.
05/06/02	126	RE04	ETOL		18:00:00	Stop RE04, 20 Hz to 300 Hz, +Y, A-side, Loop Antenna, Parallel Plzn.
05/05/02	126	RE04	HIOL		18:00:00	2002/126-18:00:00 Starting sweep with parallel antenna parallel to +Y plane (EMI A side)
05/05/02	126	RE04	HIOL		18:00:00	2002/126-18:00:00 Starting sweep with parallel antenna parallel to +Y plane (EMI A side)
05/05/02	126	RE04	HIOL		18:00:38	2002/126-18:00:38 Completed sweep
05/05/02	126	RE04	HIOL		18:00:38	2002/126-18:00:38 Completed sweep
05/05/02	126	RE04	HIOL		18:01:00	2002/126-18:01:00 Cooling fan on -- ccu_box_tmp 29.473032 C
05/05/02	126	RE04	HIOL		18:01:00	2002/126-18:01:00 Cooling fan on -- ccu_box_tmp 29.473032 C
05/06/02	126	RE04	ETOL		18:04:00	Start RE04, 20 Hz to 300 Hz, +Y, A-side, Loop Antenna, Perpendicular Plzn.
05/06/02	126	RE04	ETOL		18:04:00	Stop RE04, 20 Hz to 300 Hz, +Y, A-side, Loop Antenna, Perpendicular Plzn.
05/05/02	126	RE04	HIOL		18:04:28	2002/126-18:04:28 Cooling fan off -- ccu_box_tmp 29.725620 C
05/05/02	126	RE04	HIOL		18:04:28	2002/126-18:04:28 Starting sweep with ferrite antenna perpendicular to +Y plane (EMI A side)
05/05/02	126	RE04	HIOL		18:04:28	2002/126-18:04:28 Cooling fan off -- ccu_box_tmp 29.725620 C
05/05/02	126	RE04	HIOL		18:04:28	2002/126-18:04:28 Starting sweep with ferrite antenna perpendicular to +Y plane (EMI A side)
05/05/02	126	RE04	HIOL		18:04:49	2002/126-18:04:49 Completed sweep
05/05/02	126	RE04	HIOL		18:04:49	2002/126-18:04:49-Cooling fan On -- ccu_box_tmp 29.733768 C
05/05/02	126	RE04	HIOL		18:04:49	2002/126-18:04:49 Completed sweep
05/05/02	126	RE04	HIOL		18:04:49	2002/126-18:04:49-Cooling fan On -- ccu_box_tmp 29.733768 C
05/06/02	126	RE04	ETOL		18:10:00	Start RE04, 20 Hz to 300 Hz, -Y, B-side, Loop Antenna, Parallel Plzn.
05/06/02	126	RE04	ETOL		18:10:00	Stop RE04, 20 Hz to 300 Hz, -Y, B-side, Loop Antenna, Parallel Plzn.
05/05/02	126	RE04	HIOL		18:10:00	2002/126-18:10:00 - Cooling fan off -- ccu_box_tmp 29.796236 C
05/05/02	126	RE04	HIOL		18:10:00	2002/126-18:10:00 Starting sweep with antenna parallel to -Y plane (EMI B side)
05/05/02	126	RE04	HIOL		18:10:00	2002/126-18:10:00 - Cooling fan off -- ccu_box_tmp 29.796236 C
05/05/02	126	RE04	HIOL		18:10:00	2002/126-18:10:00 Starting sweep with antenna parallel to -Y plane (EMI B side)
05/05/02	126	RE04	HIOL		18:10:09	2002/126-18:10:09 Completed sweep
05/05/02	126	RE04	HIOL		18:10:09	2002/126-18:10:09 Completed sweep
05/05/02	126	RE04	HIOL		18:11:00	2002/126-18:11:00 Cooling fan on -- ccu_box_tmp 29.782656 C
05/05/02	126	RE04	HIOL		18:11:00	2002/126-18:11:00 Cooling fan on -- ccu_box_tmp 29.782656 C
05/05/02	126	RE04	HIOL		18:13:04	2002/126-18:13:04 Cooling fan off -- ccu_box_tmp 29.595251 C
05/05/02	126	RE04	HIOL		18:13:04	2002/126-18:13:04 Starting sweep with ferrite antenna perpendicular to -Y plane (EMI B side)
05/05/02	126	RE04	HIOL		18:13:04	2002/126-18:13:04 Cooling fan off -- ccu_box_tmp 29.595251 C
05/05/02	126	RE04	HIOL		18:13:04	2002/126-18:13:04 Starting sweep with ferrite antenna perpendicular to -Y plane (EMI B side)
05/05/02	126	RE04	HIOL		18:13:33	2002/126-18:13:33 Completed sweep
05/05/02	126	RE04	HIOL		18:13:33	2002/126-18:13:33 Completed sweep
05/05/02	126	RE04	HIOL		18:14:21	2002/126-18:14:21 Cooling fan On -- ccu_box_tmp 29.608831 C
05/05/02	126	RE04	HIOL		18:14:21	2002/126-18:14:21 Cooling fan On -- ccu_box_tmp 29.608831 C
05/06/02	126	RE04	ETOL		18:16:00	Start RE04, 20 Hz to 300 Hz, -Y, B-side, Loop Antenna, Perpendicular Plzn.
05/05/02	126	RE04	HIOL		18:16:40	2002/126- 18:16:40 -- ccu_box_tmp 30.195488 C
05/05/02	126	RE04	HIOL		18:16:40	2002/126- 18:16:40 Starting sweep with ferrite antenna perpendicular to -Y plane (EMI B side)
05/05/02	126	RE04	HIOL		18:16:40	2002/126- 18:16:40 -- ccu_box_tmp 30.195488 C
05/05/02	126	RE04	HIOL		18:16:40	2002/126- 18:16:40 Starting sweep with ferrite antenna perpendicular to -Y plane (EMI B side)
05/06/02	126	RE04	ETOL		18:17:00	Stop RE04, 20 Hz to 300 Hz, -Y, B-side, Loop Antenna, Perpendicular Plzn.
05/05/02	126	RE04	HIOL		18:17:04	2002/126- 18:17:04 Completed sweep
05/05/02	126	RE04	HIOL		18:17:04	2002/126- 18:17:04 Completed sweep
05/05/02	126	RE04	HIOL		18:17:34	2002/126- 18:17:34 Cooling fan On -- ccu_box_tmp 30.274252 C

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/05/02	126	RE04	HIOL		18:17:34	2002/126- 18:17:34 Cooling fan On -- ccu_box_tmp 30.274252 C
05/06/02	126	RE02	ETOL		18:42:00	Start @ 2.0 to 2.4 GHz, RE02, -Y, B-side, Horn Antenna, Horiz. Plzn.
05/05/02	126	RE02	HIOL		18:42:42	2002/126-18:42:42 Cooling fan off -- ccu_box_tmp 29.244888 C
05/05/02	126	RE02	HIOL		18:42:42	2002/126-18:42:42 Cooling fan off -- ccu_box_tmp 29.244888 C
05/05/02	126	RE02	HIOL		18:42:53	2002/126-18:42:53 Starting sweep with Horn antenna in Hort Polar to -Y plane (EMI B side)
05/05/02	126	RE02	HIOL		18:42:53	2002/126-18:42:53 Starting sweep with Horn antenna in Hort Polar to -Y plane (EMI B side)
05/06/02	126	RE02	ETOL		18:45:00	Stop @ 2.0 to 2.4.GHz, RE02, -Y, B-side, Horn Antenna, Horiz. Plzn.
05/05/02	126	RE02	HIOL		18:45:37	2002/126-18:45:37 Completed sweep
05/05/02	126	RE02	HIOL		18:45:37	2002/126-18:45:37 Completed sweep
05/05/02	126	RE02	HIOL		18:46:06	2002/126-18:46:6 Cooling fan on -- ccu_box_tmp 30.108576 C
05/05/02	126	RE02	HIOL		18:46:06	2002/126-18:46:6 Cooling fan on -- ccu_box_tmp 30.108576 C
05/06/02	126	RE02	ETOL		18:53:00	Start @ 2.0 to 2.4 GHz, RE02, -Y, B-side, Horn Antenna, Vert. Plzn.
05/05/02	126	RE02	HIOL		18:53:04	2002/126-18:53:4 Cooling fan off -- ccu_box_tmp 29.682163 C
05/05/02	126	RE02	HIOL		18:53:04	2002/126-18:53:4 Cooling fan off -- ccu_box_tmp 29.682163 C
05/05/02	126	RE02	HIOL		18:53:17	2002/126-18:53:17 Starting sweep with Horn antenna in Vert Polar to -Y plane (EMI B side)
05/05/02	126	RE02	HIOL		18:53:17	2002/126-18:53:17 Starting sweep with Horn antenna in Vert Polar to -Y plane (EMI B side)
05/06/02	126	RE02	ETOL		18:56:00	Stop @ 2.0 to 2.4.GHz, RE02, -Y, B-side, Horn Antenna, Vert. Plzn.
05/05/02	126	RE02	HIOL		18:57:09	2002/126-18:57:09 Completed sweep
05/05/02	126	RE02	HIOL		18:57:09	2002/126-18:57:09 Completed sweep
05/05/02	126	RE02	HIOL		18:57:40	2002/126-18:57:40 Cooling fan on -- ccu_box_tmp 30.219933 C
05/05/02	126	RE02	HIOL		18:57:40	2002/126-18:57:40 Cooling fan on -- ccu_box_tmp 30.219933 C
05/06/02	126	RE02	ETOL		19:09:00	Start @ 2.0 to 2.4 GHz, RE02, +Y, A-side, Horn Antenna, Vert. Plzn.
05/05/02	126	RE02	HIOL		19:09:08	2002/126-19:09:08 Cooling fan off -- ccu_box_tmp 29.353527 C
05/05/02	126	RE02	HIOL		19:09:08	2002/126-19:09:08 Starting sweep with Horn antenna in Vert Polar to +Y plane (EMI A side)
05/05/02	126	RE02	HIOL		19:09:08	2002/126-19:09:08 Cooling fan off -- ccu_box_tmp 29.353527 C
05/05/02	126	RE02	HIOL		19:09:08	2002/126-19:09:08 Starting sweep with Horn antenna in Vert Polar to +Y plane (EMI A side)
05/06/02	126	RE02	ETOL		19:11:00	Stop @ 2.0 to 2.4.GHz, RE02, +Y, A-side, Horn Antenna, Vert. Plzn.
05/05/02	126	RE02	HIOL		19:11:49	2002/126-19:11:49 Completed sweep
05/05/02	126	RE02	HIOL		19:11:49	2002/126-19:11:49 Completed sweep
05/05/02	126	RE02	HIOL		19:12:00	2002/126-19:12:00 Cooling fan on -- ccu_box_tmp 29.291059 C
05/05/02	126	RE02	HIOL		19:12:00	2002/126-19:12:00 Cooling fan on -- ccu_box_tmp 29.291059 C
05/06/02	126	RE02	ETOL		19:15:00	Start @ 2.0 to 2.4 GHz, RE02, +Y, A-side, Horn Antenna, Horiz. Plzn.
05/05/02	126	RE02	HIOL		19:15:47	2002/126-19:15:47 Cooling fan off -- ccu_box_tmp 29.766359 C
05/05/02	126	RE02	HIOL		19:15:47	2002/126-19:15:47 Starting sweep with Horn antenna in Hort Polar to +Y plane (EMI A side)
05/05/02	126	RE02	HIOL		19:15:47	2002/126-19:15:47 Cooling fan off -- ccu_box_tmp 29.766359 C
05/05/02	126	RE02	HIOL		19:15:47	2002/126-19:15:47 Starting sweep with Horn antenna in Hort Polar to +Y plane (EMI A side)
05/06/02	126	RE02	ETOL		19:18:00	Stop @ 2.0 to 2.4.GHz, RE02, +Y, A-side, Horn Antenna, Horiz. Plzn.
05/05/02	126	RE02	HIOL		19:18:34	2002/126-19:18:34 Completed sweep
05/05/02	126	RE02	HIOL		19:18:34	2002/126-19:18:34 Completed sweep
05/05/02	126	RE02	HIOL		19:18:48	2002/126-19:18:48 Cooling fan on -- ccu_box_tmp 30.225365 C
05/05/02	126	RE02	HIOL		19:18:48	2002/126-19:18:48 Cooling fan on -- ccu_box_tmp 30.225365 C
05/05/02	126	RE02	HIOL		22:33:00	2002/126-22:33 Cooler fan was turned back on. CCU_BOX_TMP is 30.7 C.
05/05/02	126	RE02	HIOL		22:33:00	2002/126-22:33 Cooler fan was turned back on. CCU_BOX_TMP is 30.7 C.
05/05/02	126	RE02	HIOL		23:34:08	Starting power-up for RE02
05/05/02	126	RE02	HIOL		23:34:08	Starting power-up for RE02

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/06/02	127	DCMT	ETOL	19:06:00	2:06:00	Start DC Magnetic Test, 20 Amp, + field, Location X1
05/06/02	127	DCMT	ETOL		2:11:00	Stop DC Magnetic Test, 20 Amp, + field, Location X1
05/06/02	127	DCMT	ETOL	19:43:00	2:43:00	Start DC Magnetic Test, 20 Amp, + field, Location X2
05/06/02	127	DCMT	ETOL		2:48:00	Stop DC Magnetic Test, 20 Amp, + field, Location X2
05/06/02	127	DCMT	ETOL	20:06:00	3:06:00	Start DC Magnetic Test, 20 Amp, + field, Location X3
05/06/02	127	DCMT	ETOL		3:07:00	Stop DC Magnetic Test, 20 Amp, + field, Location X3
05/06/02	127	DCMT	ETOL	20:15:00	3:15:00	Start DC Magnetic Test, 20 Amp, - field, Location X3
05/06/02	127	DCMT	ETOL		3:16:00	Stop DC Magnetic Test, 20 Amp, - field, Location X3
05/06/02	127	DCMT	ETOL	20:20:00	3:20:00	Start DC Magnetic Test, 20 Amp, - field, Location X2
05/06/02	127	DCMT	ETOL		3:21:00	Stop DC Magnetic Test, 20 Amp, - field, Location X2
05/06/02	127	DCMT	ETOL	20:23:00	3:23:00	Start DC Magnetic Test, 20 Amp, - field, Location X1
05/06/02	127	DCMT	ETOL		3:24:00	Stop DC Magnetic Test, 20 Amp, - field, Location X1
05/06/02	127	DCMT	ETOL	21:15:00	4:15:00	Start DC Magnetic Test, 20 Amp, + field, Location Y1
05/06/02	127	DCMT	ETOL		4:17:00	Stop DC Magnetic Test, 20 Amp, + field, Location Y1
05/06/02	127	DCMT	ETOL	21:22:00	4:22:00	Start DC Magnetic Test, 20 Amp, + field, Location Y2
05/06/02	127	DCMT	ETOL		4:23:00	Stop DC Magnetic Test, 20 Amp, + field, Location Y2
05/06/02	127	DCMT	ETOL	21:29:00	4:29:00	Start DC Magnetic Test, 20 Amp, + field, Location Y3
05/06/02	127	DCMT	ETOL		4:30:00	Stop DC Magnetic Test, 20 Amp, + field, Location Y3
05/06/02	127	DCMT	ETOL	21:35:00	4:35:00	Start DC Magnetic Test, 20 Amp, - field, Location Y3
05/06/02	127	DCMT	ETOL		4:36:00	Stop DC Magnetic Test, 20 Amp, - field, Location Y3
05/06/02	127	DCMT	ETOL	21:38:00	4:38:00	Start DC Magnetic Test, 20 Amp, - field, Location Y2
05/06/02	127	DCMT	ETOL		4:39:00	Stop DC Magnetic Test, 20 Amp, - field, Location Y2
05/06/02	127	DCMT	ETOL	21:40:00	4:40:00	Start DC Magnetic Test, 20 Amp, - field, Location Y1
05/06/02	127	DCMT	ETOL		4:41:00	Stop DC Magnetic Test, 20 Amp, - field, Location Y1
05/06/02	127	DCMT	ETOL	23:58:00	6:58:00	Start DC Magnetic Test, 20 Amp, + field, Location Z1
05/07/02	127	DCMT	ETOL		7:00:00	Stop DC Magnetic Test, 20 Amp, + field, Location Z1
05/07/02	127	DCMT	ETOL	0:04:00	7:04:00	Start DC Magnetic Test, 20 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		7:05:00	Stop DC Magnetic Test, 20 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL	0:09:00	7:09:00	Start DC Magnetic Test, 20 Amp, + field, Location Z3
05/07/02	127	DCMT	ETOL		7:10:00	Stop DC Magnetic Test, 20 Amp, + field, Location Z3
05/07/02	127	DCMT	ETOL	0:15:00	7:14:00	Start DC Magnetic Test, 20 Amp, - field, Location Z3
05/07/02	127	DCMT	ETOL		7:16:00	Stop DC Magnetic Test, 20 Amp, - field, Location Z3
05/07/02	127	DCMT	ETOL		7:32:00	Start DC Magnetic Test, 20 Amp, - field, Location Z2
05/07/02	127	DCMT	ETOL		7:36:00	Stop DC Magnetic Test, 20 Amp, - field, Location Z2
05/07/02	127	DCMT	ETOL		7:36:00	Start DC Magnetic Test, 5.0 Amp, - field, Location Z3
05/07/02	127	DCMT	ETOL		7:37:02	Stop DC Magnetic Test, 5.0 Amp, - field, Location Z3
05/07/02	127	DCMT	ETOL		7:37:02	Start DC Magnetic Test, 10 Amp, - field, Location Z3
05/07/02	127	DCMT	ETOL		7:37:30	Stop DC Magnetic Test, 10 Amp, - field, Location Z3
05/07/02	127	DCMT	ETOL		7:37:30	Start DC Magnetic Test, 15 Amp, - field, Location Z3
05/07/02	127	DCMT	ETOL		7:37:56	Stop DC Magnetic Test, 15 Amp, - field, Location Z3
05/07/02	127	DCMT	ETOL		7:37:56	Start DC Magnetic Test, 20 Amp, - field, Location Z3
05/07/02	127	DCMT	ETOL		7:38:20	Stop DC Magnetic Test, 20 Amp, - field, Location Z3
05/07/02	127	DCMT	ETOL		7:38:20	Start DC Magnetic Test, 15 Amp, - field, Location Z3
05/07/02	127	DCMT	ETOL		7:38:45	Stop DC Magnetic Test, 15 Amp, - field, Location Z3
05/07/02	127	DCMT	ETOL		7:38:45	Start DC Magnetic Test, 10 Amp, - field, Location Z3

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/07/02	127	DCMT	ETOL		7:39:10	Stop DC Magnetic Test, 10 Amp, - field, Location Z3
05/07/02	127	DCMT	ETOL		7:39:10	Start DC Magnetic Test, 5.0 Amp, - field, Location Z3
05/07/02	127	DCMT	ETOL		7:39:22	Stop DC Magnetic Test, 5.0 Amp, - field, Location Z3
05/07/02	127	DCMT	ETOL		7:39:22	Start DC Magnetic Test, 0.0 Amp, - field, Location Z3
05/07/02	127	DCMT	ETOL		7:39:22	Stop DC Magnetic Test, 0.0 Amp, - field, Location Z3
05/07/02	127	DCMT	ETOL		7:44:00	Start DC Magnetic Test, 20 Amp, - field, Location Z1
05/07/02	127	DCMT	ETOL		7:45:00	Stop DC Magnetic Test, 20 Amp, - field, Location Z1
05/07/02	127	DCMT	ETOL		7:53:00	Start DC Magnetic Test, 20 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		7:54:10	Stop DC Magnetic Test, 20 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		7:54:10	Start DC Magnetic Test, 15 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		7:54:40	Stop DC Magnetic Test, 15 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		7:54:40	Start DC Magnetic Test, 10 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		7:55:00	Stop DC Magnetic Test, 10 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		7:55:00	Start DC Magnetic Test, 5.0 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		7:55:20	Stop DC Magnetic Test, 5.0 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		7:55:20	Start DC Magnetic Test, 0.0 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		7:55:45	Stop DC Magnetic Test, 0.0 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		7:55:45	Start DC Magnetic Test, 5.0 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		7:56:10	Stop DC Magnetic Test, 5.0 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		7:56:10	Start DC Magnetic Test, 10 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		7:56:35	Stop DC Magnetic Test, 10 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		7:57:00	Start DC Magnetic Test, 20 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		7:57:20	Stop DC Magnetic Test, 20 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		8:11:44	Start DC Magnetic Test, 1.0 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		8:12:01	Stop DC Magnetic Test, 1.0 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		8:12:01	Start DC Magnetic Test, 2.0 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		8:12:55	Stop DC Magnetic Test, 2.0 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		8:12:55	Start DC Magnetic Test, 1.5 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		8:13:33	Stop DC Magnetic Test, 1.5 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		8:13:33	Start DC Magnetic Test, 1.25 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		8:14:20	Stop DC Magnetic Test, 1.25 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		8:14:20	Start DC Magnetic Test, 1.75 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		8:14:45	Stop DC Magnetic Test, 1.75 Amp, + field, Location Z2, Threshole @ 1.75 Amp.
05/07/02	127	DCMT	ETOL		8:14:45	Start DC Magnetic Test, 0.0 Amp, + field, Location Z2
05/07/02	127	DCMT	ETOL		8:15:30	Stop DC Magnetic Test, 0.0 Amp, + field, Location Z2
05/07/02	127	DMT	ETOL		8:30:00	Start Dipole Moment Test
05/07/02	127	DMT	ETOL		9:30:00	Stop (end) Dipole Moment Test
05/07/02	127	CE03	HIOL		10:40:00	2002/128-10:40 CCU Box temp is approaching 35C, Currently 34.86. Directed by Ray to cut down stroke to 80% and remove contam. enclosure.
05/07/02	127	CE03	HIOL		10:50:00	2002/128-10:50 CCU Box is now 33.79C
05/07/02	127	CE03	HIOL		11:22:00	2002/128-11:22 CCU Box is now 31.54C
05/07/02	127	CE03	HIOL		11:43:00	2002/128-11:43 Gss heaters at temp, proceeding with motor power on
05/07/02	127	CE03	HIOL		11:49:44	2002/128-11:49:44 Telemetry FAILED: HIR_GYS3_PWR_MODE = 0 actual 1, Ask-Question> Continue after FAILURE (y or n)? Y
05/07/02	127	CE03	HIOL		12:03:00	2002/128-12:03 Saw that GYS3 PWR_MODE = 0

Date	Day	Test	Log	TimePDT	TimeGMT	Notes
04/28/02	118	CE01	ETOL	4:33:16	11:33:16	Start PI-SR-A, (CE01)
05/07/02	127	CE03	HIOL		14:15:24	2002/128-14:15:24 start global scan
05/07/02	127	CE03	ETOL		15:15:00	Ambient Test, CE03, PI-QB-A, UUT Off, Vacuum Pump On
05/07/02	127	CE03	HIOL		15:15:17	2002/128-15:15:17 Global Scan Complete
05/07/02	127	CE01	ETOL		15:31:00	Ambient Test, CE01, PI-QB-A, UUT Off, Vacuum Pump On,
05/07/02	127	CE01	HIOL		15:40:00	2002/128-15:40 - mdbarker take over for Randy briefly while he changes thermal gse temp
05/07/02	127	CE01	ETOL		15:41:00	Ambient Test, CE01, PI-QB-A, UUT Off, Vacuum Pump Off,
05/07/02	127	CE03	ETOL		15:59:00	Ambient Test, CE03, PI-QB-A, UUT Off, Vacuum Pump Off,
05/07/02	127	CE01	ETOL		16:05:00	Ambient Test, CE01, PI-QB-A, UUT Off, Vacuum Pump Off,
05/07/02	127	CE01	HIOL		16:06:00	2002/128-16:06 Close SSH door, Althea Witnesses
05/07/02	127	CE01	ETOL		16:13:00	Ambient Test, CE01, PI-QB-A, UUT Off, Vacuum Pump Off,
05/07/02	127	CE03	ETOL	9:25:00	16:25:00	Ambient Test, CE03, PI-QB-A, UUT Off, Vacuum Pump Off,
05/07/02	127	CE03	ETOL	9:34:00	16:34:00	Ambient Test, CE03, PI-QB-A, UUT Off, Vacuum Pump Off,
05/07/02	127	DMT	ETOL	10:00:00	17:00:00	Stop (end) Ambient (Dipole Moment) Test, UUT Off, Vacuum pump Off
05/07/02	127	END	ETOL	13:45:00	20:45:00	END of testing, UUT removed from Room

SE Test Log

02-04-30

7:58 Read One Instrument Ready for RS03 test.
Cryotip / FPA at temp ~57°/60° & stable
Gyros to spin started

IEGSE DR 6442
DR 6433

1830 11:30 all gyro temps ~~agree~~ are "steady"

Gyro	
0	60.5
1	66.3
2	64.3
3	60.5

237
5MHz

1853 scanning

1856 scan stop
1858 Pointing at BB, waiting for radiance to settle.
— Ready for RS03 —
antenna pointing "side A" / +Y
1900:50 bringing up signal

1901:10 2V/m ~~start~~ ~~threshold~~ @ 14 kHz (→ ~50kHz) TP-LOC-820 Sec 13.10.6
1914 " ~~50 kHz~~ 55.7 kHz Configuration Diagram
1920 113 kHz position D4
1925 141 kHz
1930 169 kHz
1935 196 kHz
1940 224 kHz
1943 EMI power down @ 237 kHz change amplifier
1949 start at 237kHz
1952 ~~to~~ EMI power down - @ 5 mHz
1958 start @ 5 mHz 5mHz - 20 mHz
2004 15 MHz ~~X~~ temp data glitch @ ~2002-2004
2006 power down antenna 20 mHz

Change antenna - new antenna is dipole, vertical polarization first

Log of RSO3 Tests — Tuesday

DAY	HOUR	NOTE
120	2020	still changing antenna
VERTICAL ↓		start @ 20mHz -200 mHz Vertical polarity
	2025	20 MHz start sweep
	2030	27 MHz some changes in stroke 78.3% ↑ 78.6%
	2035	32 mHz
	2040	cal mirror Temp 1 dropped ~ 26 - 14 & recovered (also ~40MHz)
	2040	cal mirror temp 2 dropped 42 mHz
		also seeing changes in Com & Disp temps
	2045	52 MHz
	2050	64 MHz
	2055	75 mHz
	2100	87 MHz
	2102	94 mHz * continue to see Comp & Disp glitches
	2105	101
	2109	110 mHz * cns1_tmp
	2111	115 mHz * Comp & disp _tmp
	2115	123 MHz
	2117	129 mHz * sm_TMP1
	2120	136 MHz
	2122	* 141 MHz * cal mirror temp. ** cryotip temp dropped. Beam CSS
	2125	148 MHz
	2126	150 mHz power off ! * GEU_BOX
HORIZONTAL ↓	~~2130~~ 2130	~~all power off temp signal glitch~~ 150 MHz ↑
	2133	156 * DMU amp changes
	2135	159 stepped glitching ** starting to see shift
	2136	164 No imu glitch in channel 5 data
	2138	169 from ~2010 ↑ ~2020
	2140	172 MHz ? more noise on radiance data?
	2142	179 mHz ** channel 5 shifting down
	2145	184 mHz ** jump in cryotip temp no "Brad" changes jumps continue until ~188 mHz
	2147	191 mHz ~~stop jumping~~ jumping again
	8	193
		** Channel 5 shifting upward again
	2150	197 mHz * ~~SPU PRT noise~~ hard to judge cryotip jumping channel 5 moving downward

* suggest Event Check GMU power vs Channel 5 radiance

2151 200 mHz – stepping
- jumps in cryotip
- channel 5 ~ 2015 counts, channel 1 ~ 2004
- ~~SPU #2 less noisy~~

after power off – ~+1 min

Cryotip still jumping
~~Channel 5 reading upward~~

Time	Freq.	Notes
2155	– Break –	Human & instrument
2210	———	Ready for 20 mHz – 200 mHz Horizontal polarity
2212	20 mHz	Start Horizontal dipole & test cryotip temp is toggling, radiance data has shifted most Cal 1 channels have counts < 2000
2220	37 MHz	note input is 1Khz square wave modulation amplitude
2221	40 MHz	* LNS1 tmp glitch, CRYOTIP still toggling
2225	46 MHz	* still toggling, ~~LNS1_T3 (prf) is~~ glitch CAL_MIR_TMP1
2224	48 MHz	* ~~from~~ com/disp tmp glitches starting up (also on Az Housing & most boxs & CAL_MIR_TMP2
2230	56 MHz	toggling less frequently on cryotip
2235	65 MHz	* toggling, cryotip.
2240	77 MHz	~~toggling has stopped~~
44		toggling again
2245	87 MHz	
2250	100 MHz	no toggle, all temps nominal
2255	111 MHz	
2257	119 MHz	CalMir1 started to rise, went from 26 → 27°C plateaued
2300	123 MHz	
2302	130 MHz	Glitches - SMA MTG ING_TMP Toggling between
2305	136 MHz	23 and 28, STH-2 also toggled a bit.
2307	141 MHz	CalMir1 moving back down to 26 → 27 again
2310	148 MHz	All temps nominal
2311	150 MHz	SWITCHED AMPLIFIER
2314	150 MHz	
2320	163 mHz	
2325	177 MHz	

next page

RS03 Cont.

Time:	Freq.	Notes:
2339	189 MHz	
2334	200 MHz	completed
		START RE-TEST 140MHz TO 200MHz
23:41	140MHz	INTENSITY 2V/m
2344	144MHz	FIA TMP_A toggling beginning
2346	150MHz	BS90 show some variation & oscillation ~2°
2349	150MHz	
2352	157MHz	Some ~~glitches~~ in toggling in FIA_tmpA
2355	165MHz	NO excess toggling
5:00 PM 4/30 2355	180MHz	2V/m
23:59	184MHz	Susceptability @ 2V/m in COMP-HEAD C, DISPL. col
2002/12/1 00:05	197MHz	
00:06	200MHz	completed sweep END RE-TEST
00:13	36MHz	
00:15	41MHz	CAL MIR-TMP2 went down to 24C starting up again to 26
00:16	44MHz	CAL MIR-TMP2 down to 23 and moving back up to 26
00:19	45MHz	
00:20	52MHz	Toggling of COMP-HEAD C, DISPL.
00:22	41MHz	NO sweep
00:27	stopped	END OF RE-TEST
1:05		VERTICAL POLARITY
01:10	211MHz	Nominal
01:15	223MHz	
01:20	235MHz	
01:25	248MHz	
01:30	260MHz	
01:35	273MHz	
01:40	285MHz	
01:45	299MHz	
01:50	309MHz	
01:55	322MHz	
02:00	335MHz	
02:05	346MHz	

RSO3 CONT.

	TIME	FREQ	NOTES
2002/121	02:10	359MHz	Nominal
	02:15	371MHz	
	02:20	384MHz	Sudden blip on CAL-MIR TMP1 from 27 → 26 and back up.
	02:25	397MHz	Nominal
	02:30	410MHz	
	02:34	420MHz	switching to 108 kHz steps. previous 5 kHz steps
	02:36	420MHz	
	02:40	432MHz	
	02:45	459MHz	
	02:51	487MHz	
	02:56	511MHz	
	02:59	520MHz	stopping to make equipment change
	03:02	500MHz	starting sweep again.
	03:05	531MHz	
	03:09	536MHz	Toggling of Displace1
	03:15	581MHz	Toggling disappeared.
6/10	03:20	600MHz	Toggling of ~~Cryotip~~ FPA TempA down - 0.5 Displacement of CMW changed from 785 → 786 back to 786 Displace - temp changed
	03:26	631MHz	Cryotip-Tmp1 - started toggling ~ 0.12 Amplitude Displace 1 - also started toggling ~ 0.3° amplitude
	03:30	650MHz	
	03:32	663MHz	Cryotip-Tmp1 again
	03:41	703MHz	
	03:45	723MHz	
	03:50	747MHz	
	03:55	772MHz	
	04:00	799MHz	
	04:05	824MHz	
	04:10	846MHz	
	04:13	862MHz	Cryotip-Tmp started toggling
	04:14	866MHz	Toggling stopped
	04:20	893MHz	
	04:24	918MHz	Cryotip-Tmp started toggling again very low frequency
	04:27	930MHz	Stopped toggling
	04:28	938MHz	Cryotip-tmp started toggling again
	04:29	942MHz	Stopped toggling

20:03 PDT ≤ 0.1 K in DISPL1

	TIME	FREQ	NOTES
002/121	04:35	968MHz	
	04:36	977MHz	Cryotip-Tmp started toggling again Low frequency once a minute
	04:38	986MHz	Frequency of toggling increased to about 3 cycles a minute
	04:41	1GHz	Reconfiguring - Power off
2145 1/30	04:45	200MHz	Horizontal Polarity stepping @ 10 kHz rate ✓
			Toggling of Cryotip_tmp. low freq.
	04:49	213MHz	Toggling stopped
	04:50	221MHz	Toggling started again
	04:54	241MHz	Toggling stopped
	04:57	264MHz	Toggling of Cryotip-tmp started
2200 1/30	~~05:05~~	~~296MHz~~	Toggling of DISPL-1 (trend downwards)
	05:05	296MHz	Toggling of Cryotip-tmp stopped
	05:09	311MHz	DISPL-1 temp back up
	05:15	341MHz	Toggling of Cryotip-tmp started
	05:20	364MHz	Toggling stopped
	05:29	410MHz	
	05:35	438MHz	
	05:40	465MHz	
	05:42	472MHz	Toggling on CRYOTIP-TMP started ~2deg/min
	05:43	478MHz	Toggling stopped
	05:45	490MHz	
	05:50	512MHz	
	05:52	520MHz	Toggling of CRYOTIP-TMP started
	05:52	520MHz	Switching Amplifier - stopped
	05:54	520MHz	STARTING AGAIN. — GOING to 2~~600~~GHz
	05:57	539MHz	
	06:03	564MHz	
	06:07	582MHz	Toggling of CRYOTIP_TMP started
			DISPL-1 trend downwards
			CRYOTIP-TMP Toggling Stopped a minute later
	06:12	625MHz	
	06:17	634MHz	
	06:23	664MHz	DISPL-1 temp trend upwards
	06:28	689MHz	
	06:33	714MHz	
	06:38	738MHz	

	TIME	FREQ	Notes
002/121	6:44	759 MHz	COMP-HEAD Temp trend downwards
	6:49	783 MHz	Back up
	6:54	807 MHz	
	6:59	830 MHz	
	7:04	854 MHz	
	7:10	880 MHz	
	7:15	908 MHz	
	7:20	933 MHz	
	7:25	958 MHz	
	7:30	983 MHz	
	7:34	1000 MHz	

stop to change antenna

→ slow drift in cryo temps, CMU temps, and radiance data followed opening of chamber/cell door to change the antenna – other temperatures are not shown in sufficient resolution to find a drift

total excursion of CMU less than 0.1K – ends when door was closed

(→ ~~low~~-pixel rise in SSH_DOR, DOR_MOT, HWA_APL, CHOP_H, CCUBT, PSS temps)

GMU overtemp setpoints do not agree with the test constraints document. Some are over 72 and some under 70. This is said to be because of sensor location, but there may also be a calibration error. Dan Lewis, Pete Apollo, and Soji have more information on selection of the fault-management overtemp setpoints for the GMU. – FWa

no change in cryo watch points since 03:19 ~~PA~~ UT
no change in other watch points since ~~120/18~~ 120-18:50:37

TIME	FREQ	Notes
08:04	1GHz	2V/m
08:04:35		start sweep
08:10	1022 MHz	
08:15:40	1046 MHz	
08:21:15	1070 MHz	watch point change to 512 (FSW fault start) - changeback to 0 08:21:54-55
08:26	1095 MHz	~~jitter exceeded max value~~ FWa
08:31:35	1114 MHz	512: scanner strobe time interval wasn't as expected (is updated once per minute) per Marion
08:36:30	1139 MHz	See test-log_2002_121.txt for details (SC)
08:51:45	1214 MHz	
08:57:40	1242 MHz	
09:02:30	1265 MHz	
09:07:35	1288 MHz	
09:12:40	1309 MHz	
09:17:45	1332 MHz	
09:23:05	1353 MHz	
09:28:15	1378 MHz	
09:35:45	1414 MHz	
09:40:30	1438 MHz	

	Time	Freq	Notes
007/121	9:45:35	1463MHz	
	9:50:45	1488MHz	
	955:50	1513MHz	
	10:00:50	1539MHz	
	10:06:15	1565MHz	
	10:11:30	1590MHz	
	10:16:35	1615MHz	
	1021:40	1640MHz	
	1026:45	1666MHz	All passive sensor have dropped 2° starting 315 PDT
			03:20 PDT - leveled off - back up by 03:30
			→no change in other temperatures
			this looks very similar to the dip in the passives
			seen Tuesday AM before starting the first RSO3 sweeps
	10:32:04	1692MHz	FWA
	10:35:26		Passive sensor have returned to their orginal values QA
	10:37:00	1716MHz	
	10:42:10	1741MHz	
	10:47:20	1768MHz	
	10:52:30	1992MHz	1792MHz
	10:57:40	1818MHz	
	11:02:45	1843MHz	
	11 07 50	1868MHz	
	11 12 50	1893MHz	
	11 19 05	1919MHz	
	11 23 10	1944MHz	
	11 28 10	1969MHz	
	11 33 15	1994MHz	
	11 34 20	2000	Scan complete, going to flip antenna QA
	1135:01	Door	opens, 64°F in cell vacuum 1.3E-6
	1138:42	start scans from 1GHz to 2GHz	
	11:44:15	1025MHz	
	11:49:20	1050MHz	
	11:54:30	1076MHz	
	11:59:40	1100MHz	
	12 04 45	1126MHz	
	12 09 45	1150MHz	
	12 11 50	1176MHz	
	1220 05	1201MHz	
	12:25:10	1226MHz	1226MHz
	1230:15	1251MHz	
	1235:20	1276MHz	

	Time	Freq	Notes
7	12:40:30	1302 MHz	1302 MHz
06/21	12:45:45	1327 MHz	1327 MHz
	12:50:35	1351 MHz	
	12:56:00	1377 MHz	
	13:00:50	1401 MHz	
	13:05:51	1426 MHz	
	13:11:00	1451 MHz	
	13:16:00	1476 MHz	
	13:20	1497 MHz	
	1325	1521 MHz	
	1330	1547 MHz	
	1332	1554 MHz	apparent dropout of radiance and encoder telemetry just before this FWA → no change in watch points! also affected DISPL1 & COMP_HEAD −0.5 °C SSH DOOR, DORMOT, _HWA, DORMOT etc (and others) PSS-SYS_SVA-TMP, 5VB → but not other PSS temperatures
	1335	1571 MHz	
	1340	1598 MHz	
	1345	1619 MHz	
	1350	1643 MHz	
	1355	1668 MHz	
	1400	1693 MHz	
	1405	1717 MHz	
	1410	1742 MHz	
	1415	1.76 GHz	
	1425	1.835 GHz	
	1426		TURNED OFF RF CW
	1429	1.832 GHz	RESUMED SWEEP
	1429	2.0 GHz	Completed sweep
(5/17/02 0745) → ORIGINAL	1446	2.0 GHz	starting TP-HDC820 Step 13.10.6 2-18 GHz @ 10 V/m
	1450	2.078 GHz	
	1455	2.145 GHz	
	1500	2.251 GHz	
	1501		stopping sweep; raising level to 20 V/m
	1502	2.284 GHz	started
	1503		stopped; changing level to 10 V/m
	1503	2.290 GHz	started
	1510	2.446 GHz	
	1515	2.587 GHz	
	1520	2.706 GHz	
	1525	2.836 GHz	

science data & plot both missing data per Marion Baker 16:55 2002/121

Note: 7:00 local / 14:00 GMT
Frank going off shift
Tim & Sherry coming on shift

Apparent dropout of the encoder. No change in watch points. Occured during the short turn on turn off 1.832 GHz to 2.0 GHz. I was back asked if our LEGSE cables are shielded.

SE noted a small dip in the passive temp sensors on the screen display at the time the sweep started. Also noted cryo-cooler comp head temp experienced small change here (to some extent) 40 min later

	TIME	FREQ	NOTES
02/12/ May 2002	1530	2.964 GHz	
	1540	3.220 GHz	
	1545	3.398 GHz	
	1550	3.571 GHz	
	1555	3.760 GHz	
	1600	3.933 GHz	
	1602		completed sweep; powered down
	1612		start 4-8 GHz sweep
	1615	4.111 GHz	
	1621	4.382 GHz	
	1625	4.523 GHz	
	1630	4.896 GHz	
	1645	5.111 GHz	
	1650	5.284 GHz	
	1655	5.487 GHz	
	1700	5.657 GHz	
	1711	5.976 GHz	
	1715	6.098 GHz	
	1720	6.258 GHz	
	1725	6.386 GHz	
	1730	6.542 GHz	
	1735	6.722 GHz	
	1740	6.857 GHz	
	1745	7.018 GHz	
	1750	7.158 GHz	
	1800	7.523 GHz	
	1805	7.688 GHz	
	1809	7.750 GHz	
			11:10 am Wilda replaced by Talin as TC
	1813	7.922 GHz	
	1815	8.00 GHz	Power is turned off
			Change in no Volt range
			Waiting to start 8-18 GHz
			(Configuration change)
	18:35:20	8-8.025 Hz	8-8025 Hz ~~Change in~~ Baseline started
	18:36:09		Sweep Stoped
	18:36:54	8-8.4	20m/V Sweep Started.
	18:46:15		Stoped
	18:47:13	8.4(-18GHz)	8.4 - 18GHz Start
	18:59:00	8.996	
	19:05:00	9.289	Frank Zele TC

	Time	Freq	Notes
002/121			
Day 1	19:15	9.768 GHz	
	19:20	9.937	
	19:26	10.189	
	19:31	10.412	
	19:36	10.636	
	19:41	10.808	
	19:46	11.032	
	19:51	11.268	
	19:56	11.411	
	20:01	11.673	17:30 passive temps drifting downward by 1° by 18:00. Trended back up starting @ ~ 18:30 after staying steady for ~30min & values are between 296 & 298.
	20:06	11.926	
	20:11	12.132	
	20:17	12.374	
	20:23	12.644	
	20:28	12.898	
	20:33	13.168	
	20:39	13.472	
	20:44	13.711	
	20:50	13.990	
	20:56	14.331	
	21:01	14.598	
	21:06	14.754	← hold
	21:28	14.754	← start
	21:31	14.769	← stop
	21:34	14.769	← start
	21:39	14.976	Cordova off, Opydon, as SE analyst.
	21:44	15.202	
	21:50	15.476	
	21:55	15.508	
	22:00	15.720	22:01 Packet drop. MiF gap
	22:05	15.922	22:08 Packet drop. MiF gap
	22:11	16.144	
	22:15	16.299	
	22:20	16.520	
	22:27	16.839	
	22:30	17.048	
	22:36	17.405	
	22:40	17.591	
	22:45	17.883	
	22:47	18.000	Completed Sweep. Stopped. Power Down

RSØ3

	Time	Freq	Notes
2002/121 May	22:59	15.7 G	10 V/m Repeat since packet drops at 22:01 & 22:08
	23:00	15.700	at power.
	23:02	15.700	Start Sweep to 16.100 GHz
	23:05	15.867	
	23:10	16.130	Stopped Sweep. 15.7 to 16.1, no drops.
	23:12	off	Open chamber to reconfigure antenna
	23:30		High rate plots dissappeared Temperature plots stopped updating → Cause was IEGSE restart.
2002/122	00:10		configuration to digram B. antenna on -y side Sweeping to 14 kHz to 20 MHz
			Restarted plots by telephone with Seraphin. plot-cryo-emi & → plot-spu-volt-B & plot-ifcbb & plot-radcol1 & plot-radcol2 & plot-enc & → plot-radvar-col2 & plot-mirtmp &
	00:24	14.00 kHz	Start
	00:27	28 kHz	Stopped to change equipment
	00:27	28 kHz	restarting sweep
	00:30	164 kHz	
	00:31	200 kHz	stopped to change equipment.
	00:37	200 kHz	resuming sweep
	00:41	1 MHz	stopped to chang Equipment
	00:42	1 MHz	resuming sweep.
	00:45	5 MHz	stopped to switch antenna
	00:49	5 MHz	resume sweep.
	00:55	18.4 MHz	
	00:56	20 MHz	stopped sweep changing to eqr.
	01:09	20 MHz	starting Vertical polarization
	01:15	33 MHz	
	01:19	41 MHz	*Cal mir-Tmp 2 moving down a degree also compress dip
	01:20	43 MHz	Cal mir_tmp2 returned to normal level, compressor and displacement still dropping & AZ-HSG-1
	01:22	48 MHz	*Calmir_tmp1, Calmir_tmp2, LNSL_WF_TMP1 dropped 5-10°
	01:23	51 MHz	degrees. then return to normal @ 1:23
	01:28	62 MHz	

log_shk_temps -r 600

log=pss_temps -r 600

./analog -r 20 -F analogs.rrd -m 0 -s

RS03 continued.

	time	frequency	Notes
02/22	01:30	69 MHz	dip of 2° on Calmir_tmp1, Calmir_tmp2, LNS1_WF_TMP1, LNS1_WF_TMP3, SM_TMP1.
	01:31	71 MHz	Back to normal
	01:35	80 MHz	stopping to switch amplifier
	01:37	119 MHz	sweeping start
	01:40	126 MHz	
	01:52	155 MHz	
	01:54	160 MHz	stopped sweep → skipping to 180
	01:55	180 MHz	starting sweep 180 MHz
	01:59	190 MHz	stopped. reconfiguring to repeat 40 MHz - 62 MHz
	02:02	40 MHz	starting.
	02:03	41 MHz	temps start dropping (Calmir, LNS1, SM)
	02:04	43 MHz	& back to normal levels
	02:06	47 MHz	~~THS~~ temps dropping again.
	02:06	48 MHz	hold at 48 MHz
	02:09	48.75 MHz	1.9 V/m temps increased about a degree
	02:10	48.75 MHz	1.8 V/m temp up about a degree
	02:10	"	1.7 V/m " "
	02:11	"	1.6 V/m temp up about half a degree
	02:12	"	1.5 V/m " " " " "
	02:13	"	1.4 V/m " " " " "
	02:14	"	1.3 V/m temps up about .3 degrees
	02:15	"	1.2 V/m temps up ½ degree
	02:16	"	1.1 V/m temp up .4 degrees
	02:17	"	1.0 V/m temp up ½ degrees
	02:18	"	0.9 V/m temp up about 0.3 degrees
	02:19	"	0.8 V/m "
	02:20	"	0.7 V/m temp no change
	02:21	"	return to 2.0 V/m
	02:22	"	power off. changing antennas.
	02:34	20 MHz	horizontal polarization starting sweep
	02:40	30 MHz	
	02:41	32 MHz	dip in Calmir, LNS1, & SM temps
	02:41	34 MHz	returning to normal
	02:43	38 MHz	another dip in temps
	02:45	42 MHz	Calmir_tmp2 dropping to 25.24
	02:46	45 MHz	starting to drop 6-10 degrees
	02:46	46.9 MHz	starting back up
	02:47	48.0 MHz	normal level.
	02:49	52.0 MHz	temps dropping again.
	02:49	54 MHz	temps returning to normal level

also saw dip in bsp & comp temps

RS03 cont

	time	freq	Notes
2002/122	02:53	63 MHz	Convergence of sm_TMP1 and Calmir_TMP2 around 26 °C
	02:57	72 MHz	
	03:00	78 MHz	
	03:01	80 MHz	pausing to switch amplifiers.
	03:03	119 MHz	starting sweep.
	03:05	123 MHz	
	03:10	135 MHz	
	03:11	138 MHz	~~calmir=tmp1 LNST_bot=TMP3~~ dropped about a degree to ~26°
	03:11	139 MHz	Calmir_tmp1 back up to level. ~27°
	03:15	146 MHz	Calmir tmp 2 dropped abat a degree, also sm_TMP1 &
	–	–	Calmir tmp 1 dropped a degree,
	03:15	149 MHz	all temps back to perious level.
	03:20	158 MHz	
	03:20	160 MHz	Stopped sweep configuring for 180 MHz
	03:23	180 MHz	
	03:25	185 MHz	
	03:27	190 MHz	Stopped sweep reconfiguring for 210
	03:41	210 MHz	starting 210 – 390 MHz sweep vertical polarization 2 v/m
	03:47	240 MHz	
	03:50	251 MHz	
	03:55	275 MHz	
	04:00	299 MHz	
	04:05	324 MHz	
	04:10	348 MHz	
	04:15	374 MHz	
	04:18	390 MHz	stopping sweep @ 390 MHz
	04:19	470 MHz	starting sweep @ 470 MHz vertical
	04:25	494 MHz	paused sweep
	04:30	520 MHz	Changing amps
	04:32	520 MHz	resuming sweep
	04:37	544 MHz	
	04:40	557 MHz	~~FPGA, PCM~~ all Rx passive temp sensors stepped up about two degree @ about 4:35
	04:45	586 MHz	
	04:50	606 MHz	
	04:55	630 MHz	
	05:00	655 MHz	FPA ~~Optics~~ TMP-A is down 1/100 of a degree
	05:05	683 MHz	
	05:09	700 MHz	stopped to switch polarity

RS03 cont.

	time	freq	Notes
2002/122	05:15	210 ~~470~~ MHz	Starting sweep Horizontal polarity 210 ~~470~~ - 390 ~~700~~ MHz @ 2v/m
	05:21	221 MHz	
	05:25	237 MHz	
	05:30	256 MHz	
	05:35	281 MHz	
	05:40	306 MHz	
	05:45	330 MHz	
	05:50	353 MHz	
	05:55	372 MHz	
	05:58	390 MHz	Completed sweep up to 390 MHz configuring for 470 - 700 MHz sweep.
	05:59	470 MHz	started sweep horizontal polarity 470 - 700 MHz
	06:05	496 MHz	Crews arrived to relieve Wally.
	06:10	520 MHz	Pausing to change amps.
	06:12	520 MHz	Resuming sweep.
	06:17	542 MHz	
	06:20	557 MHz	
	06:25	583 MHz	
	06:30	606 MHz	
	06:35	629 MHz	
	06:40	658 MHz	
	06:45	679 MHz	
	06:49	700 MHz	Completed sweep to 700 MHz, switching antennas
		1.5 GHz	
	06:54		Reset analog telemetry. Purpose: to see if the passive temperature plots shift. (ref: 04:40 entry on p. 30)
	06:57		Noticed change in Az & El plots. The EMI test team is re-configuring and touched the instrument while setting up an antenna. This appears to be a normal, expected indication
	06:02		No change in passive temp sensor plots.
	06:03		Wally signed off shift. Crews is SE analyst.

RS03 cont.

	time	freq	NOTES
2002/122	07:15	1.5GHz	starting sweep in vertical polarization
2002/122	07:22	2.0GHz	CHANGING POLARITY
	@7:25	1.5GHz	HORIZONTAL POLARITY
	07:30	1703MHz	
	07:36	1987MHz	
	07:37	2GHz	CHANGING AMPLIFIER
	07:47	2GHz	10 V/M HORIZ. POLARITY RESUME SWEEP
	07:50	2099MHz	
	07:55	2230MHz	
	07:58	2285.5	INCREASE TO 20 V/M
	07:59	2285.5	STARTING SWEEP
	08:00	2285.5MHz	STOP @ 20 V/M CHANGING LOWER LEVEL
	0802	"	STARTING W/ 10 V/M UP TO 4GHz
	0807	2355MHz	
	0815	2465MHz	
	0820	2539MHz	
	0827	2637MHz	
	0830	2706MHz	
	0835	2837MHz	
	0840	2964MHz	
	0845	3130MHz	
	0852	3318MHz	
	0857	3448MHz	
	0901	3575MHz	
	0905	3677MHz	
	0910	3805MHz	
	0915	3945MHz	
	917	4GHz	STOPPING TO CHANGE POLARIZATION
	0922	2GHz	VERTICAL POLAR. STARTING SWEEP
	0929	2285.5	INCREASE TO 20 V/M
	0930	2285.5	STARTING SWEEP
	0931	2289.5	COMPLETED SWEEP
	0931	2289.5	10 V/M STARTING SWEEP
	0935	2415MHz	
	0940	2670MHz	
	0945	2885MHz	
	0950	3080MHz	
	0955	3312MHz	
	1000	3500MHz	

RS03 CONTINUED . . .

	TIME	FREQ	NOTES
2002/122	10.05	3712 MHz	
	10.10	3933 MHz	
	1013	4 GHz	CHANGE AMPLIFIERS
	1018	4 GHz	10 V/M VERTICAL POLARIZATION, START SWEEP
	1025	4266 MHz	
	1029	4411 MHz	NOTICED CHANGED SCALES ON EL & AZ ← PLOTS
			In TSW window, the AZ position & the EL position are both commanded to 0. Plot in GNUPLOT of AZ & EL looks like the one we saw when it was 1st set up and AZ/EL were @ 0/0.
			Noticed a very short duration change in the center column radiance plots. SCAN TABLE EXPIRED
			All other plots appear normal.
			No change in Watch List.
	1036	4696 MHz	
	1040	4867 MHz	AZ/EL PLOT IS BACK
	1045	5058 MHz	
	1050	5242 MHz	
	1055	5495 MHz	
	1059	5615 MHz	NOTICED TEC PASSIVE TEMP HAS COME
	1106	6020 MHz	DOWN FROM 309 K TO 308 K
	1115	6306 MHz	
	1121	6575 MHz	
	1126	6779 MHz	
	1130	6909 MHz	
	1136	7157 MHz	
	1140	7335 MHz	
	1145	7563 MHz	
	1151	7809 MHz	
	1155	7991 MHz	
	11:56	8 GHz	STOPPING TO CHANGE TO HORIZONTAL POL. observation: TEC A temp continues to drift down at ~ 1°K/hr. Now at ~308 K
	1200	4 GHz	START IMG HORIZ. POL SWEEP.

RS03 CONTINUED...

2002/122

TIME	FREQ.	NOTES
1207	4298 MHz	Noticed both Az Housing & El_Housing appear to be drifting down
1211	4459 MHz	
1216	4680 MHz	
1220	4852 MHz	TEV_A temp appears stable at 308 K
1232	5384 MHz	
1240	5749 MHz	
1245	5914 MHz	
1250	6130 MHz	
1255	6358 MHz	
1302	6650 MHz	Az Housing & El Motor ~ ½°C/hr
1310	7006 MHz	Az Housing ~ 27.5°C
1313	7097 MHz	El Motor ~ 30.8°C
		STOPPING SWEEP TO RESET TEV SCAN TABLE
1317	"	START FREQ SWEEP
1322	7290 MHz	
1328	7552 MHz	
1331	7720	gap in telemetry - all nimbus displays nothing on dash 8 or watch
13:37	7918	some glitches in temperature plots
13:39	8000	
		MI_3
	Stopped	LNS1_WF_3
14:05	7650 MHz start	DISPL1
14:10	7719	CCUBX
14:15	7812	_DORMOT
		re-run frequency sweep at 10 V/m past the telemetry dropout at 1331 (7720 MHz)
		NO TELEMETRY DROP DETECTED
		Adams on, Crews off as SE analyst
14:20	7882 MHz	
14:24	7953	
14:27	8000	Stop sweep
1449	4200	STARTING SWEEP FROM 4200 MHz TO 4900 MHz
1454	4363	@ 75 kHz INCREMENTS 10 V/m
1500	4536	
15:05	4677	
15:10	4824	
15:12	4900	Stop sweep

RS03 continued

2002/12z Time	Freq	Notes
15:32	8.00GHz	Start sweep from 8GHz to ~~+8~~ 8.025 10 V/m
15:33	8.025	~~20 V/m~~ stop scan
15:34	8.025	set up for 8.025 to 8.4 – start horizontal
15:38	8.4 GHz	set up for 8.4 – 18 GHz 10 V/m horizontal
15:39	8.4 GHz	start ~~scan~~ sweep
15:44	8.865GHz	
15:50	9.551	
15:55	10.076	
16:00	10.566	
16:05	11.180	
16:10	11.680	
16:15	12.225	
16:20	12.868	
16:25	13.259	
16:30	13.708	
16:35	14.229	
16:40	14.734	
16:41	14.741	– stop, change power amplifier
16:54	14.741	– restart – 14.741 GHz 10 V/m
17:00	15.249	
17:05	15.706	
17:10	15.994	
17:15	16.306	
17:20	16.584	
17:25	16.953	
17:30	17.396	
17:35	17.938	
17:37	18.000	Reached 18 GHz stopped sweep change antenna to vertical polarization
17:55	8.000GHz	Start sweep from 8 to 8.025
17:55	8.025	Stopped sweep
17:57	8.025	Start sweep from 8.025 to 8.4 20 V/m
18:02	8.400	Stopped sweep
18:03	8.400	Start sweep from 8.4 to 18 GHz
18:10	9.203	
18:15	9.752	
18:20	10.189	

RS03 continued

2002/122 Time	Frequency	Notes
18:25	10.717GHz	
18:30	11.212	
18:35	11.672	
18:40	12.138	18:39-40 0.1% changes in compressor/displacer actual stroke
18:45	12.723	78.7% ↔ 78.8% no excursions, Cryotip_TMP_DD flat 56.5
18:50	13.199	same continuing at 18:52
18:55	13.587	same continues at 19:02, 19:06, 19:27
19:00	14.078	
19:05	14.642	
19:06	14.700	Stopped sweep
		watch file had stopped — restart at 2002/122-18:58:30 old file moved to watchrs03.2002122
		must run ~~MAGIC~~ off line to cover the gap
19:17	14.700GHz	Start sweep to 18 GHz
19:25	15.263	
19:30	15.628	
19:35	16.034	
19:40	16.342	
19:45	16.596	
19:50	16.994	
19:55	17.437	
20:00	17.845	
20:02	18.000	Stopped sweep
		move antenna to instrument tent side again, for the missed vertical-polarization sweep
		observed jumps in encoders as they moved equipment
20:18	14.700GHz	14.7 — 18.0 Start sweep
20:25	15.253	
20:30	15.589	
20:35	15.983	
20:40	16.336	
20:45	16.625	
20:50	16.996	
20:55	17.448	
20:59	17.842	
21:01	18.000	Stopped sweep

RS03 continued

2002/122 Time	Frequency	Notes
21:10	8.000GHz	start sweep from 8.00–8.025, 20V/m
21:10	8.025	stopped
21:11	8.025	start sweep from 8.025–8.4 20V/m
21:17	8.400	stopped
21:34	8.400GHz	start sweep from 8.4 to 14.7 ~~18.0~~ GHz
21:40	8.752	FPA temperature is climbing ~6 mK/minute
21:45	9.112	
21:50	9.458	cryotip_TMP_DO stays 58.6 actual stroke dropped to 78.6% (both) apparently in response to climbing temperature (showing that CSS internal temperature resolution is better than the 0.1K telemetry!)
		2:30pm shift change for SE Sherry Cordova replaces Frank Adams
21:55	9.914 GHz	
22:01	10.262 GHz	FPA_TMP_A dropped to around 62.081 Continuing to drop to 62.073 Compressor & displacer compensating 788 & 788
22:05	10.480GHz	FPA_TMP_A is still dropping. now at
22:10	10.8 GHz	62.055
22:15	11.3 GHz	FPA_TMP_A dropping now down to 62.045
22:20	11.8GHz	FPA_TMP_A now at 62.035
22:25	12.2GHz	
22:30	12.8GHz	FPA_TMP_A is down to 62.021
22:35	13.2 GHz	FPA_TMP_A down to 62.0175
		Displacer 1 + comp-head both dropped ~0.04 degC starting @ 21:25. Settled @ ~25.58 °C for ~@ least 1 hr &
22:40	13.8GHz	
22:45	14.4GHz	FPA_TMP_A is down to 62.011
22:47	14.7GHz	stopped sweep. reconfiguring.
22:57	2 GHz	2→2.85GH, 10v/m, FPA_TMP_A is 62.008 Cryotip_tmp_dO toggled down to 56.7K and up to 56
23:01	2.09GHz	
23:05	2.2 GHz	
23:09	2.285GHz	stopped sweep. going to 20v/m
23:10	2.2855GHz	20 v/m up to 2.2895 GHz

RS03 Cont.

	Time	freq	NOTES
2002/122	23:10	2.2875GHz	Completed test of 2.2875GHz ± 2MHz at 20 V/m
	23:12	2.2895GHz	Starting sweep from 2.2895 going to 4GHz @ 10 V/m FPA_TMP_A at 62.0045 and CRYOTIP_TMP_DO toggling between 56.8K and 56.7K
	23:20	2.6GHz	
	23:25	2.8GHz	FPA_TMP_A down to 62.0025. CryoTP_TMP_DO is still toggling Between 56.7 and 56.8
	23:30	3.0GHz	"
	23:35	3.2GHz	"
	23.42	3.5 GHz	" FPA_TMP_A still dropping, now at 61.998
	23'45	3.7GHz	"
	23:50	3.9GHz	
	23:52	4.0GHz	Completed sweep. reconfiguring for next sweep 4GHz → 8GHz
	23:58	4.0GHz	75 kHz steps,
2002/123	00:04	4.1GHz	FPA_TMP_A is averaging 61.999, Cryotip toggling between 56.7 K & 56.8K
	00:10	4.3GHz	
	00:15	4.6GHz	
	00:20	4.8GHz	
	00:25	5.0GHz	
	00:30	5.2GHz	
	00:35	5.4GHz	
	00:40	5.6GHz	
	00:45	5.8GHz	
	00:50	6.1GHz	
	00:55	6.3GHz	
	01:00	6.5GHz	
	01:05	6.7GHz	FPA_TMP_A is now around 61.991. Cryotip toggling but more on the 56.8 56.7 side.
	01:10	6.9GHz	
	01:15	7.1GHz	
	01:20	7.3GHz	FPA_TMP_A down to 61.988.
	01:25	7.5GHz	
	01:30	7.7GHz	COMP HEAD & Displacer 1 temps continued to slowly drift until ~00:45 when rate of decline increased. At 01:30 reached 25.5°C.
	01:30	7.9 GHz	
	01:35	8.0GHz	Sweep Stopped/Completed RS03 completed.
	02:45		FPA_TMP_A Rising now up to 62.0078 other temps rising because door is open

RS03 ~~cont.~~ RS01

time:	freq (Hz)	NOTES
2002/123		30 Hz +Y side A DSS/SPU
3:16	30.	started test
3:20	220	
3:25	1.4k	
3:30	3.8k	
3:35	20k	
3:40	46k	
3:45	74k	
3:47		N20432 EL spiked (side A) +Y
3:50	101K	
3:52	200k	Stop sweep
3:55	480 ~~Hz~~	~~Start~~ Hz (side A) +Y
04:06	480	Stopped test
4:07	495	start test
4:17	495	completed test
4:18	505	started test
4:28	505	
4:29	520	start test
4:39	520	completed test moving to other side
4:56		FPA_TMP_A is declining from 62.03 (started around 4:5 and going to 61.985 comp_Amp and disp_amp both at 80%. Earlier (it went up a half a degree around 2:40) Elev. blip @ 2887 - EMC working around equipment. EMC standing by CCU could be interrupting the flow of cool air
4:59		FPA_TMP_A is now 61.745
5:07		FPA_TMP_A is down to 61.47, the strobe amplitudes are 794. FPA_TMP_A not dropping as rapidly. CCU Box temp going up. a sheet of plastic was placed in front of it. Moved plastic to allow more air flow. The plastic was placed there to allow for placement of equipment.
5:10		noticed some glitches in EL readings. ~~either~~

RS01 cont.

	time	freq (Hz)	
2002/123	515	30	Starting Ac magnetic sweep. −X, CCU. FPA temp is going back up now at 61.386
			El spike @ 4035
	0524	600	
	05:30	4.1 K	
	5:33	8.7K	915991 − 915994 @ 45 27.5 El spike + ~~Az spike~~
	5:36	23K	47H spike in El 915998 − 915993
	5:41	37 K	
	5:46	62K	
	5:51	85K	
	5 55	146K	
	5:56	200 K	Stopped
			pushed emi_data 2002_123
	0608		Cordova off shift. Opyd on for SE Analyst.
	0617	30 Hz	STARTING SWEEP (+X SIDE) EEA, WSEA
	0625	462 Hz	
	0630	3.6 KHz	
	0635	5.3 KHz	
	0637	16.3 KHz	SPIKE ON ELEVATION + AZ PLOT
	0641	37.0 KHz	
	0645	56. KHz	SPIKE on elevation 2x noise.
	06:50	88 KHz	SPIKE ON ELEVATION 3X NOISE, AZ 3X NOISE
	06:53	103 KHz	SPIKE on AZ 3X NOISE
	06:54	148 KHz	SPIKE on AZ 3X NOISE
	06:55	200KHz	SPIKE on AZ & EL 4X NOISE
	06:56	11	FINISHED SWEEP SPIKE AZ + EL (10X)
	0716	30 Hz	START SWEEP (−Y SIDE) TBEW
	0721	305 Hz	
	0725	1.17 KHz	
	0733	14.8 KHz	
	0740	48.5 KHz	
	0745	75.7 KHz	IFC BB Temp 27.733, up from 27.685 at start.
	0757	200 KHz	STOPPED SWEEP
	0810		STOPPED GYRO MOTORS for 20 MINS
	0814		IFC BB Temp 27.760

RS01 cont...

Prepare to Rerun -X, CCU.

	TIME	FREQ	NOTES
2002/123	0900		Start setup for -X, CCU, test
		AMPLIFIER IS	FPA_TMP_A 62.2805, stroke 78.7%
	0910		62.2705, Cryotip 56.85
	0914		62.2588 56.8
	0916	OFF	Stroke 79.1%, FPA 62.23, 56.8
	0921		79.2%, FPA 62.102, 56.8
	0926		79.2%, 62.012, 56.8
			Started removing coil taped to CCU since it is apparent the FPA temp change is related to mounting the coil on the CCU, and not to magnetic field, since power was never applied this time. wiring
	0934		stroke 78.6%, FPA 62.048, Cryotip 56.8 CCU temp 33.C
	0946		stroke 78.8%, FPA 62.19, Cryotip 56.8
	1115		OK to break configuration to setup for CS01. Start shutdown sequence.
	1202		COMPLETED POWER DOWN ON SIDE B

Day 123 / 1300 start of shift
L. Lanham Day / F. Adams Swi

2002/123 1454 [P67] - Okay to power up, configured for CSOI A-side
~~[1554]~~ (Red to start QB-A power
~~5~~ 30Hz → 50KHz [~2hrs]
~~1540~~
1520 Gyro heaters on ~ 4 hrs to ready
1525 - cooler on

1937	ϕ: 58	1: 62	2: 61	3: 56	looks like ~ ½ hr to
2018	60.5	66	64	60	stable gyro temp.

ready to go!

2002/123	Freq(:)	Configuration / start-stop / anomalies
2121	—	Instrument is ready for test
	—	CSOI Hot-side QB-A 30 Hz - 50KHz
	—	3V P-P (levels)
2123	30Hz	Start Sweep - then pause for setup consultation
2129	?	Spike in El encoder - test ops on hold.
2209	30 Hz	sweep 30 Hz - 50 kHz
2210	30 Hz	3 V P-P QB input line
in 2214 / 2217	34.922 KHz / 34 KHz	powered off CSS & CMU

Agarro relieves Lanham

because loud rattling noise from CMU (hitting end stops)
radiance data flat
QB ~~had stuck itself down~~ stopped current but did not report overvoltage/overcurrent
NB and survival bus still operating - was turned off by Range
QB current monitor - DASH8 - showed 9-10A p-p
did not exceed 1A p-p on QB-A in chamber
in chamber, injection voltage was 3V p-p
suddenly very large 5.16 V p-p then quiet
(before operator managed to turn it off)

2310 SURVIVAL BUS OFF @ SRC — noted by Althea McField
PERFORMING measurement check — follow
0.2Ω looking into xformer Distr to GSE
R from BOB GSE side to xformer terminal = 0.125Ω
R from from Distr. side @ xformer = 0.2Ω
Disconnect GSE from TEST set
across BOB 0.2Ω
Pull xformer out GSE side dummy
Distr " "

Looking into PCU (INSTRUMENT)
Connect to RTN = 11.5 KΩ (+28 V to RTN looking into instr)
- Across plug = 0.2 Ω

(Note 11.5 KΩ corresponds to data recorded in 00_WC_480)

LJT GSE PIN A = 0.2 Ω
PIN B = 0.2 Ω
PIN C = 0.2 Ω

LJT E RTN PIN D = 0.2 Ω
PIN E = 0.2 Ω
PIN F = 0.2 Ω

Remove TEST connector LJT-E from Instrument
BOB with OPEN

With xformer removed

ON GSE side of BOB LJT
TURNED ON 28V
V = 28.99 V
Utilizing Power Resistor (R = 8.5 V)
Power ON V = 28.87 V
Telem shows 3.835 A
Disconnect GSE from Inst/Reconnect BOB to Instr & XS former/on INST
28 V Power to Chassis = 10 MΩ
RTN to Chassis = 11 MΩ

Demonstrate w/ current probe
TURN ON 28V @ GSE
V = 28 V
I = 3.8 A (no AC component on line)

Re
Disconnect GSE

28 V Power = 1.2 MΩ
28 V RTN to ch = 10.9 MΩ

Demonstrated no obvious ground path
alternate BOB between GSE & INSTR side of
BOB LJT to allow voltage to Instrument
on RTN & 28 V
Power up w/o xformer

2002/124

following notes by Adams

00:20 powered up IPU
relays are off
start PCU
procedure ensures relays & converters are off

00:31 Noisy bus started

00:33 enabled CSS A side
started cooling – crystal temperature dropped

20:47 shutting down CSS and NB

setup completed for repeat of CS01

01:14 start power up instrument for repeat of test – side A
28 reg was not turned on because of IEGSE limitation
(not enough windows)
Corrected & continued power up sequence

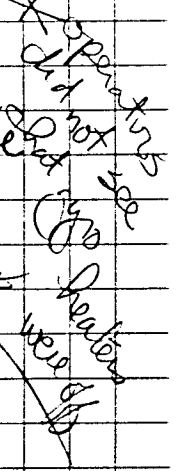
02:45 observed glitches in channel 13
IPU box temperature ≈ 22°C from the low-resolution plot

03:03 IPU box temperature 23.2°C
severe glitches in ch 13

03:51 Power supplies for QB and NB were in remote sensing mode — survival bus was in local sense
→ switched QB and NB supplies to local sense

04:00 repeat beginning of CS01
starting at 1 volt p-p 30Hz–10kHz

04:15 Ch 13 has quieted, ~~but~~ in the sense that there are no more big partie peaks, but there are still numerous small glitches, mostly negative of magnitude < 50 counts
(plot is averaged over one MIF)



2002/124

diagnostic sweep 30 Hz – 10 kHz

1 V p-p

power supplies
temporarily switched back to remote sense
restored local sense

time	frequency	
04:25	30 Hz stopped	
04:26	30 Hz	restart TSS exec. overrun 04:29:36 fewer glitches on ch 13, mostly < 20 counts IPU-box temperature 25.4°C
04:29:55	200 Hz	"different hash" on QB current
04:33:00	361 Hz	
04:33:50	400 Hz	end sweep / replace scope
		ca. 04:50 Ch 13 appears normal now
04:56:10	400 Hz	1 V p-p
04:57:30	1 kHz	small increase in QB current lasting about 1 min
04:59:20	2 kHz	
05:01:00	3 kHz	noise increased slightly on QB current IPU box temp 25.9°C
05:02:50	4 kHz	
05:04:35	10 kHz	noise on QB current is reduced after 4 kHz
		repeat at 2 V p-p
05:06	30 Hz	start sweep at
05:12	346 Hz	drawing more current on QB than last sweep
05:13:30	620 Hz	step up in noise on QB current 2.5 A p-p
05:15	1.4 kHz	noise on QB decreased somewhat
05:15:50	1.8 kHz	at further decrease in QB noise
05:16:10	2 kHz	
05:18	3 kHz	
05:19:45	4 kHz	
05:21	5.5 kHz	Gyro 1, Gyro 3 heaters → 0
05:21 (fraction)	10 kHz	end of subsweep

current-monitor scope was defective
in the EMI lab – test should have been
stopped at 4 A p-p and was not

2002/12/4

Repeat scan at 3V p-p

time	frequency	
05:36	30 Hz	3V p-p
05:37:50	130 Hz	gyro 1 & 3 heaters off again
		05:36:15 change in watch file
		05:36:21 " " " "
05:40:45	262 Hz	→ increase in p-p current similar to last sweep
05:42	0331 Hz	further increase in p-p current on DASH-8
05:42:50	377 Hz	" " "
5:43:50	555 Hz	" "
05:44	648 Hz	" " ~2.5A p-p
5:44:45	928	slight reduction in p-p current swing
05:45:40	1470	"stepping down"
05:46:30	1890	further decrease in current swing
05:47		gyro 2 heater turned off and won't go back on
05:50	3750	reduced current swing, gyro still won't start
		gyros 2 & 3 turned on
05:51	5.9 kHz	significant decrease in current swing
		gyro 1 turned on again
05:55	25.4 kHz	data
05:56	32.2 kHz	temperatures noisy ~ 8 K p-p
		PSSPU-PSVA → 20 mV p-p (was 10)
05:58	40 kHz	SI temperatures flattened for ~15s then noisy again 18-30°C
06:00	48 kHz	
06:00:30	50 kHz	finished sweep

current limited from 3.9 kHz up

2002/124

Start 1890 Hz reduce amplitude until gyros will turn on
go to 42 kHz

time			
06:30	1890 Hz	3V	gyro heaters off
06:31		2.5V	gyro 2 went on gyro 3 did not
06:31:30		2.0V	gyro 1, 3 would not go on
06:32:15		1.75V	same
06:32:36		1.50 V	gyro 1 went on, 3 did not
06:33:18		1.25 V	same
06:33:40		1.00	gyro 3 took the command then turned off again
06:35	42 kHz	1 V	6-7 °C p-p
06:35:51		0.75V	5-6 °C p-p
6:36:46		0.5V	3°C p-p
06:37:48		0.25V	2°C p-p
06:39:40		0.1 V	looks like the other trace
06:40	end test		

reconfigure for NB high side CSOI

2002/12/4

CSO1 NB high

30 Hz – 50 KHz

Time Crews & Victor MAYORQUIN

TIME	FREQ	
0703		TC issued appropriate command to restart the scantable timer.
0710		Ready to start
0715		START
0720	107.8	
0725	~~0725~~	179.8
0730	~~0730~~	258.2
0735	~~0740~~	436.1
0736	~~0747~~	916.1 Reduction in P-P current variation Saw variation in El P
0740	1826.	
0740.5	2034	Az P variation (1+ time)
0742	2843	" " (3+ time)
0745	3412	Az P variation
0745	3658	" " Current variation on NB is near nominal
0746	4004	Az P variations
0750	6225	
0755	8086	
0756	14249	Variation in T=3-4C P-P appears to growing linearly w/ frequency
0759	25569	decreasing linearly stabilizing after about 20 seconds
0800		decreasing linearly
0803	44069	grow again to about 1° P-P from near stability.
0804	50K	

1.52 V P-P @ 4K
1.04 V P-P @ 2K
0.48 V P-P @ 1-2C

4 V P-P @ 7-8K C
3.5 V P-P 6-7K C
3.04 V ~~5~~-6K C
2.5 V 4K C
2.08 V 4K C

19KHz

2002/124

C501

Reconfig Noisy return side → Survivable Bus High side
30 Hz – 50 K Hz

Time	Freq.	
0826	30	
0830	164	slight ρ variation in EL
0835	410	
0840	2.8 K	
0842	8 K	1° p-p Noise
0845	17 K	Az ρ variation very consistently still @ 1° p-p Noise
0848		91540 Amplitude Az ρ variation
0850	43K	1.5° p-p Noise, same Az ρ variation
0851	50K	

Special Test starting @ Black body w/ quiet room

0854 Lose EL ρ by turning off fan 717862
0856 EL ρ amplitude remained same but
shifted upward.
Fan On – increase in EL amplitude 717890

Big Time Major Pluggings →

2002/124

(BIG TIME, MAJOR PLUGGINGS)

CSOB Return Side / Quiet Bus
30 Hz – 50 KHz

Time	FREQ	
0926	30	Gyro 1 & 3 & 2 heaters went off Gyro 3 having trouble turning on Gyro 1 off again, 1 is back but 3 still off.
0935	366.4	
0938		EL P variation (1 time)
0940	1357	Gyro's still off, p-p current variation down * (Change in watch list @ 9:39)
0945	3422	
0946	6800	*Change in watch list might be due to sending turn on Gyro Command.
0948	11 K	* Change in watch list
0950	16 K	1°C p-p Noise moving to 2°C p-p
0952	23 K	12°– 20° C p-p *appeared to be max
0953		8°– 10° C p-p
0954	33 K	10°– 15° C p-p
0956	46 K	" "
0957	50 K	

10:11	23 KHz	4 V p-p	current limit	10:11
		2.56 V p-p	8 °C p-p	
		2.0 V p-p	6 °C p-p	
		1.52 V p-p	2 °C p-p	
		1.04 V p-p	1 °C p-p	
10:16	10:16	560 mV	almost nominal .5°C p-p	

2002/124

CSO1 Return Side / Noisy Bus
30Hz - 50KHz

Time	FREQ	
10 27	30	
10 30	109	
10 35	249	Current P-P variation at its Peak
10 37		Current variations still increasing
10 38	331	Current is peaking still higher
10 39		Current almost got to abort level.
10 42		Current creeping down; 9 A p-p variation
1045	1.8K	
1050	4 K	
1052	12.1K	1° C p-p Noise, Nominal Current Variation
1054	18.7K	2° C p-p Noise
1055	26.8K	4° C p-p Noise
1056	29.7K	6° C p-p "
1057	35.6K	2° C p-p "
1059	47.9K	6° C p-p "
1100	50K	6° C p-p "

11:03 **29.7KHz**

	3.4 V p-p	6° C p-p
	3.04 V p-p	6° C p-p
	2.48 V p-p	5° C p-p } steps slope
	2.0 V p-p	4° C p-p }
	1.52 V p-p	3.0° C p-p } slope not as steep
	1.1 V p-p	2.0° C p-p }
11:07	.56 V p-p	1.0° C p-p

~~02/04~~ 02/05/04

2002/124

Survival Return side
CSO1 30 Hz - 50 KHz

TIME	FREQ	
1115	30	Consistent Az P variation ~~1° c p-p Noise~~
1118		2 Az P variations
1120	302	
1125	2.2K	
1127	3.7K	1° C p-p Noise
1133	30.6K	" " "
1134		Sharp Az EL P spike
1135	40.4K	1.5°C p-p Noise
1136	48 K	2.5°C p-p Noise
1137	50 K	2.5°C p-p Noise

1140 Reconfiguring for CSO2 @ 1157
Series Injection

1317 Shift Change Yarham replaced Cruss
Kaup replaced Brown

~~1318~~	CSO2	-QB plus -to rotator
1318	50 KHz	start sweep
1324	99 KHz	
1329	205 KHz	
1331	250 KHz	~1.5°C Noise
—		amp of noise dropped to <0.5°C ?
1336	N/A	~3° downward spike when test generator turned on,
—		no signal injection taking place
1339	250 KHz	start sweep: noise @ 1.5°C amplitude
	276 KHz	20°C
1342	293 KHz	>2.0°C
~~43~~	307 KHz	>3°C noise
43	322 KHz	2°C
~~47~~	330 KHz	Encoder rescue, some spikes, some strobe changes
44	362 KHz	noise decreased ~1°C, 100 counts
1352	640	very quiet
56	1.1 MHz	
400	2 MHz	

CS02 QB-A input-to-return

	Time	Eng	Notes
2002/124	1407	2.5 mHz	still quiet
	1412	2.9 mHz	"
	1417	4.4 mHz	"
	1422	6.4 mHz	"
	1426	6.580	spike in θ encoder, < 0.5°C AD590 noise
	142834	6.67	" [@ 14:29 Gyro 1 stat changed, inhibit off
	1434	9.05 mHz	quiet
	1439	11.5 MHz	Quiet
	1445	13.8 MHz	Quiet
	1450	16.30 mHz	quiet
	1455	18.64 MHz	quiet
	1500	21.13 MHz	quiet
	1505	23.62 MHz	quiet
	15:10	25.86 MHz	quiet El encoders spike ⇒ 100 count p-p
	1515	28.42 mHz	quiet
	1520	30.95 MHz	Quiet
	1525	33.30 MHz	Quiet 3V p-p on 0.8
	1530	35.25 MHz	Quiet ~1500 - 1535
	*		Note - @1500 — PSS converter temps very noisy. ~~No other noise indications~~ Small spikes @ ~1520 on Az_Hsg & comp_Tmp
	1535	37.67 mHz	
Event ⇒ IPU reboot	1540	39.73.5	Telemetry dropped, ~~θ flat~~ nominal, some small QB glitches ~~Rebooted IPU, 1541~~ IPU reboot
			1539:37 stroke = 0 all watch flags 0 (no telemetry state direction find point at which it happened reboot to normal, stable then ~2.5V retest, continue test @ 39.735 @ 3V P-P test to 100 mHz, then rerun 20 mHz to end of noise
			via 13-4
	9630	—	All off. Doors to chamber opened

CS-02 QA1 input to return

	Time	Freq	Notes
2002/124	20:34	39.73	Starting up after IPU reset, Power down & power up. Gyros not heaters as they should. Starting without spinning up the Gyros
	20:37	39.73	Amplitude up to 3.04V p-p
	20:38	39.76	Start sweep @ 5 KHz step
	2042	~46.5	IEGSE
			Coder offline, IPU not executing, Gyros off
	2044		- Stop sweep / Signal off
			- Power down instrument
	21:25	—	Channel 13 noisy
	22:04	48 MHz	Starting up after System Freeze, Power down power Gyros heating but not spinning
			Start at ~0V & ramp up
	22:03	48 MHz	Amp on increase level
			It noticed "pushing", shut down @ 1.5 V
	2207	signal off	/ amp off
	22:12		Power on
	22:30		SPU initialized
			50 MHz 0.5V
	23:07		Mirrors initialized
	23:09		IFC start started
	23:20	50 MHz	50 MHz 0.5V
	23:21		reached 0.5V
	23:22		Back down to 0V
	23:22		Back to 1V → ramping up — 55 MHz
	23:23		Reached 1V
	23:26	55 MHz	Holding 55 MHz @ 1V - Set to 80% shake
	23:27		Started ramping up
	23:27		Reached 1.5V
	23:28		Ramping up to 2V
	23:29		Reached 2V
	23:31	60 MHz	Ramping down to 0 → 60 MHz → 2V
	23:31		60 MHz - 2V
	23:32		Ramping up to 2.5V
	23:32		Reached 2.5V

Time	Freq	Notes
23:33	60MHz	Ramping up to 3V
23:33		At 3V
23:34		Sweeping to 100 MHz
23:34		Moving from 5 → 10 kHz volt
23:36	67 MHz	67 MHz
23:37	76 MHz	
23:38	76 MHz	
23:38	78 MHz	
23:39	81 MHz	
23:40	85 MHz	
23:40	88 MHz	
23:42	96 MHz	
23:43	100 MHz	Powered down changing amps
23:45	100 MHz	Going @ 10 kHz volt
23:47		Bringing up to 3V
23:47	100 MHz	At 3V
23:49	108 MHz	
23:54	130 MHz	
23:57	145 MHz	
23:58	150 MHz	
00:00	160 MHz	
00:04		Stepping freq. volt 20 kHz too fast
00:05	178 MHz	Stepping up @ freq volt of 15 kHz
00:06	185 MHz	
00:10	215 MHz	~~ATT~~
00:12	222-225	Current limit
00:13		All radiance measurement CH 7, 8, 13-17 showing bit of noise
00:13	240 MHz	
00:15	252 MHz	
00:17	278 MHz	
00:20	285 MHz	
00:22	300 MHz	
00:25	327 MHz	
00:28	350 MHz	
00:30	359 MHz	
00:32	375 MHz	
00:35	393 MHz	
00:36	400 MHz	Sweep stopped
00:38		~~CAL~~ Stroke valve down to 767 and back up
00:39		Down to 763

TIME	FREQ	NOTES
00:41		RADIANCE IN CHANNELS 7, 8, 13-17 TURNED down
01:27	400MHz	STARTED 3V Sweeping down
01:32	369MHz	ALL NOMINAL
01:34	350MHz	
01:38	320MHz	
01:41	300MHz	
01:45	274MHz	
01:48	250MHz	
01:51	224MHz	
01:55	200MHz	
02:00	170MHz	
02:05	133MHz	
02:08	120MHz	
02:10	103MHz	
02:11	100MHz	STOPPING SWITCHING BANDS
02:13	100MHz	STARTING SWEEP
02:15	90MHz	
02:23	50MHz	
02:24	44.8MHz	STOPPED
02:26	44.8MHz	STARTED SWEEPING DOWN TO 42MHz
02:27	42MHz	STOPPED
02:28	35MHz	Sweeping down
02:30	27.5MHz	
02:33	14.0MHz	STOPPING TO CHANGE CURRENT PROBES - CONTINUING
02:35	5.5MHz	
02:36	1.88MHz	Changing frequency to 5KHz
02:37	760KHz	current limiting
02:38	520KHz	Paused
02:39	515KHz	Freq. steps to 1KHz — CALMIR_T
02:39	227KHz	CALMIR_TMP1,2 going crazy 20° DIFF
02:40	128KHz	LNG_WF, 1, SM-TMPS — TOGGLING
02:41	100KHz	CHANGING FREQUENCIES — TEMPS SETTLED
02:45	100KHz	TEMPS TOGGLING AGAIN — CALMIR TMP1 8-10° DIFF
		TMP2
		WF-LWS. TMP1
		SM_ TMP1
02:45	68.5KHz	Current limiting @
02:47	50KHz	Stopping

TIME	FREQ	NOTES
2:51	35MHz	ALL NOMINAL to Sweeping 35-42MHz 1V
	37MHz	
	38MHz	
2:52	39	
2:53	41MHz	Stopping sweep all nominal
2:54	35MHz	Same freq. @ 1-5V amp 35-42 MHz
2:55	39MHz	Nominal
2:55	41MHz	All Radiance channels getting noisy, not much
2:55	42MHz	Stopped
2:56	35MHz	35-42MHz Sweep @ 2V amp
2:57	39MHz	
2:57	42MHz	Stopped
2:58	35MHz	35-42MHz sweep @ 2-5V amplitude
2:59	38MHz	
2:60	42MHz	Stopped
3:00	35MHz	35-42MHz Sweep @ 3V Amplitude
3:01	38MHz	
3:02	42MHz	Stopped
3:31	50kHz	Starting sweep 3V
3:32	53kHz	CAL TEMPS TOGGLING 6° AMPLITUDE
3:33	100kHz	STILL TOGGLING
3:34	116kHz	RADIANCE CHANNELS STARTING SOME NOISE
3:35	207kHz	STILL TOGGLING - Starting to reduce 2° AMPLITUDE
3:36	330kHz	TOGGLING OF CARRIER INCREASED
3:36	236kHz	Current limiting
3:38	251kHz	stopping to change amplifiers
3:39	251kHz	Starting - Toggling of CARRIER TMI Continuing
3:40	720kHz	Toggling stopped
3:41	1.6MHz	Toggling of radiance channels 7-8, 13-17 started
3:42	2MHz	
3:44	2.5MHz	Changing to 5kHz steps
3:45	5MHz	Toggling to radiance channels continuing
3:46	8MHz	
3:47	10MHz	
3:49	14MHz	
3:50	15MHz	stopped for lunch

CS-02 continued

	TIME	FREQ	NOTES
2002/125	04:36	15MHz	Sweep
	04:40	22MHz	Some noise in Radiance Channels 7,13-17
	04:45	34MHz	
	4:50	55MHz	NOMINAL
	4:55	78 MHz	
	5:00	102MHz	
	5:05	126MHz	
	5:10	146MHz	
	5:15	166MHz	
	5:20	195MHz	
	5:25	228MHz	
	5:30	265MHz	
	5:35	313MHz	
	5:40	345MHz	
	5:45	374MHz	
	5:48	400MHz	
			~~SECTOR~~ NOISY PLUS RETURN
	6:07	50KHz	TOGGLING IN CALMIR TMP 1,2, LNSIWF 1, AMPLITUDE 7-8°C
	6:09	106KHz	COMP_ DISPL. TOGGLING ABOUT 8°
	6:09		CALMIR-TMP TOGGLES AMPLITUDE ~10°
	6:11	227KHz	
	6:12	250KHz	Change Amps
	6:15	250KHz	Start sweep
	6:17	1,00MHz	"
	6:19	~~2.00MHz~~	Changing step size to 2MHz
	6:27	10.0 MHz	
	6:25	17. MHz	
	6:30	27 MHz	
	6:35	58 MHz	
	6:40	94	
	6:41	105	Stop to change amps
	6:42	105	Start sweep
	6:50	158	
	6:55	195	
	7:00	231	
	7:05	261	
	7:10	295	
	7:15	331	

CS-02 continued

	Time	Freq	Notes
2002/125	7:20	367MHz	
	7:25	400	Stopped sweep
			Survival Bus positive side
	7:44	55KHz	Start sweep. Noise on temps.
	7:50	250KHz	Stop to change amps
	7:53	250KHz	Start sweep. Noise on temps.
	7:55	319KHz	
	8:00	917KHz	
	8:05	1.4MHz	
	8:10	2.5 MHz	
	8:15	4.6MHz	
	8:20	8.9	
	8:22		SM-Temp 1 dipped below 24°
	8:25	21 MHz	
	8:28	33MHz	SM-Temp 1 dipped to 10°
	8:30	47MHz	CALMIR TMP2 dipped to 10°
			COMP_HEAD Temp dipped to 24°
	8:35	58MHz	DISPL1 Temp dipped to 23°
	8:40	78	
	8:44	100	CALMIR TMP2 dipped to 23°
			Stopped to change amps
	8:46	100	Start sweep
	8:50	124	
	8:55	161	
	9:00	196	
	9:05	227	
	9:10	262	
	9:15	295	
	9:20	320	
	9:25	352	
	9:30	389	
	9:31	400MHz	Stopped sweep
			Survival Bus return side
	9:48	50KHz	Start sweep. Noise on temps.
	9:53	250KHz	Stopped to change amps
	9:56	250KHz	Start sweep. Noise on temps.
	10:00	416	
	10:05	652	
	10:10	1.1MHz	

CS-02 continued

	Time	Freq	Notes
2002/125	10:15	3.5MHz	Temperatures quiet
	10:20	12.2	SM-TMP1 dipped to 24°
	10:25	24	
	10:30	37	
	10:32	42	CALMIR_TMP2 dipped below 22°
	10:33	44	" " " 19°
	10:34	46	" " " 13°
	10:40	73	
	10:45	100	Stopped to change amps
	10:46	100MHz	Start sweep
	10:50	126	
	10:55	159	
	11:00	194	
	11:05	227	
	11:10	262	
	11:15	297	
	11:20	329	
	11:25	363	
	11:30	400MHz	End of sweep
			Repeat some sweep on SBA return
	11:37	46MHz	SM-TMP1 drops to 20C°
		Volts	
		3	" " drops to 20C°
		2.56	" " at 23C°
		2.00	" " " 24C°
		1.52	" " " 25C°
		1.04	" " " 25.5C°
		0.52	" " " 26C°
		0.00	" " " 26C°
	11.40		Stop test
			Reconfigure for CS-06.
			Instal inductor and transient generator

CS-06 Test

	Time	
2002/125	12:57	Gyro HEATER 3 GLITCHED OFF DURING CS06 RE CONFIGURATION. ATTEMPTED TO RESTART HEATER BUT IT IMMEDIATELY SWITCHED OFF WITH INDUCTORS IN SERIES WITH POWER LINE.
		THE INSTANTANEOUS DEMAND FOR CURRENT BY THE HEATER PRODUCES A VOLTAGE SPIKE FROM THE INDUCTOR WHICH TRIPS THE PROTECTION CIRCUIT IN THE GYRO HEATER AND SWITCHES IT OFF.
		RKY GAVE THE DIRECTION TO CONTINUE WITH ONLY 3 GYRO HEATERS ON. GYR_3 HEATER WILL REMAIN OFF.
	1330	-Frank Zele off, Lucy Lanham on -Randy Kaye Operator
	1339	-CS06 Setup Ready, Instruments Nominal, Gyro 3 Heater off all gyro Temps below 50°C Power - Return @ 10 pulses/sec. 29V
	1344	Start P→Rtn @+29V
	1346:20	Spike in LWS1_TMP1
	1347:00 ~	some spikes " — TMP3
	48:05	Encoder: small spikes
	49:13	continues to see small spikes in LWS_TMP3
	50: ~	CAL MIR spike
	13.49	Test complete
		Reverse polarity ~~Rtn — Power~~ @ 10 pulses/sec @ -29V
	1431:00	~~Start~~ OB-A reverse polarity
	:30	start
	32:00	LWS1_WF_TMP1 spike
	35:15	spike " & CAL_MIR
	———	~~Exit~~ heed to turn on Gyro 3_Htr,
	36:28	encoder spike (tiny
	37 00	stop

C506

		Noisy Bus −29V All Gyros heaters on
2002 | 125	1457:37	Start
	58:15	at −29V
	~58:45	Cal Mir Tem_1, TMP2, LVS1_OF, TMP1
	01:10	LVS1_1 30°C spike (1 reading)
	03:05	CAL-1, LVS1 ~1, big spikes
	05	0 V, spikes stopped
	1512:36	start relay off − ¼ voltage, still negative
	~13:45	[-9 - -11 V] 60 Hz pulse rate − saw-spikes in LVS1 TMP1 & CAL TMP
	1515:15	end
		All Gyro heaters on
		Noisy Bus ±29V (
	1524:15	Begin power-on
	152500	At full amp.
	152542	CAL_TMP2 spike, some 1 count eg enc. toggle
	152726	more CAL_TMP2 spikes. large amp.
	152851	large spike CAL_TMP1
	1529:45	PRT spike LVS1 TMP3
	153004	end test
	1531	amp @ 0V
		reconfig for Survival Bus +29V spike
	154050	ramp up
	154120	at level
	154351	spikes CAL mir TMP 2
	1545	downward trend in FPA temp, some CAL_TMP2
	1548	ramping down, SURVIVAL BUS Power supply turned off
	1549	0V
		Power cycle
	1550	Survival power on
	155230	Start power on
	5300	55 155255 IEGSE power off
		Test power down
		→ Set to bring to ⅓ amp
	1554	Start
	1556	at ⅓ power

1554	Start SB +~~29V~~ 1/3 V
1555	at ~+9V
1556 43	@ request up to +15V
1557 10	ab +15V
1557 26	request up to +20V
56 00	V = +20V , SB off
155820	ramping down
	Start SB -29 in steps of 0V, 15V, 20V, 29V
16:12:43	ramp to -10V
16:13:15	@ -10V
16:14:20	ramp to -15V
16:14:50	@ -15V
16:15:50	ramp to -20V
16:16:00	Power supply drop out
16:16:30	ramp to 0
	CS06 - complete

— Power down requested —

Time or shift

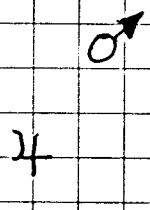
DAY	TIME	
2002_125	22:00	Ready for RE 02 (4KHz – 18GHz) Randy is TC setting up for RE02 Currently, Instrument is powered OFF
	22:55	In preps, EMI Testers noted our cooling fan generates 40 dB noise. As this will interfere with the upcoming audio tests, we recommended to TD that the fan be off for each test. Fan can be turned back on between tests. Basis for recommendation: ① CCUBX Temp was decreasing from 32°C to 28°C at last shut down ② Passive CCU_A Temp went from 302K to 300K at same shut down and is more steady just above 290K ③ The room is at 60°F. 290K = 16.33°C = 62.2°F ④ We will monitor CCU temps closely for excursions during RE102.
	23:35	EMI has finished background measurements. The ambient failed – it is above acceptable levels. The only piece of our equipment running is the vacuum pump
	23:36	TC to start power up
	23:50	Nimbus back up & reporting TLMs
	23:53	CCUBX = 18.5 & rising
2002_126	00:00	18.0
	00:05	18.6
	:10	19.6
	:15	20.5

Day	Time	CCU Temp	
2002_126	00:20	21.5 °C	
	00:25	22.7	
	10:30	23.2	
	00:35	23.9	
	00:40	24.6	
	00:45	25.1	
	00:50	25.4	
	00:55	25.6	
	01:00	26.0	
	01:05	26.7	
	01:10	26.9	
	01:15	27.0	
	01:20	27.5	
	01:25	27.7	
	01:30	27.8	
	01:35	27.9	
	01:40	28.0	
	01:45	28.0	
	01:50	28.0	CCU appears stable
	01:55	28.1	
	02:00	28.6	~~Switch to~~ 10 min monitor
	02:05	29.0	
	02:10	29.0	
	02:15	29.2	
	02:20	29.7	
	02:25	29.7	
	02:30	29.9	Opened chamber doors commanded SSTI closed → attempt to "encourage" gyros to warm up.
	↓		Watch chopper temp.
	02:35	30.0	Set CSS stroke to 80%
	02:40	30.2	
	02:45	30.3	
	02:50	30.2	
	02:55	30.2	
	03:00	30.2	
	03:05	30.1	
	03:10	30.1	
	03:15	30.2	
	03:20	30.2	
	03:25	30.4	
	03:30	30.4	

2002/126

6 May	03:35	30.4° C
	03:38	Starting Mission Mode
	03:40	30.8°
	03:45	30.8
	03:50	30.4

Went outside & observed the alignment of Venus, Jupiter & Mars in an equilateral triangle. This occurs about once every 2000 years



	03:55	30.6
	04:00	30.6
	04:05	30.7
	04:10	30.7
	04:15	30.7
	04:20	30.6
	04:25	30.4
	04:30	30.4

CCU appears stable. Stop recordings in logbook. Note changes if any.

04:55 — Discussed slow temp rise in gyros & test team decided to raise temp in chiller plate. Raised chiller creates pump by 5°C (on dial) from 10 to 15.

05:20 — Another +5° to 20

06:10 — Gyro 1 is at temp! Finally. Peter starting motor.

06:25 — GYRO 2 REACHED TEMP, MOTOR IS STARTED

06:31 — Reduced the Cool Plate 17°C closed chamber door to cool room CCU box-temp at 31.2 deg C. yellow limit 32°C

0632 — Crews off and Opyd on as SE Analyst.

0647 — 31.19 CCU temp.

2002/126
6 May

Time		
0650	31.16	CCU temp. Yellow limit 32°C
0656	31.32	
0659	31.20	
0707	31.40	CCU temp
0715	31.42	3rd gyro (#0) on.
0721	31.48	
0725	31.59	CCU temp; lowered cooling plate temp. tank temp was 18.2°C
0731	31.72	CCU temp; moved some plastic at CCU corner, and moved cooler to center on CCU. Cooler tank 16.9°C.
0736	31.74	4th gyro (#3) on.
0740		Attempt to open SSH door; failure; stop, hit plast
0741		safe SSH; successful.
0745	31.69	CCU. Lower baseplate cooler temp. tank at 16.9°C.
0751	31.88	CCU.
0756	31.80	~~CCU~~ mid CCU; Cooler for base plate tank @ 15.2°C Lowered base plate cooler temp.
0805	31.79	Base plate cooler temp 11.6°C. lowered set point.
0813	31.78	Base plate tank 10.1°C.
0819	31.75	Started REØ2, baseplate ~~tank~~ tank 9.0°C Baseplate return 13.9°C Fan OFF
0821	32.01	Fan ON, changing antennas.
0827	32.21	Cycled fan a few times while changing antennas. Baseplate tank 8.9°C, supply 12.9°C lowered set.
0830		Vertical polarization, Side A (-Y)
0833	32.43	Completed; Fan ON.
0842	32.25	
0845		Start Horiz. Polarization, 30MHz
0847	32.36	
0850	32.32	
0851		Sweep Complete.
0854	32.50	Baseplate tank 8.4°C, supply 12.6C, return 13.1C
0904	32.43	7.9 12.1 12.7
0909	32.66	Started +Y Side.
0922	33.06	* completed +Y side Vertical tank 7.3°C, supply 11.4C, return 12.1C
0930		* Adjusted plastic to funnel air to CCU.
0934		* Start horizontal; +Y

6 May	Time		
	0935	33.15 °C	CCU
	0939	32.97 °C	Completed RE02.
	0948	32.18 °C	starting set up for RE04.
	0954	31.73 °C	
	1005	31.19 °C	CCU, Room 18°C, tank 7.6°C, supply 11.7°, Return 12.2° ANOMALY – TEU mount temp went up about 2C from about 28C to 30C from 0920 to 0940, then returned to about 28C. This also occured before 0600, with temp dropping about 2C at 0600.
	1020	30.28C	CCU
	1048	29.39C	CCU
	1116	29.48C	CCU; FPA temp highly sensitive to CCU temp as seen from 0900 to 1100.
	1139	29.89C	Started RE04 on –Y
	1213	30.37C	Stopped RE04 on –Y, complete.
	1240	30.01C	Completed RE04 on +Y. Measured background 5 meters from instrument and at vac pump. High signal at low frequencies implicates local oscillator in spectrum analyzer, HP 8566B
	1332		Test with alternate spectrum analyzer ~~HP86~~ HP8563E does not show high ~~frequencies~~ signal at low frequencies.
	1338	29.81C	
			Adams relieves Opyd
	1411	29.36 °C	CCU temperature
	1442	29.22 °C	CCU temperature
			RE04 test was written incorrectly in the TP – should be broken into two tests, one with a different antenna at different location. (Susan Beck) Setting up and changing procedure for corrected test
			Mike Bishop is bringing his HP3577 network analyzer to supplement the EMI-lab spectrum analyzers

Time	
15:28	changed all channel offsets to 10,000 counts to bring the radiance data back into range for all LOS in global scan (SVA door temperature is running ~ 27.5°C with IFC ~ 27.0, other internal instruments temperatures lower)
15:57	CCU_box_temp 29.0°C
16:07:20	unexpected sequence number 11142 and a series of checksum XOR errors (at same time as last push of day 125 on nimbus - coincidence?) glitches also appeared in temperature plots at the same time — some but not all, worst is PSS_SYS_N15B_TMP with other PSS temperatures unaffected in the plots
16:36	CCU 28.8°C finished pushing day 125 with stol, runtime, & misc (test conductor log files are in misc)
16:51	turned off CCU fan for equipment checkout in the chamber
17:01	30.5°C CCU box
	RE04 300 Hz → 50 kHz -Y side ferrite rod ⊥ instrument side
17:04	begin sweep
17:05:22	end sweep - turn blower on CCU 31.1°C
16:53	they did the first RE04 sweep as above with ferrite rod ∥ instrument -Y side
17:19	CCU 29.8°C
	+Y side 300Hz - 50kHz ferrite rod ∥ instrument +Y panel
17:22:37	blower off CCU 30.08°C
17:24	end test turn cooling fan back on 30.44°C CCU (FPA temperature does drift with change in CCU temperature)
	set up for: +Y side 300Hz-50kHz rod ⊥ instrument +Y panel
17:28	temperature in chamber is 64°F
17:32:26	blower off, CCU 30.08°C start sweep
17:33:31	end sweep turn on blower CCU 30.26°C → must redline procedure to use the (different) loop antenna for manual 30-300 Hz
17:39:00	CCU T = 29.8 20 - 300 Hz +Y loop ∥ to +Y panel
17:50:25	CCU T = 29.46
17:59:50	start sweep, ~~fan~~ fan off CCU T = 29.5°C
18:00:38	sweep complete fan on again

2002/126 (06 MMay)

Time	
18:04:30	20-300 Hz +Y loop I
18:04:39	
18:05	CCU T = 29.7°C
	20-300 Hz -Y loop II
18:10	blower off - start
18:10:09	done
	20-300 Hz -Y loop I
	Room temperature 62° F
18:12:33	CCU T = 29.63°C
18:13:07	start sweep
18:13:51	end sweep
	→ repeat 20-300 Hz -Y loop I
18:16:40	start
18:17:0	stop
18:21	CCU T = 29.6°C
18:26	Room temperature 62°F
	- configuring for REO2 on -Y side rf match
18:34	CCU T = 29.08°C
	2.0 - 2.4 GHz horizontal polarization -Y
18:42:52	blower off, start scan
18:45:37	stopped - fan on CCU T = 29.7
	2.0 - 2.4 GHz vertical polarization -Y
18:53:17	start sweep CCU T = 29.8
18:57:09	finished test, fan on
	setup for +Y vertical polarization
	2.0 - 2.4 GHz
19:09:00	start sweep
19:11:49	completed
19:15:47	2.0 - 2.4 GHz +Y horizontal polarization
19:18:34	sweep complete, blower on, CCU 29.9°C
	REO4 and REO2 are complete
	FPA and cryotip temperatures continue to respond to change in CCU temperature caused by cycling the blower
19:46	CCU T = 28.8 °C
20:01	CCU T = 28.7°C
20:34	CCU T = 28.3°C door now open to chamber
21:48	CCU T = 27.0 °C preparing to close SSH door
22:11	safed and caged mirror, lifted instrument

IC = Peter Apollo
SE = Sherry Cordova

Time

Day ↓ 127

chop-HSG_3 ~29.0°C @ 21:45 up to 29.5° + then back down @ ~ 22:20

closed SSH door @ ~21:50

Besides the expected changes in El/Az motor temps & SSH door motor temps we also had rise of ~5°C from 23-28°C in TEU mnt temp in 5 min. And, saw GEU BX temp drop from 39°C to 30°C (SC4FA) @ same time.

@2482.5 cal_mir_tmp2 ~~dropped~~ spiked down 25 → 10

@3513 " " " 25 → 11

01:39 powering on the chopper ~~unlocked the mirror~~

The test
- moving in along x axis
- 1st posn roughly aligned w/ electronics

01:40 ~~open SSH door to~~ GEU BX temp back up to 30°C

01:41 chopper is ON

01:42 initializing the FEAs

02:01 open SSH door to 55°

02:02 start static stare

loaded scan table

02:03 started

02:06 15A

02:06 20A

02:11 stopped

02:16 moved coil into position 2

02:42 started bringing up to 20A

02:43 @ 20A

02:48 stopped

03:04 position #3

Time	
~~02:50~~	chopper_hsg_3 rising from 28°C
03:05	current on
03:06	20A
03:07	current off
03:14	@posn 3 w/ reverse polarity on the coil
03:15	current @ 20A
03:16	powered down
	El shifts ~~from~~ about 30 cts on power on/off
03:20	chopper_hsg_3 @ 28.2°C
03:20	position x2 @ level of 20A
03:21	powered down
3:23	position 1
3:23	@ level
	Amplitude of Az doubled
03:25	powered down
03:27	Stopping IFC static stare - safing mirror
03:30	closing SSH door
03:32	disabling the encoders
03:32	turning off chopper
03:33	chopper is off
03:35	~~safed~~ caged scan mirror
03:55	uncaged scan mirror
03:56	turning on the chopper
03:59	chopper "ON"
04:00	initializing EEAs
04:10	open SSH door to 55°
~~04:10~~ 04:13	Start static stare ~~load scan table~~
04:15	Y1 ~~posn~~ posn current "on"
04:17	powered down
04:22	Y2 position current "on" @ level
04:23	powered down

Time	
04:29	Y3 posn current "ON" & @ level
04:30	off : el dropped 10 counts before turned off.
	* coil reversed *
04:35	Y3 current "ON" & @ level
04:36	powered down
04:38	Y2 current "ON" & @ level
04:39	powered down
04:40	Y1 current "ON" & @ level
04:41	powered down
04:43	stopping IFC static stare & saving the mirror
04:45	closing SSH door
04:45	disabling encoders EA1
04:46	" " EA2
04:46	turning off chopper
04:47	chopper is off
04:48	caging scan mirror
04:49	caged scan mirror
06:00	Tim Cremen on console
	Moved coil into position for Y-axis Mag Dipole measurements.
06:33	uncage mirror
06:53	completed Power-up
	Started IFC stare for test.
06:58	EMI ready for 20 Amps position Z_1
07:00	to 0 Amps
07:03	Moved coil to Z_2 (mid-electronics level)
07:04	20 Amps position Z_2
07:05	0 Amps

0708 Repositioned coil to Z_3
0709 20 Amp
0710 0 Amp
0715 Reverse polarity - Z_3
20 Amps
0732 Reverse polarity - Z_2
20 Amps

0735 Fan off - running field sweeps
5 Amps
7:37:03 10 Amps
7:37:30 15 Amps
7:37:55 20 Amps
7:38:20 15 Amps
7:38:45 10 Amps
7:39:10 5 Amps
7:39:32 0 Amps

~~Switch~~
Move to Z_1,
Switched on HEPA
R

Moved to Z_2
7:50 Switched off HEPA

8:37 Di Pole #1 CCU temp 34.2

10:00 Changed to
- Electronics Only mode
- HEPA Filter & Fan off
- Everybody ~~EXIT~~ !

10:11 Fan ON

11:20 Have paged Ron Garaye; called security to place call. They got his msg machine.

	TIME	
2002-127	11:25	Warming up Unit.
	11:30	Fan On
	11:37:15	Turn on Control Diagnostic Clock (Science Clocks off)
	12:15:	We are loosing it! Ray singing "99 Bottles of Beer..."
~~Oct~~	14:00	Configuring to get data for R. Barage's special test.
	14:30	We are finished getting all data - Paul Gary has looked at the data & concurs - Ray concurs - Mike concurs - Althea concurs - I concur

BACK CONFIG!

DATA GO!

TJ Lawrence
CSE

2002-127/1430 GMT

0730 PDT

Time	SE Frank Zele
2002/128 08:59	Power up side A completed Restarted plots on nimbus: plot-cryo-emi & plot-spu-vlt-A & plot-ifbb & plot-radcol1 & plot-radcol2 & plot-enc & plot-mirtmp & Must be in directory: /hirdls/home/hirdls//bin Waiting for gyro temps to reach 55°
10:35	CCU_BOX_TEMP = 34.8 C Cut down stroke to 80% and remove contamination enclosure
11:42	Gyro temps above 55°. Turn Motor Power on.
11:49	hir_gss_mtron failed, in telemetry (gyro3 power mode = 1) should be 0,
12:03	gyro3 power mode = 0 Waiting for cryotip temp drop to 57°

any chir
log fss tmps
log shk tmps

To start Real Time plot tools
from
HIRDLS/Home/HIRDLS/NRT log_pss_temps [-r (sec), -t [CSTOL]
log_shk_temps
to look back]

arguments -r [time in seconds from & to set earlier start]
-t [CSTOL time to set earlier start

LOCKHEED MARTIN

HIRDLS

EMI / EMC TEST – DATA

CS01, CS02, CS06, RE02, RS01, RS03, DC MAGNETIC FIELD SUSCEPTILIBITY, MAGNETIC DIPOLE MOMENT TEST

TR-LOC-1054 PART OF TR-LOC-1010

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HIRDLS

EMI/EMC TEST - CS01

3 - 4 May 2002

2002/123-14:54 Through 2002/124-11:37

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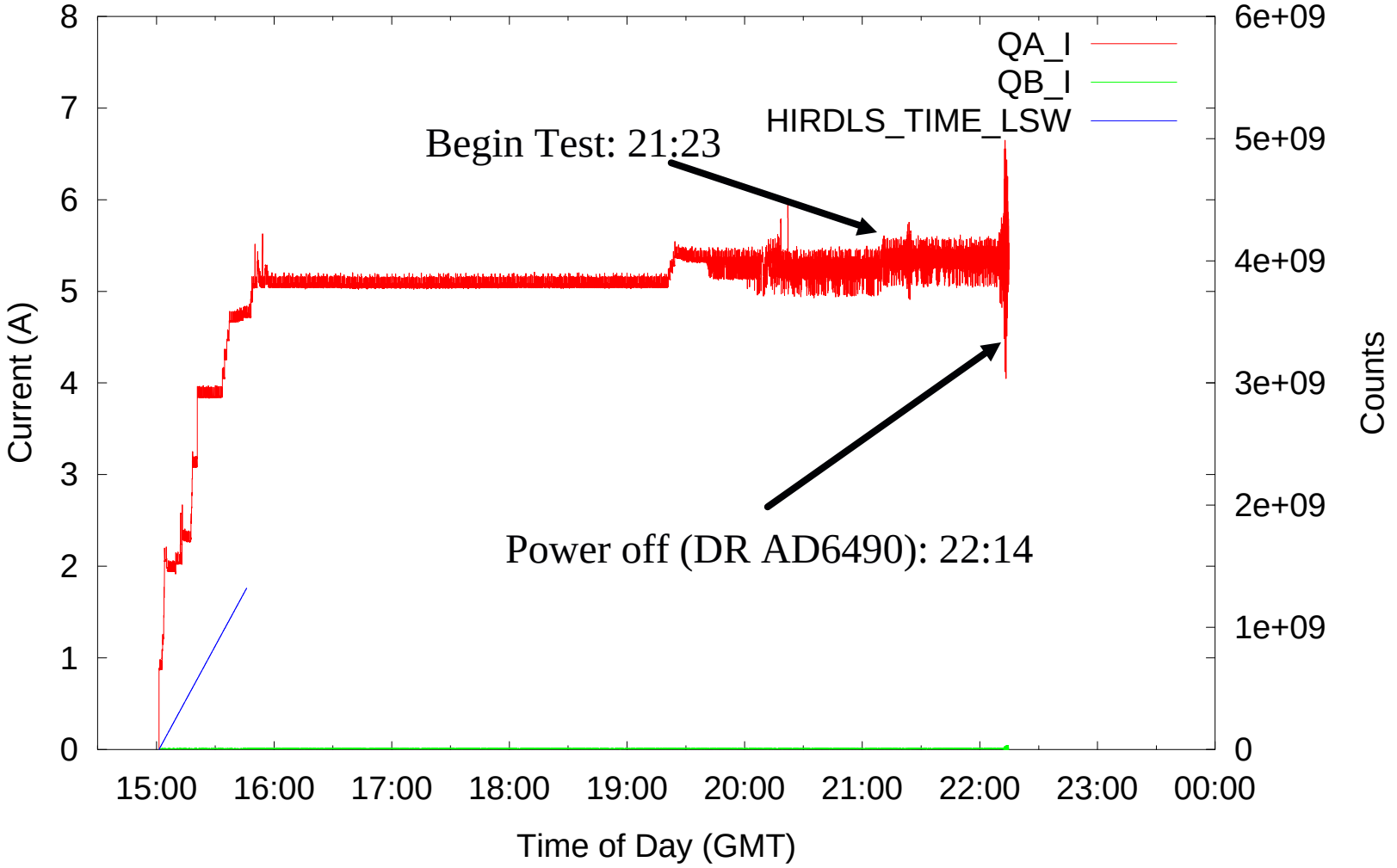
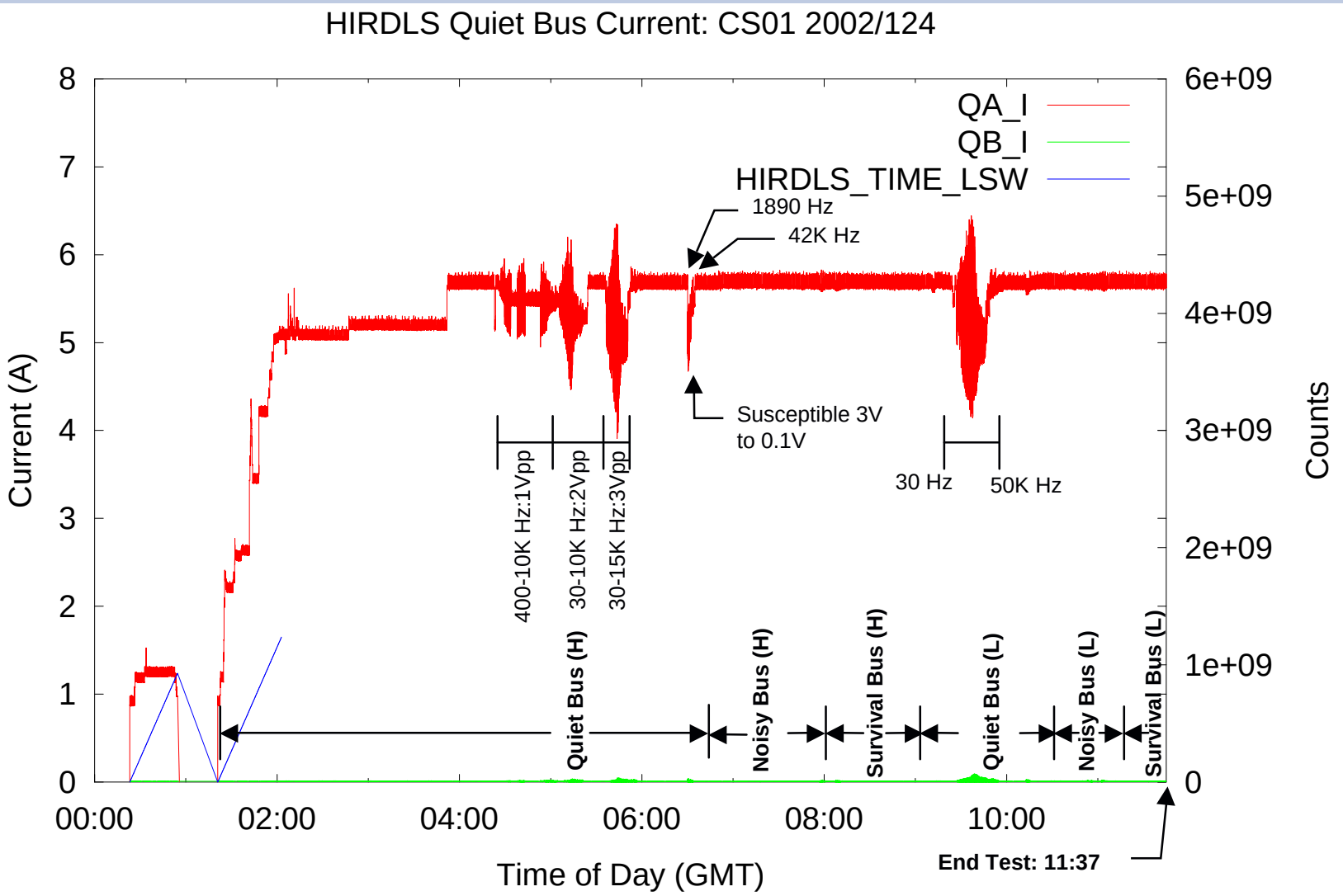
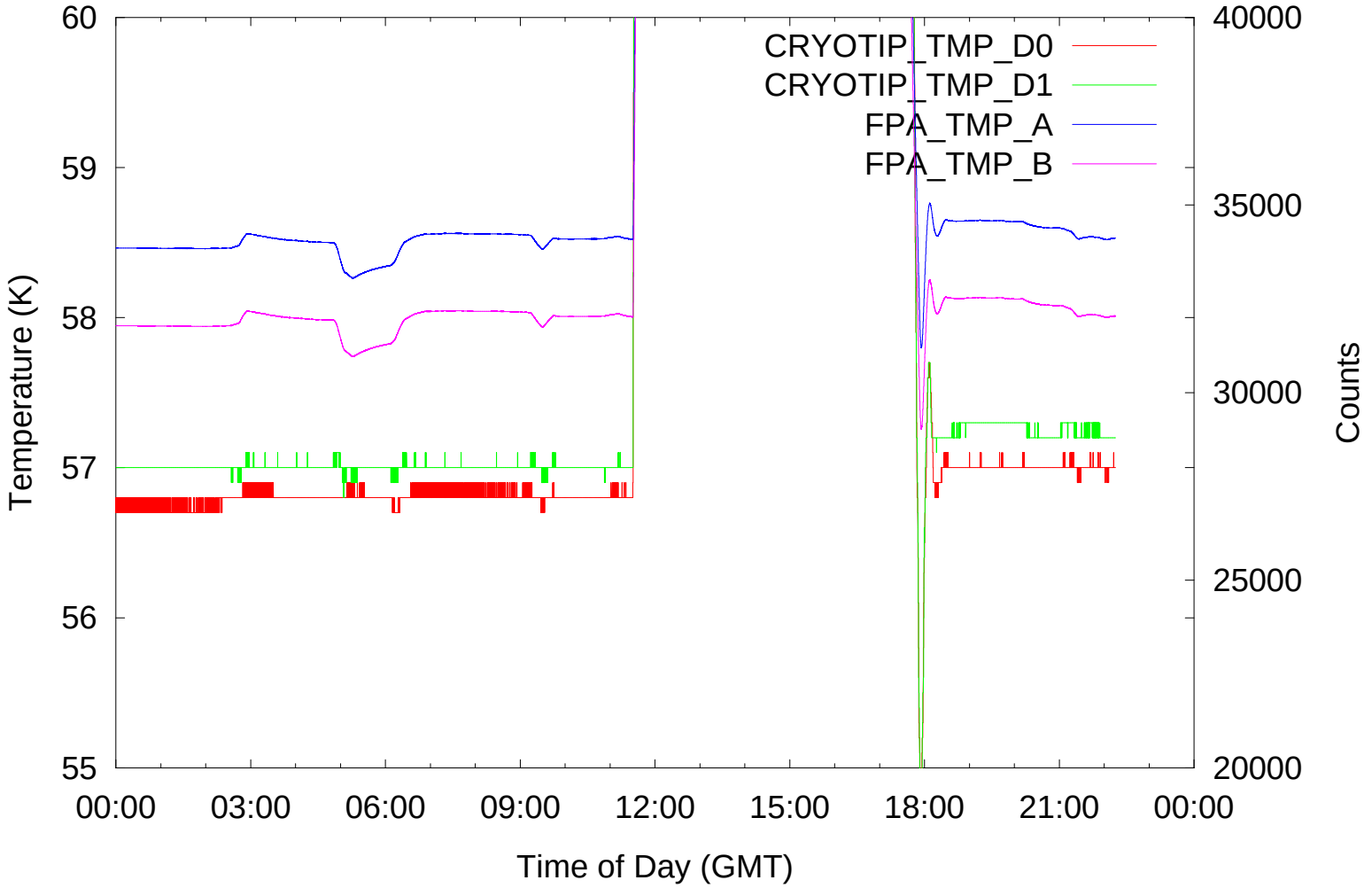
Archive integrity & Quiet Bus Current



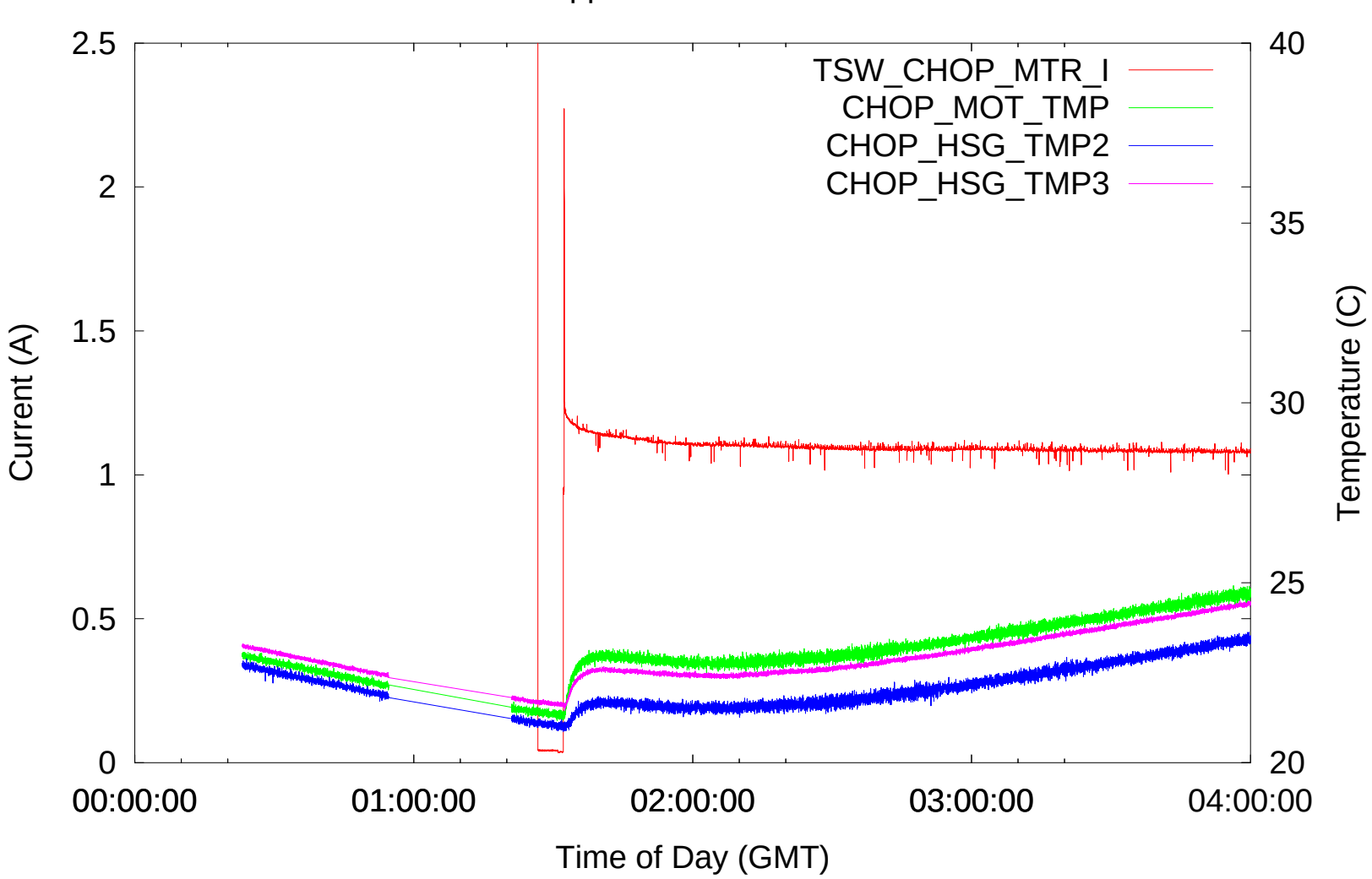
Archive integrity & Quiet Bus Current



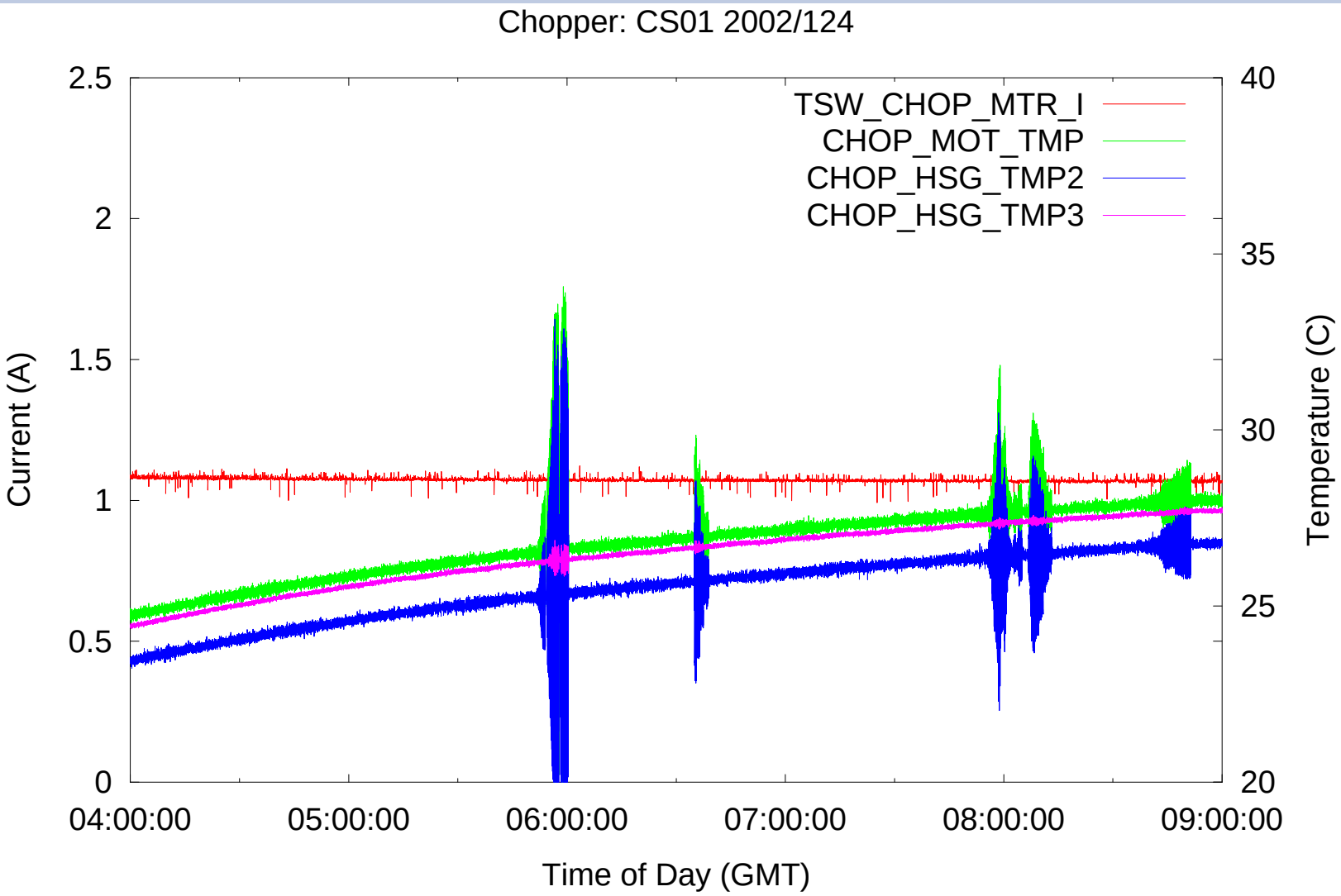
Cryogenic Temperatures: CPT2 2002/124



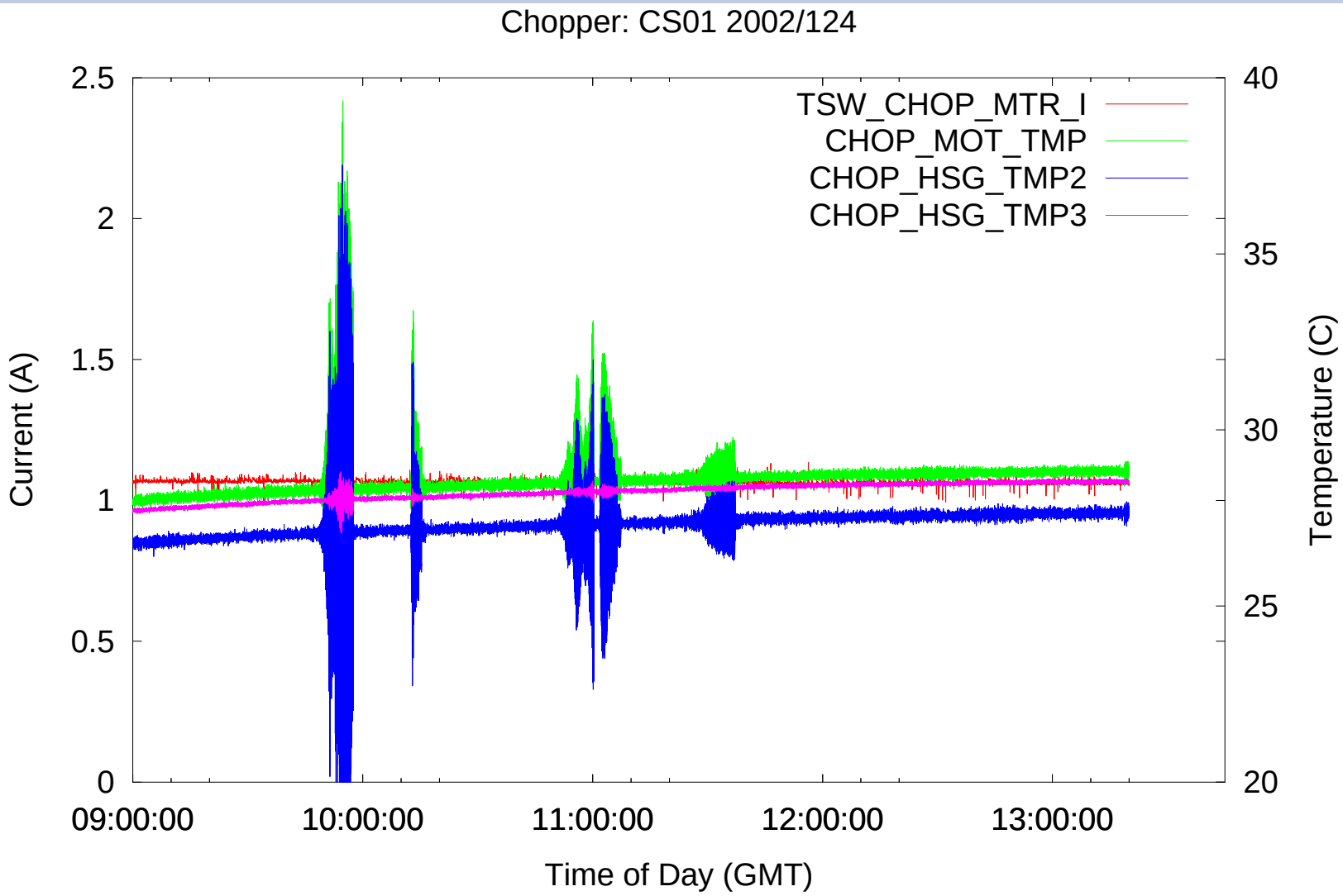
Chopper: Day 2002/124 00:00-04:00



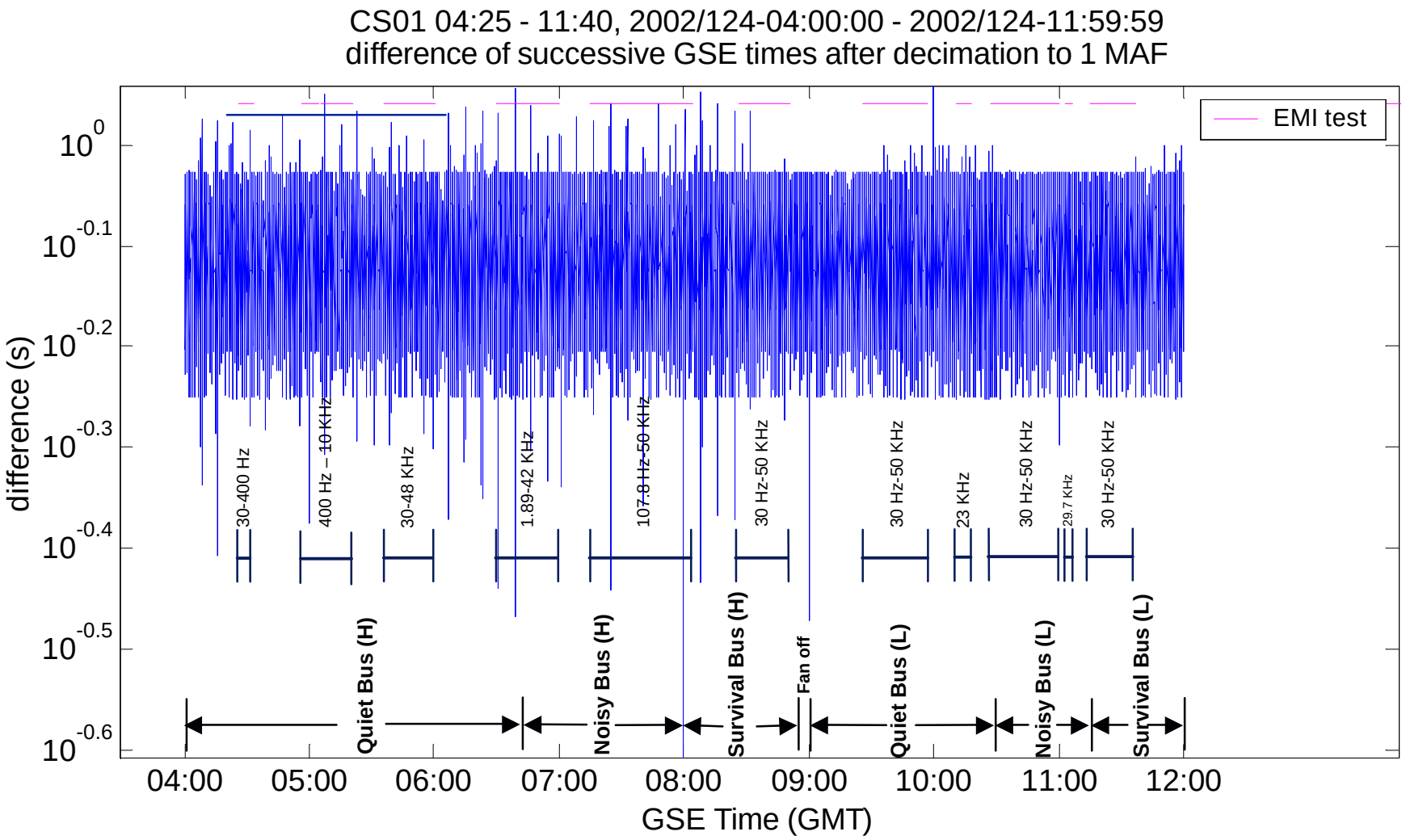
Chopper: Day 2002/124 04:00-9:00



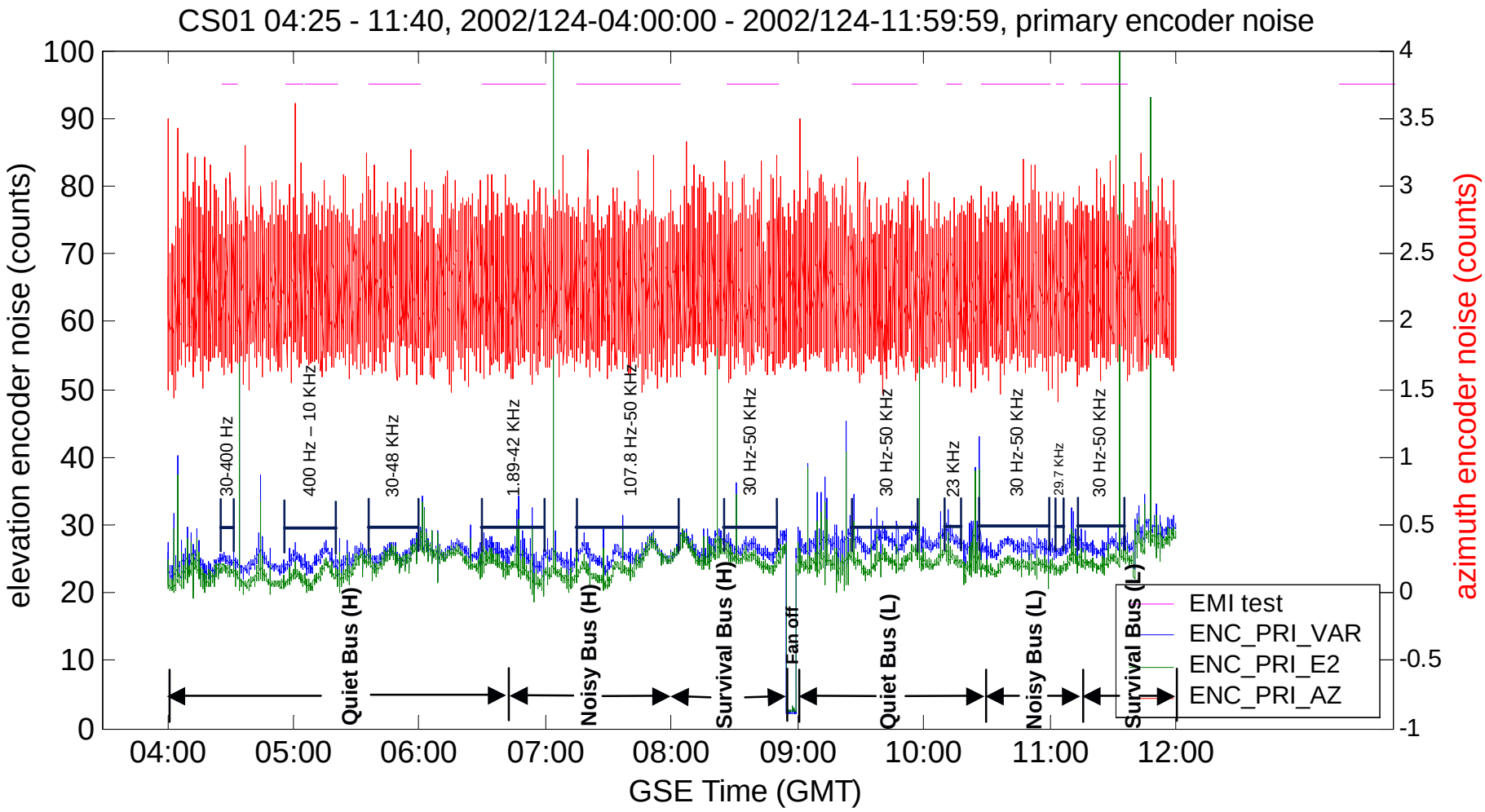
Chopper: Day 2002/124 09:00-13:40



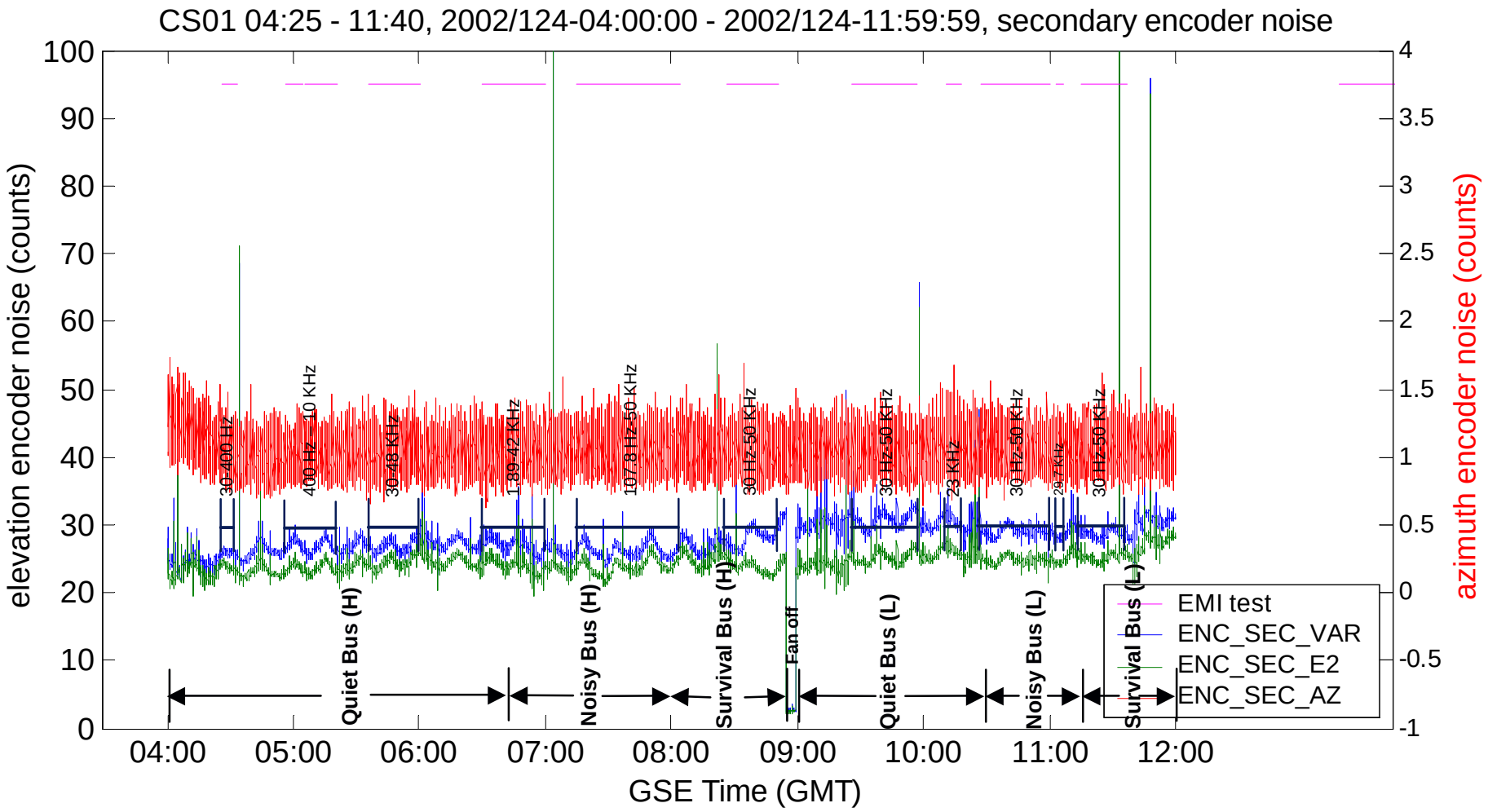
Check Time Sequence



Noise: Primary Encoders

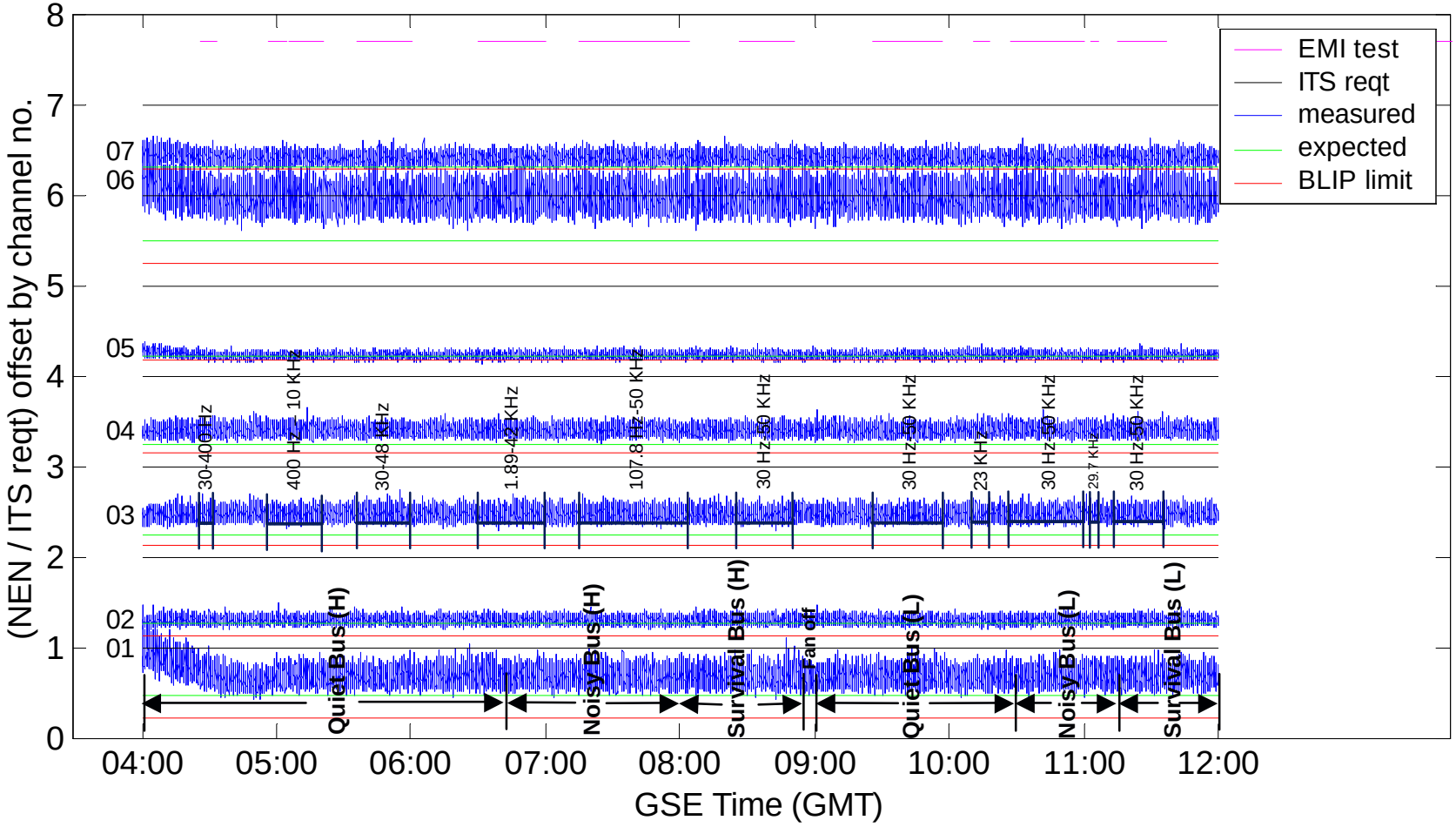


Noise: Secondary Encoders

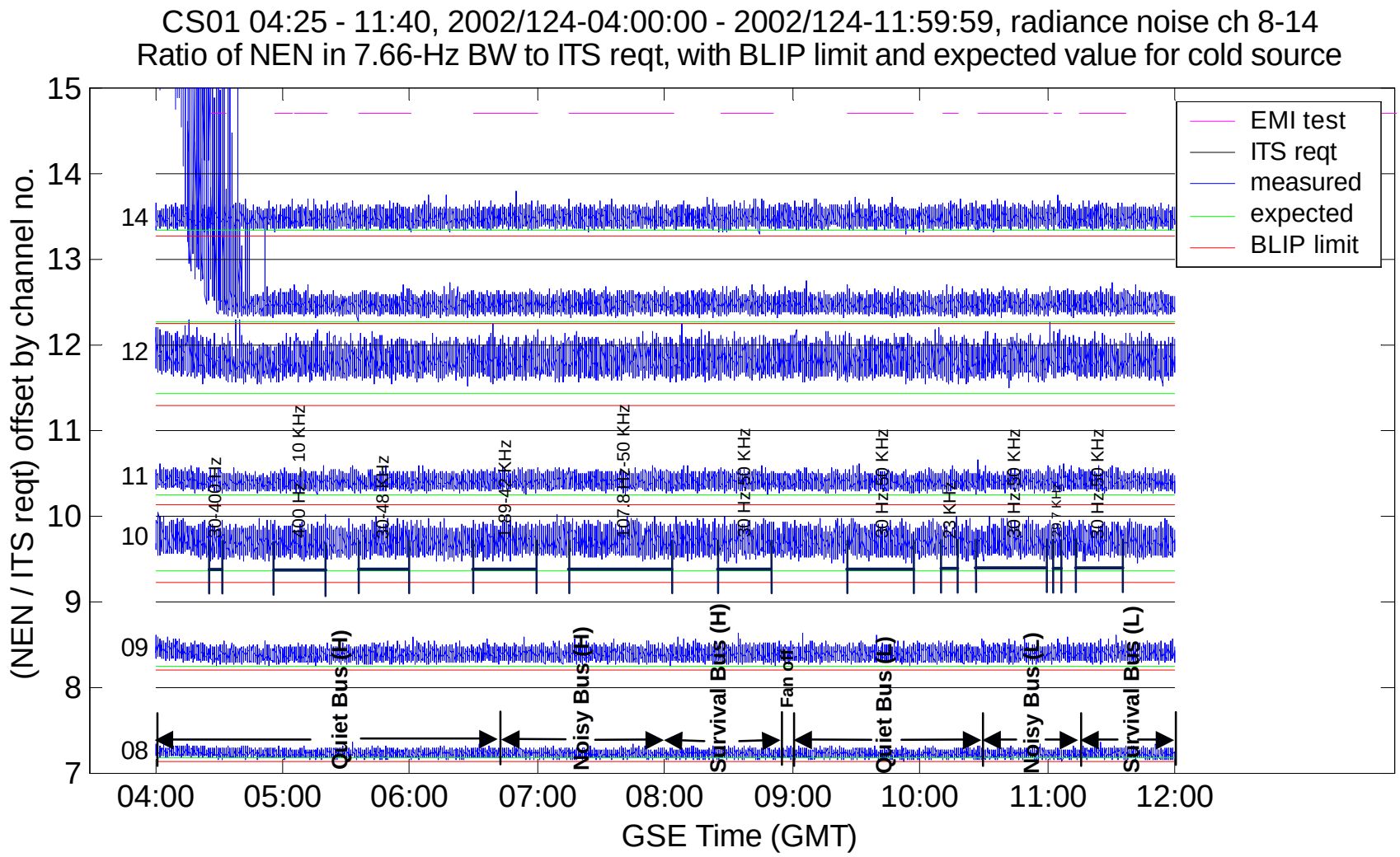


Noise: Radiance Channels 1-7

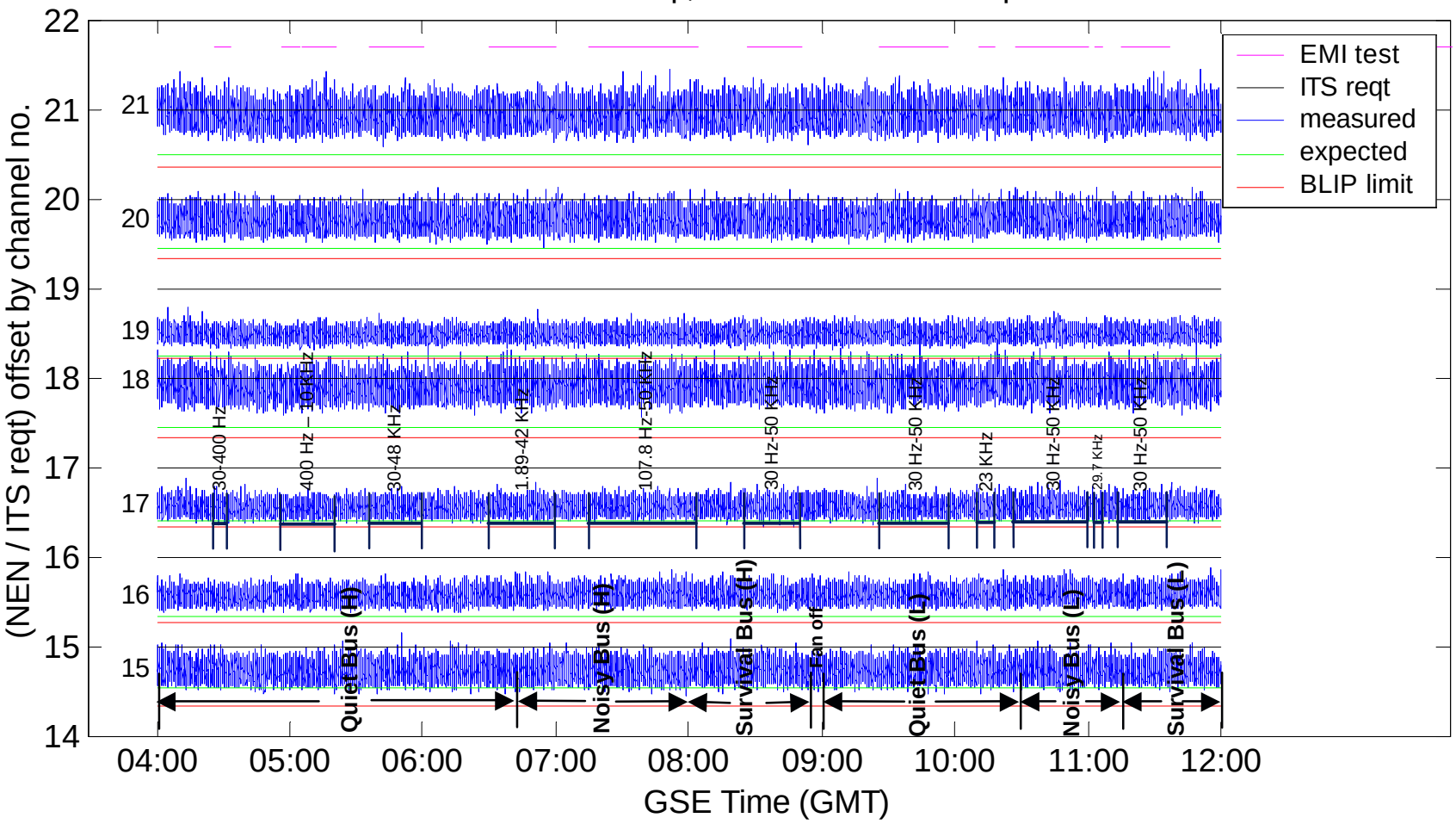
CS01 04:25 - 11:40, 2002/124-04:00:00 - 2002/124-11:59:59, radiance noise ch 1-7
Ratio of NEN in 7.66-Hz BW to ITS reqt, with BLIP limit and expected value for cold source



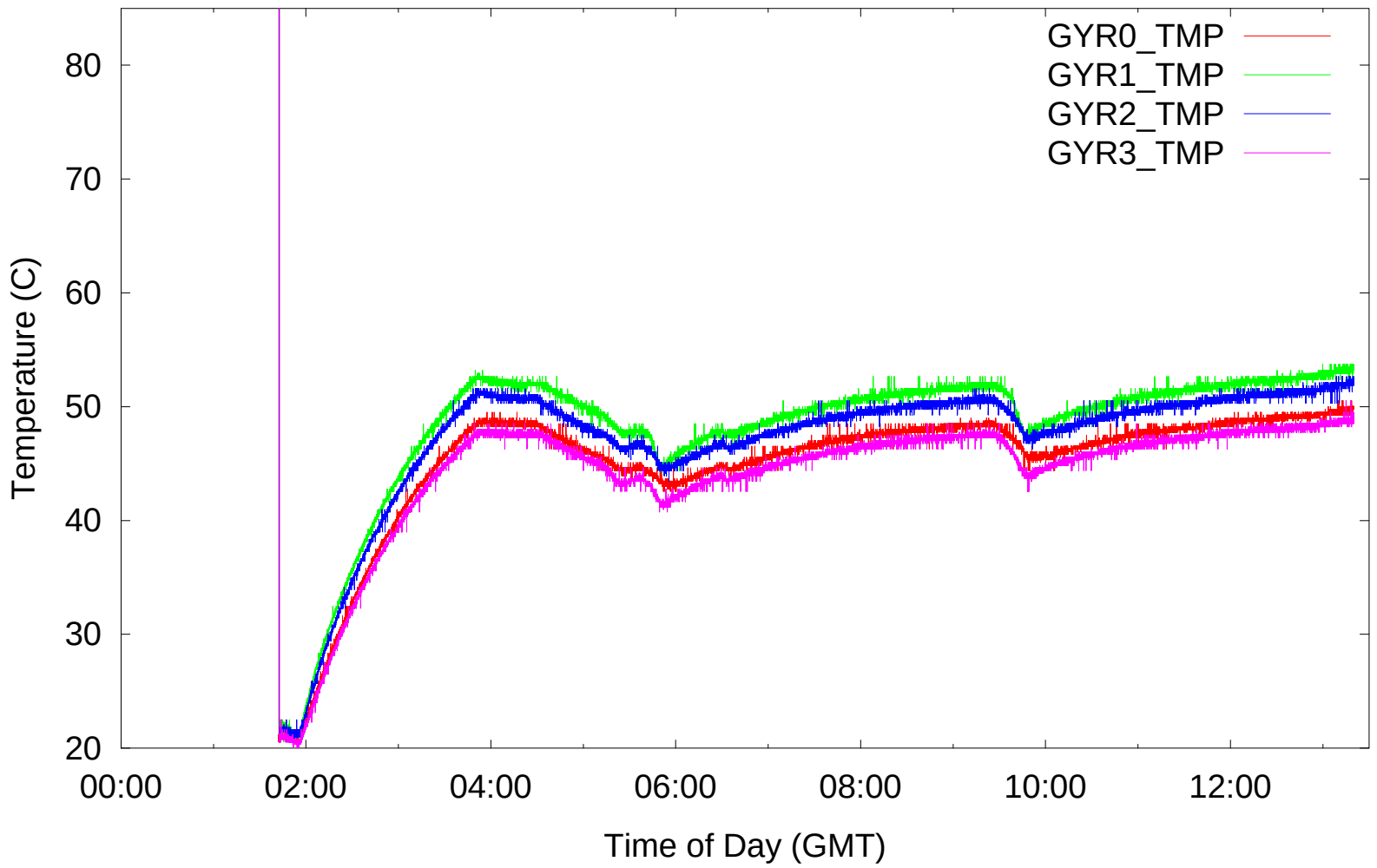
Noise: Radiance Channels 8-14



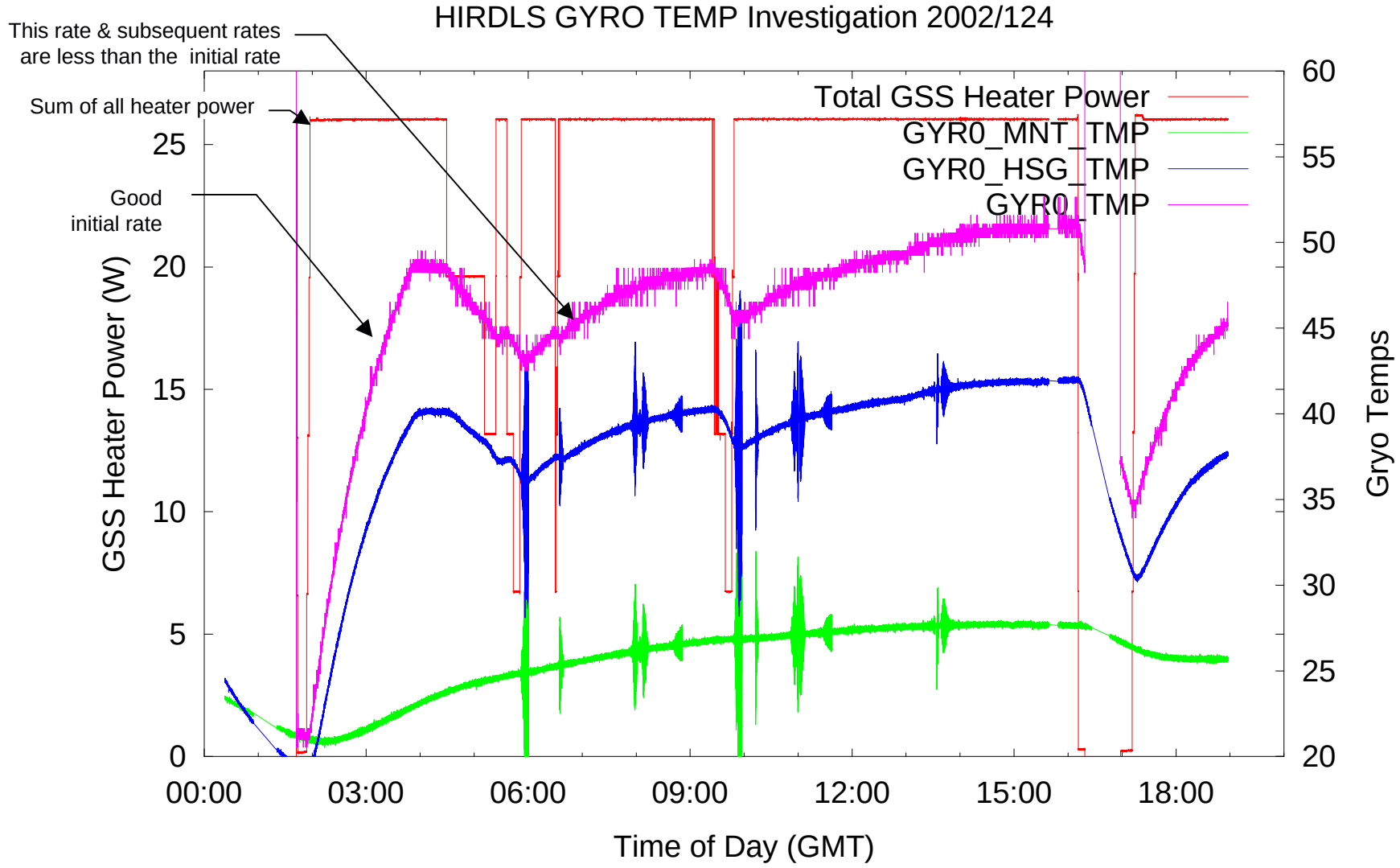
Noise: Radiance Channels 15-21



Gyro Temps Day 2002/124

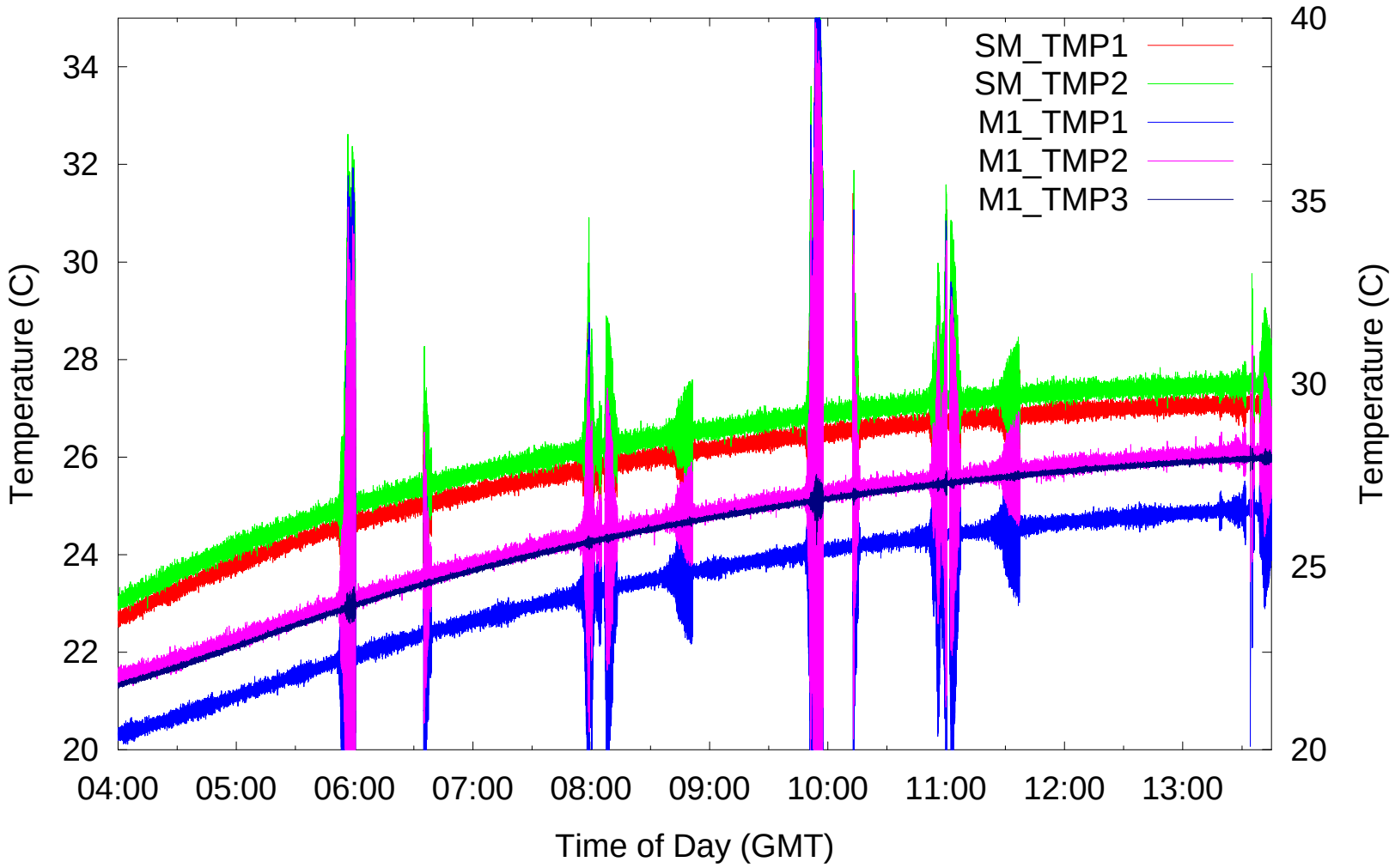


Failure to Gyros to Heat to Spin Temperature (DR# AD6491)

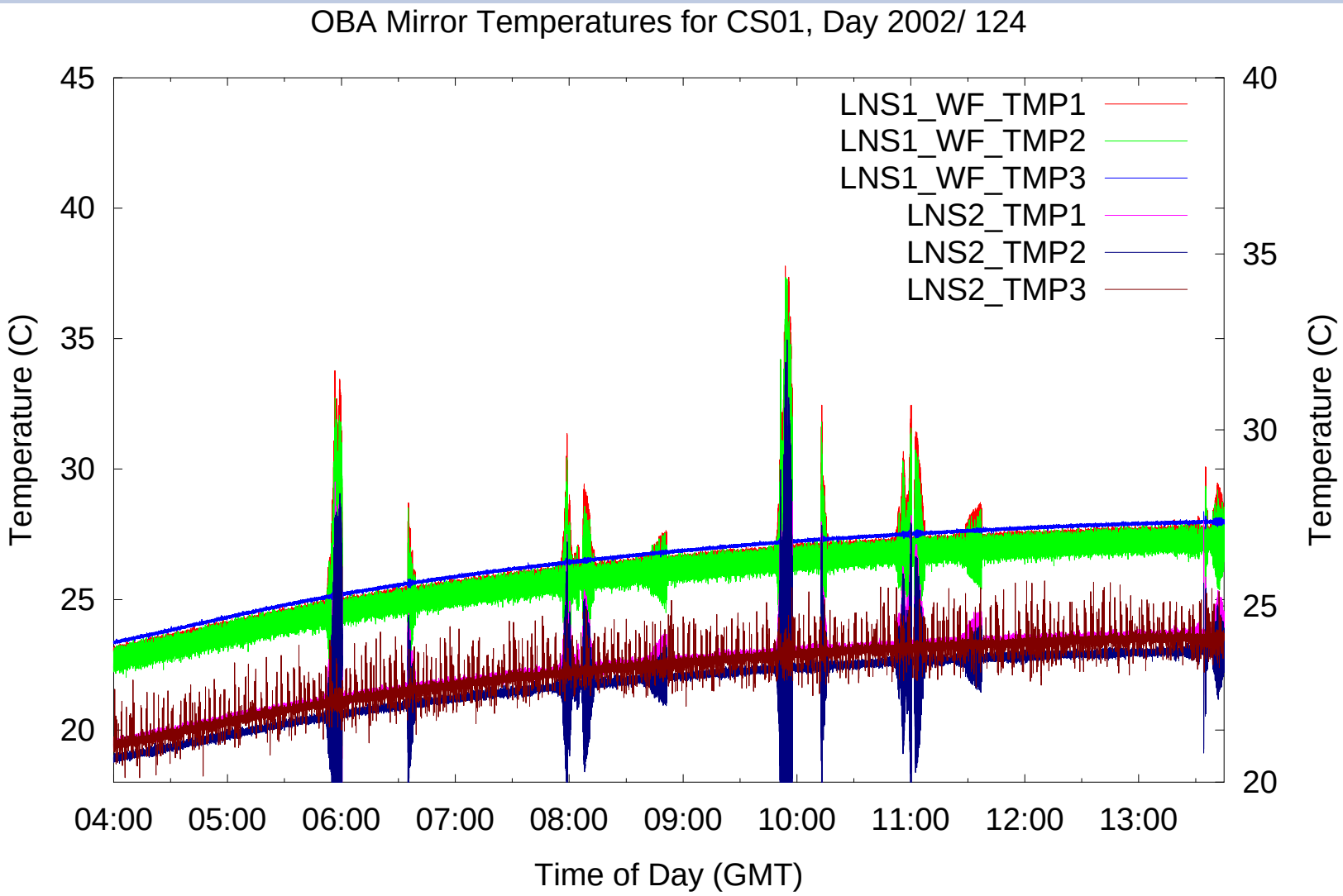


OBA Temp Sensors: 2002/124 (1 of 5)

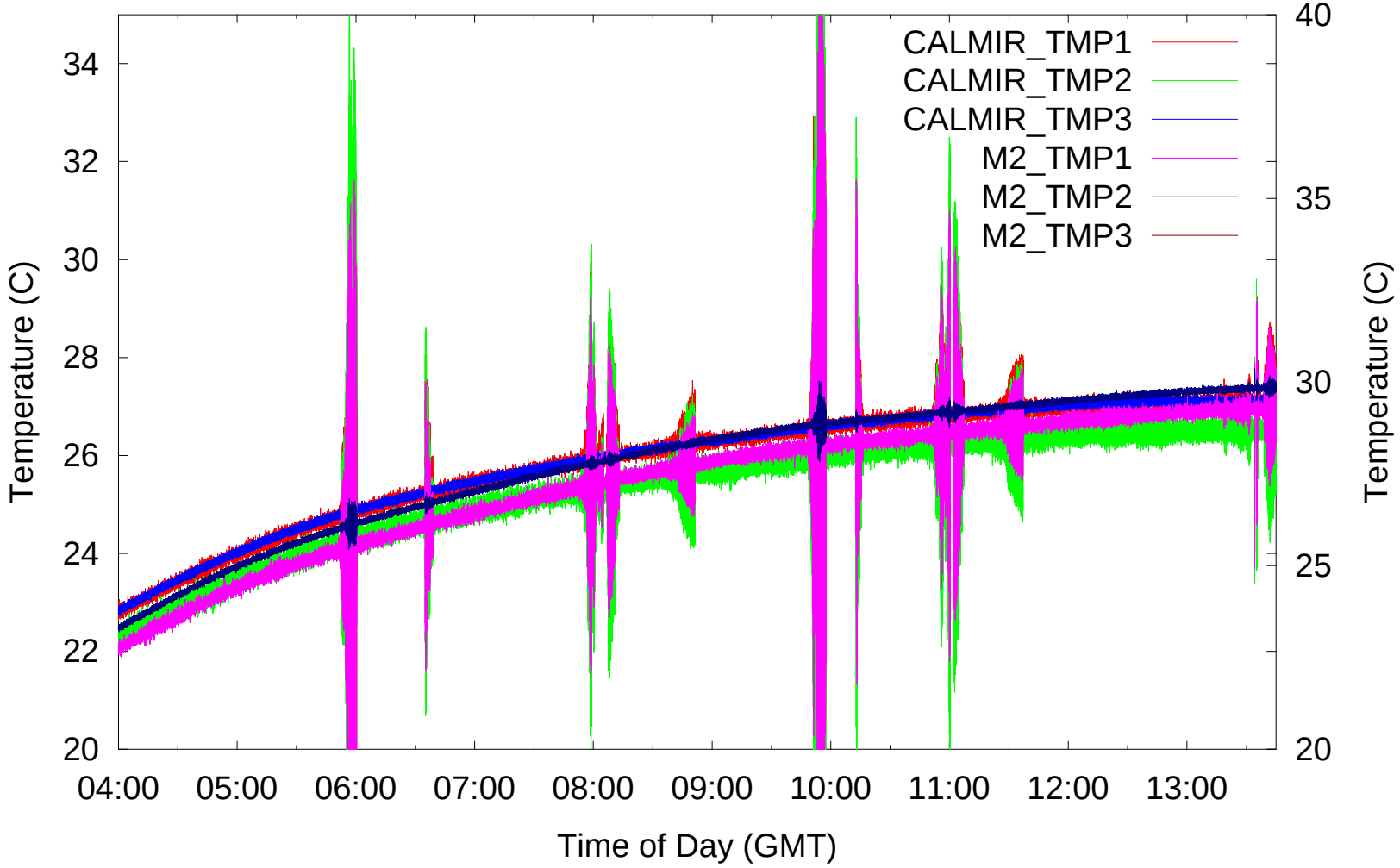
OBA Mirror Temperatures for CS01, Day 2002/ 124



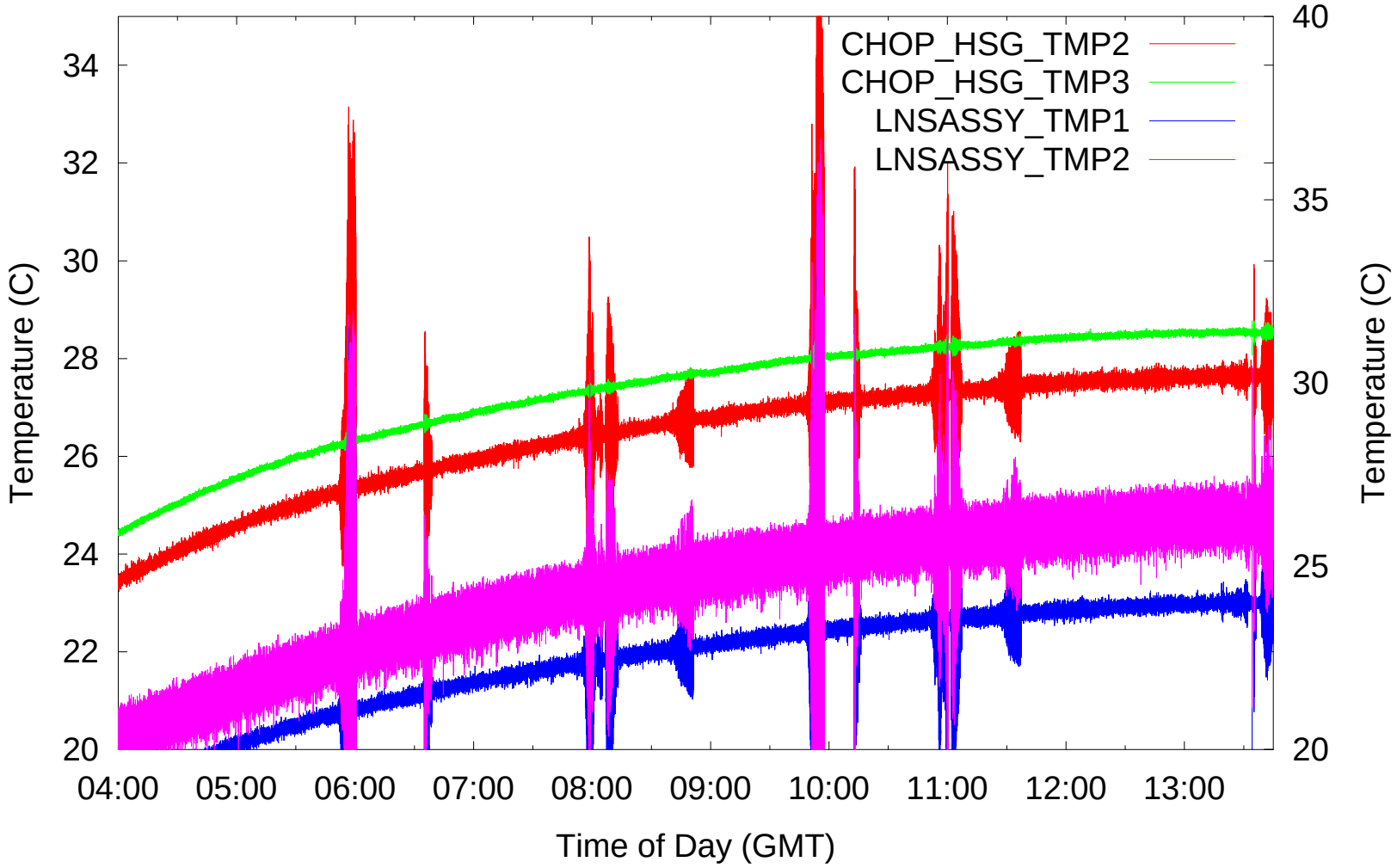
OBA Temp Sensors: 2002/124 (2 of 5)



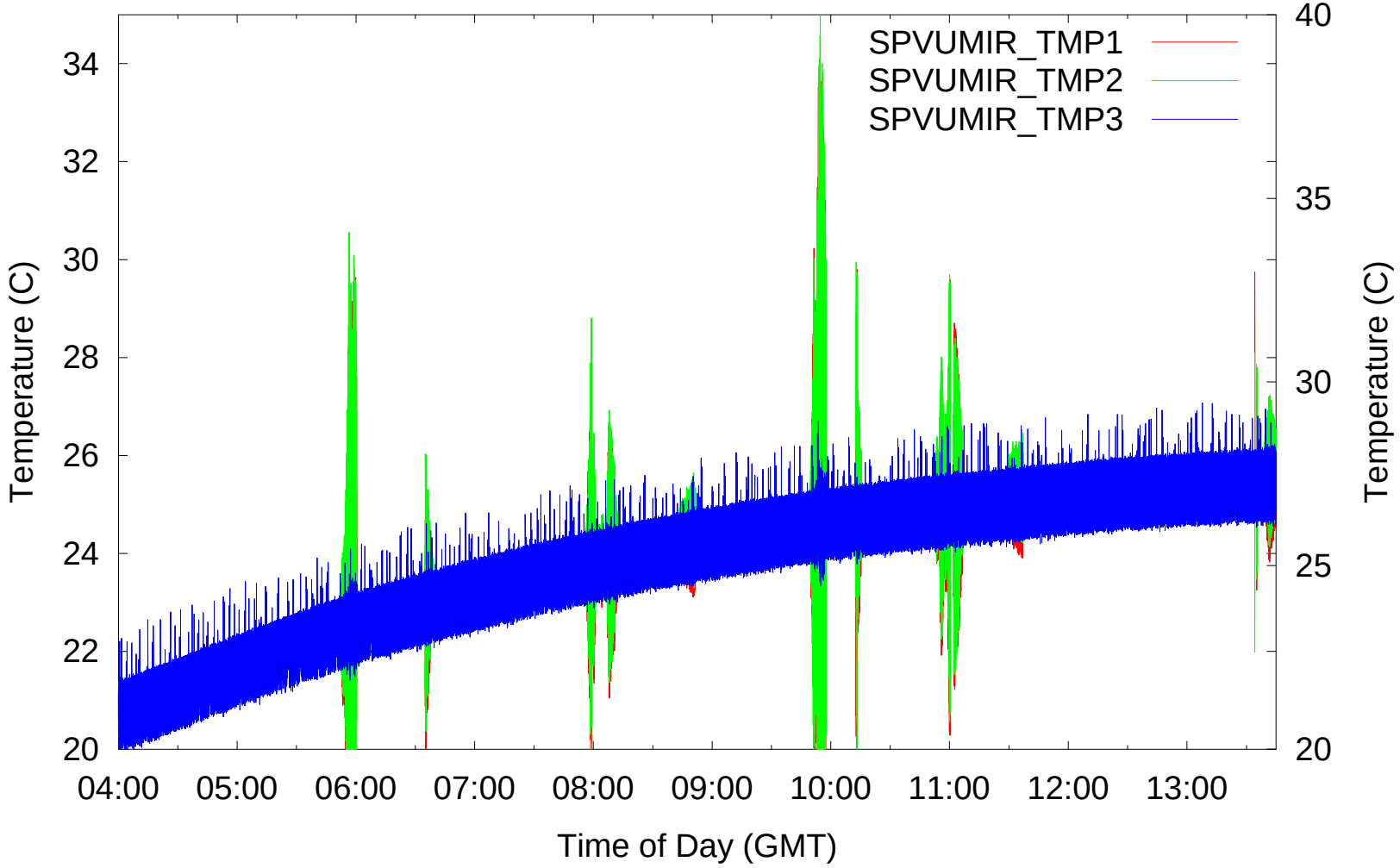
OBA Temp Sensors: 2002/124 (3 of 5)



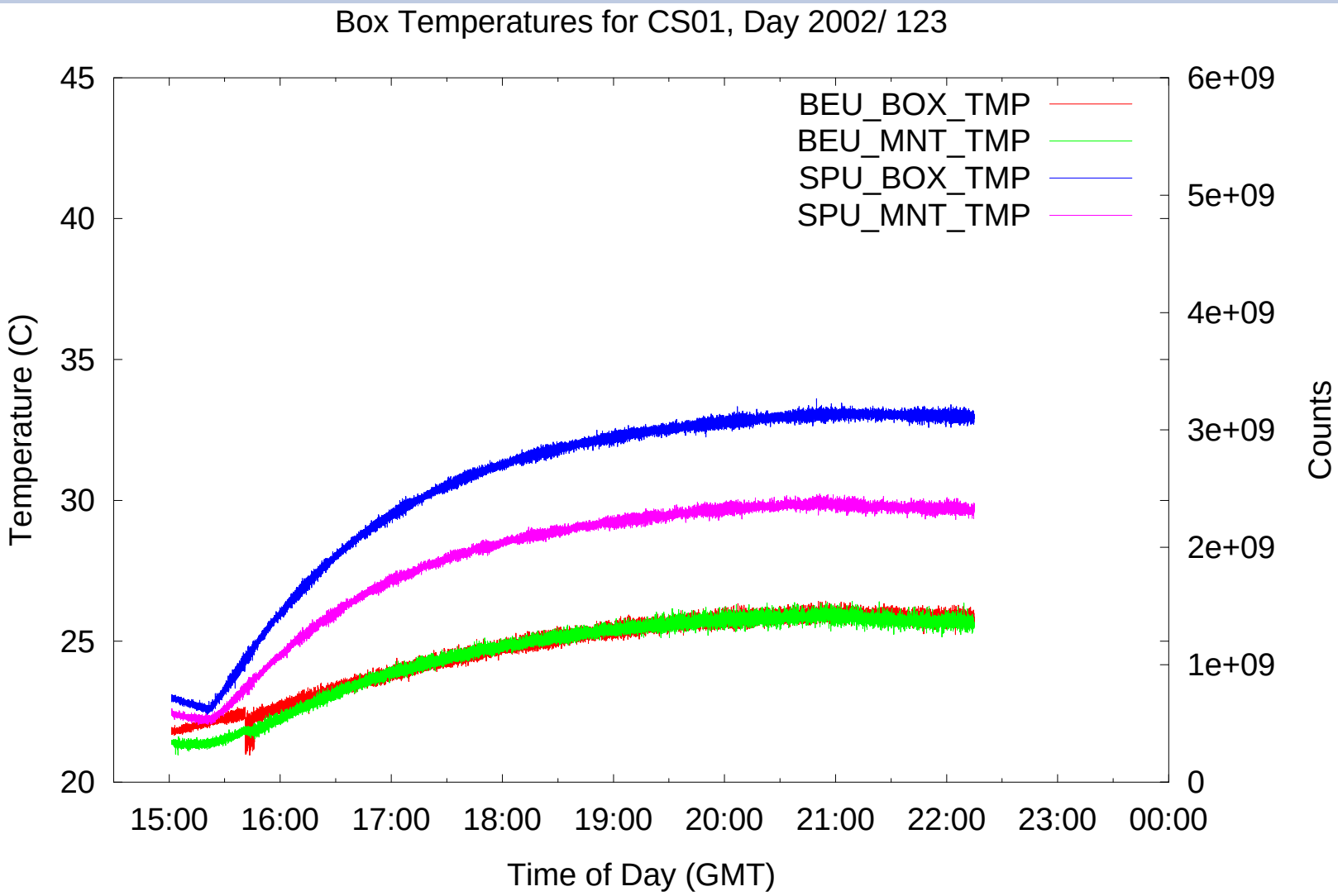
OBA Temp Sensors: 2002/124 (4 of 5)



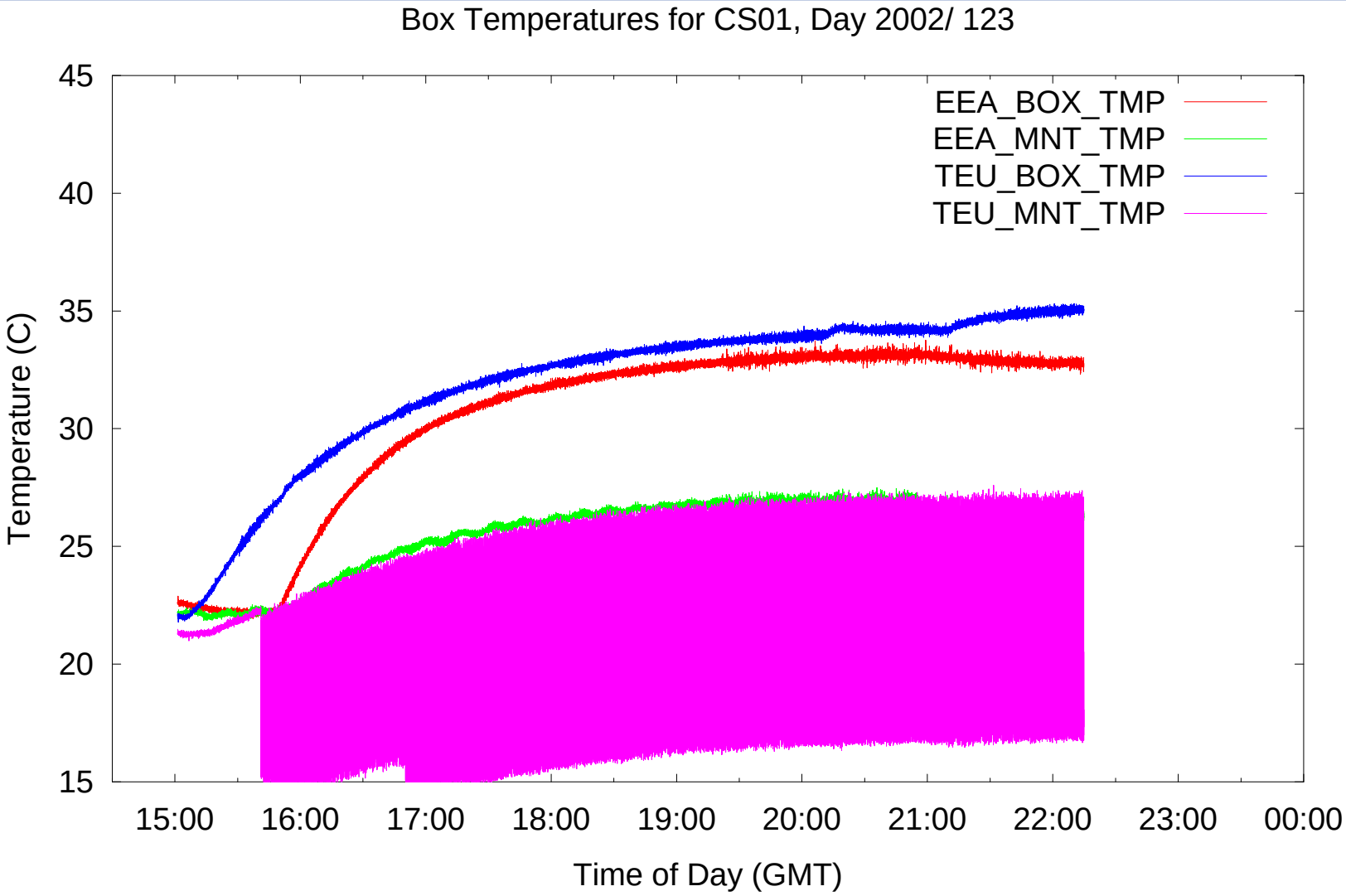
OBA Temp Sensors: 2002/124 (5 of 5)



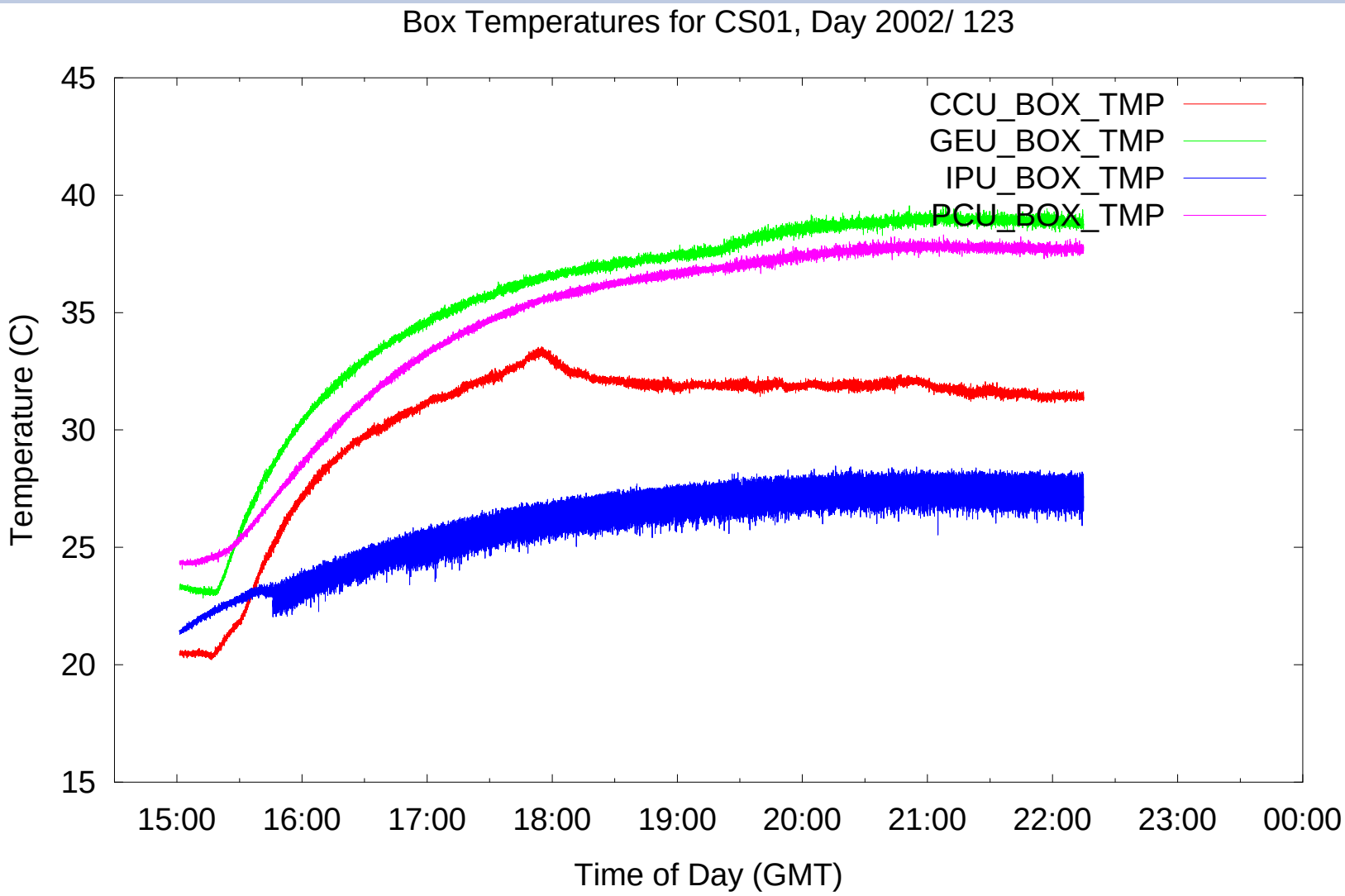
Box Temps (1 of 6)



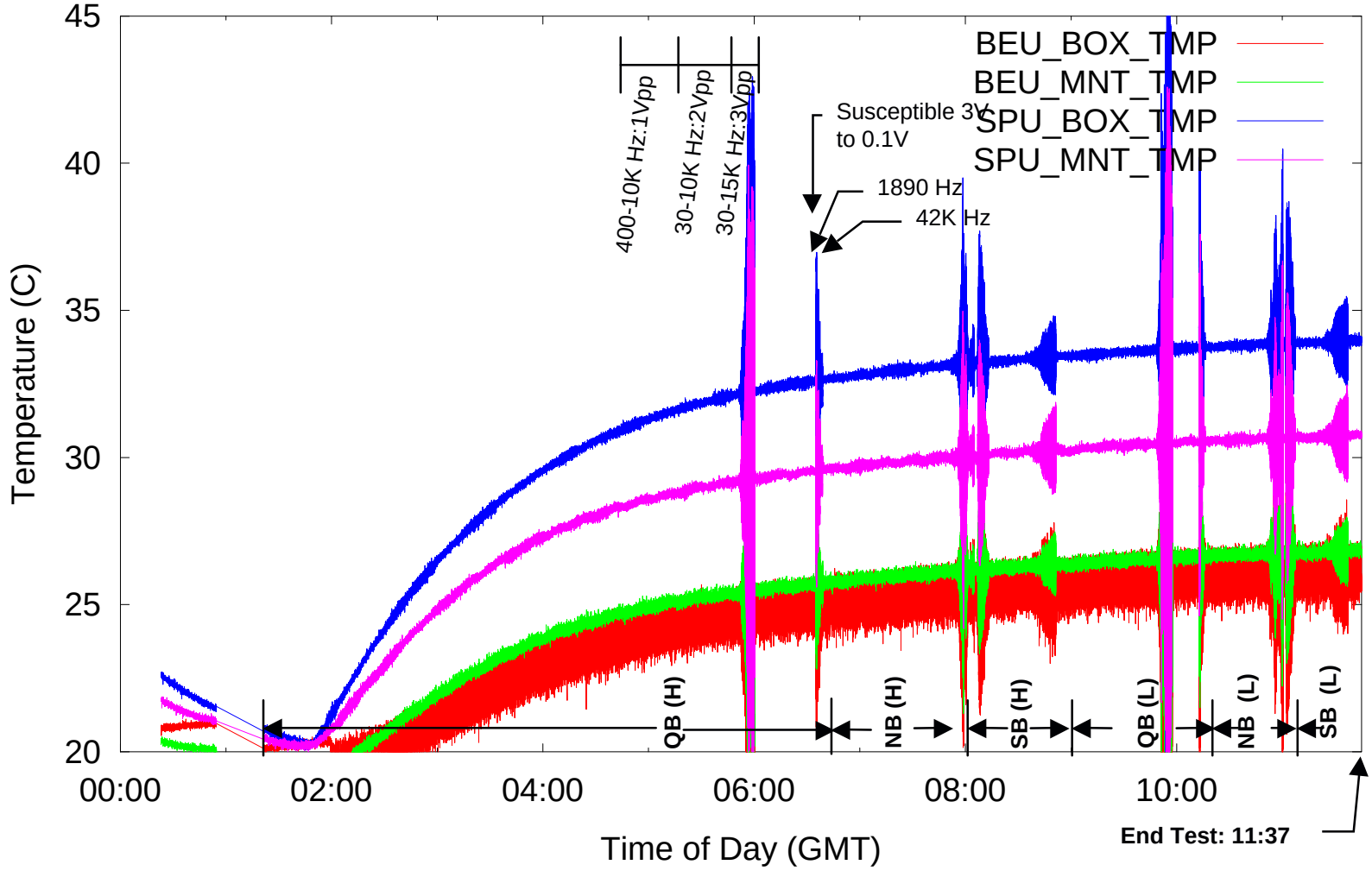
Box Temps (2 of 6)



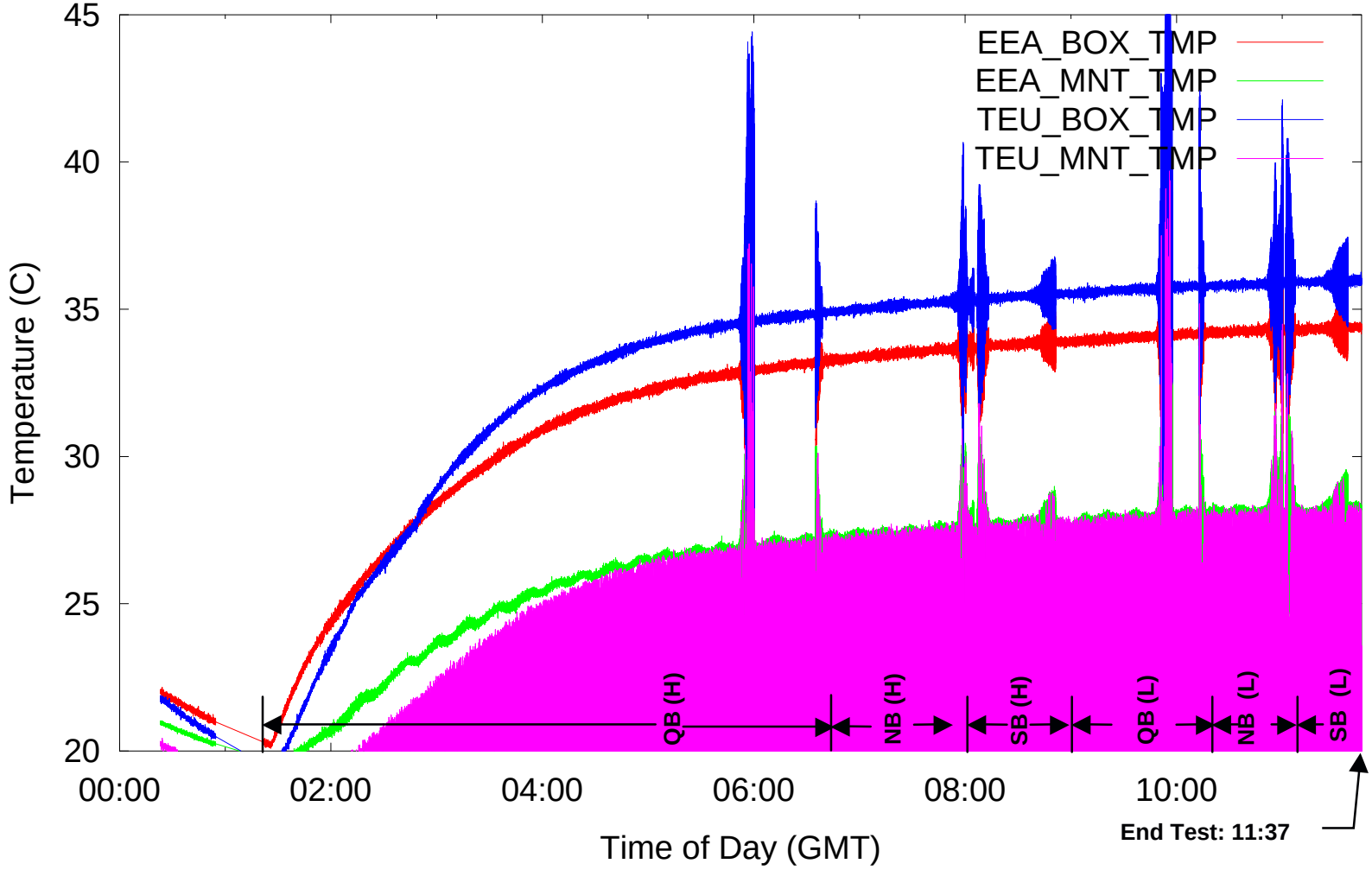
Box Temps (3 of 6)



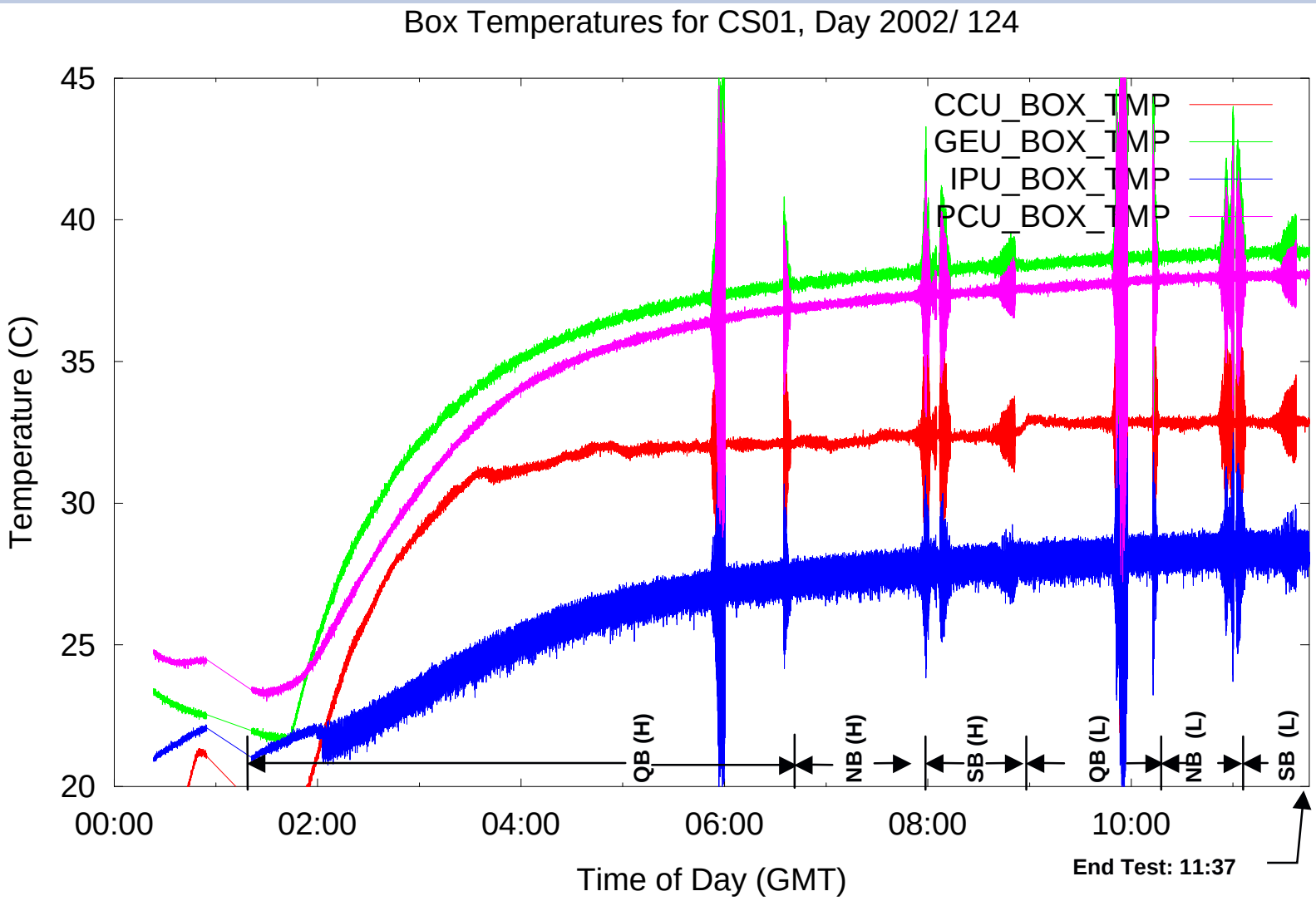
Box Temps (4 of 6)



Box Temps (5 of 6)

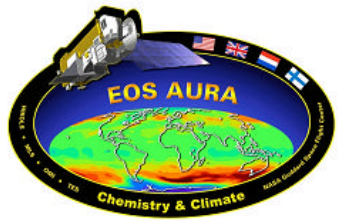


Box Temps (6 of 6)



LOCKHEED MARTIN

Excerpt from Test Logs 2002/123



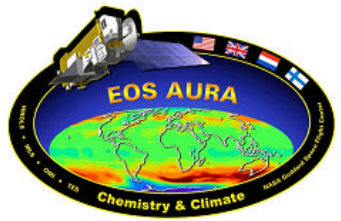
2002/123-20:22 Completed Power-on Side A.

2002/123-21:21 Room Temperature 65 Deg. Instrument ready.
2002/123-21:23 Start sweep. CS01 test. Freq. 30Hz.
2002/123-21:25 Stop sweep. Setup equipment.

2002/123-22:08 Room temperature 62 Deg. Still setting up.

2002/123-22:09 Start sweep 30Hz - 50 kHz.
2002/123-22:17 Powered off CMU. Loud rattling noise.

LOCKHEED MARTIN



Excerpt from Test Logs 2002/124

- 2002/124-04:25 Starting test Quiet bus, Starting Sweep at 30Hz
- 2002/124-06:35 Special Test Decrease amplitude from Amplitude at 0.75V. Noise @ 5-6 deg C pp.
- 2002/124-06:36 Amplitude at 0.5V. Noise @ 3 deg C pp.
- 2002/124-06:37 Amplitude at 0.25V. Noise @ 2 deg C pp.
- 2002/124-06:39 Amplitude at 0.1V. Graphs appear nominal again.
- 2002/124-07:15 Starting test Noisy Bus high side, 30Hz - 50 KHz.
- 2002/124-08:26 Starting test Survival bus, high side
- 2002/124-08:55 Special Test. Room quiet, HEPA fan off
- 2002/124-09:26 Starting CS01 Quiet bus, return side.
- 2002/124-10:11 Retest at 23KHz at 4Vpp, observe temp
- 2002/124-10:27 Starting CS01 test on Noisy Bus return. 30Hz
- 2002/124-11:03 Repeating 29.7KHz and decreasing amplitude of injected signal
- 2002/124-11:15 Starting CS01 Survival Bus Return Side
- 2002/124-11:37 Reached 50KHz. Stopping test.

LOCKHEED MARTIN

HIRDLS

EMI/EMC TEST - CS02

4-5 May 2002

2002/124-13:20 Through 2002/125-11:40

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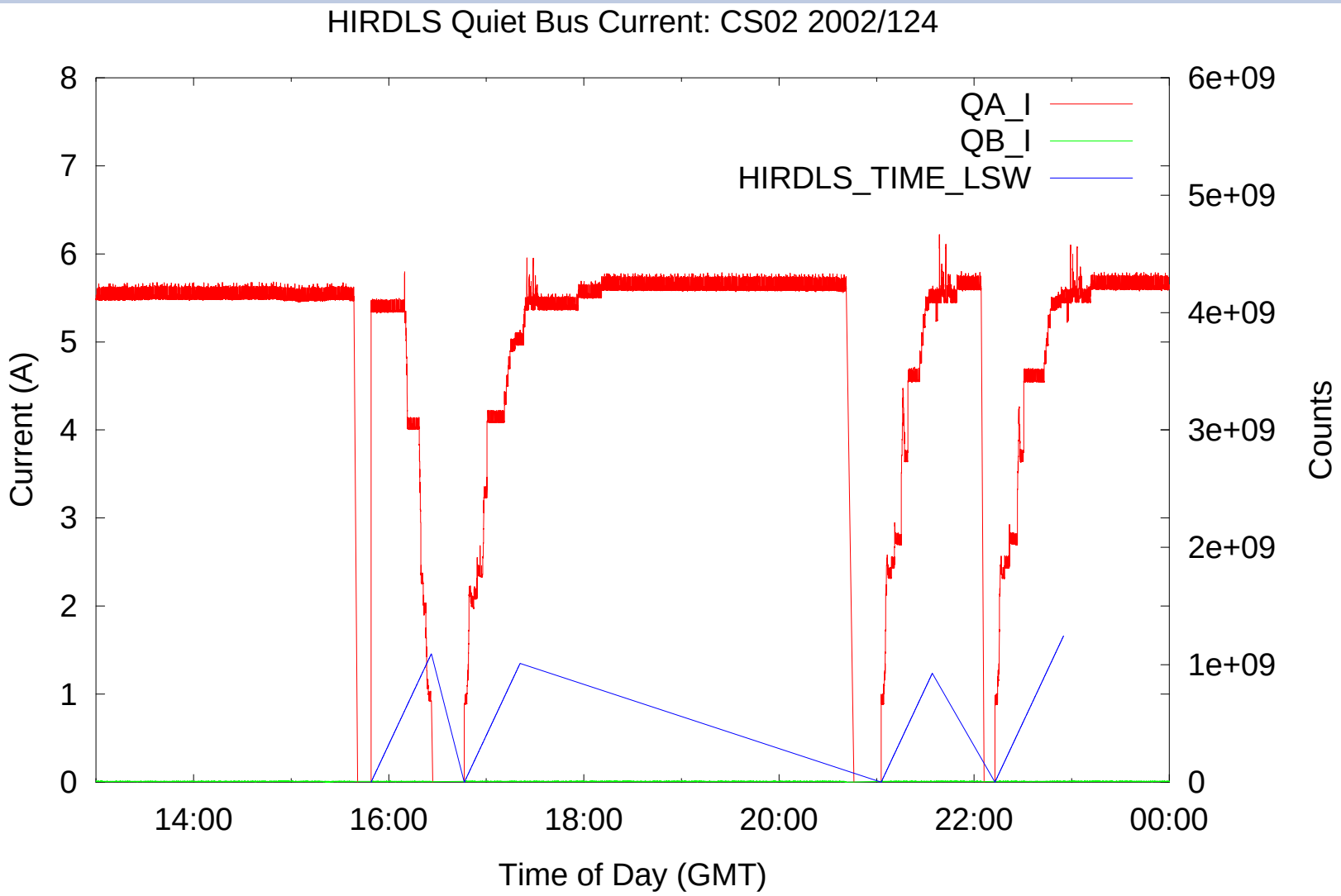
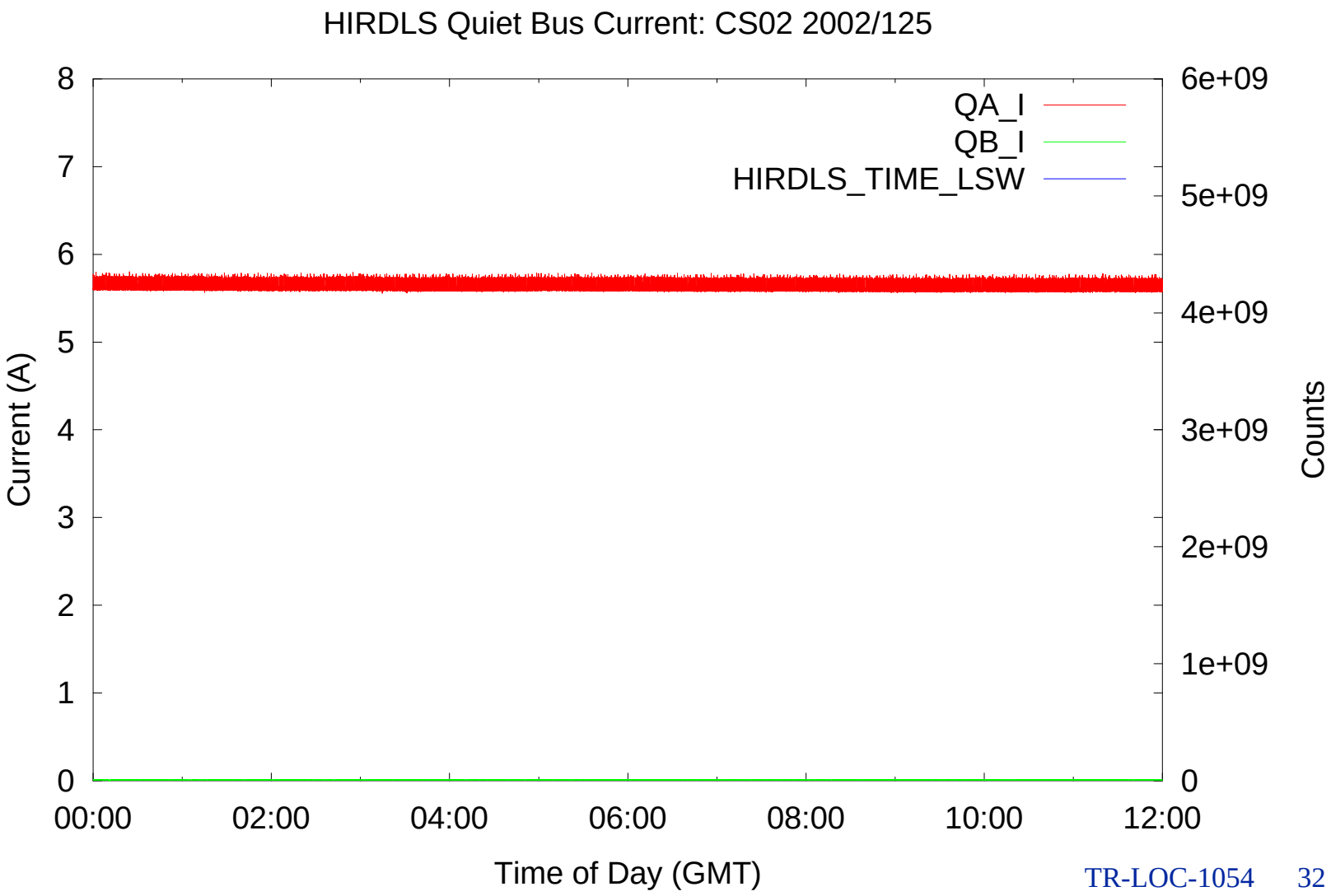
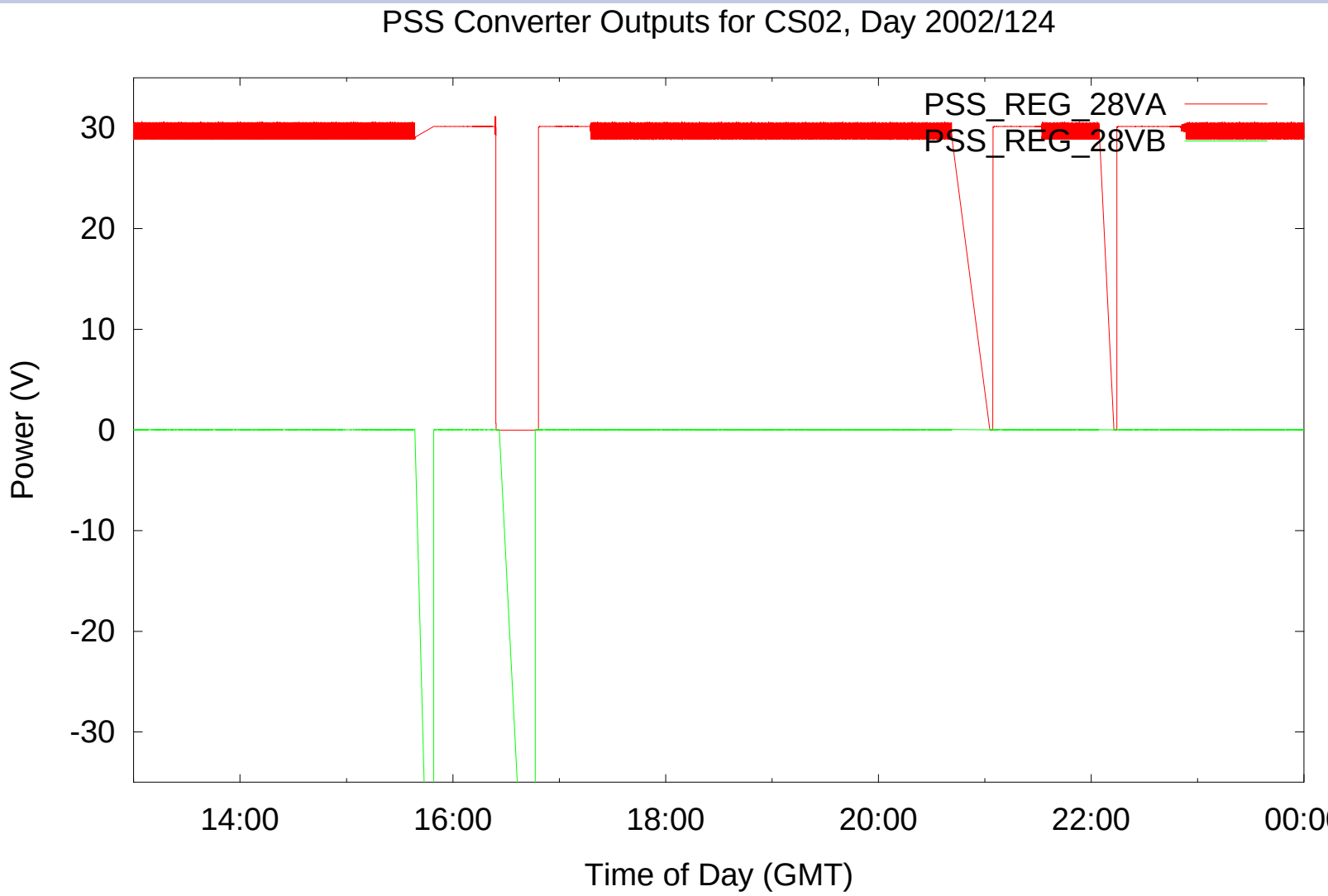
Archive integrity & Quiet Bus Current 2002 / 124



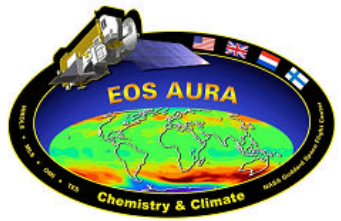
Archive integrity & Quiet Bus Current 2002 / 125



CS02 PSS 28REG Converters 2002/124

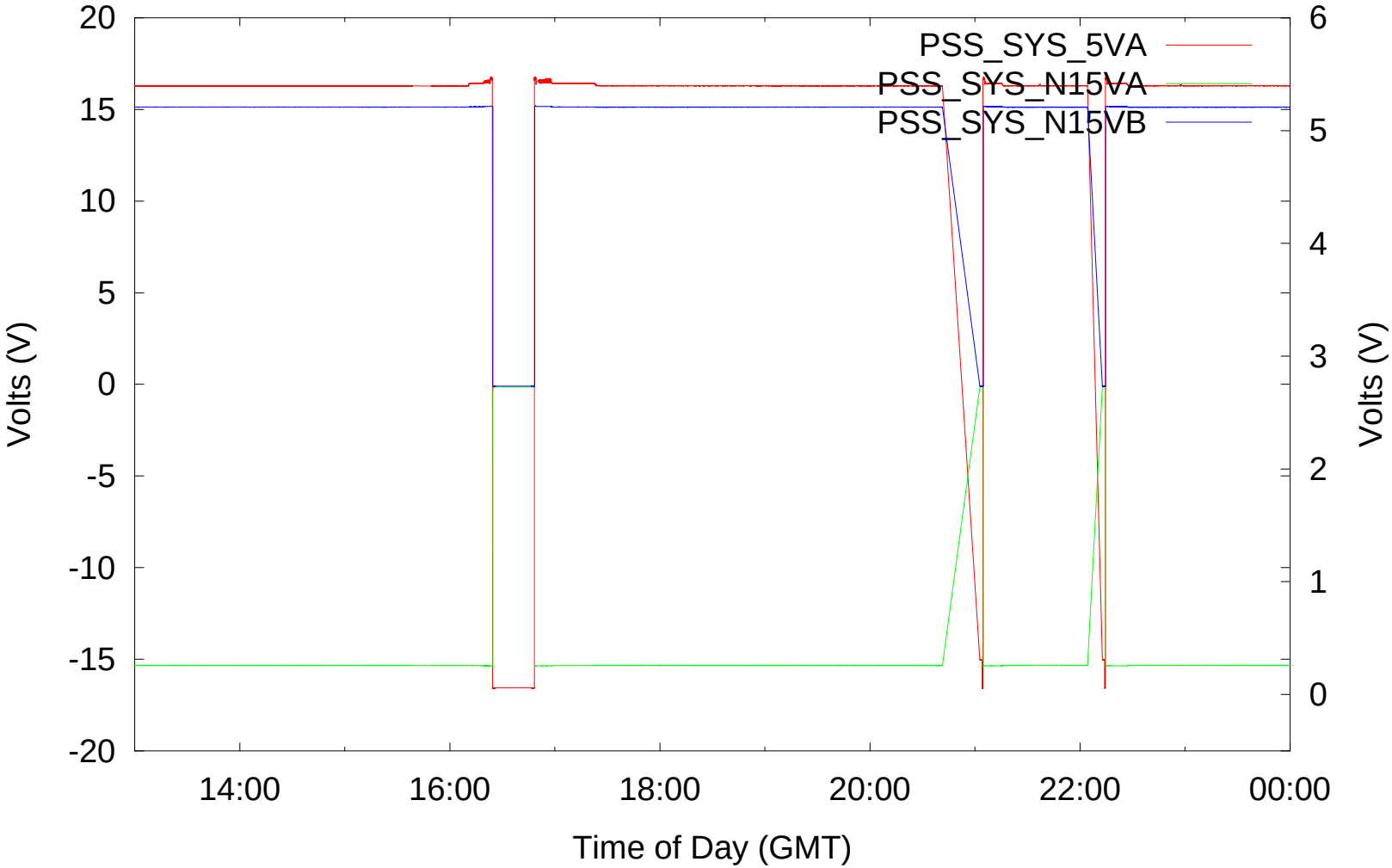


LOCKHEED MARTIN

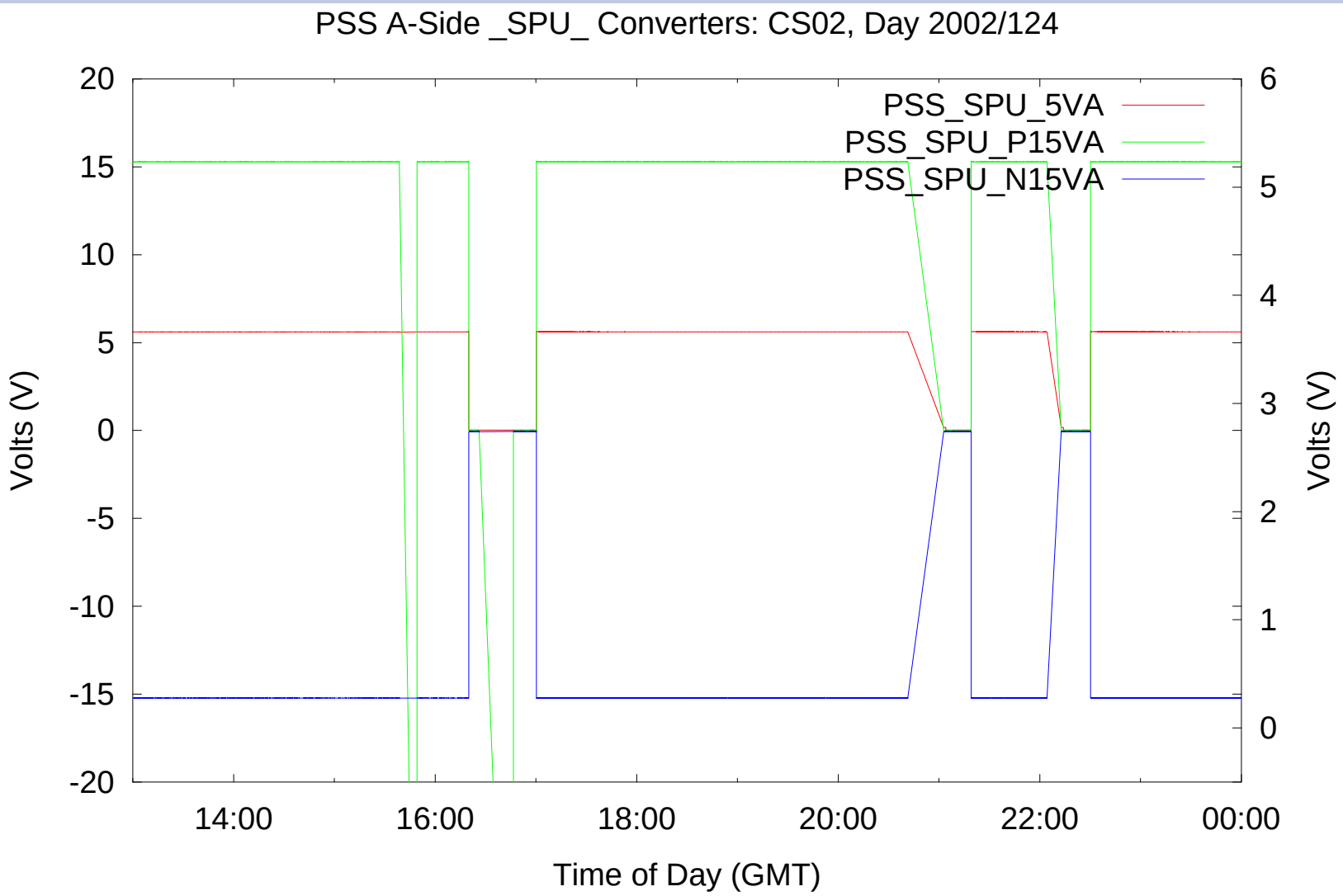


CS02 PSS SYS Converters 2002/124

PSS A-Side SYS Converters: CS02, Day 2002/124



CS02 PSS SPU Converters 2002/124



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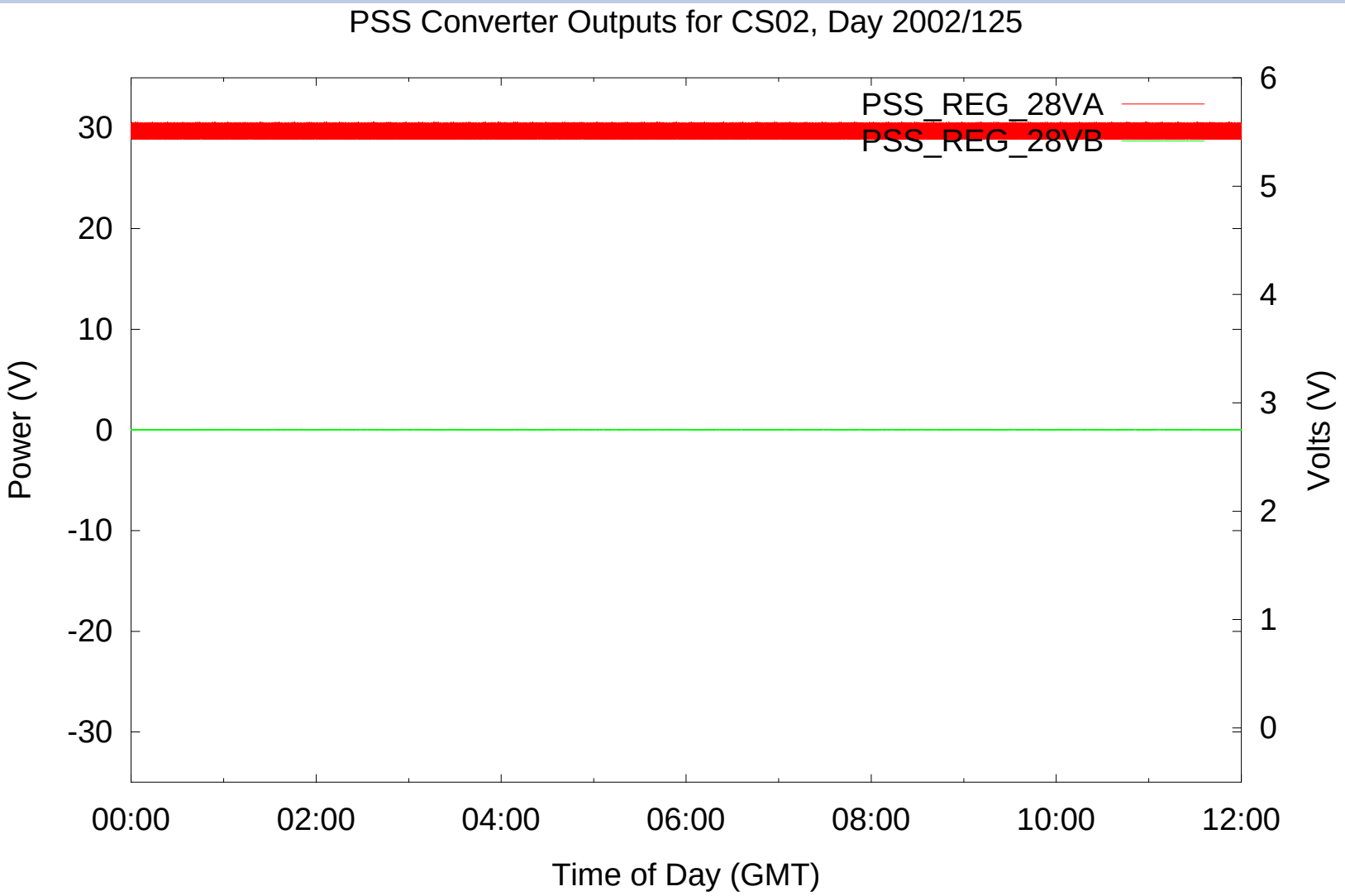

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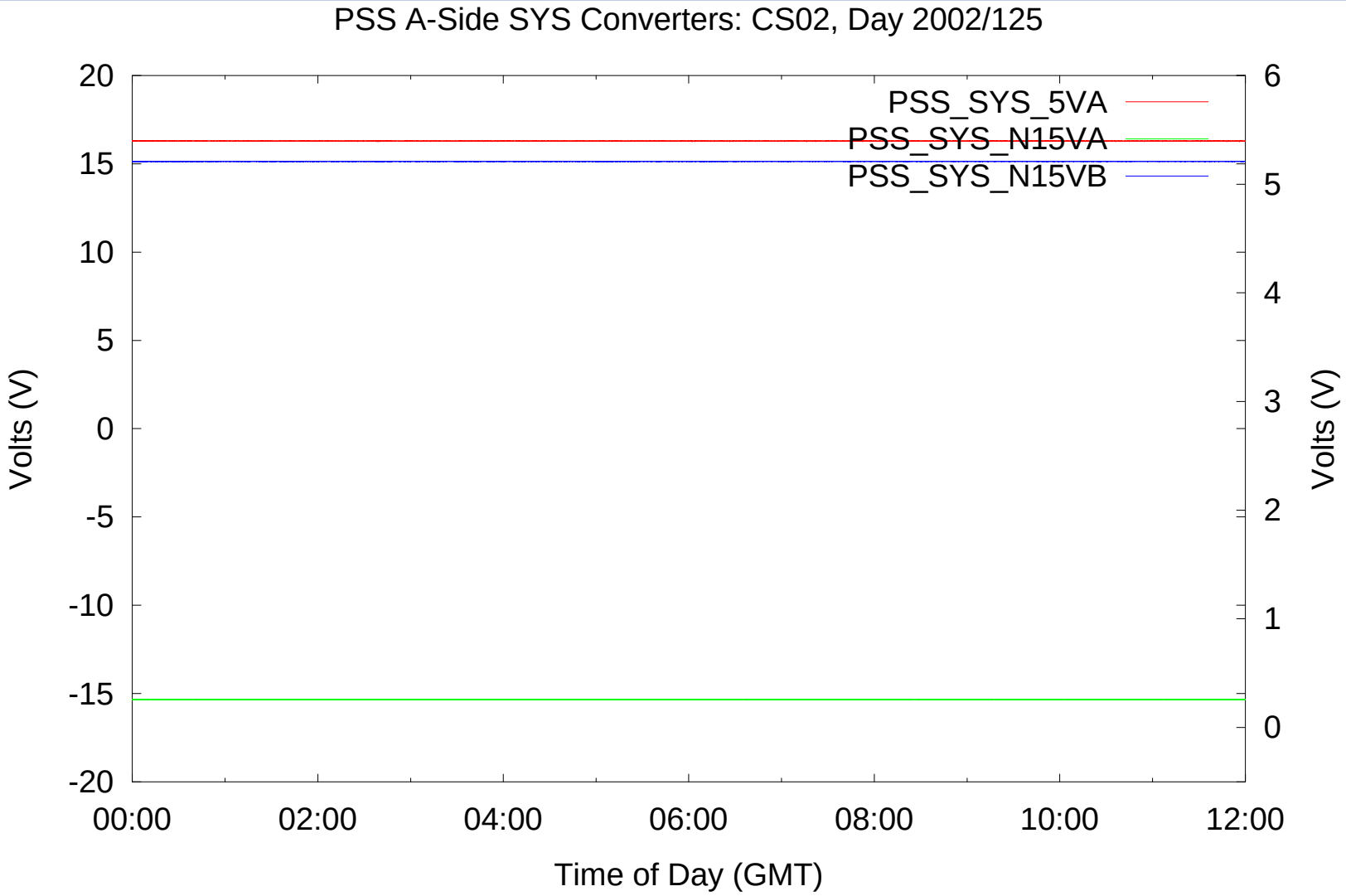

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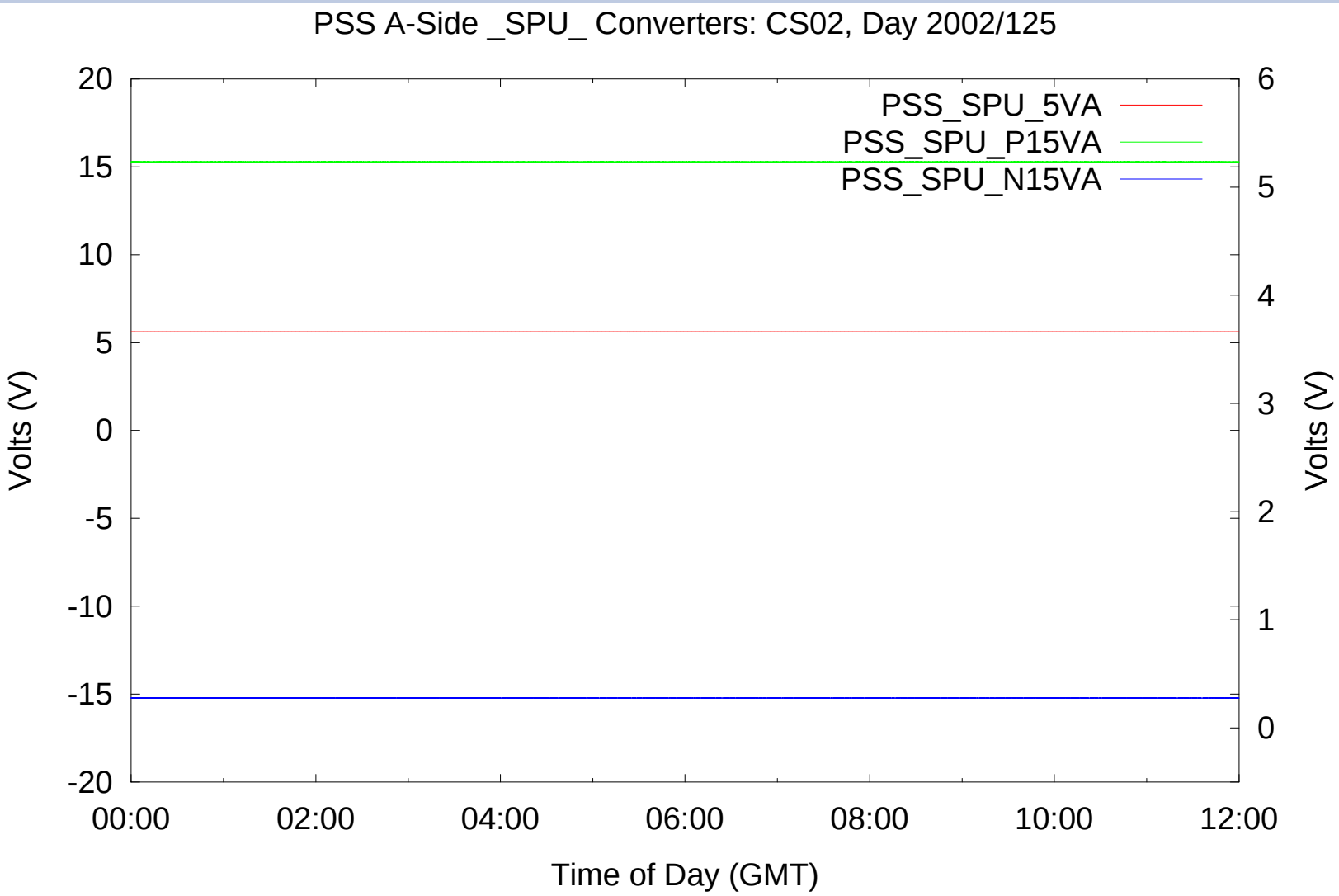
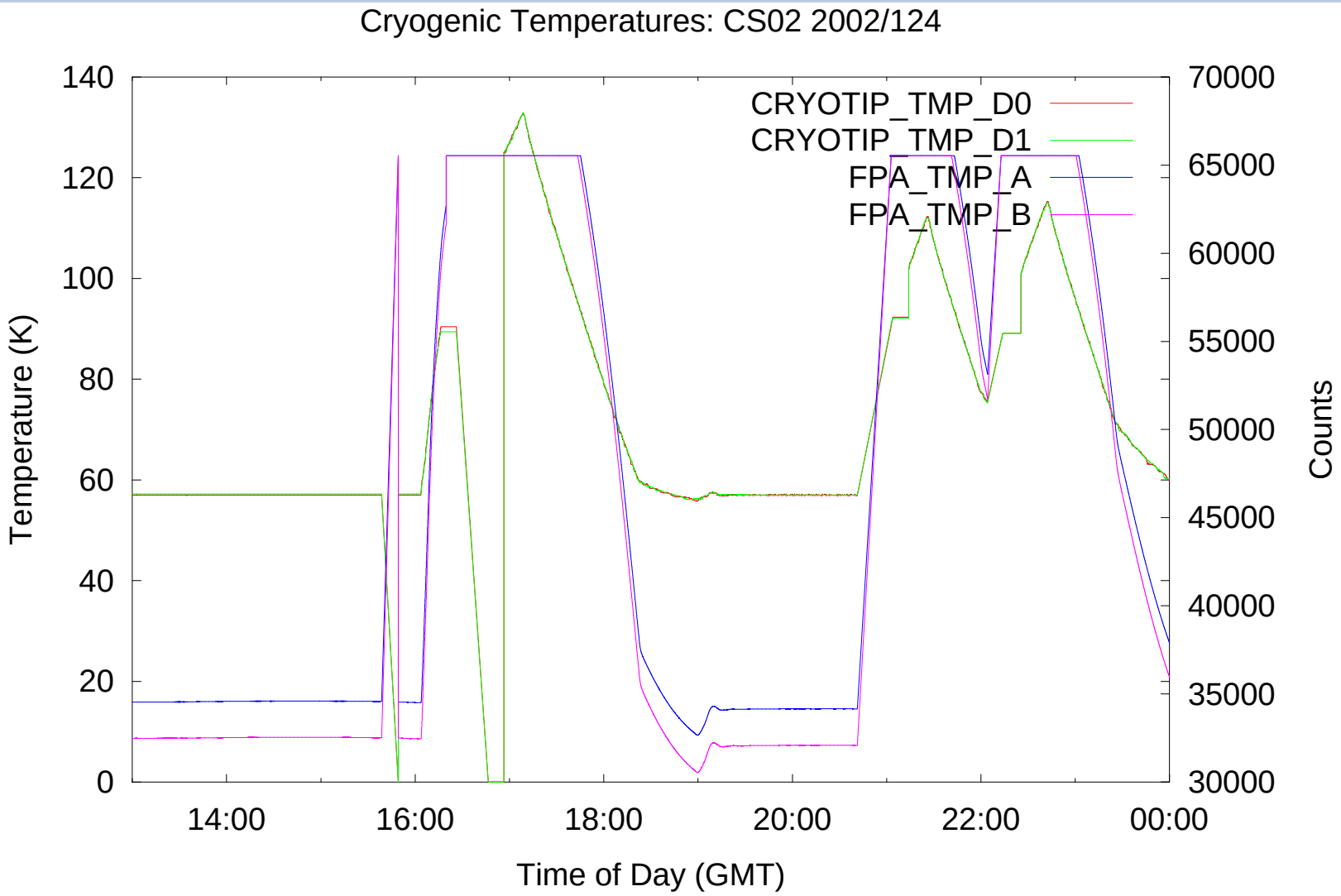
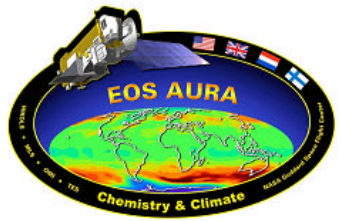


CS02 CSS Temps 2002/124

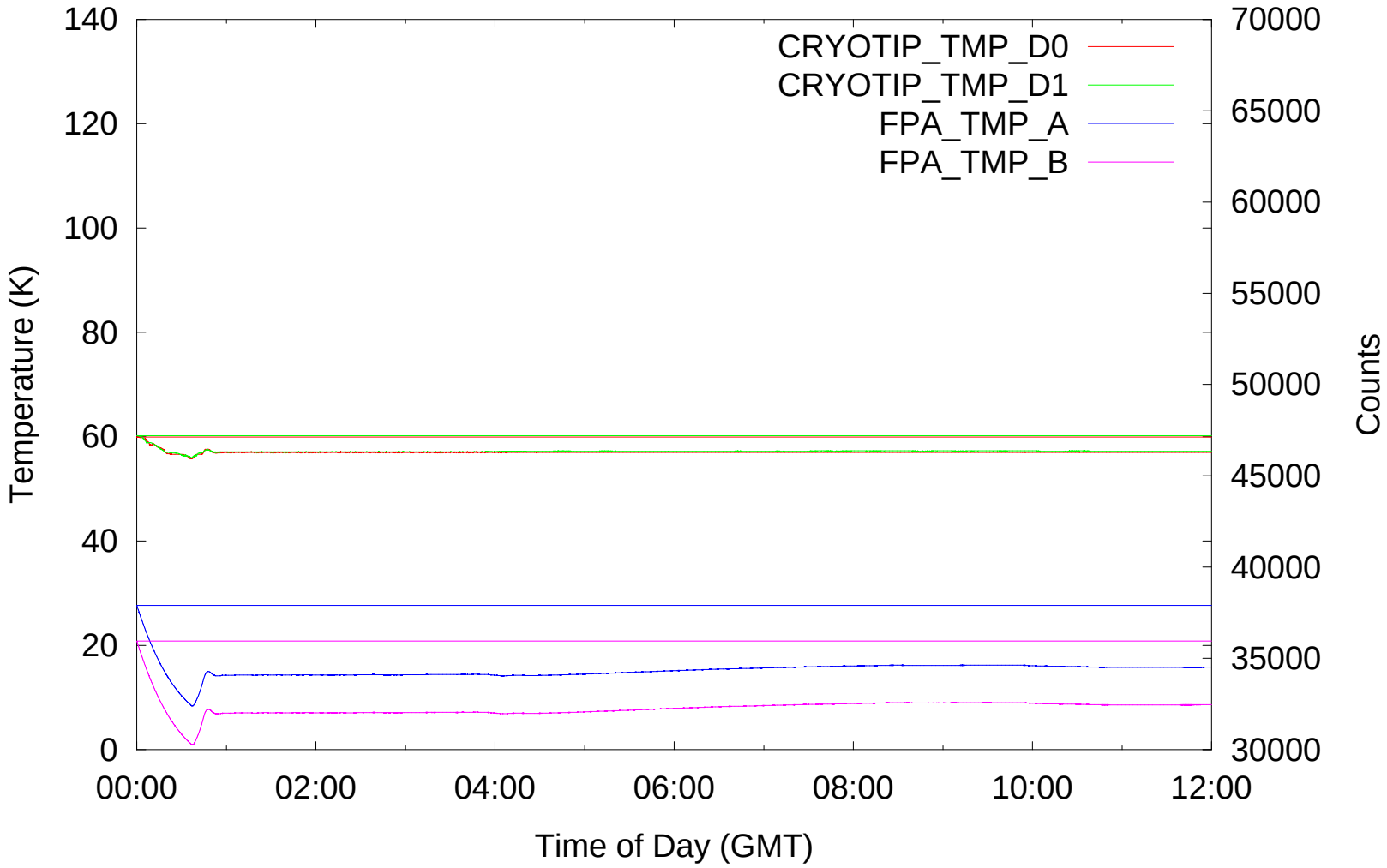


LOCKHEED MARTIN

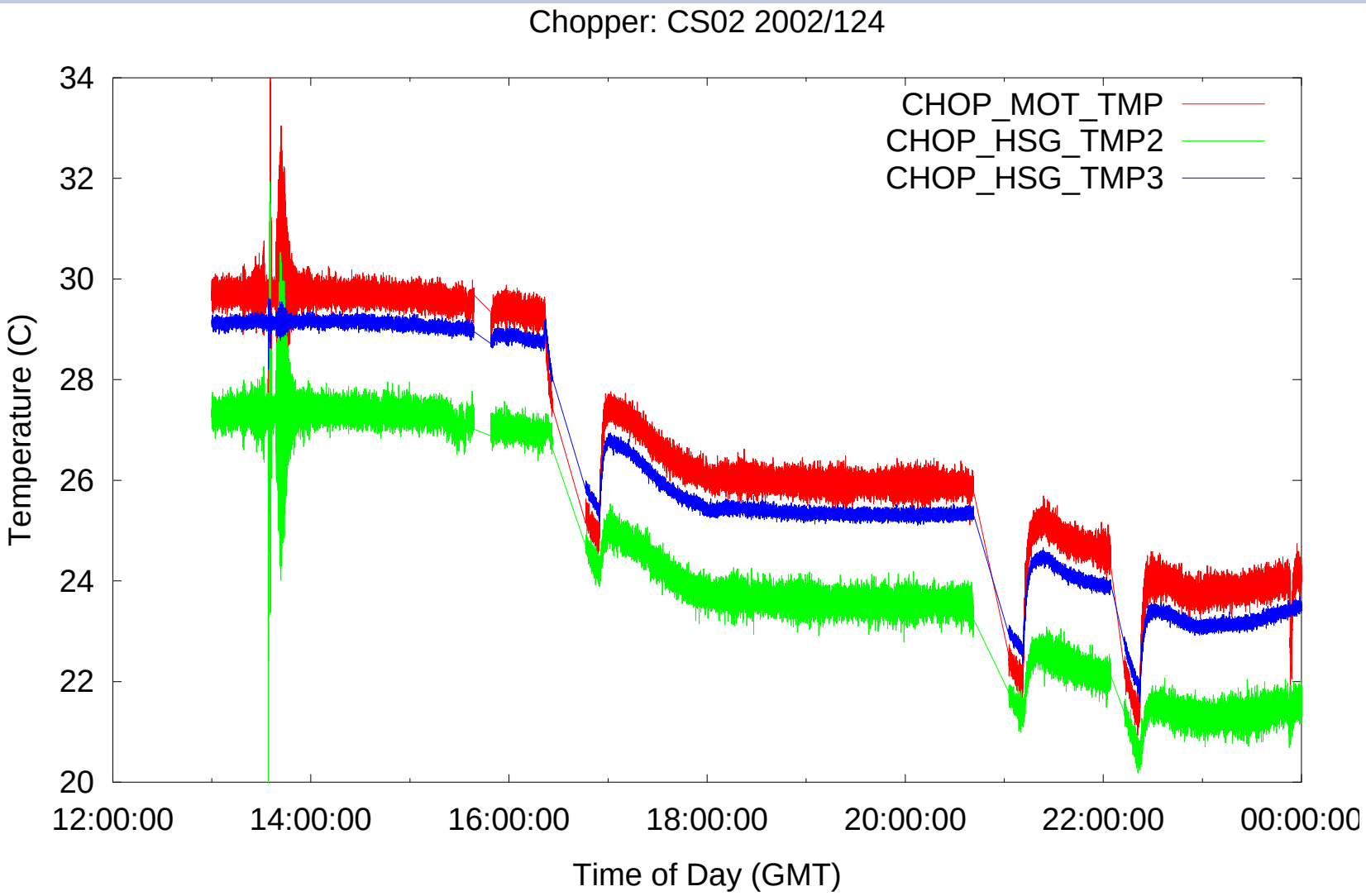


CS02 CSS Temps 2002/125

Cryogenic Temperatures: CS02 2002/125



CS02 Chopper Temps: 2002/124



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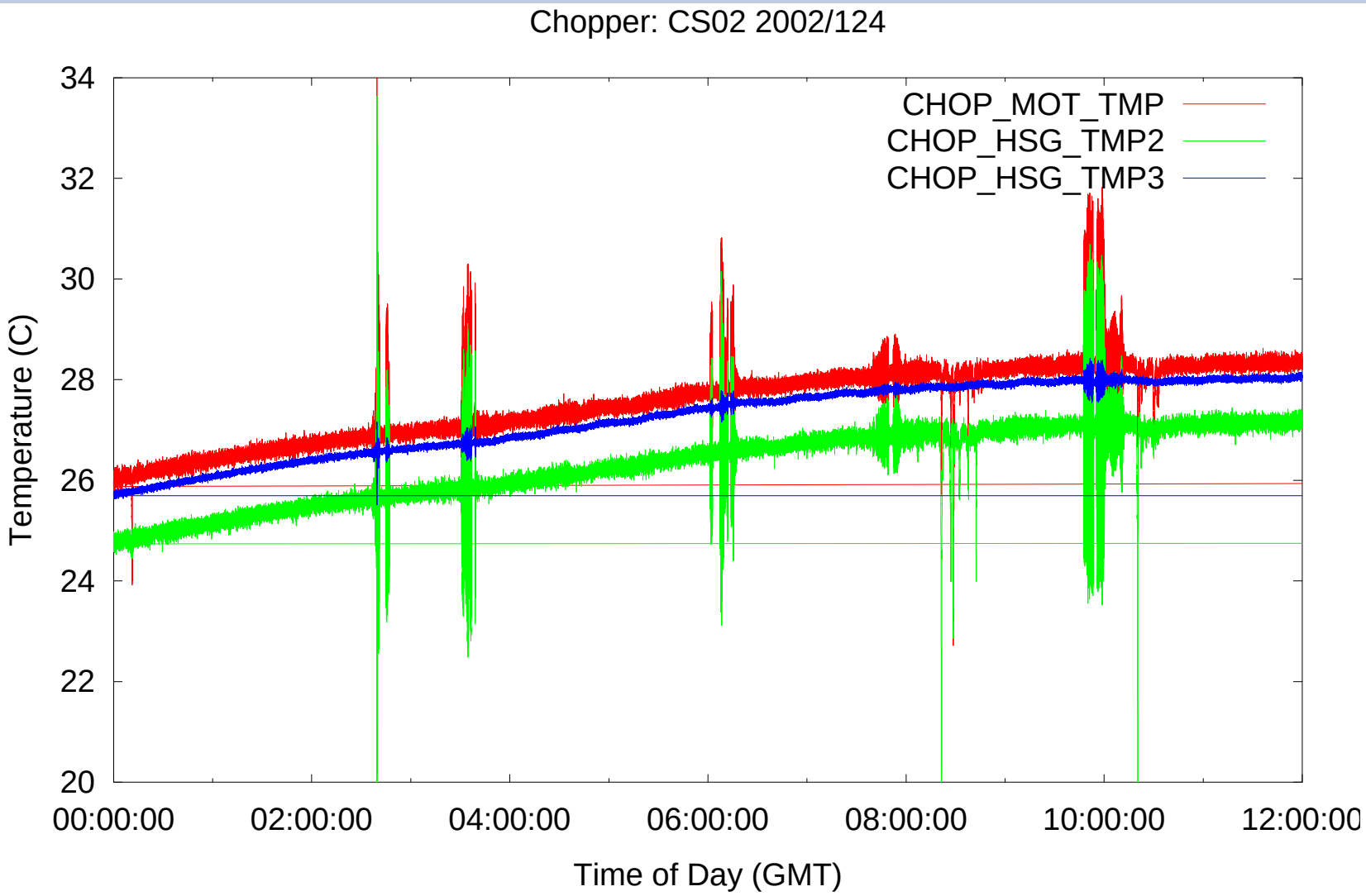
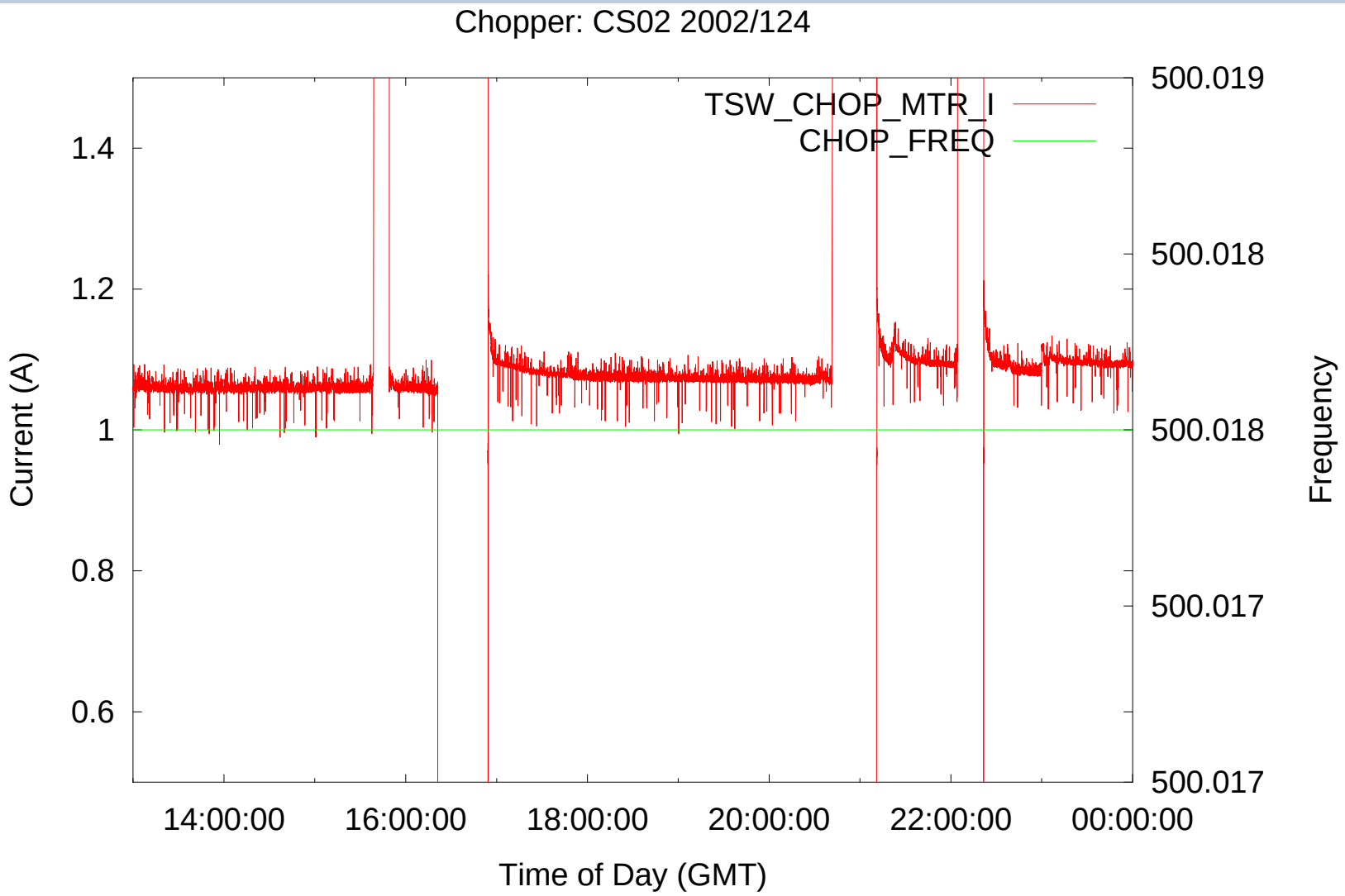


CS02 Chopper Current: 2002/124



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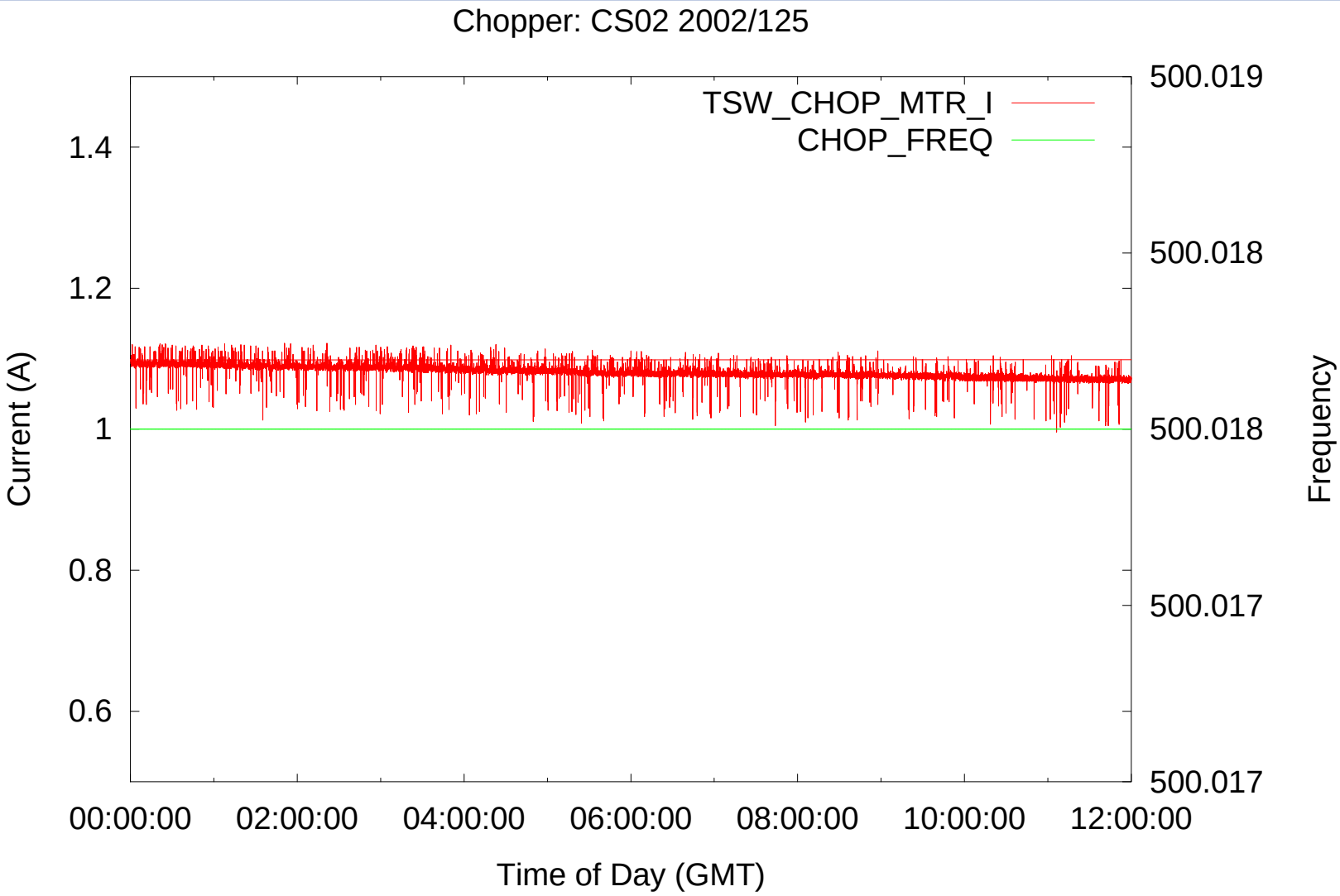
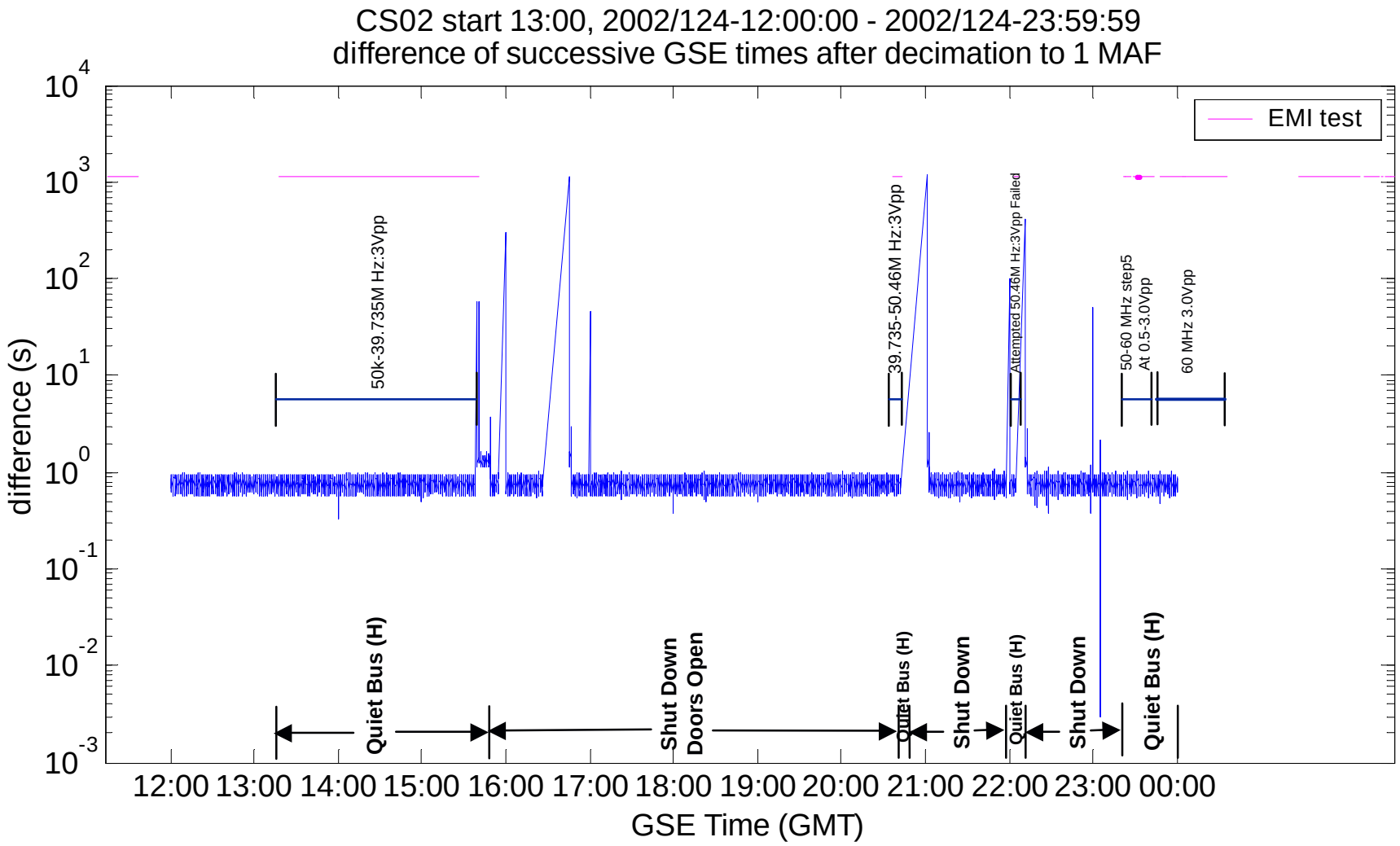
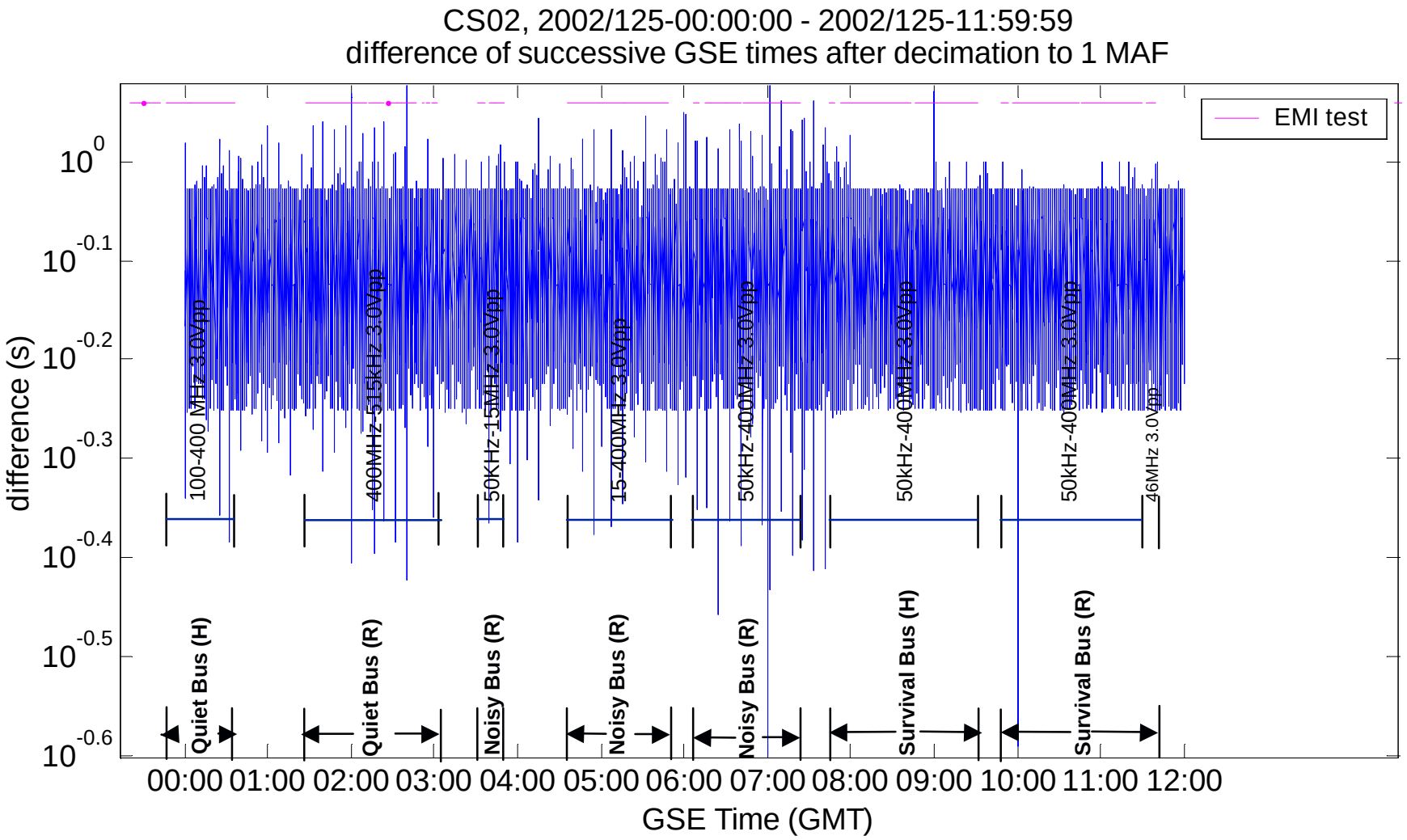


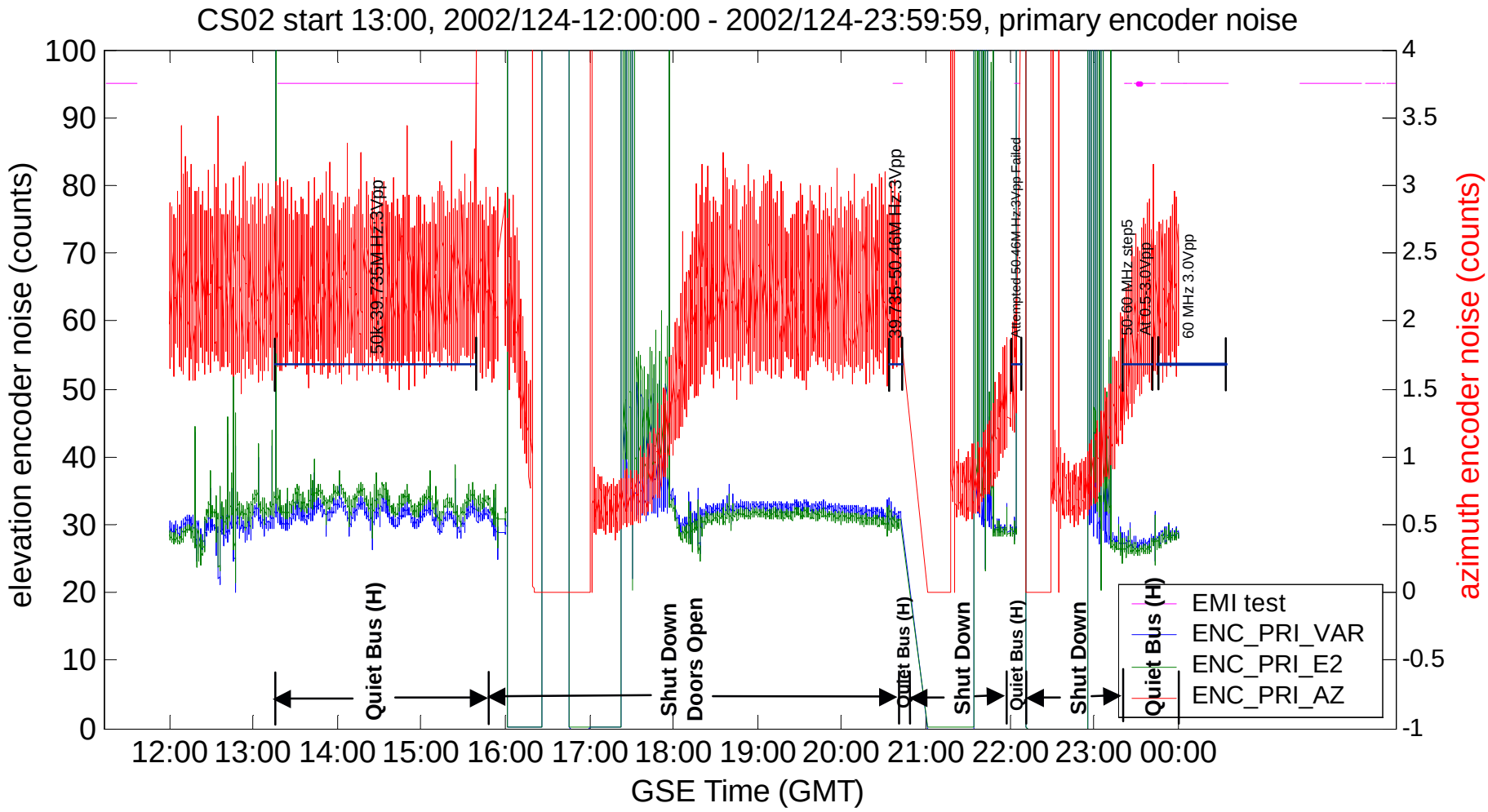
Check Time Sequence (1 of 2)



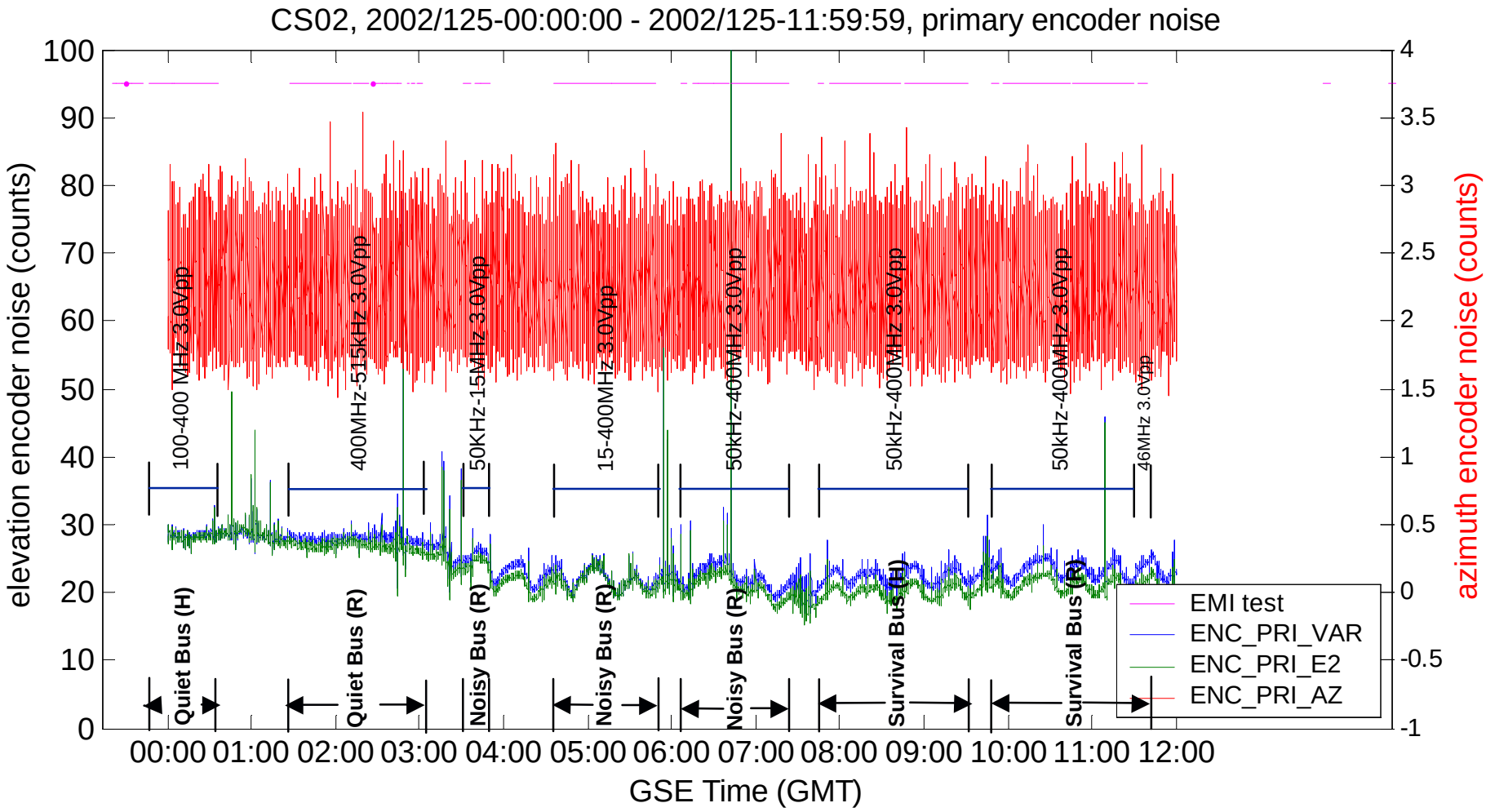
Check Time Sequence (2 of 2)



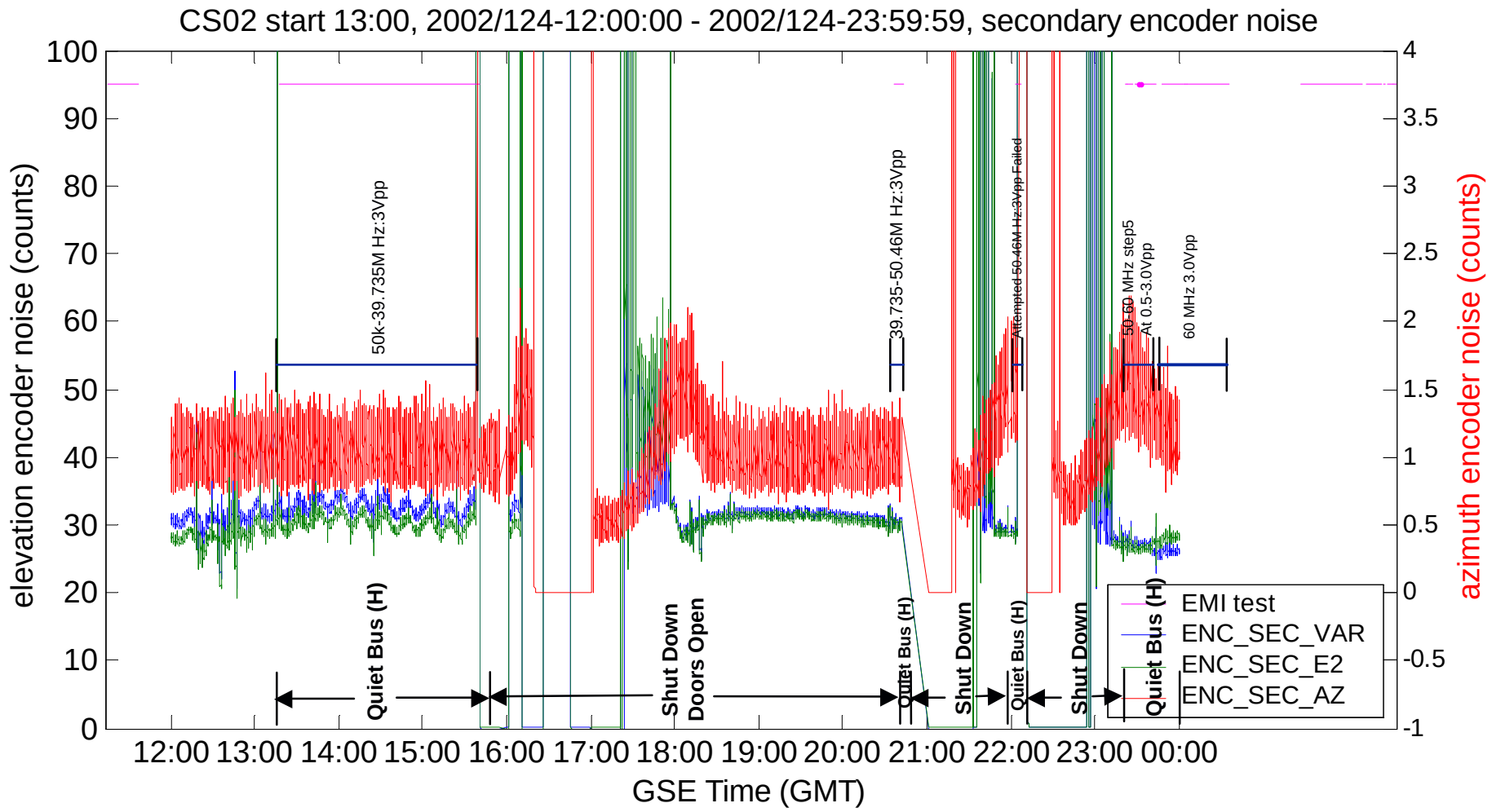
Noise: Primary Encoders (1 of 2)



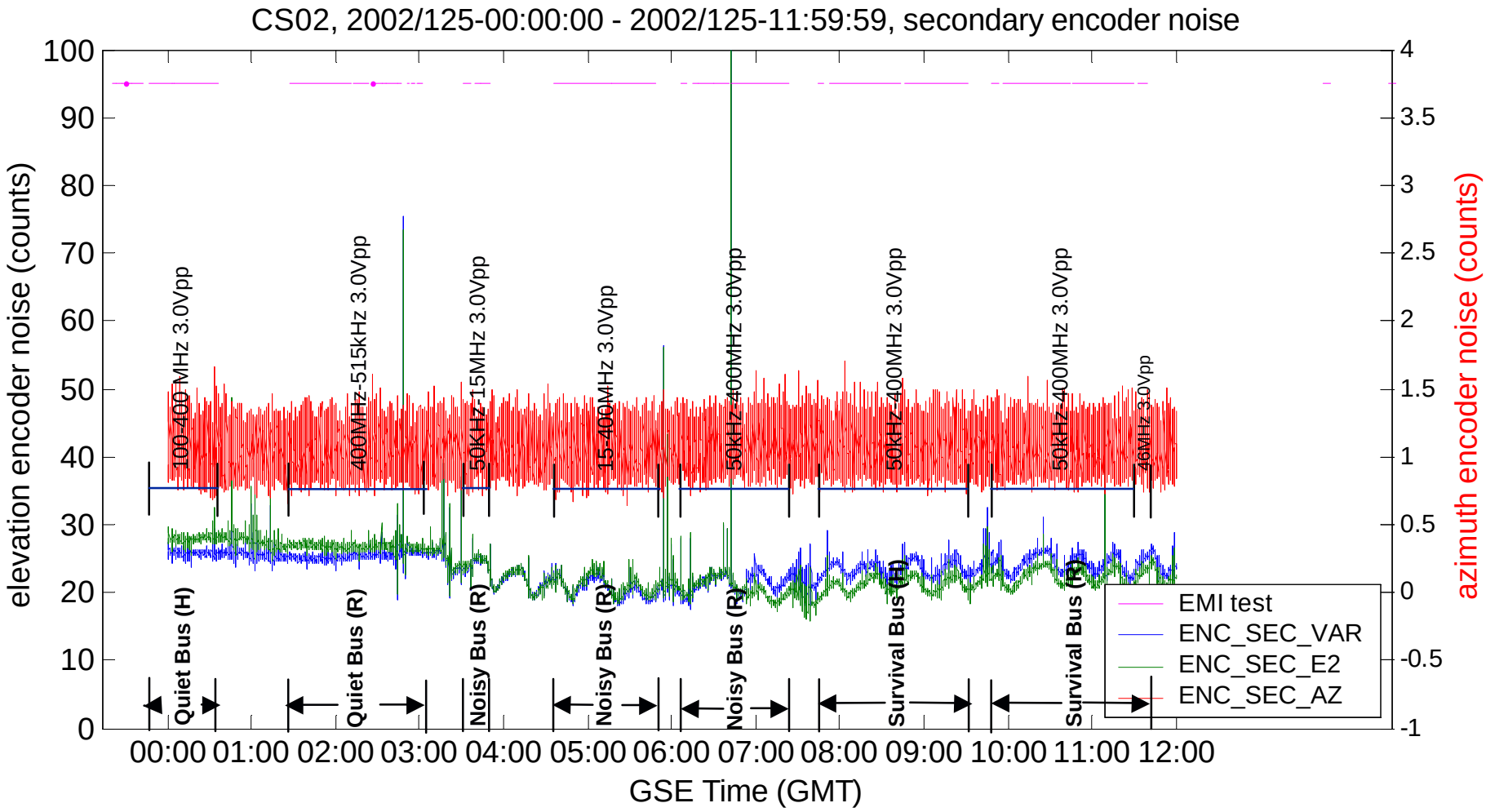
Noise: Primary Encoders (2 of 2)



Noise: Secondary Encoders (1 of 2)

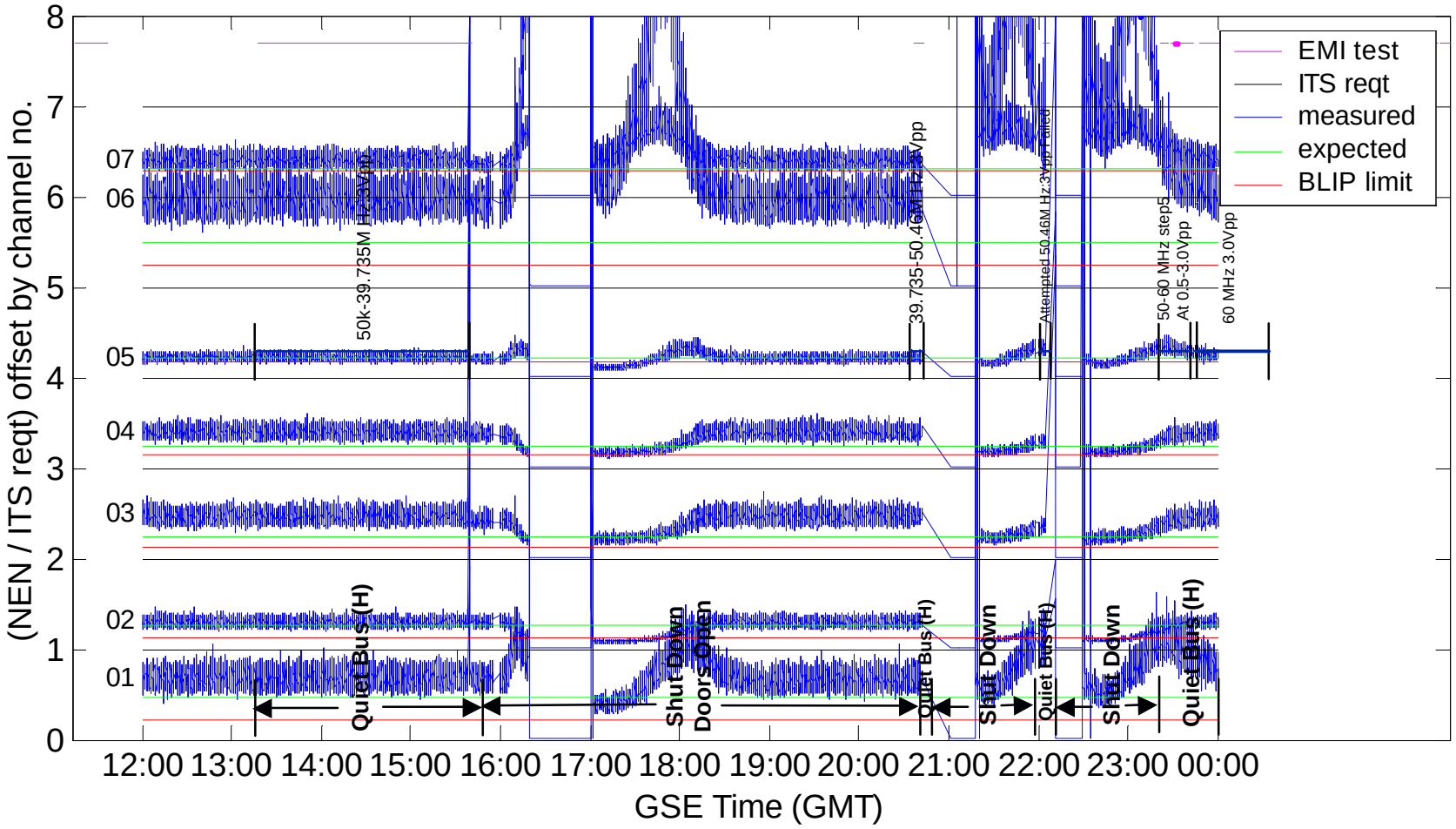


Noise: Secondary Encoders (2 of 2)

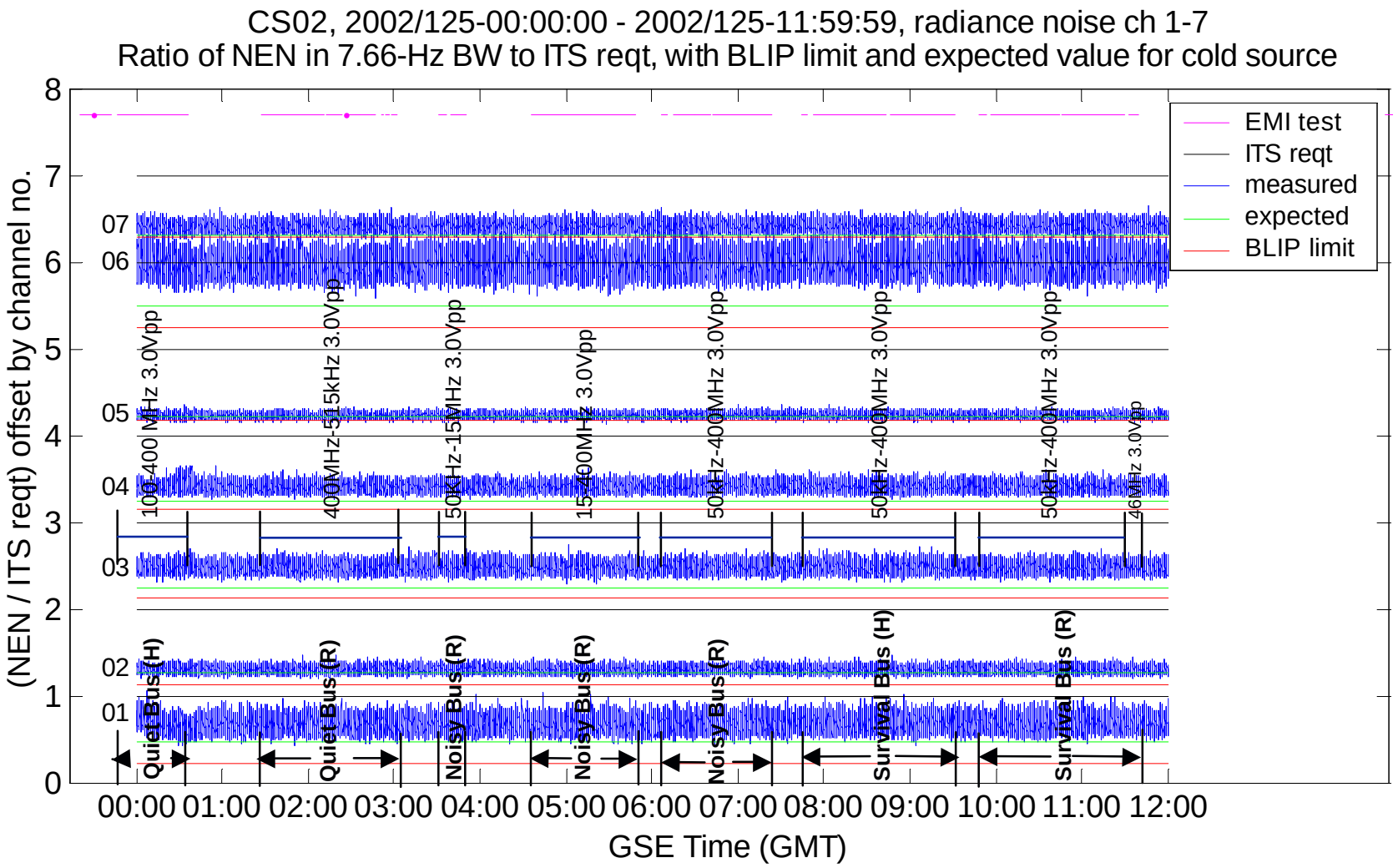


Noise: Radiance Channels 1-7 (1 of 2)

CS02 start 13:00, 2002/124-12:00:00 - 2002/124-23:59:59, radiance noise ch 1-7
Ratio of NEN in 7.66-Hz BW to ITS reqt, with BLIP limit and expected value for cold source

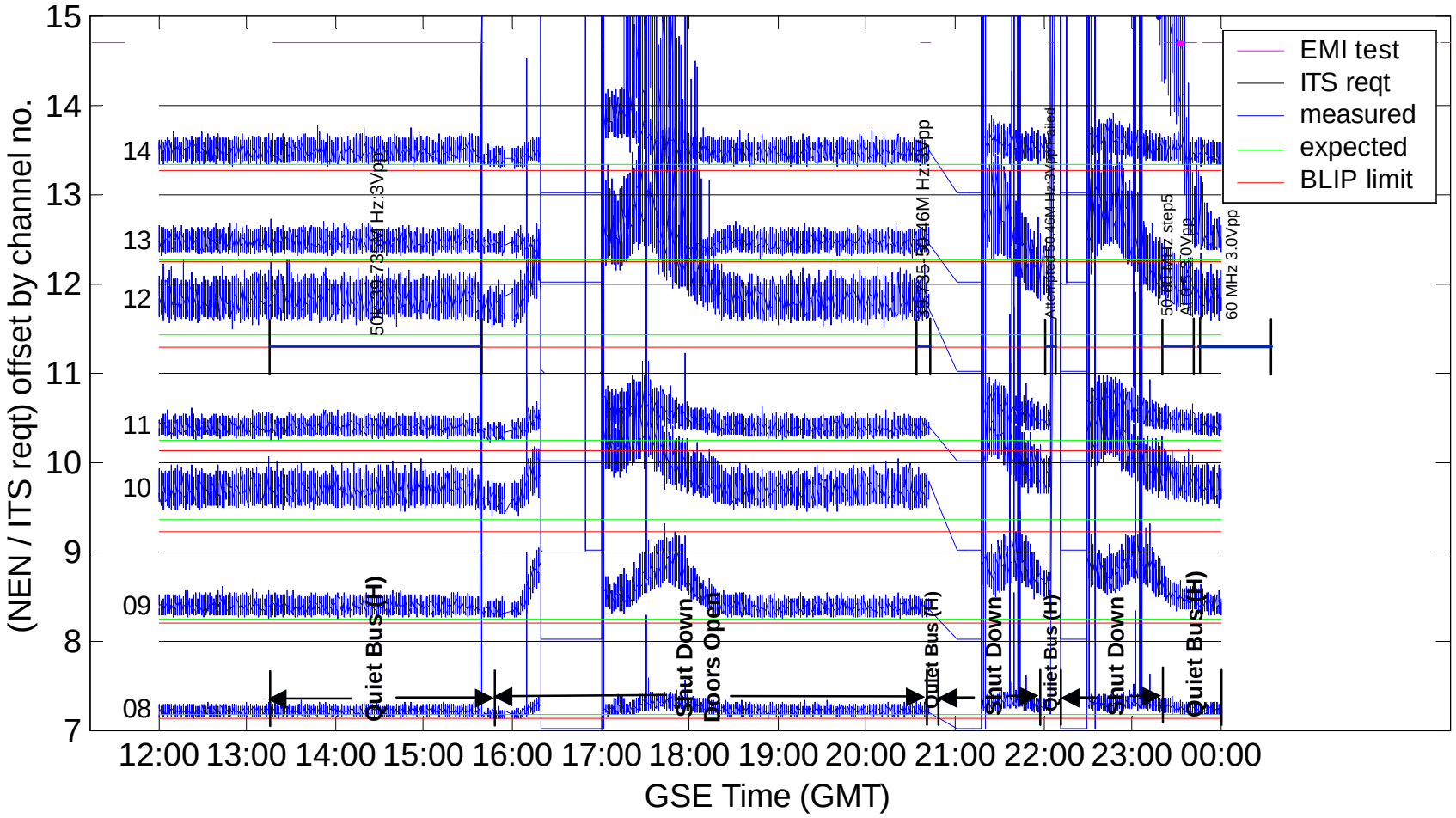


Noise: Radiance Channels 1-7 (2 of 2)

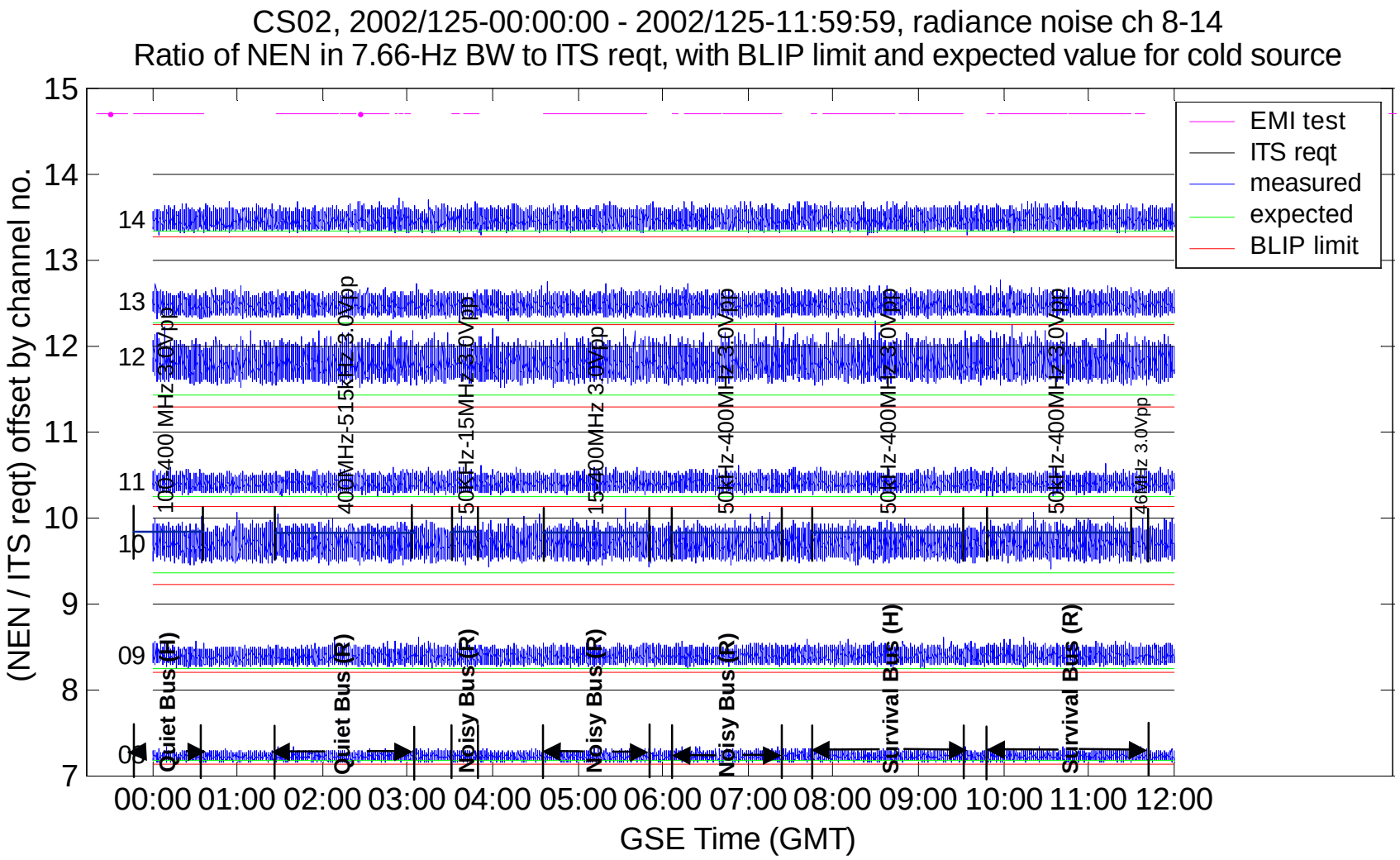


Noise: Radiance Channels 8-14 (1 of 2)

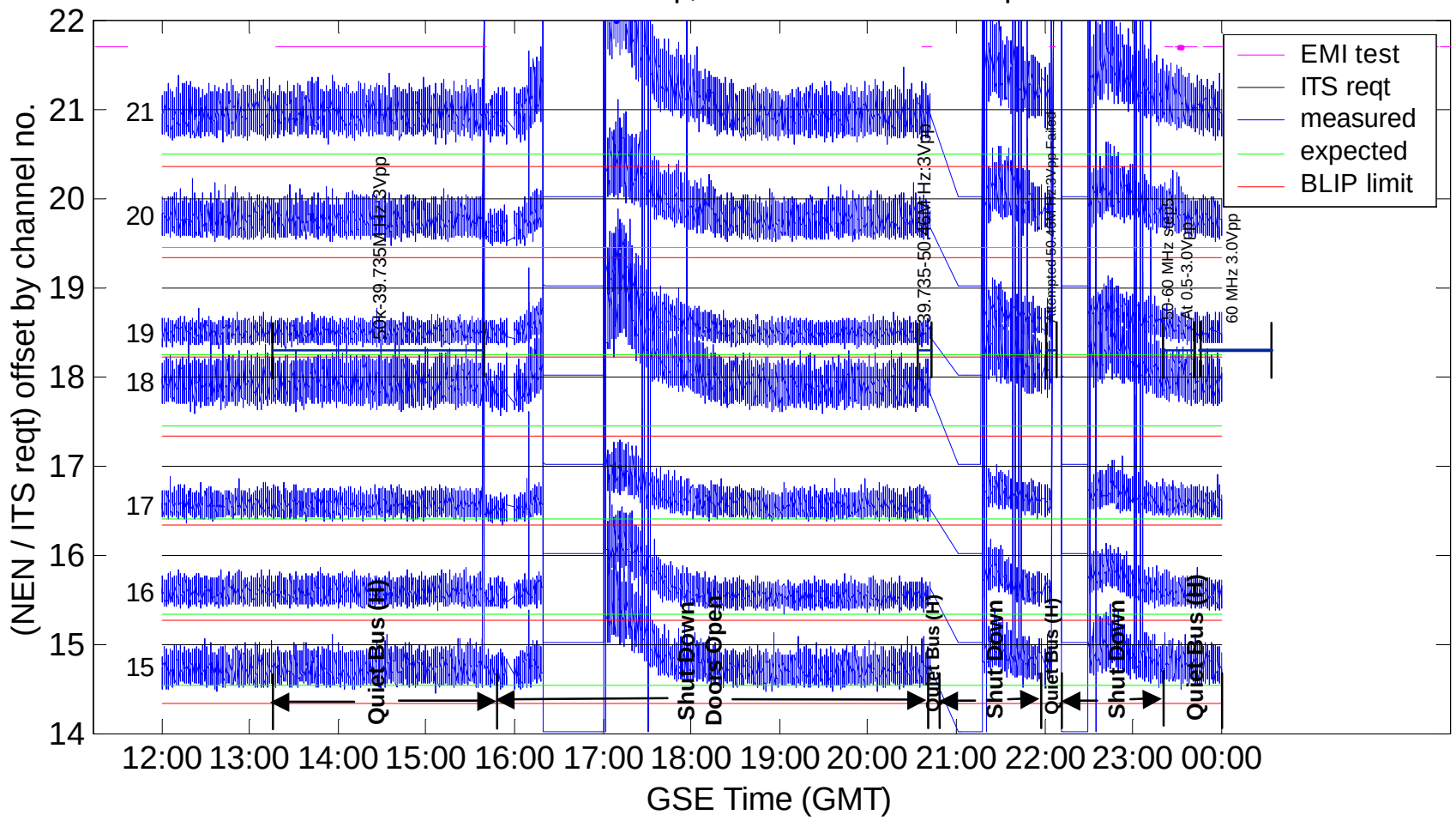
CS02 start 13:00, 2002/124-12:00:00 - 2002/124-23:59:59, radiance noise ch 8-14
Ratio of NEN in 7.66-Hz BW to ITS reqt, with BLIP limit and expected value for cold source



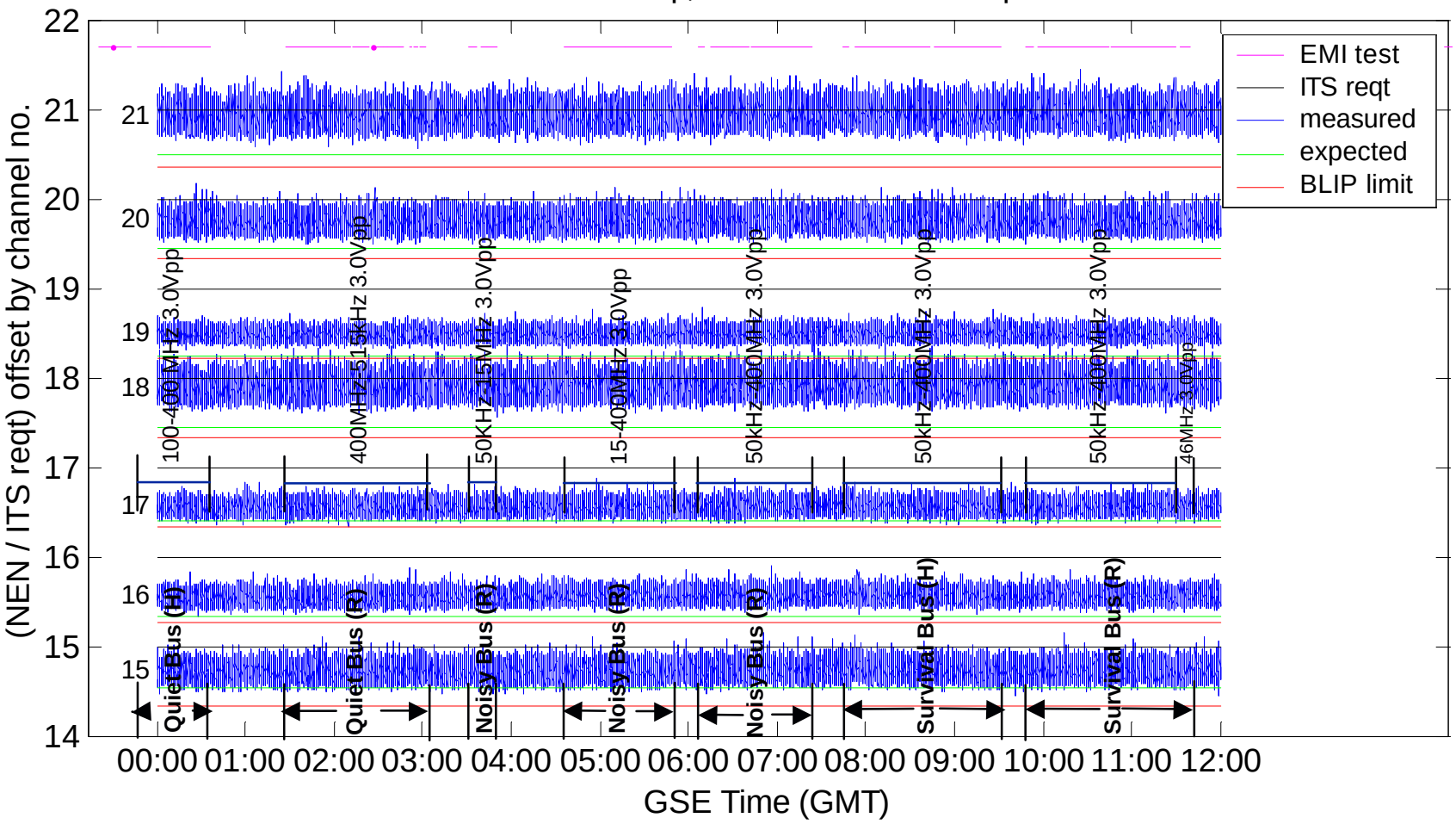
Noise: Radiance Channels 8-14 (2 of 2)



Noise: Radiance Channels 15-21 (1 of 2)

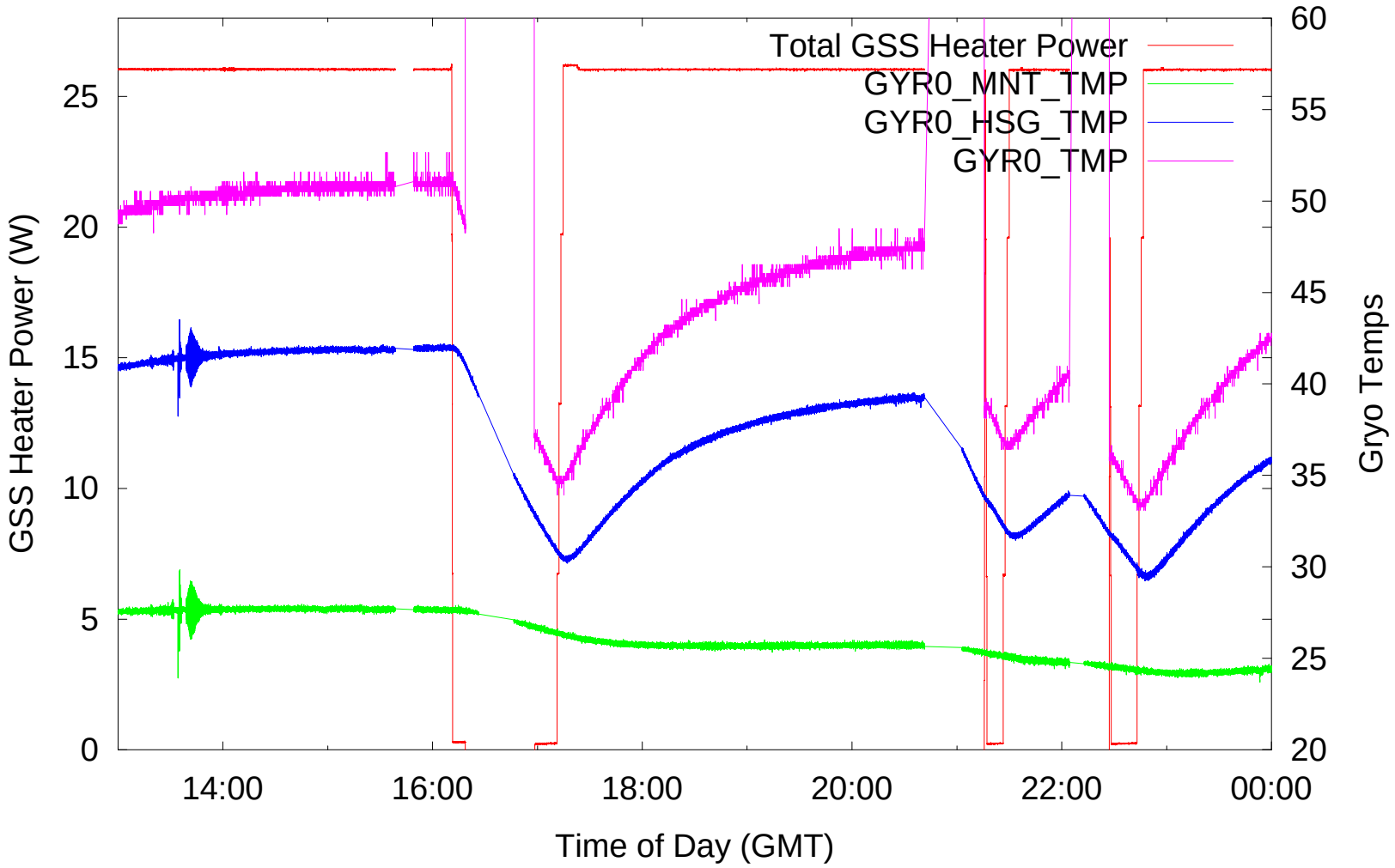


Noise: Radiance Channels 15-21 (2 of 2)



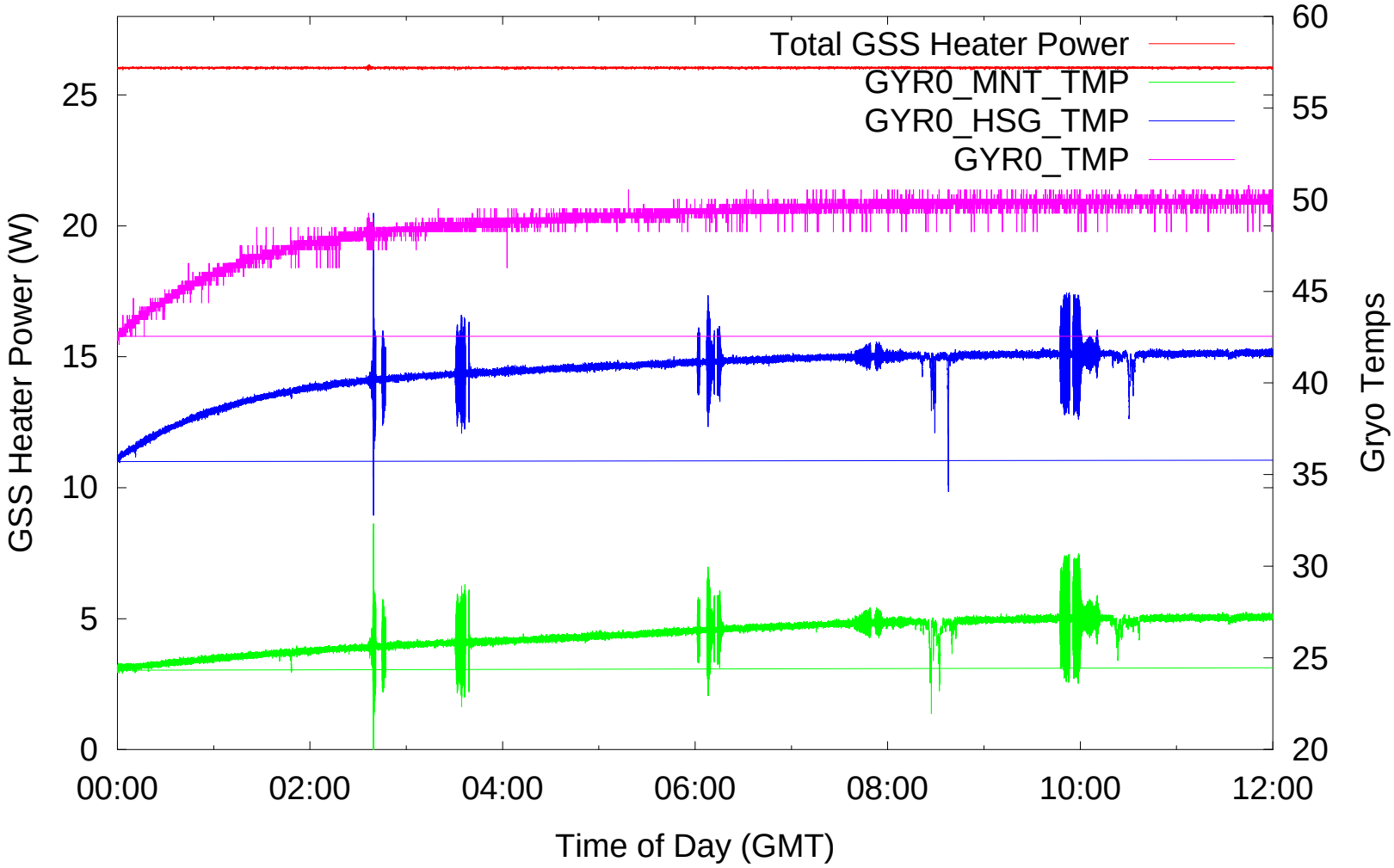
Gyro Failure to Heat to Spin Temperature Day 2002/124 (DR# AD6491)

HIRDLS GYRO TEMP Investigation 2002/124



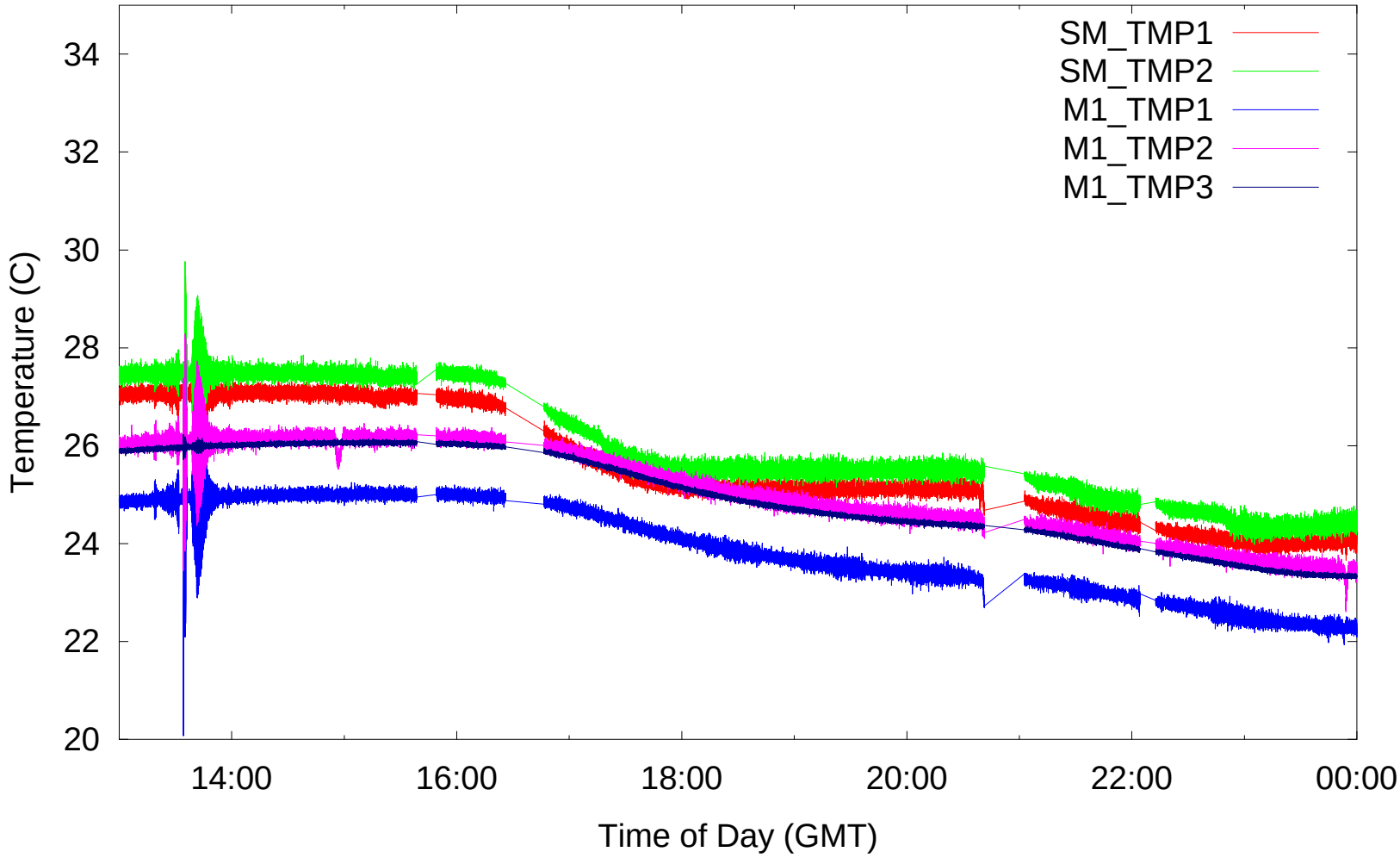
Gyro Failure to Heat to Spin Temperature Day 2002/125 (DR# AD6491)

HIRDLS GYRO TEMP Investigation 2002/125



CS02 OBA Temperatures Set: 1
Day: 2002/124

OBA Mirror Temperatures for CS02, Day 2002/ 124



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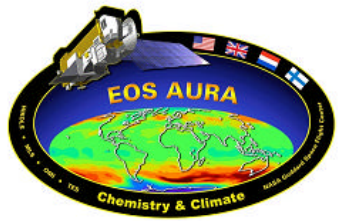
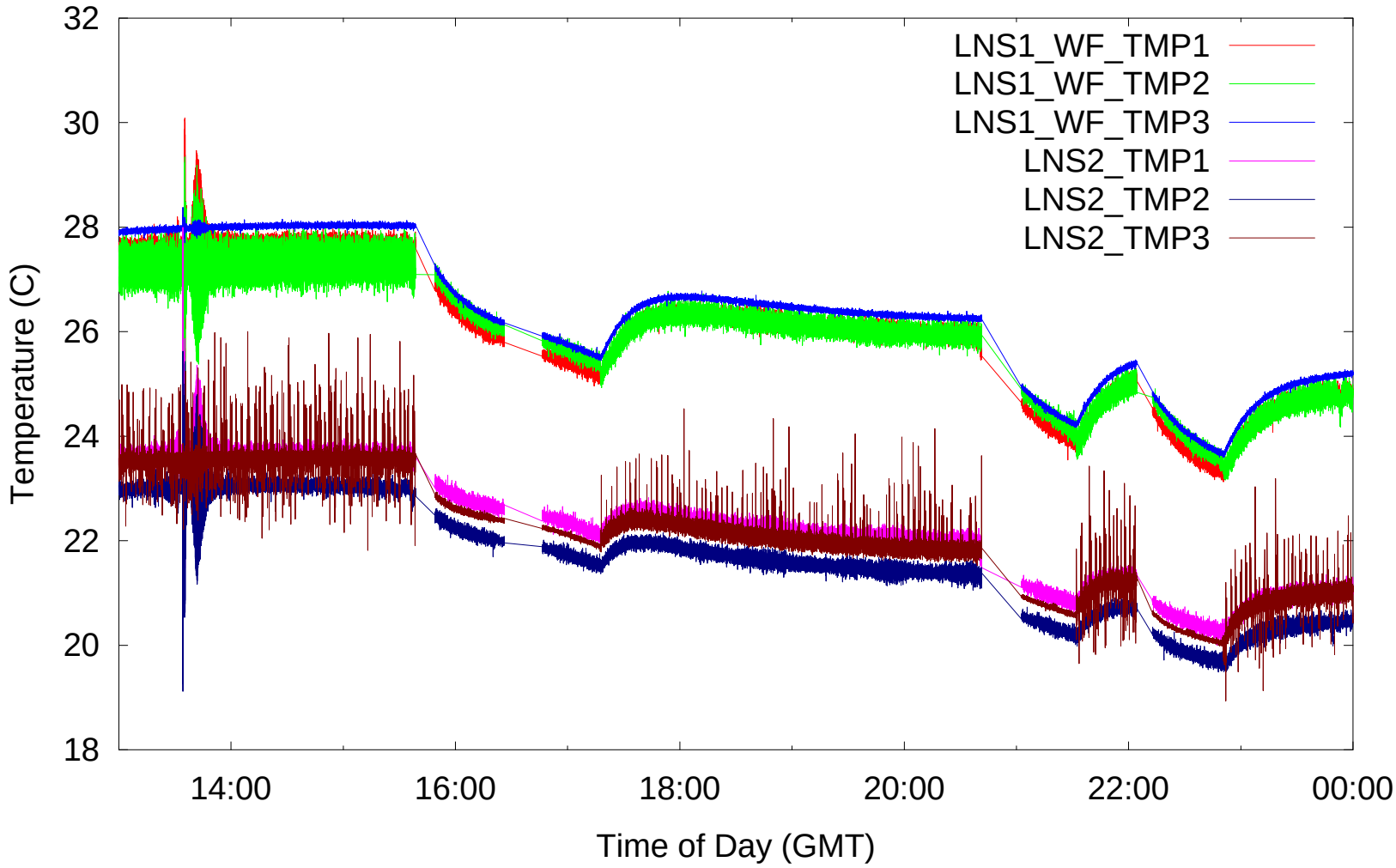
CS02 OBA Temperatures Set: 2
Day: 2002/124



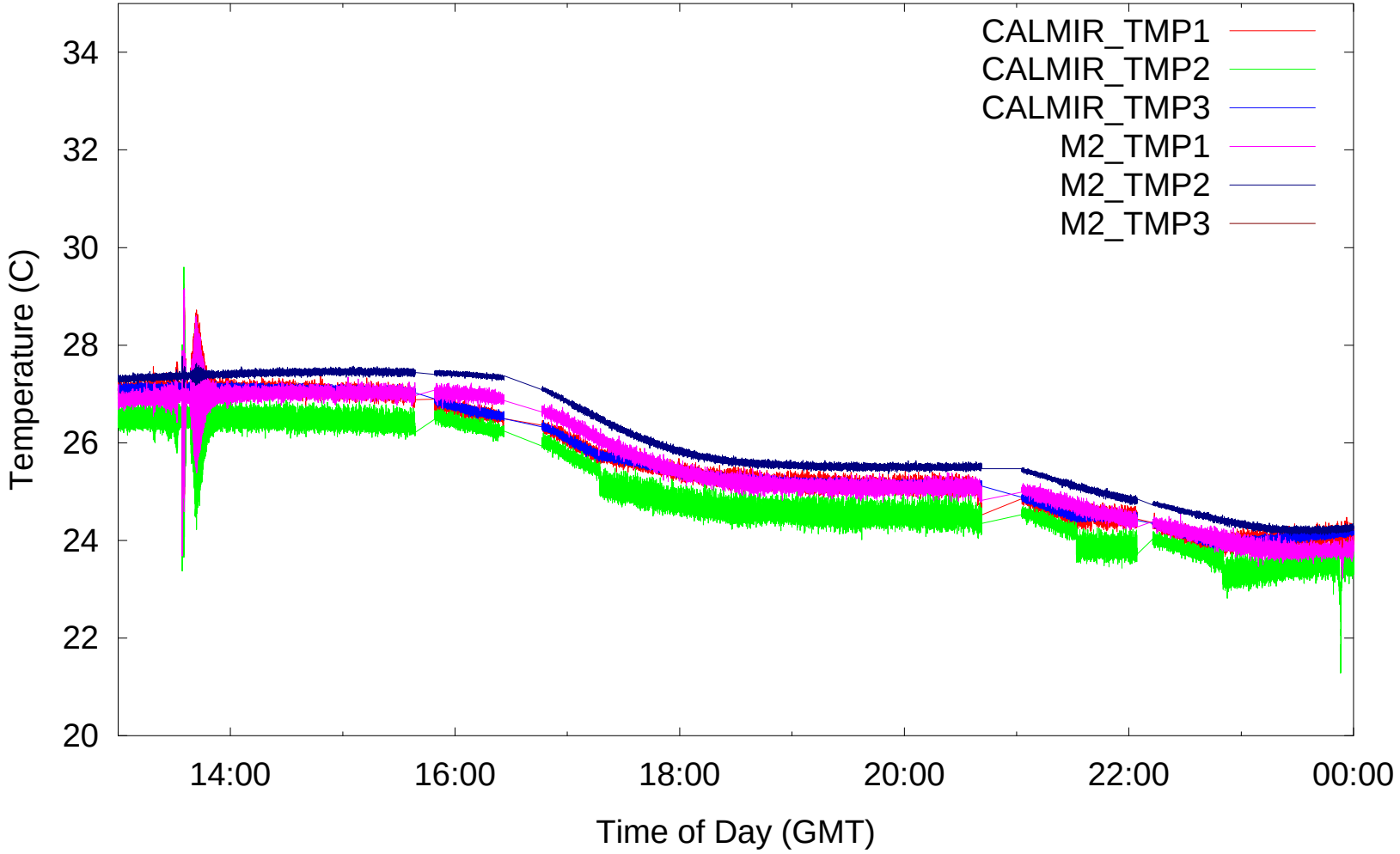
OBA Mirror Temperatures for CS02, Day 2002/ 124



LOCKHEED MARTIN

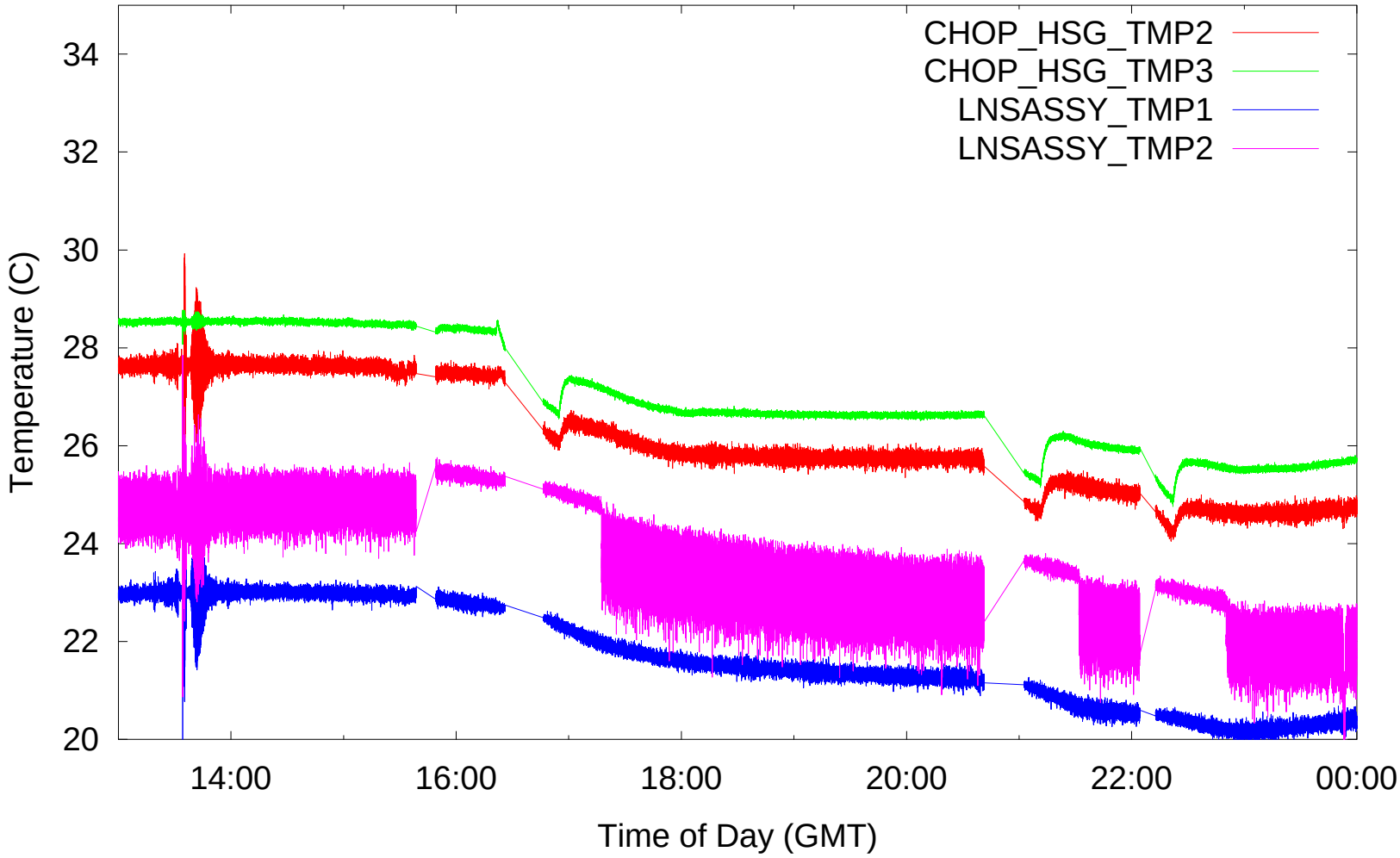
CS02 OBA Temperatures Set: 3
Day: 2002/124

OBA Mirror Temperatures for CS02, Day 2002/ 124



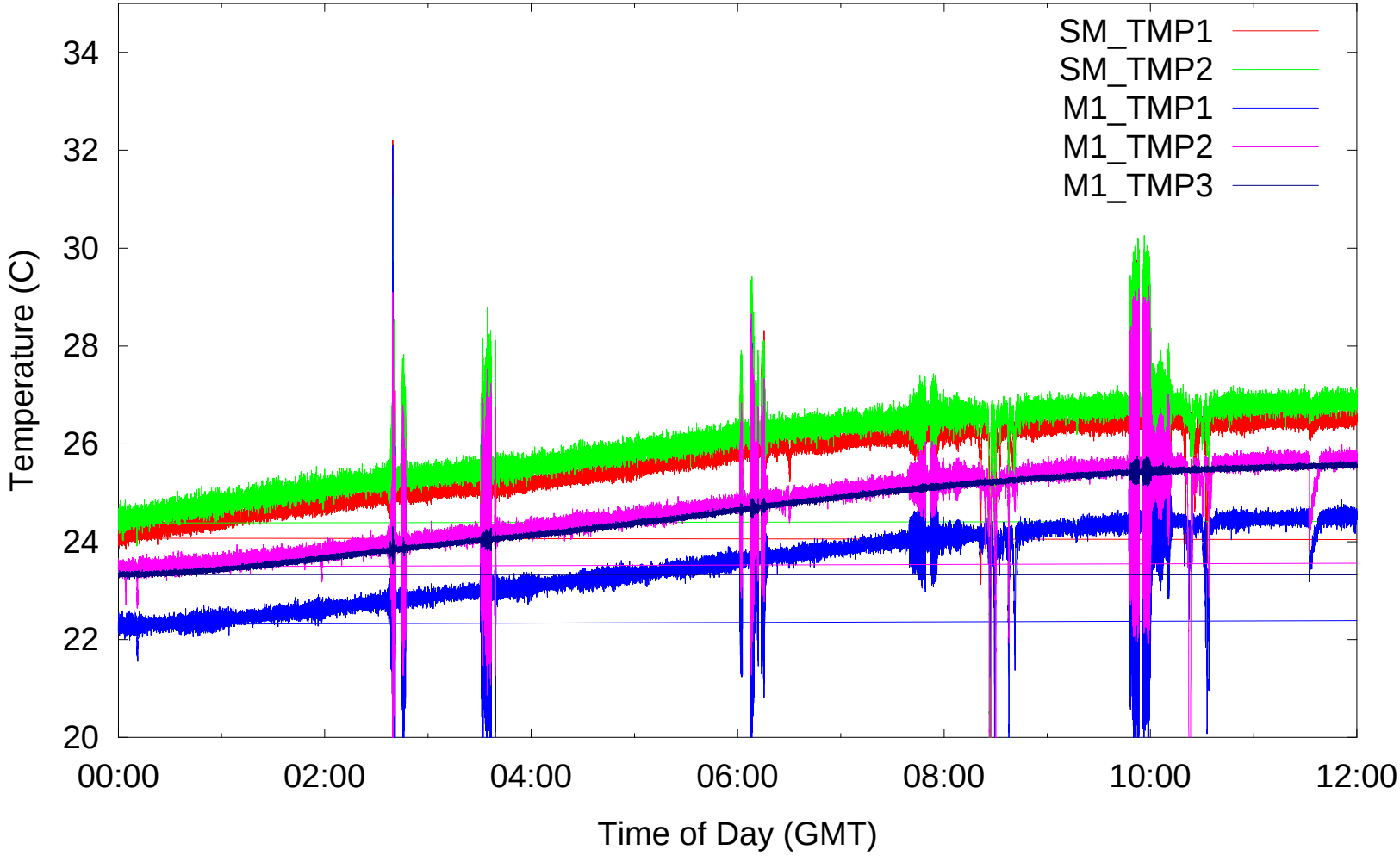
CS02 OBA Temperatures Set: 4
Day: 2002/124

OBA Mirror Temperatures for CS02, Day 2002/ 124

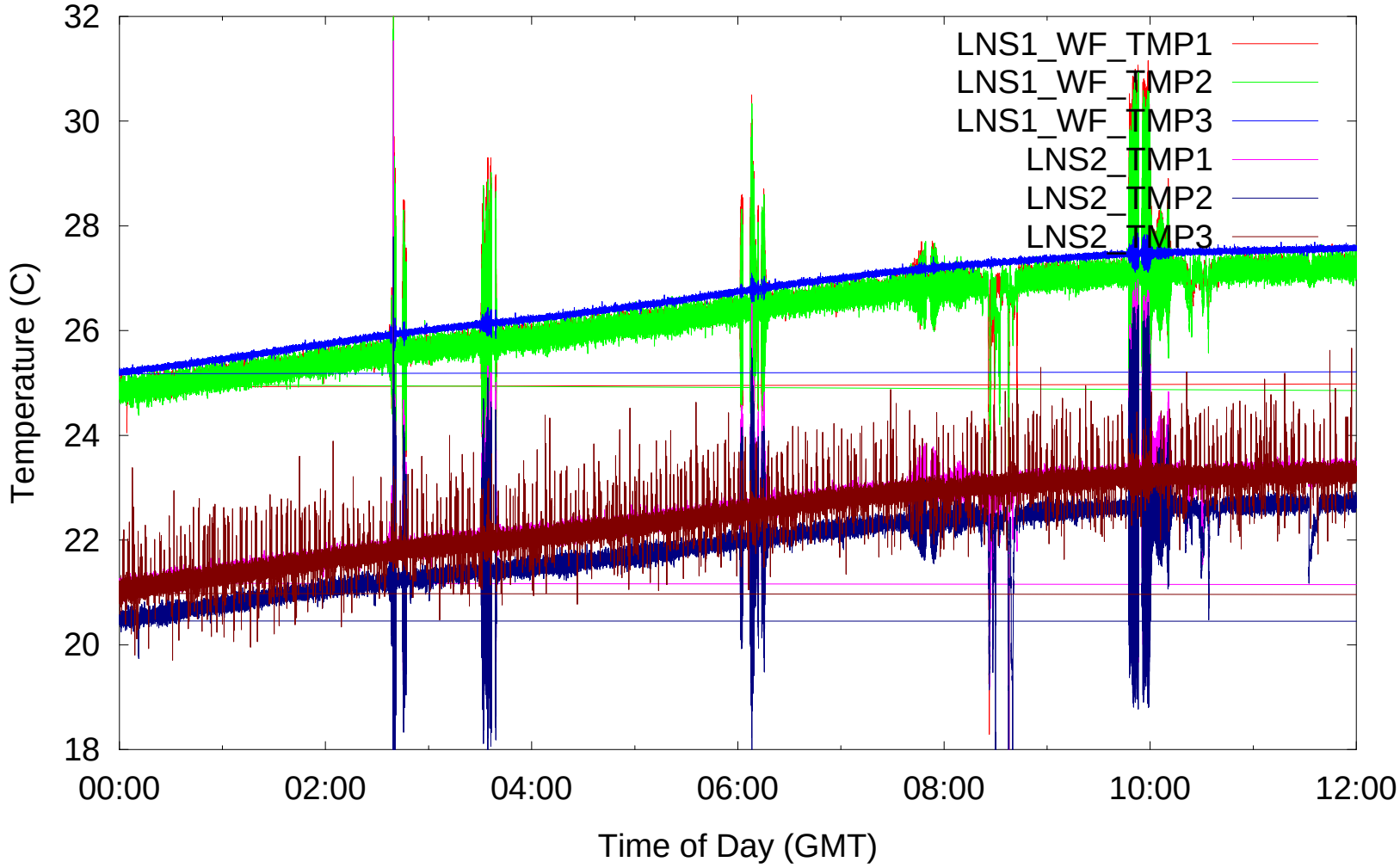


CS02 OBA Temperatures Set:1
Day: 2002/125

OBA Mirror Temperatures for CS02, Day 2002/ 125



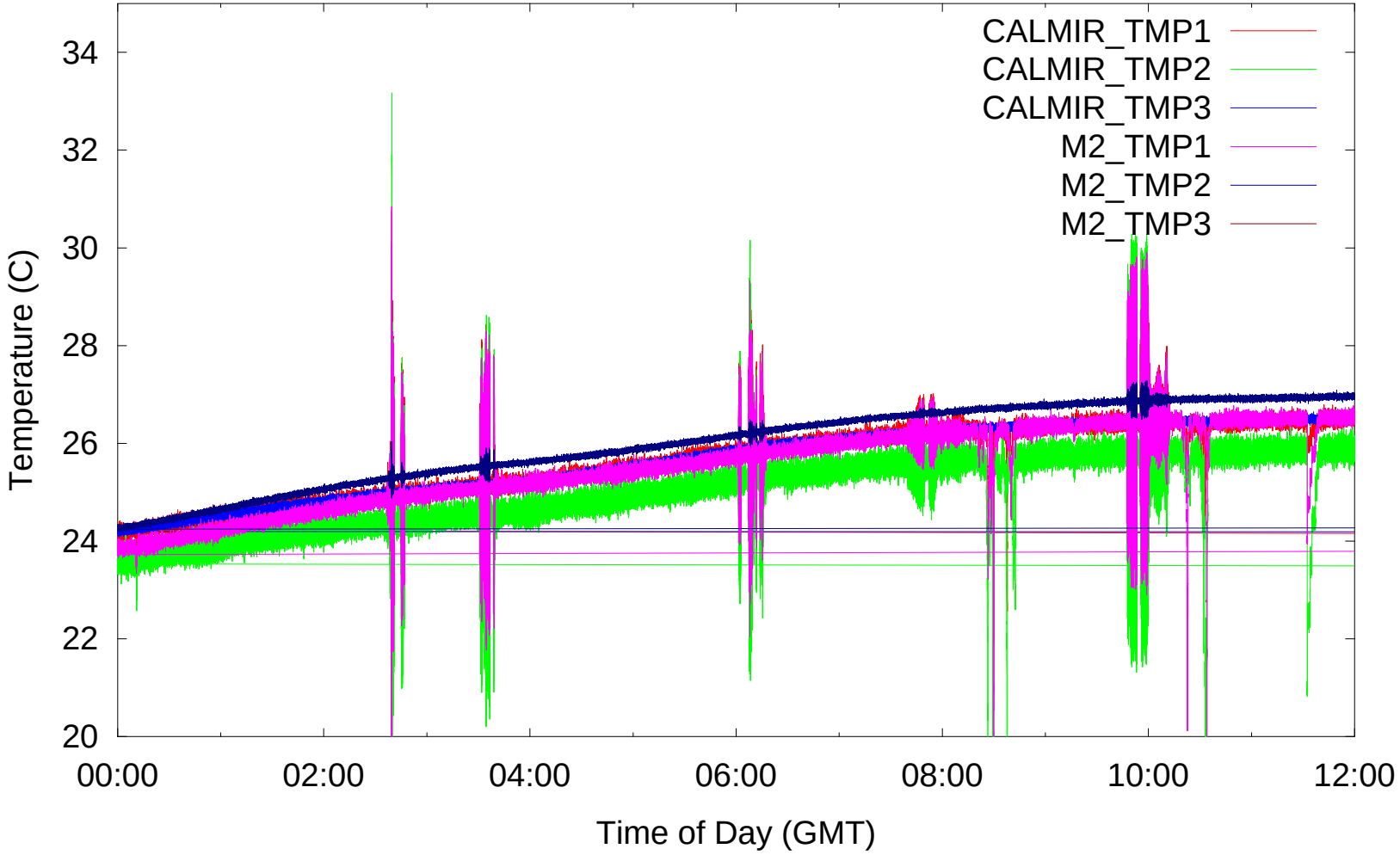
CS02 OBA Temperatures Set:2
Day: 2002/125



LOCKHEED MARTIN

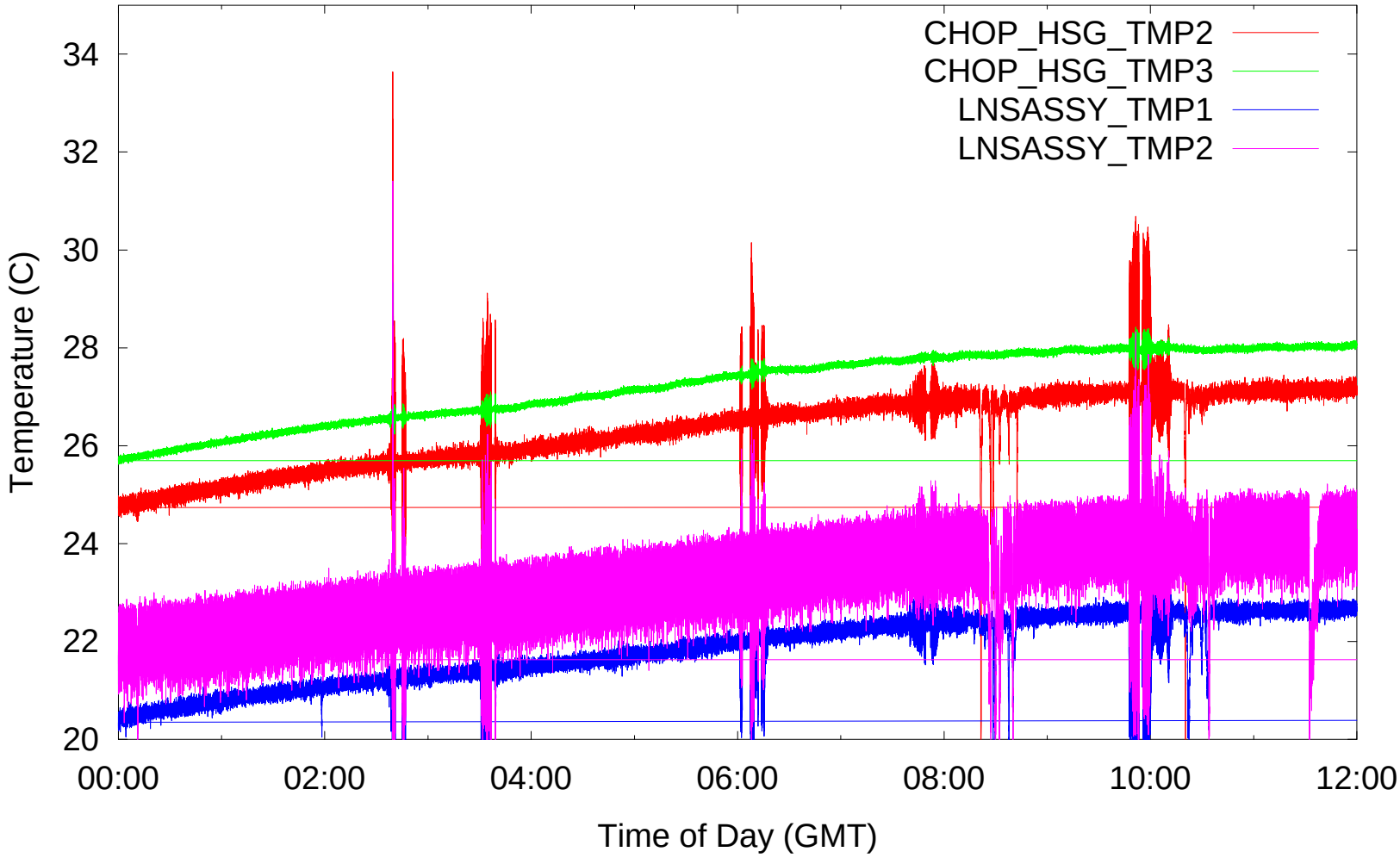
CS02 OBA Temperatures Set:3
Day: 2002/125

OBA Mirror Temperatures for CS02, Day 2002/ 125



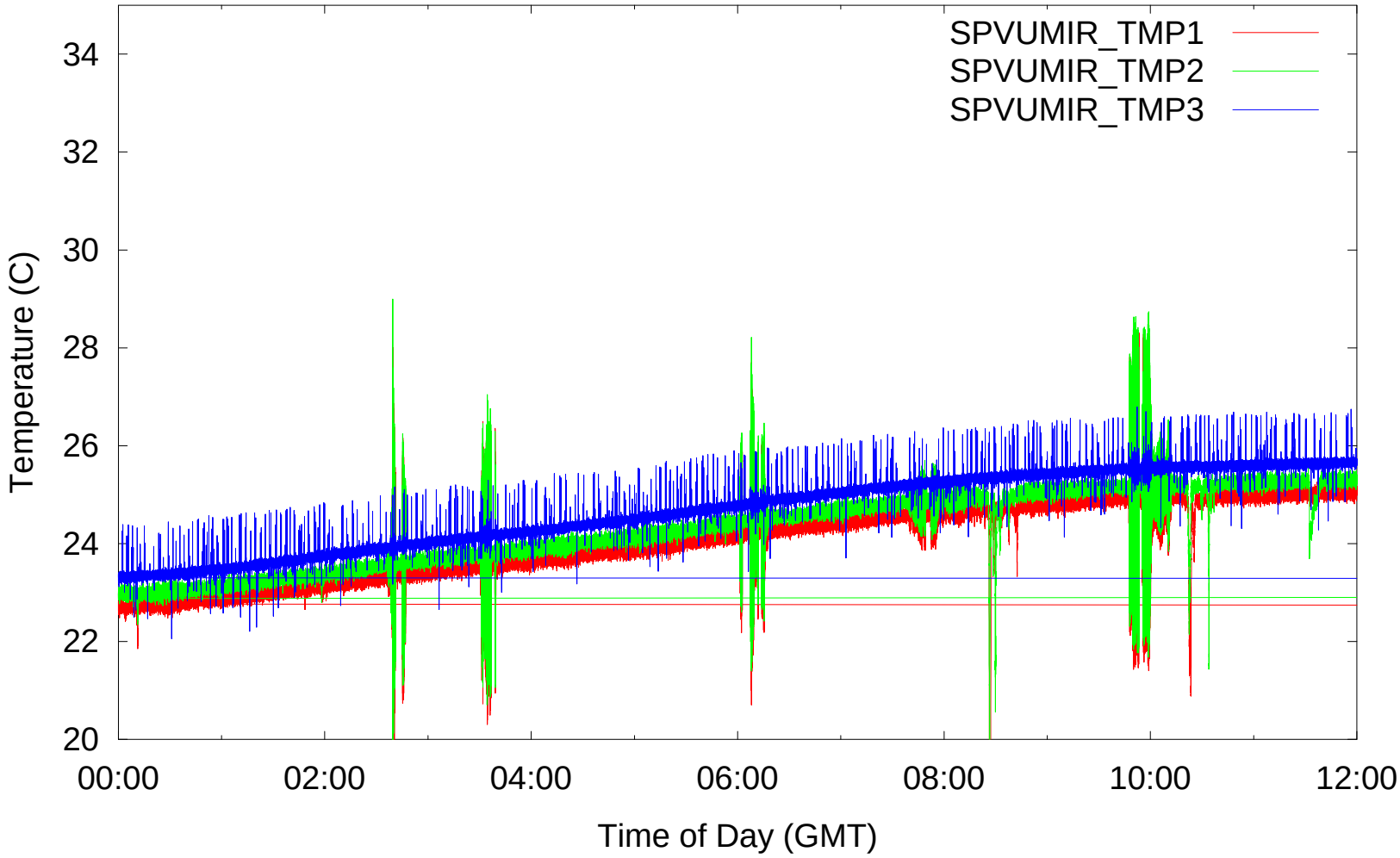
CS02 OBA Temperatures Set:4
Day: 2002/125

OBA Mirror Temperatures for CS02, Day 2002/ 125

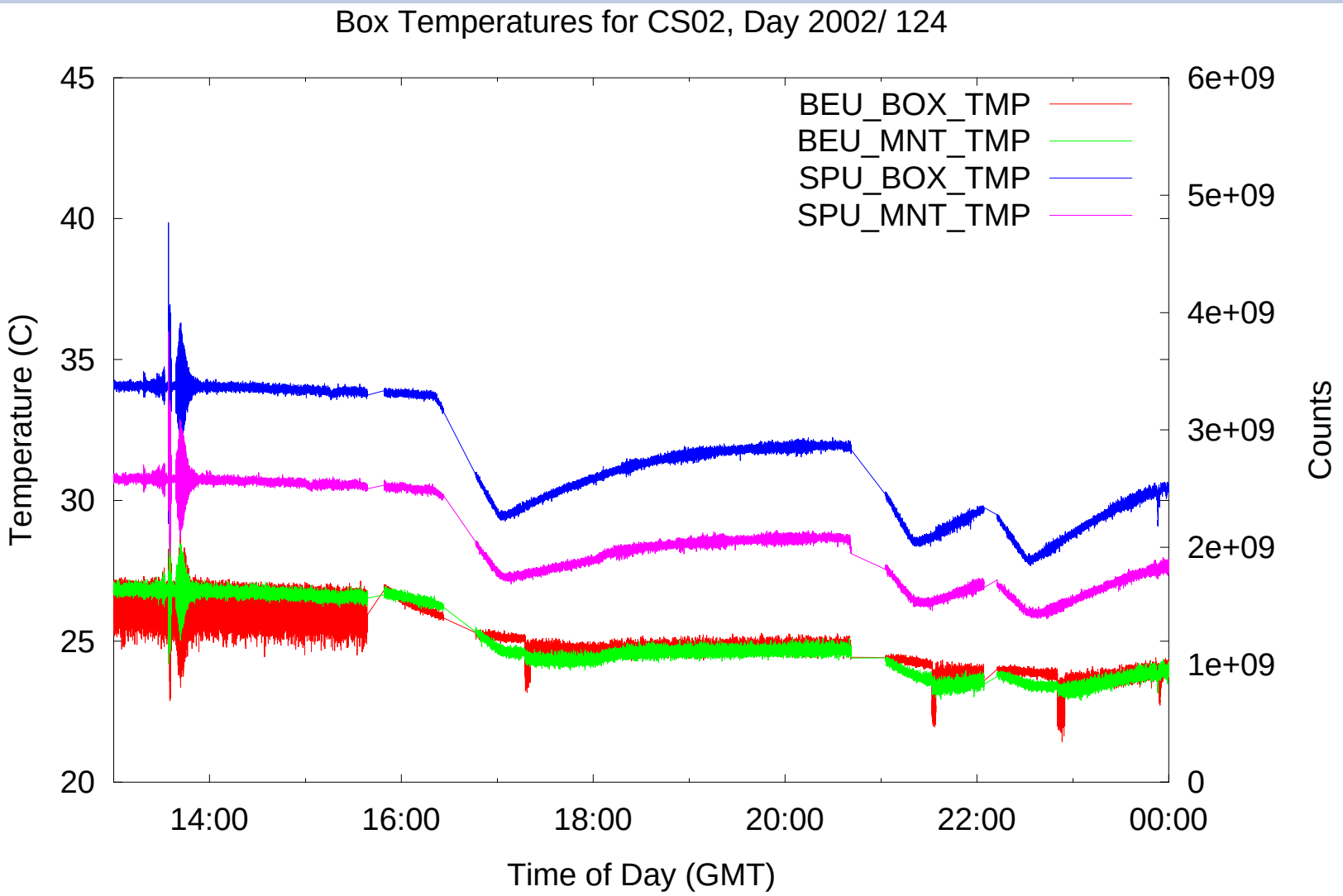


CS02 OBA Temperatures Set:5
Day: 2002/125

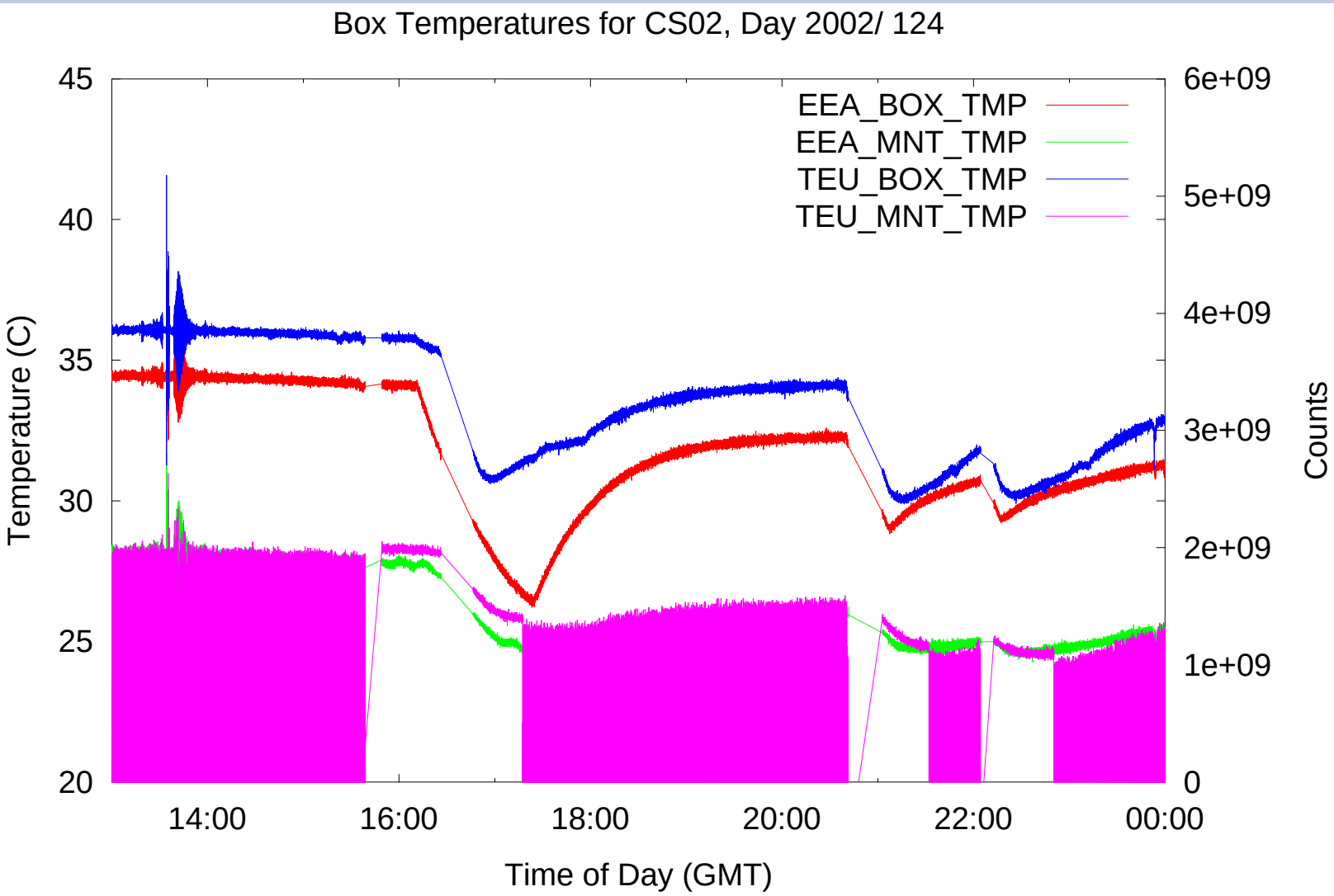
OBA Mirror Temperatures for CS02, Day 2002/ 125



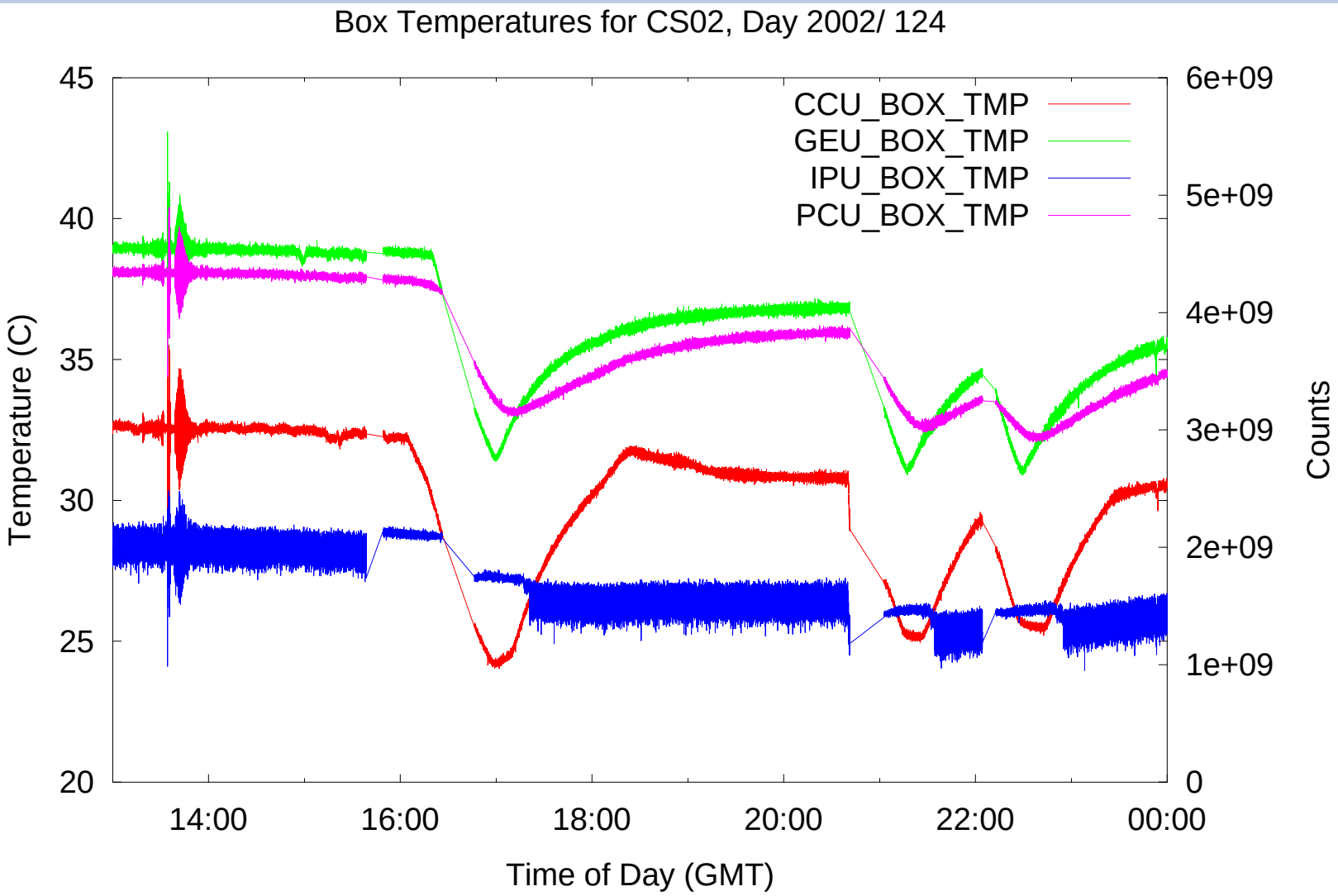
CS02 Day 2002/124 Box Temps Set: 1



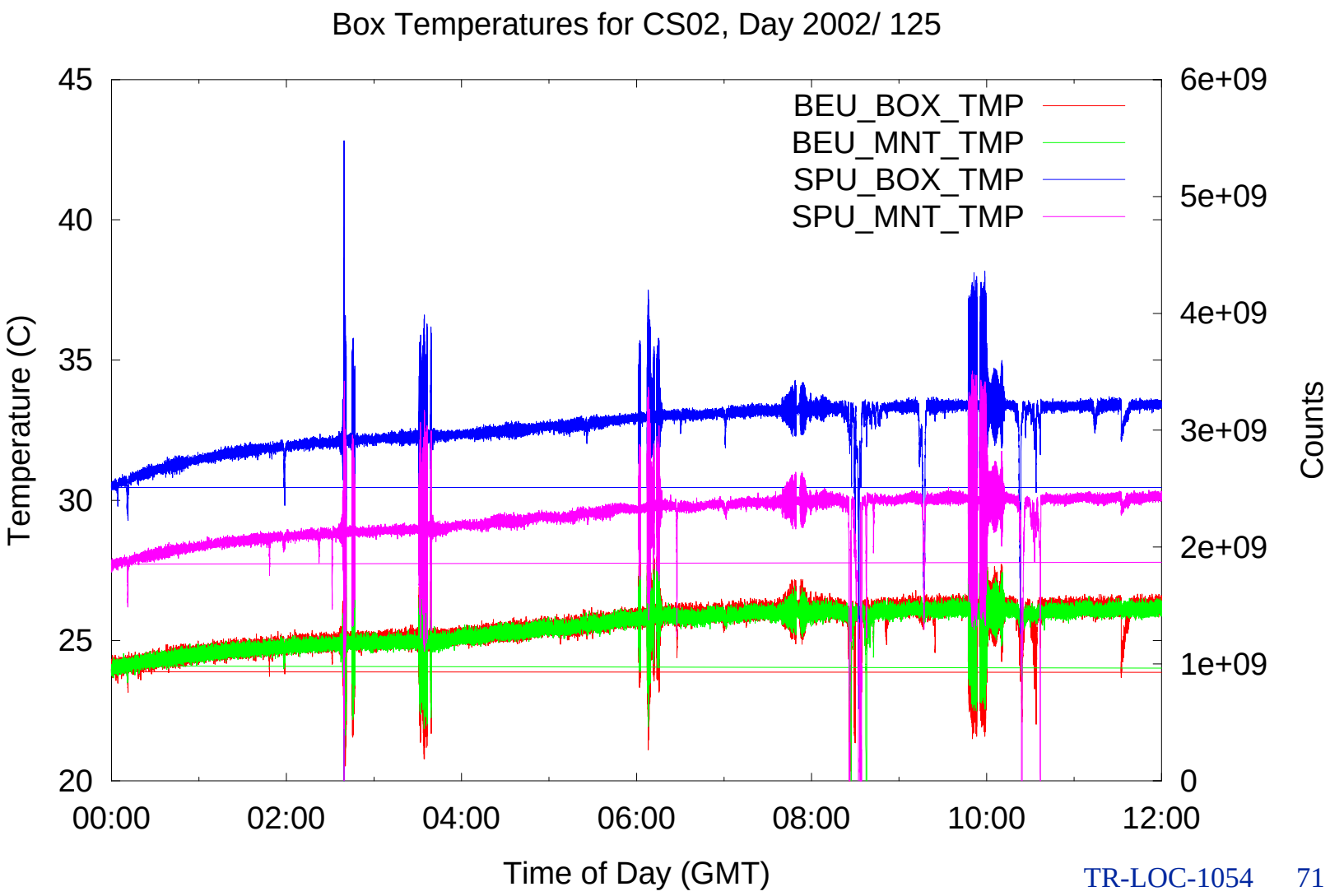
CS02 Day 2002/124 Box Temps Set: 2



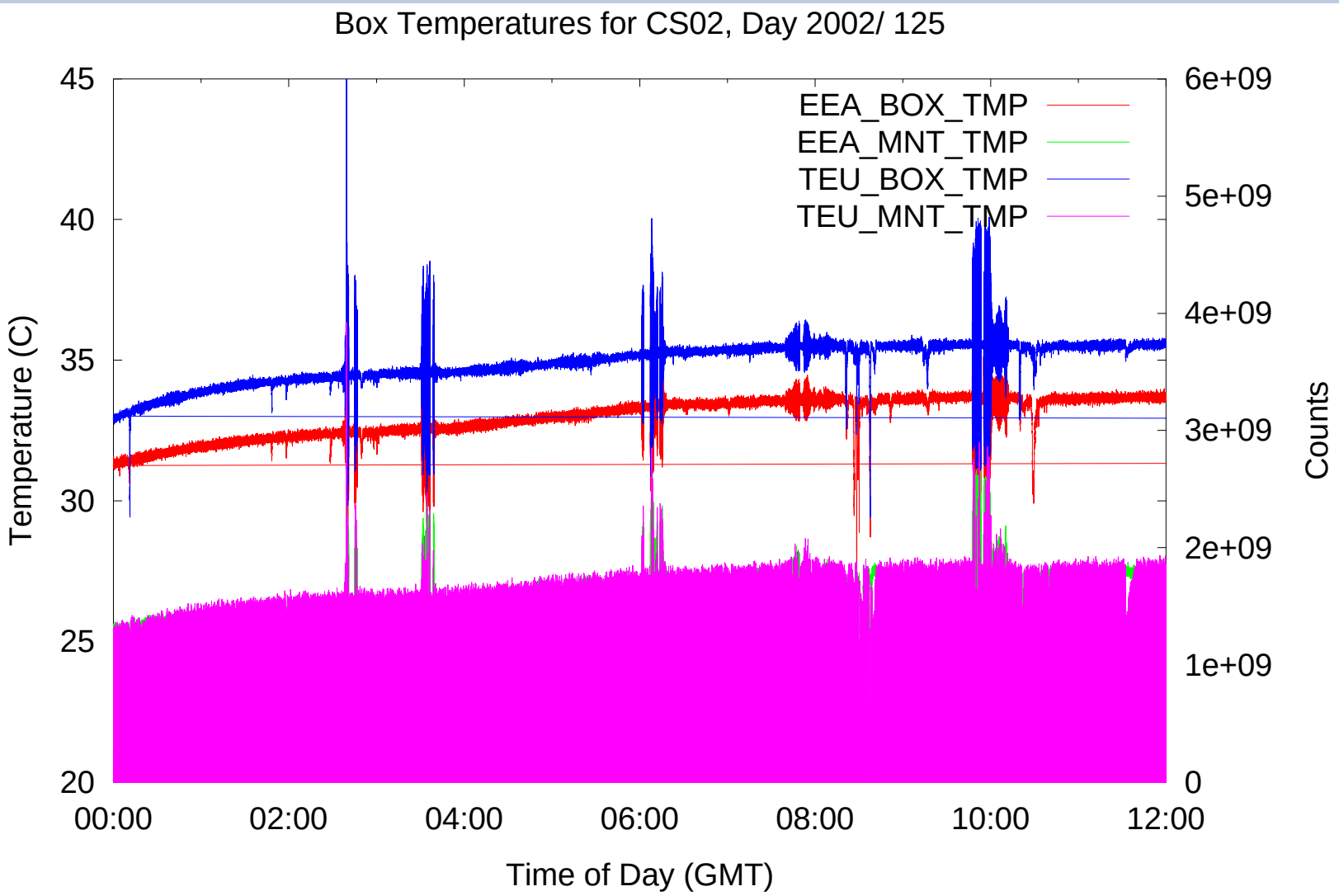
CS02 Day 2002/124 Box Temps Set: 3



CS02 Day 2002/125 Box Temps Set: 1



CS02 Day 2002/125 Box Temps Set: 2



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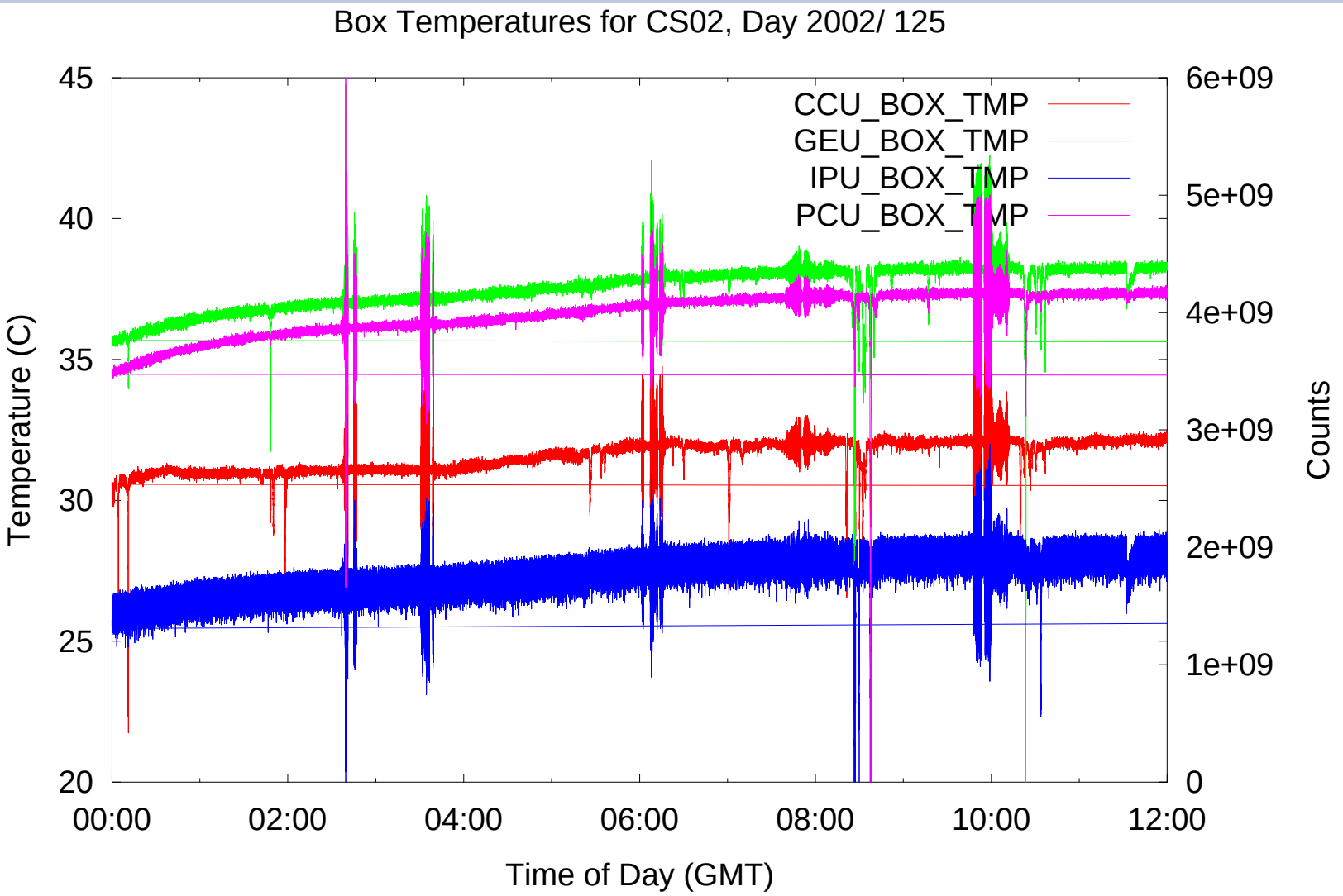

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HIRDLS

EMI/EMC TEST - RS03

30 April 2002

2002/120-19:00 Through 2002/123-01:35

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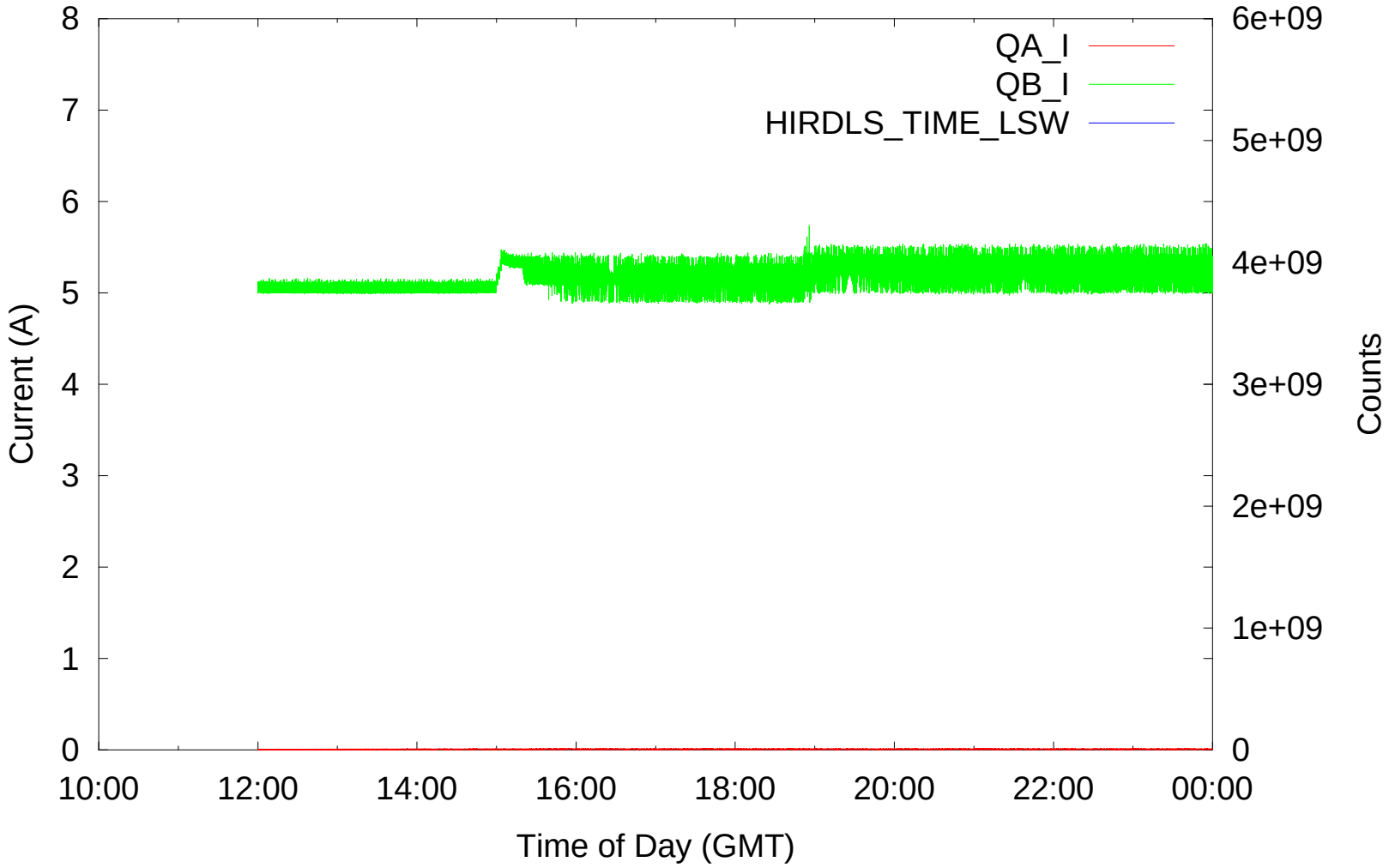
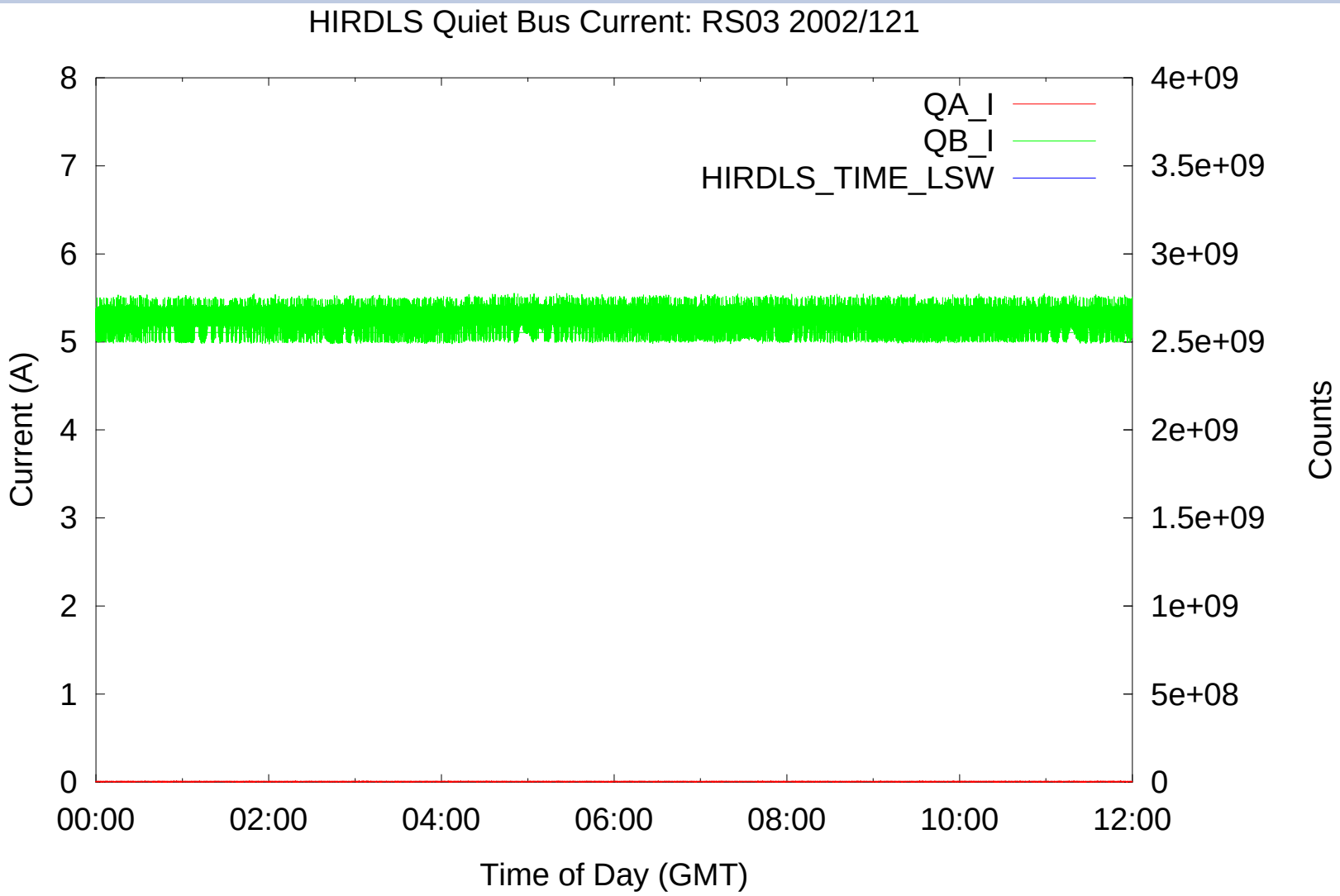
Archive Integrity & Quiet Bus Current : Day 120

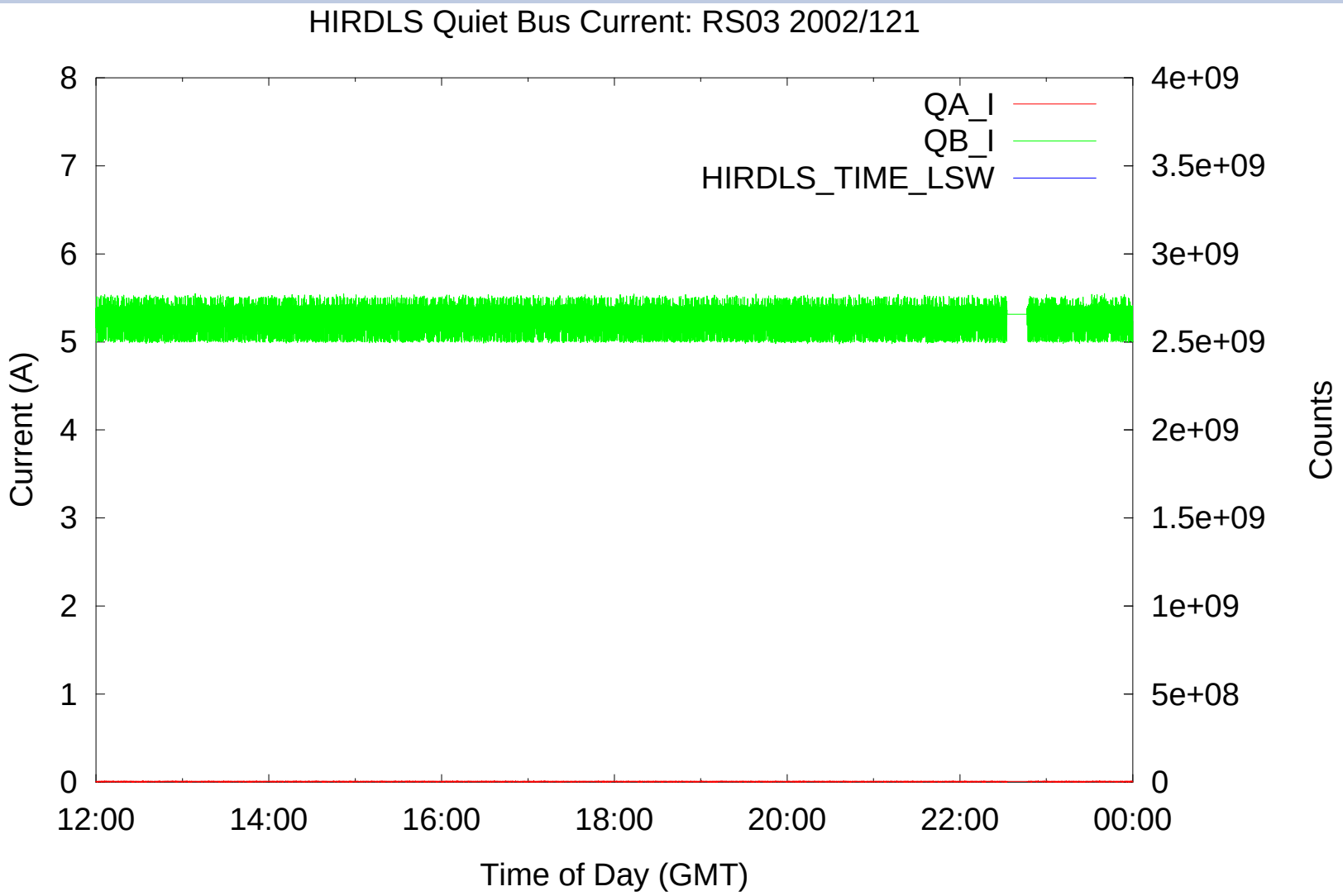
HIRDLS Quiet Bus Current: RS03 2002/120



Archive Integrity & Quiet Bus Current: Day 121 (1)



Archive Integrity & Quiet Bus Current: Day 121 (2)



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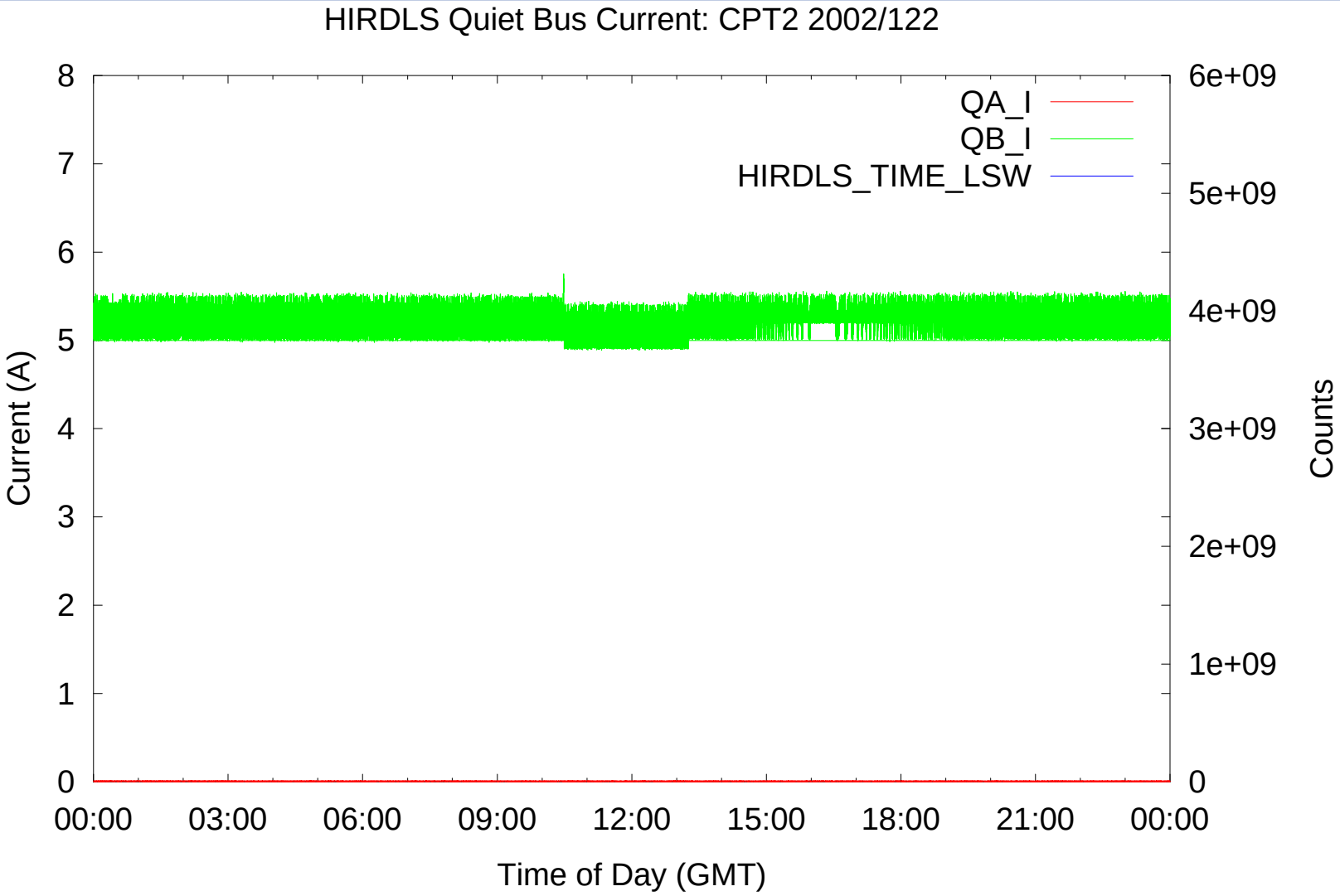
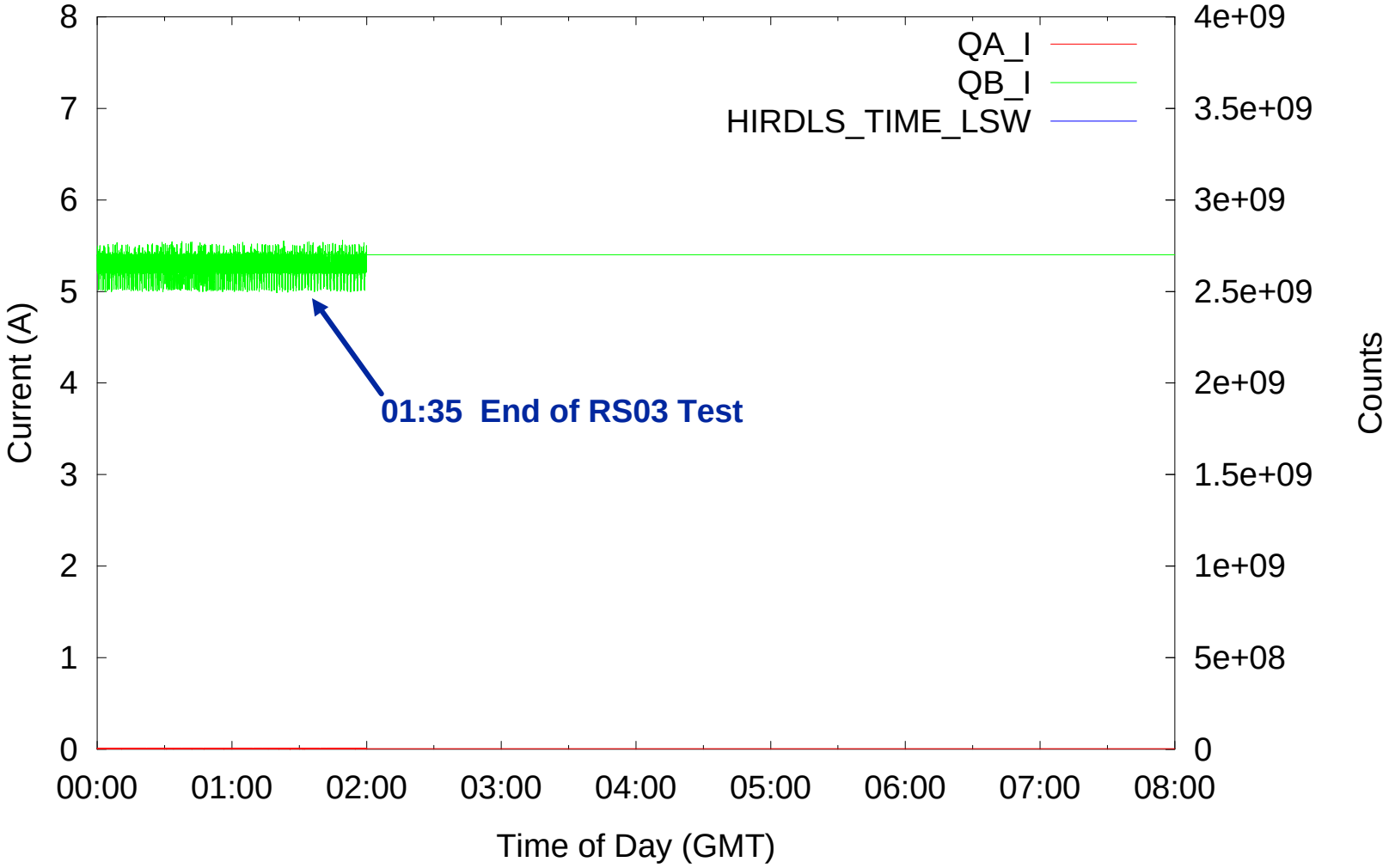
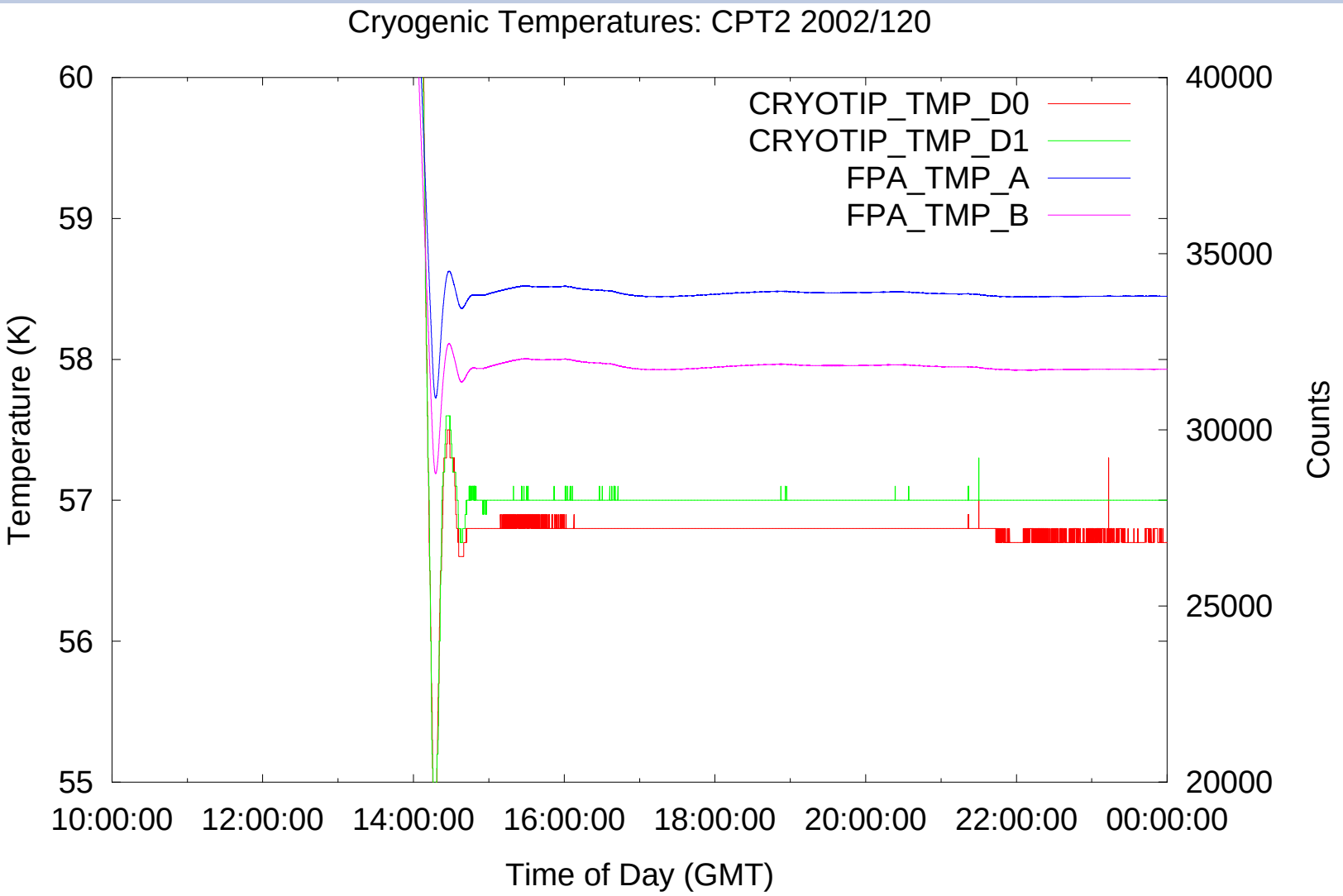


Archive Integrity & Quiet Bus Current: Day 123

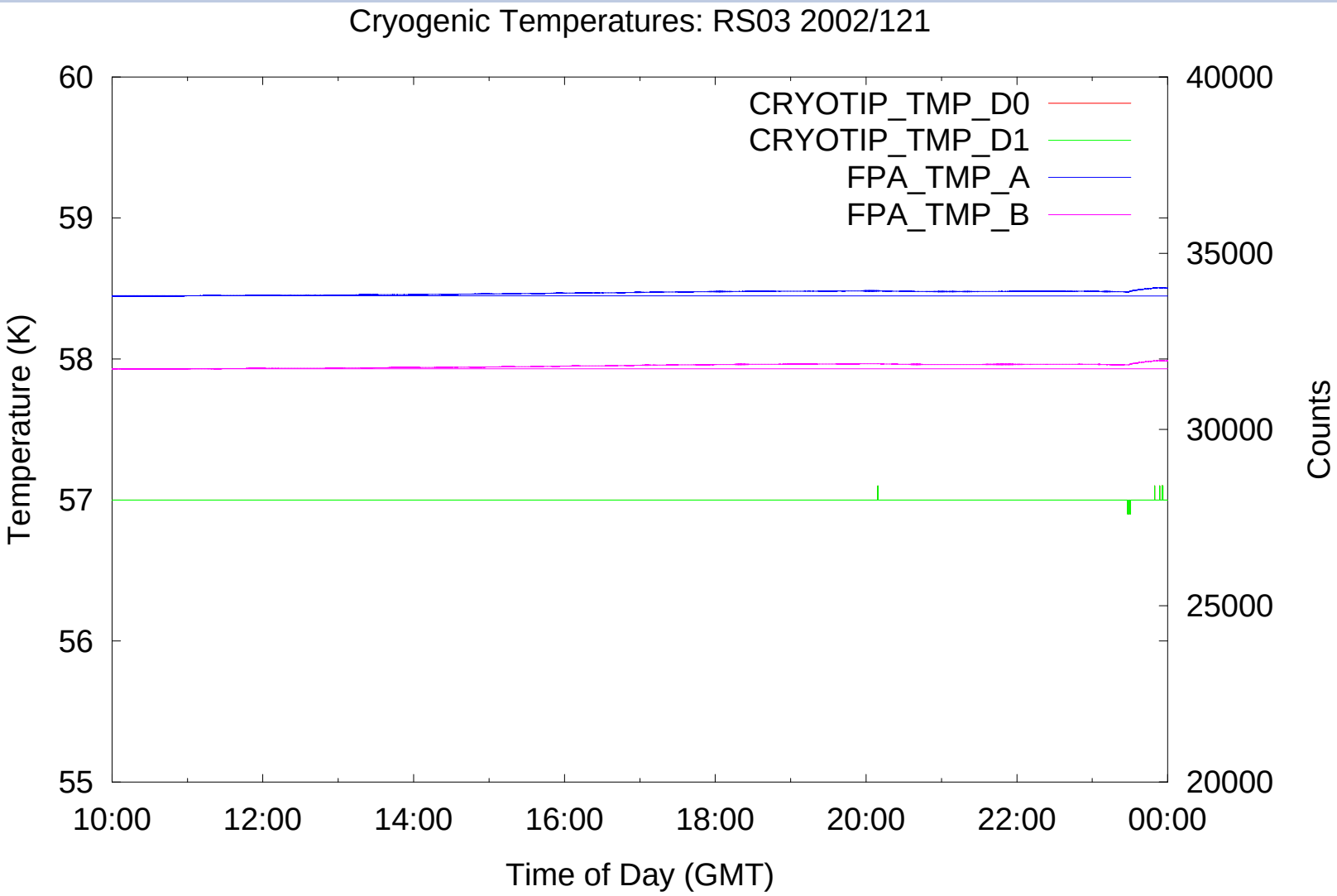
HIRDLS Quiet Bus Current: RS03 2002/121



Cryogenic Temperatures: Day 120



Cryogenic Temperatures: Day 121



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Cryogenic Temperatures: Day 122

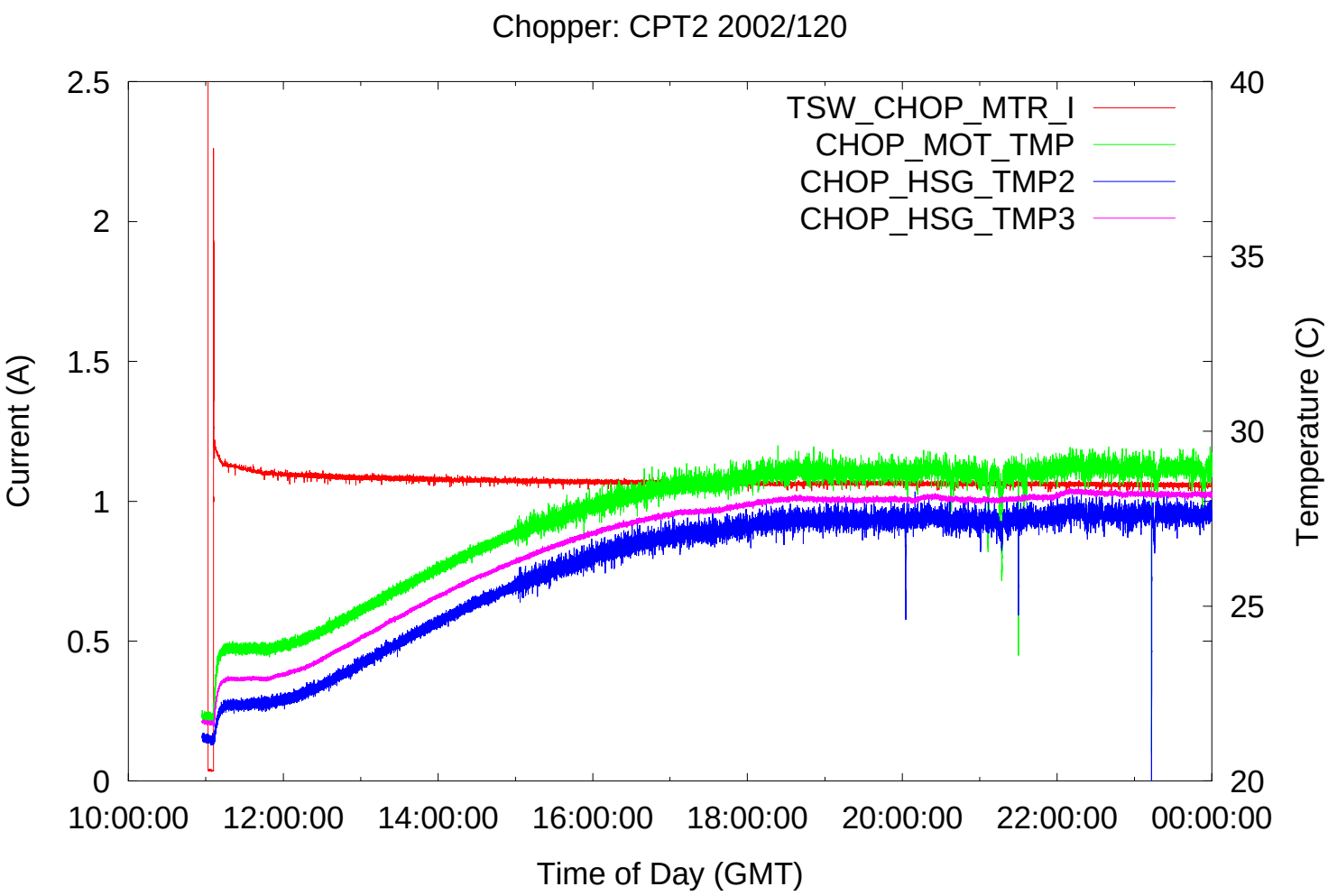
Place Holder

LOCKHEED MARTIN

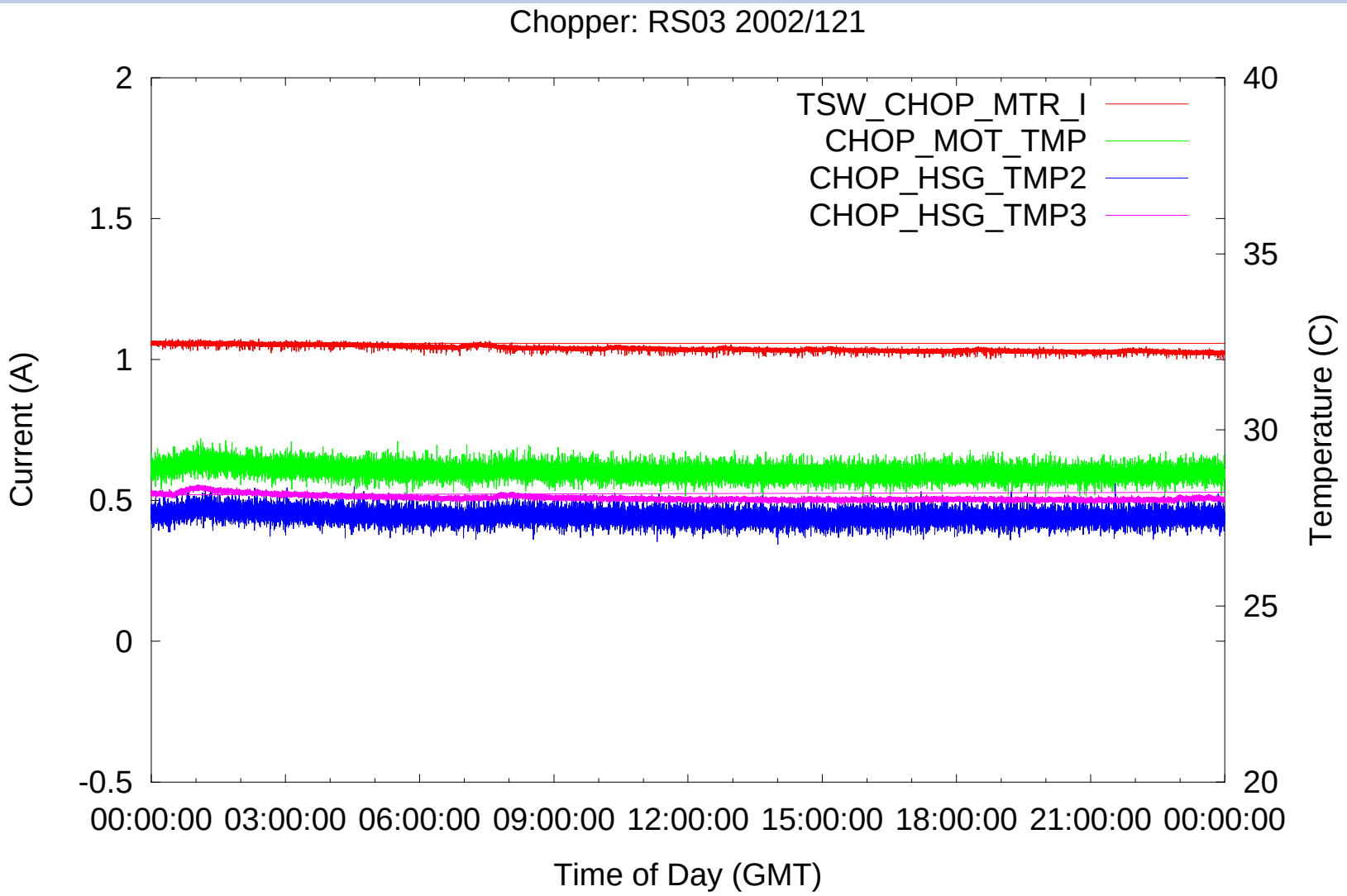
Cryogenic Temperatures: Day 123

Place Holder

Chopper: Day 120

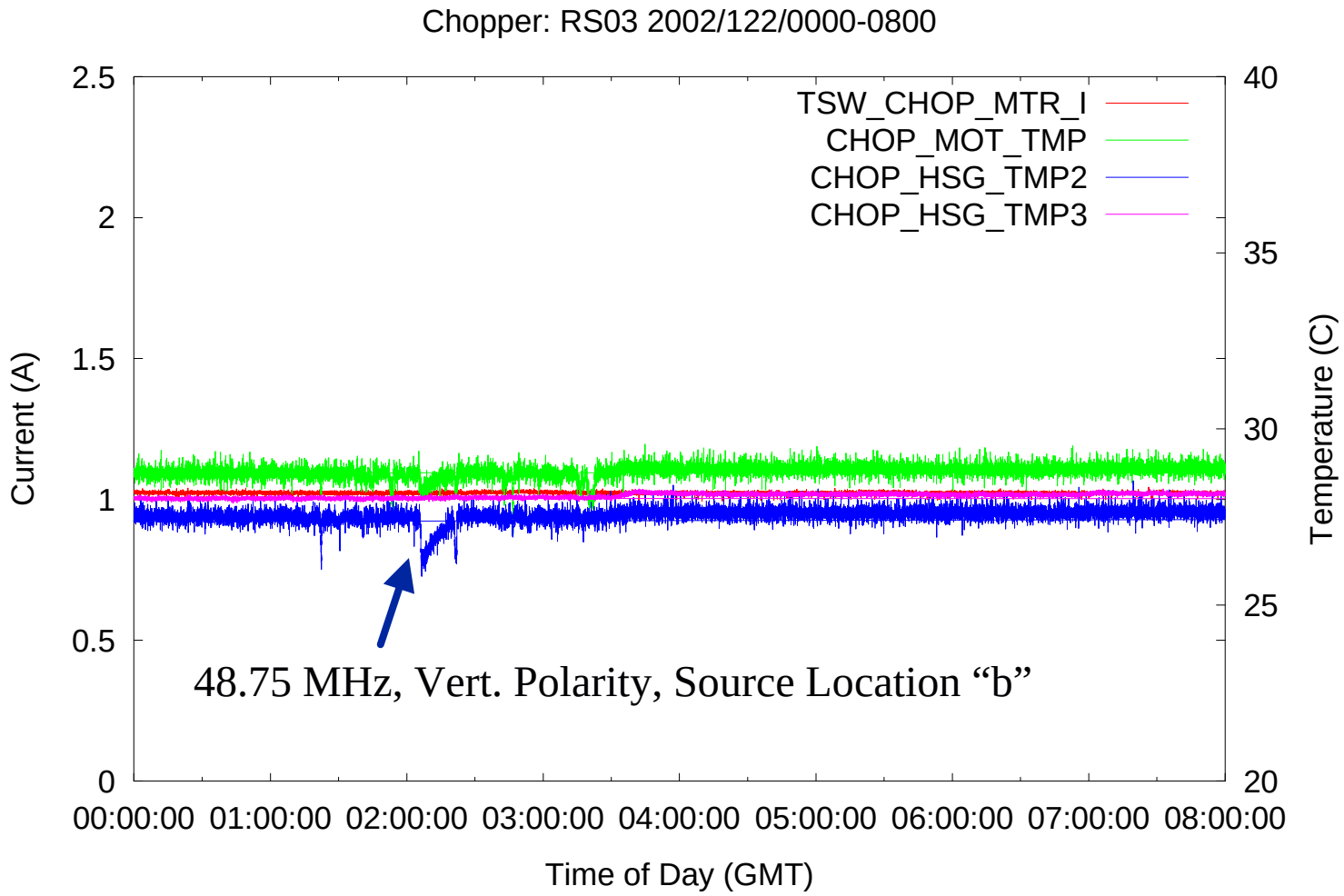


Chopper: Day 121

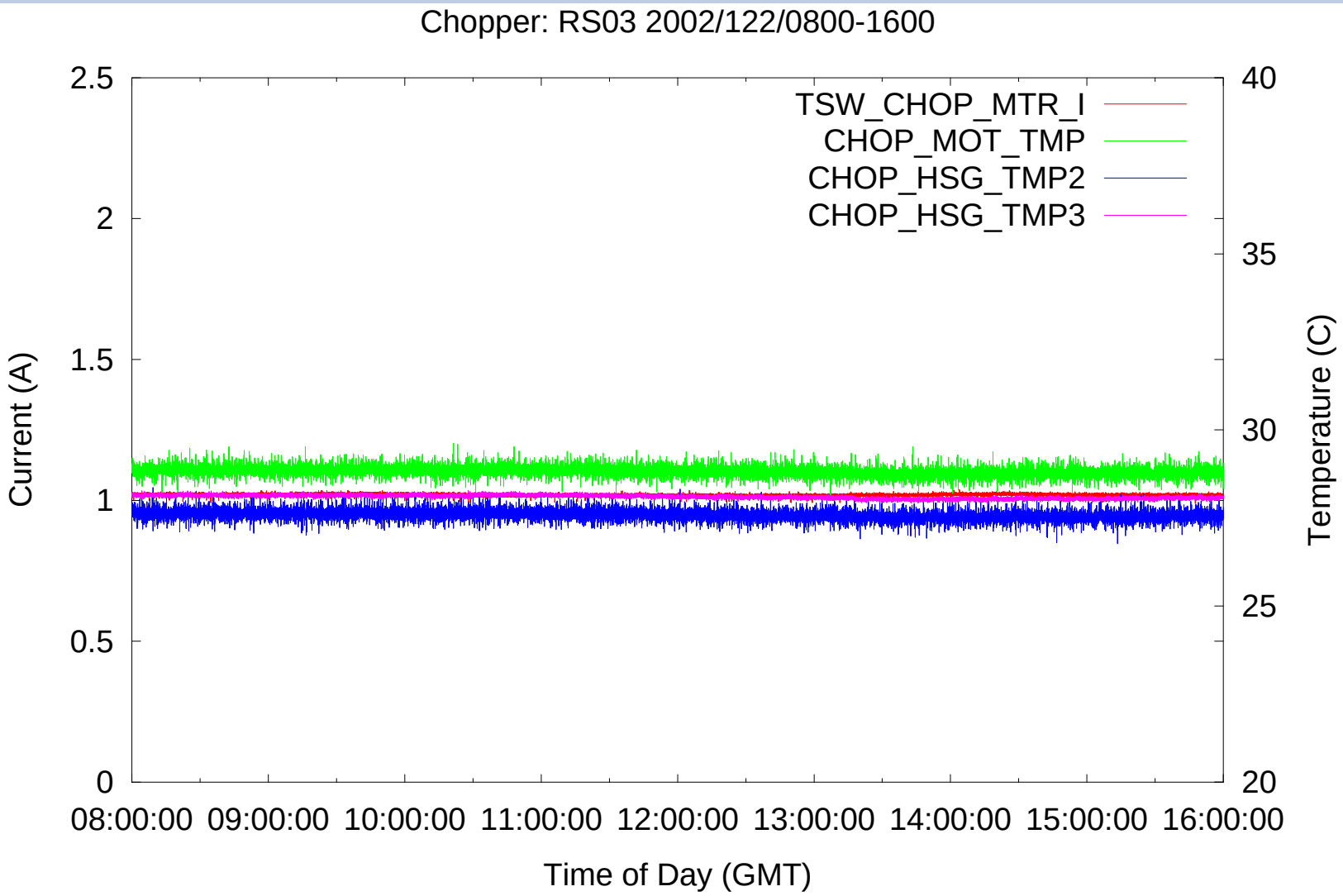


LOCKHEED MARTIN

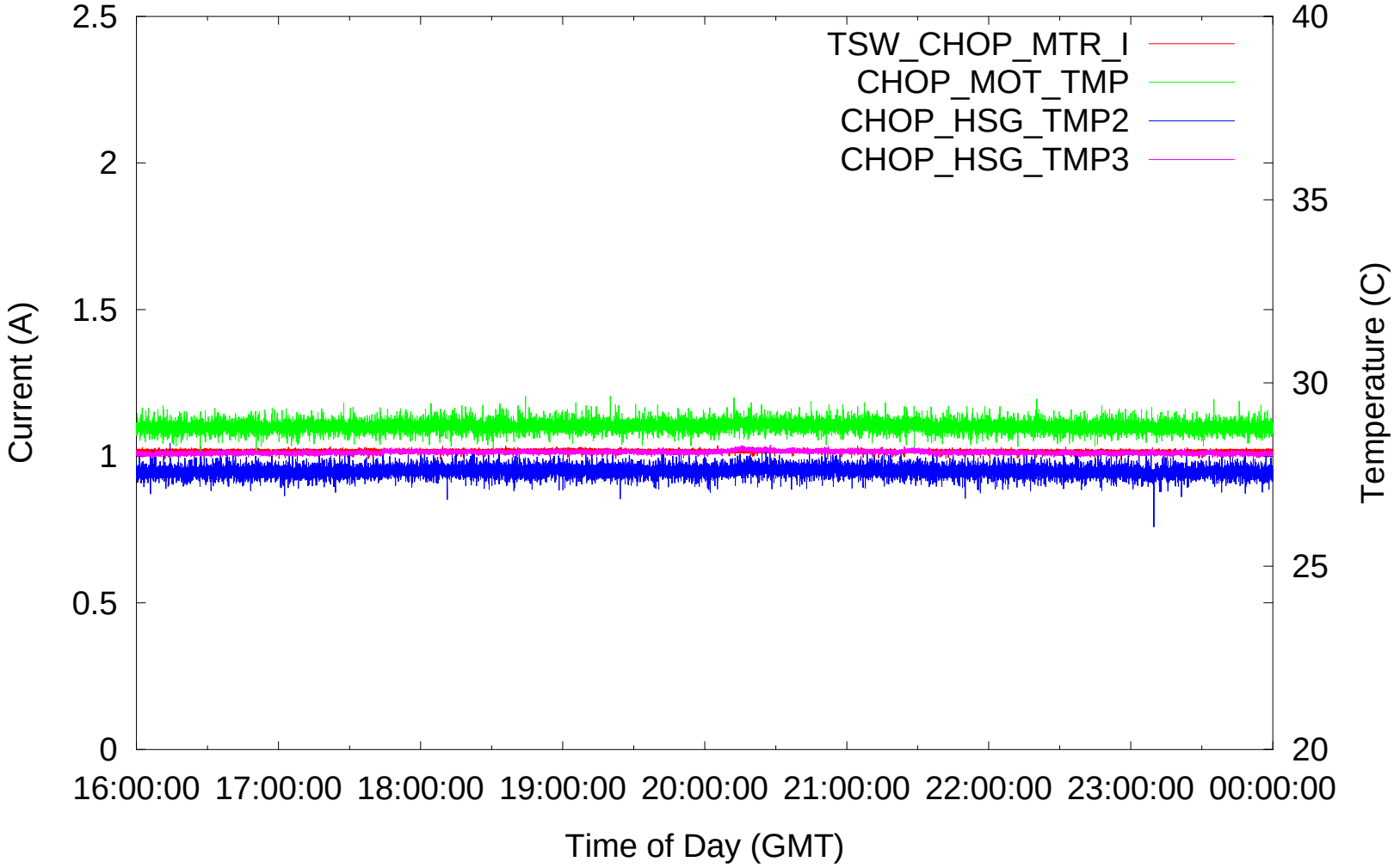
Chopper: Day 122/0000-0800



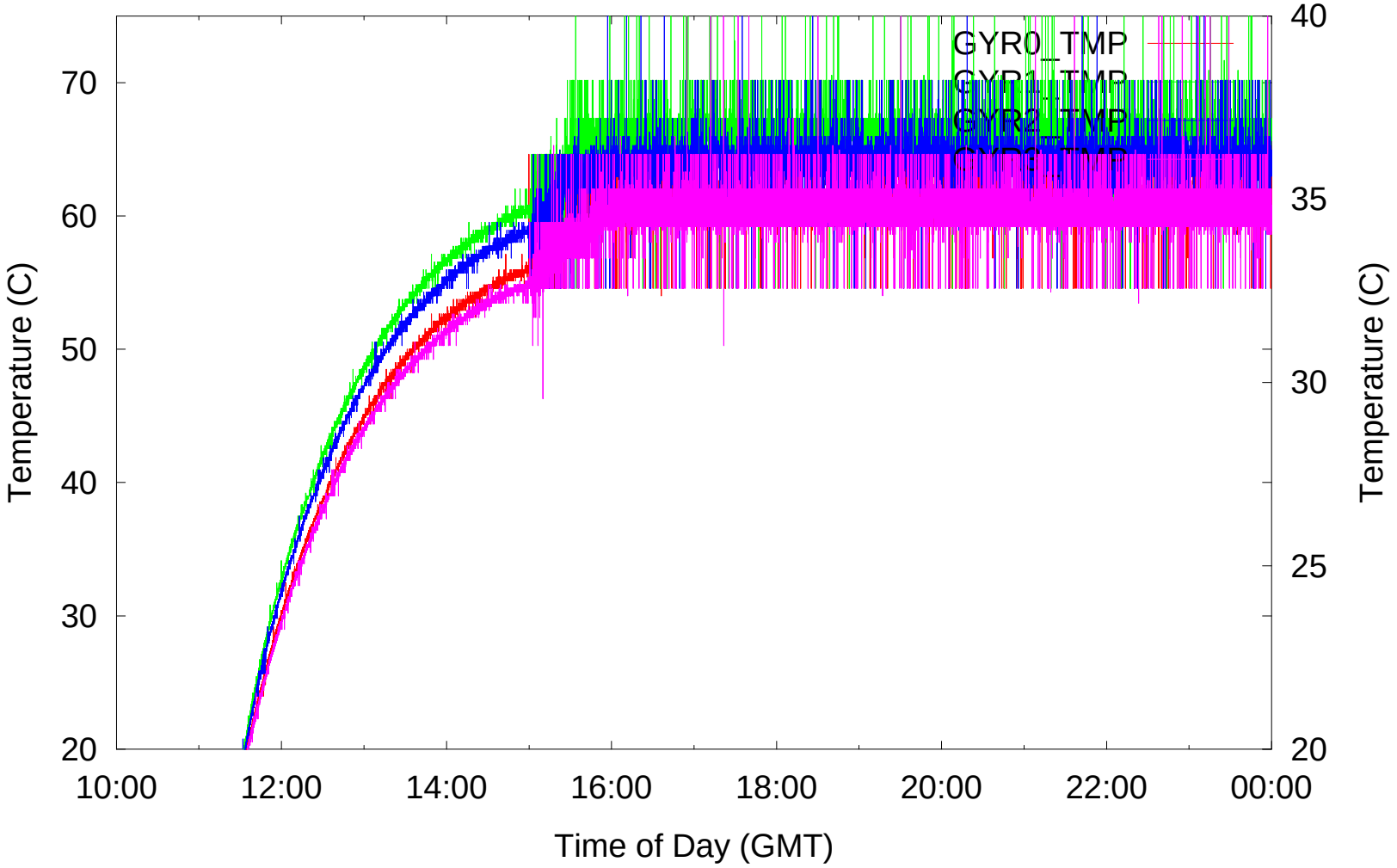
Chopper: Day 122/0800-1600



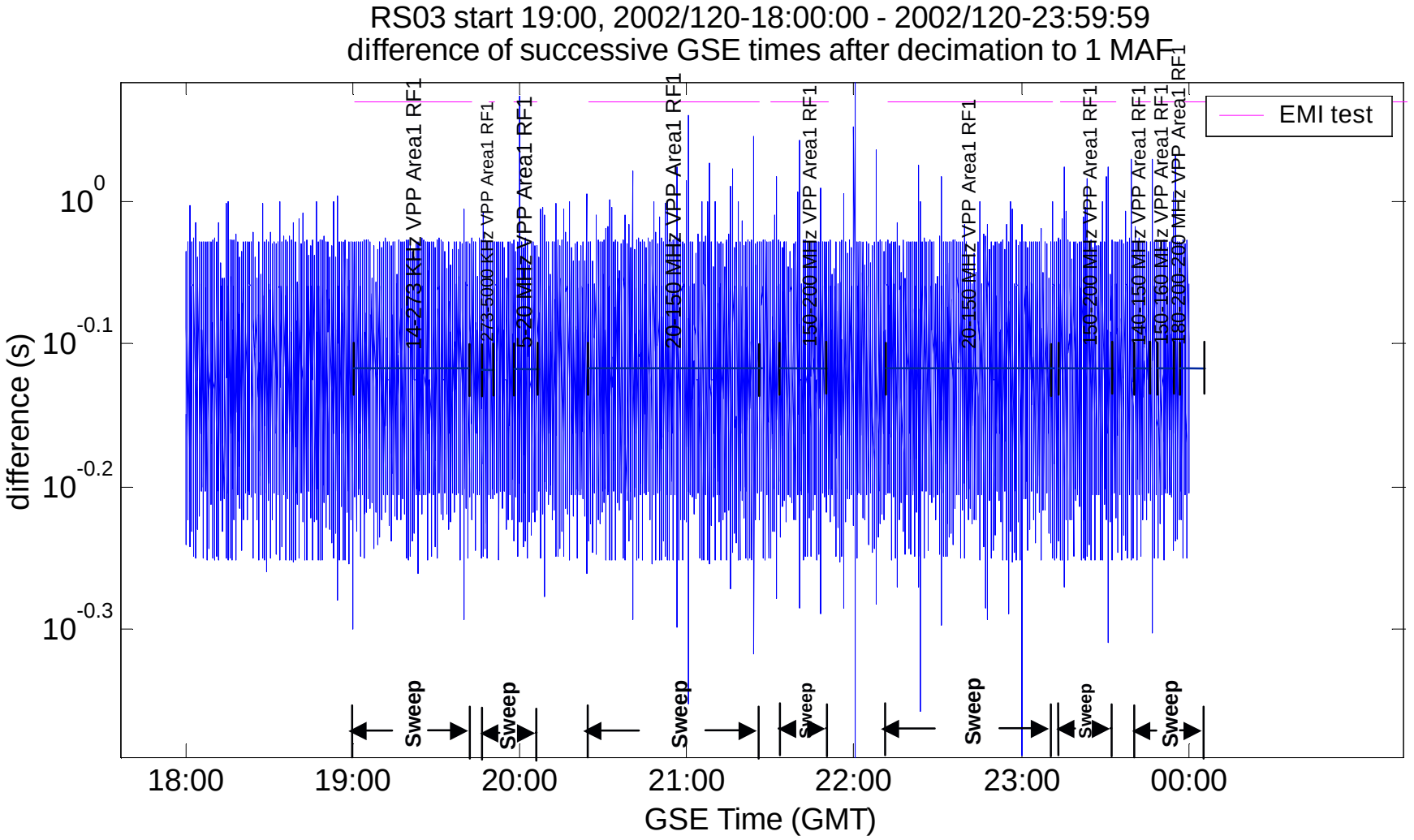
Chopper: Day 122/0800-1600



Gyro Temps Day 120: Warm-up



Check Time Sequence (1 of 6)



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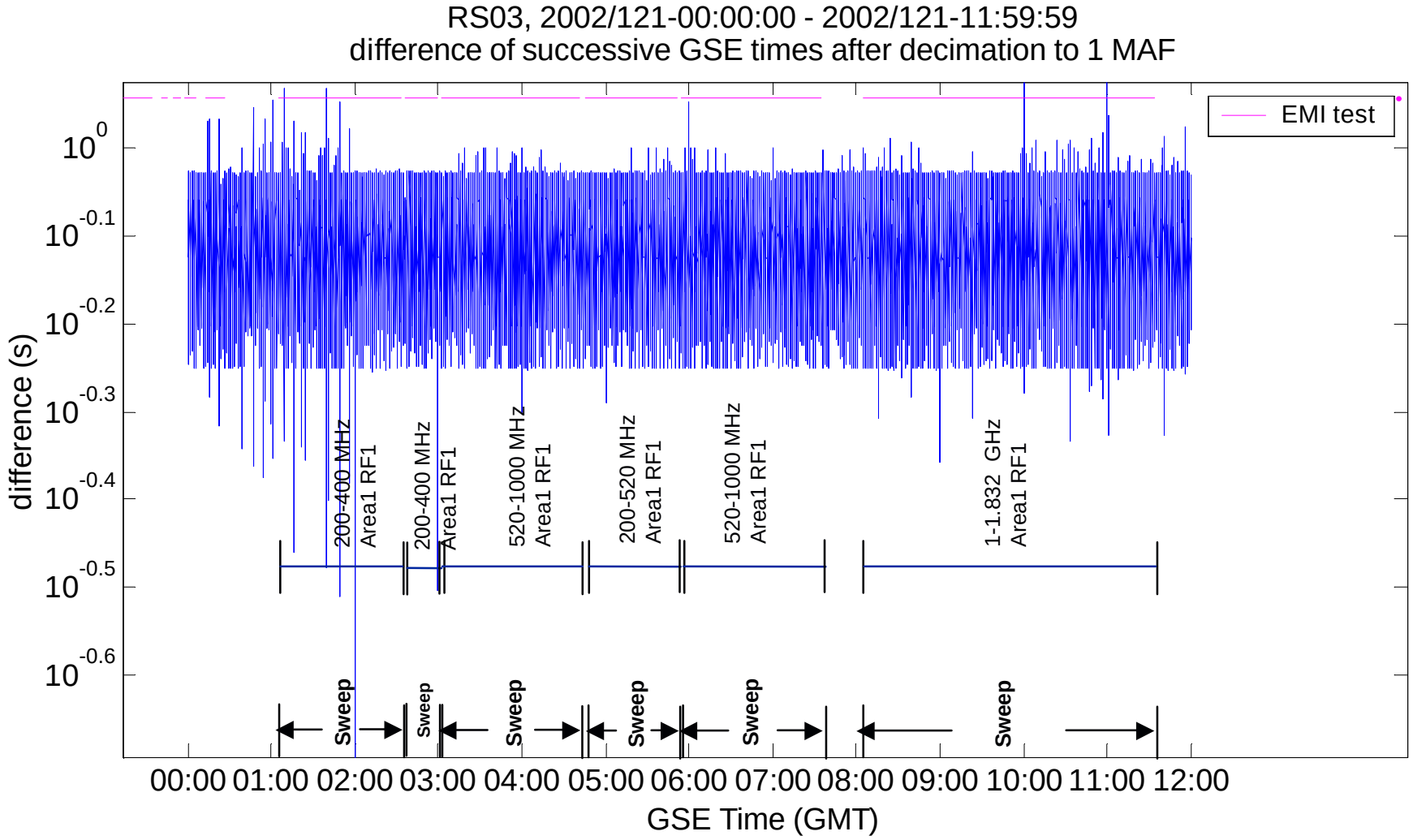
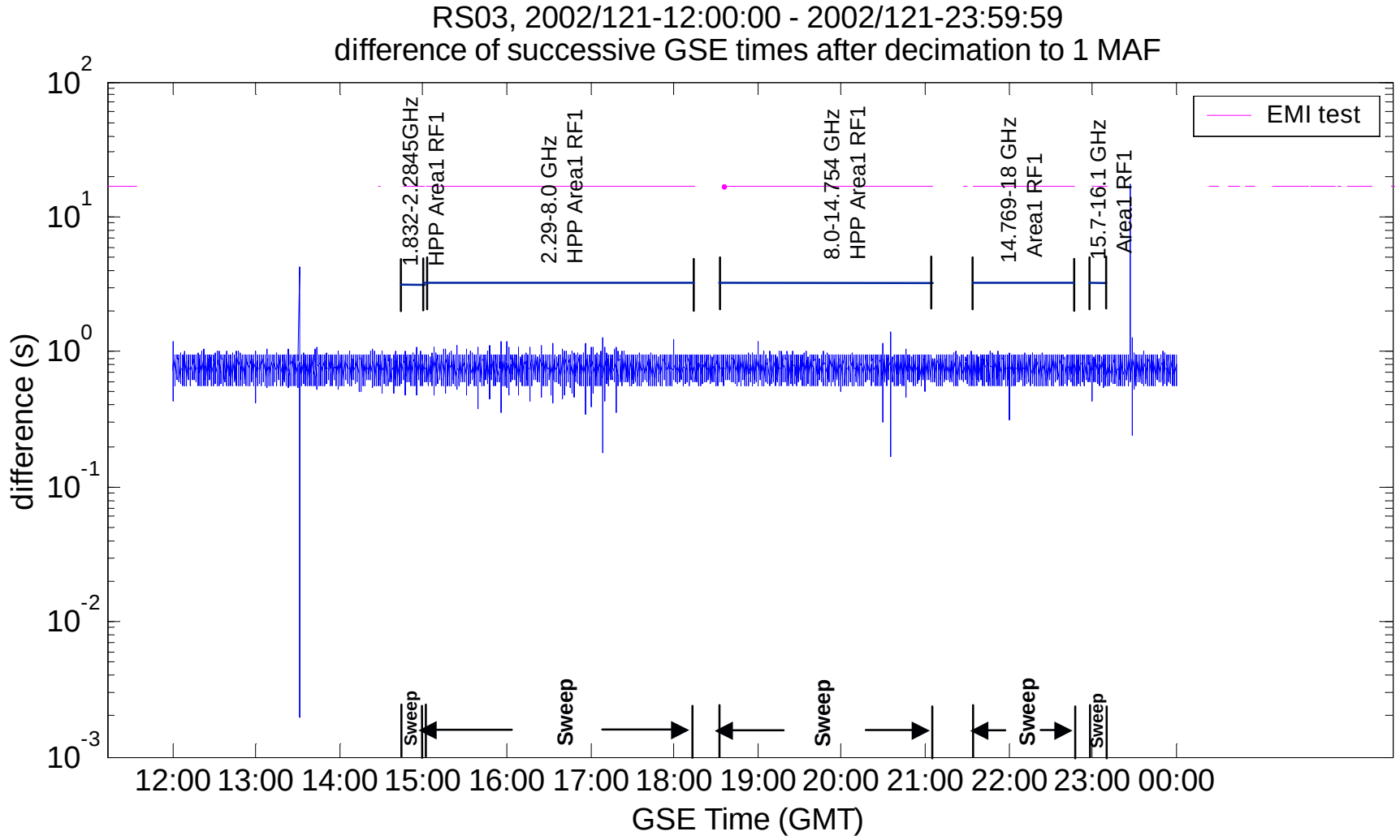
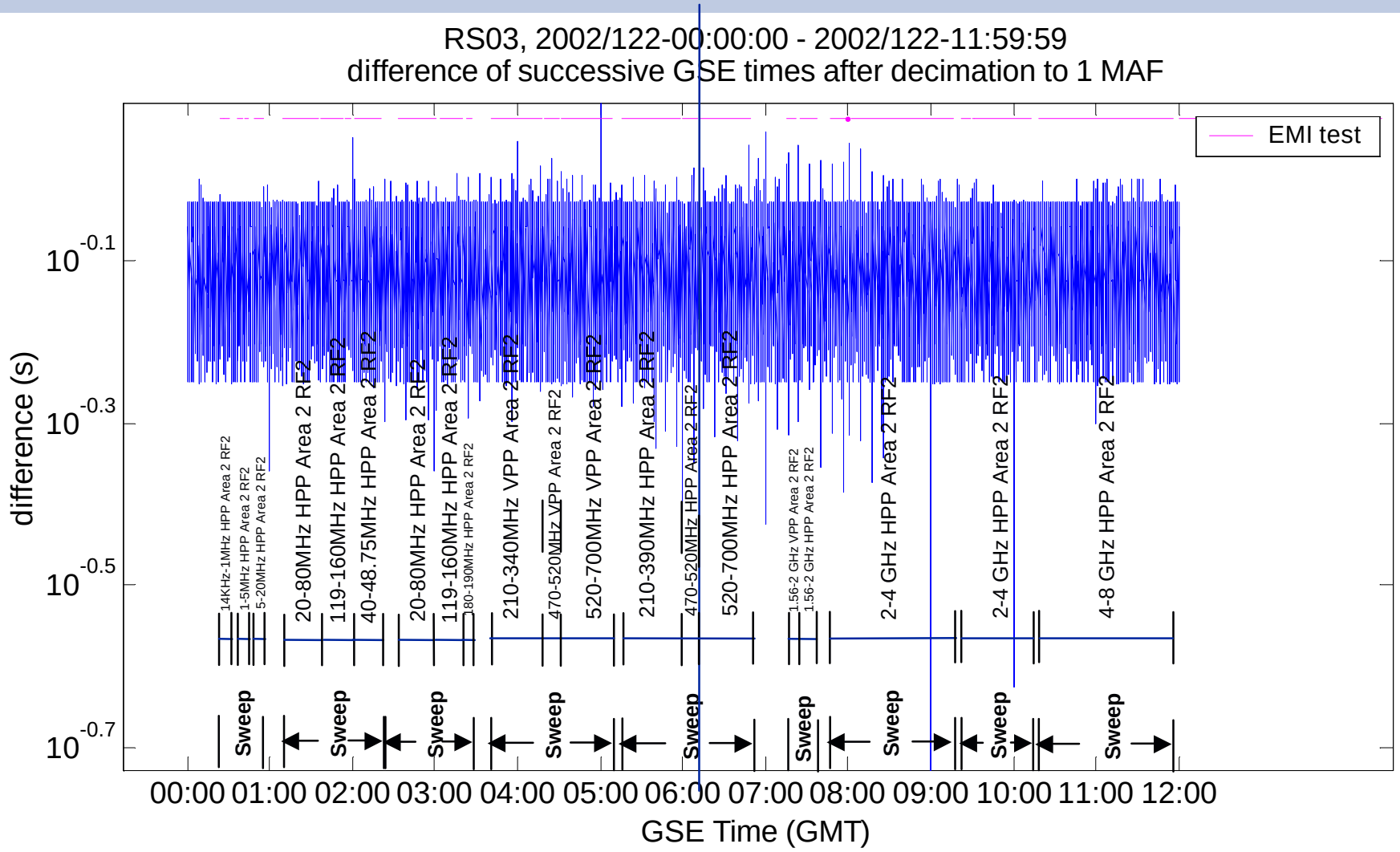


Check Time Sequence (3 of 6)



Check Time Sequence (4 of 6)



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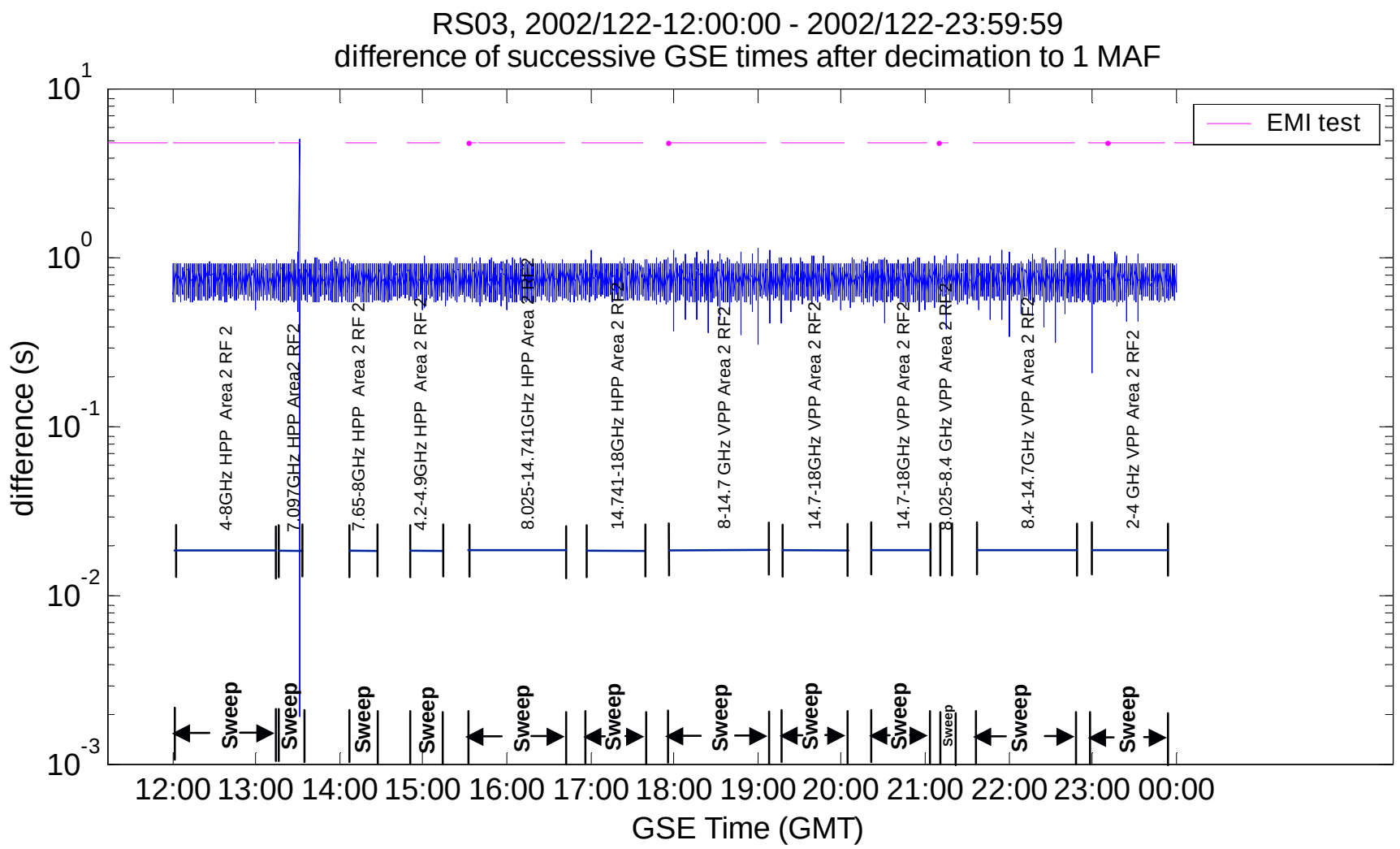
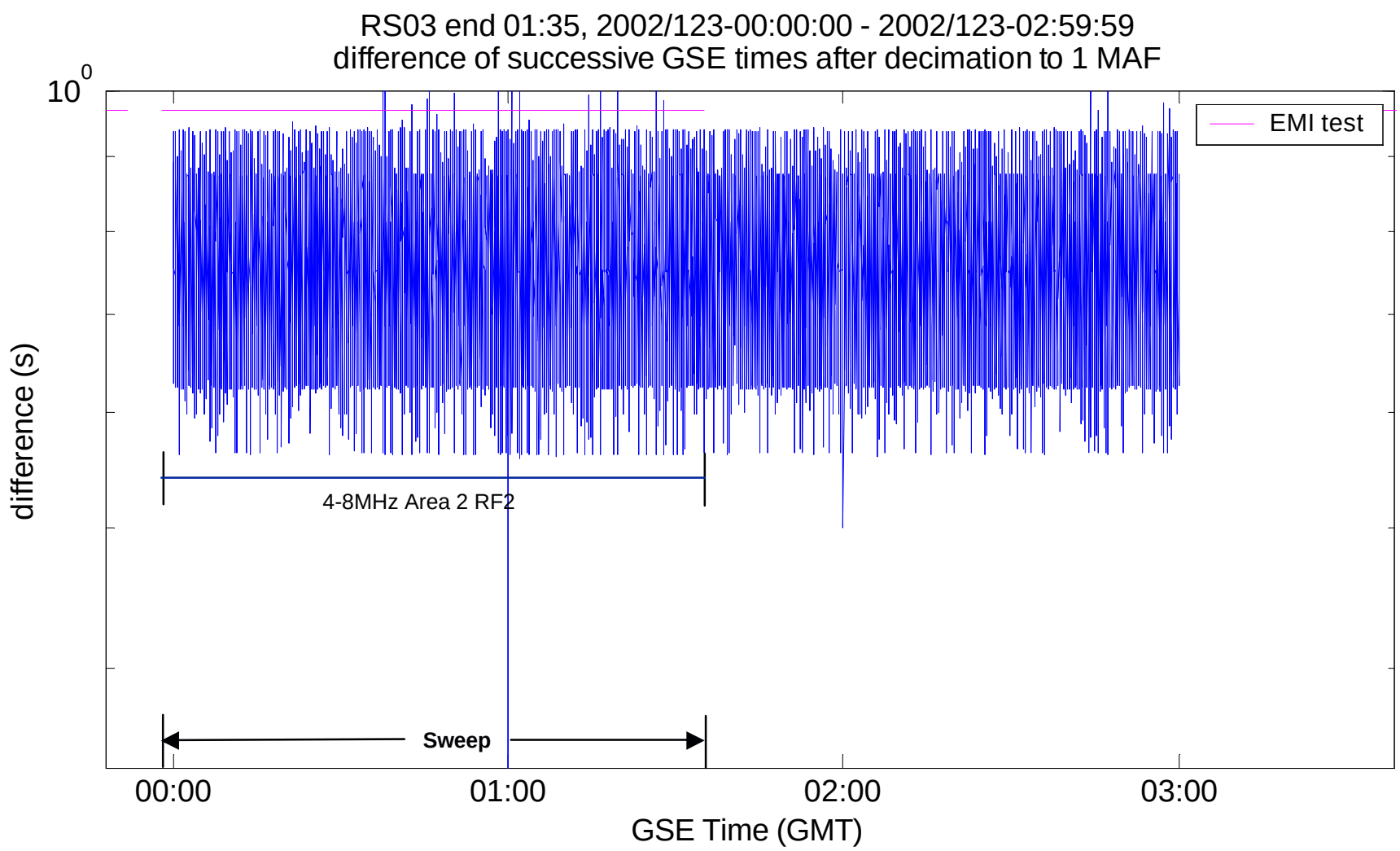
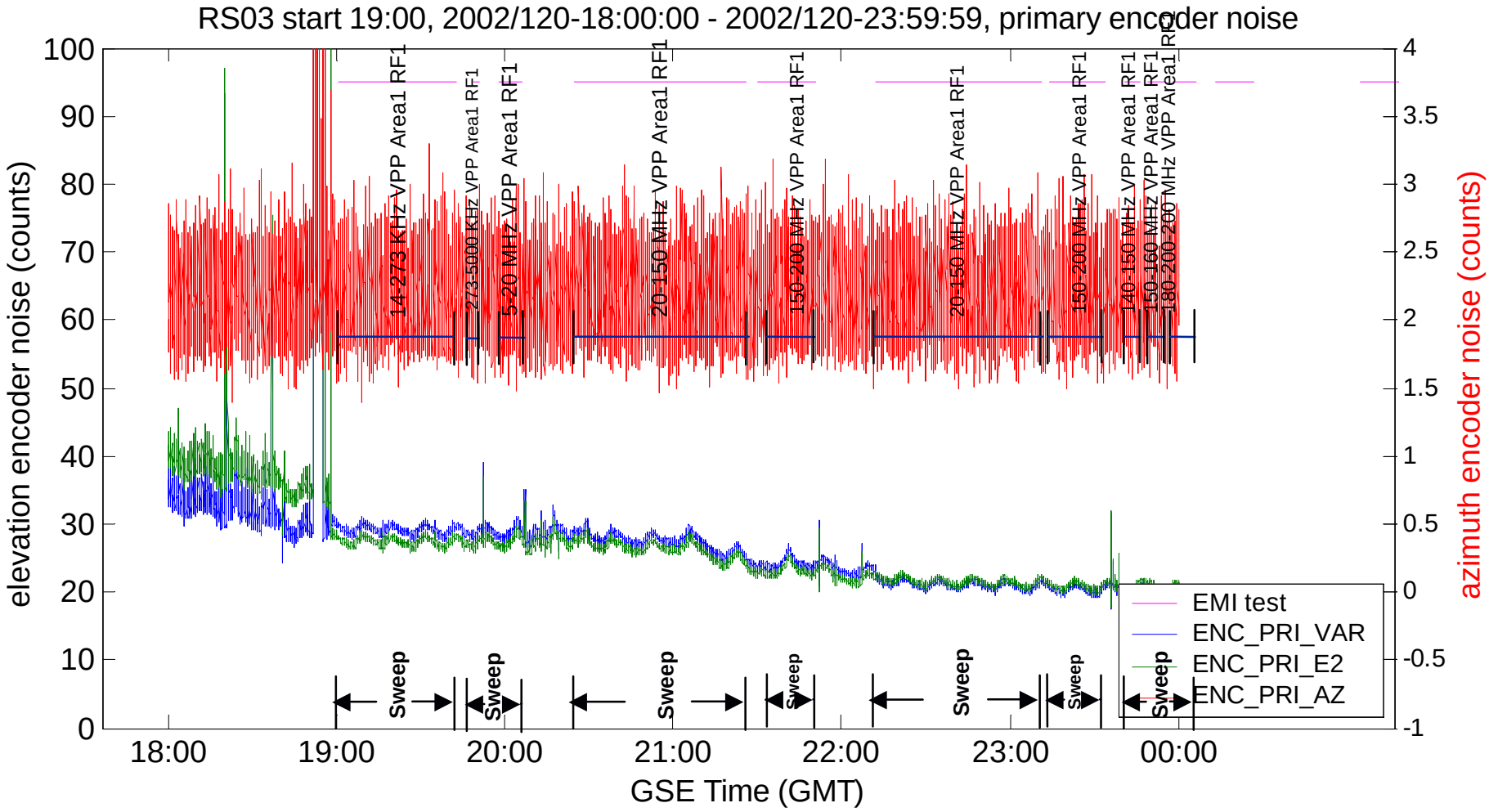


Check Time Sequence (6 of 6)



Noise: Primary Encoders (1 of 6)



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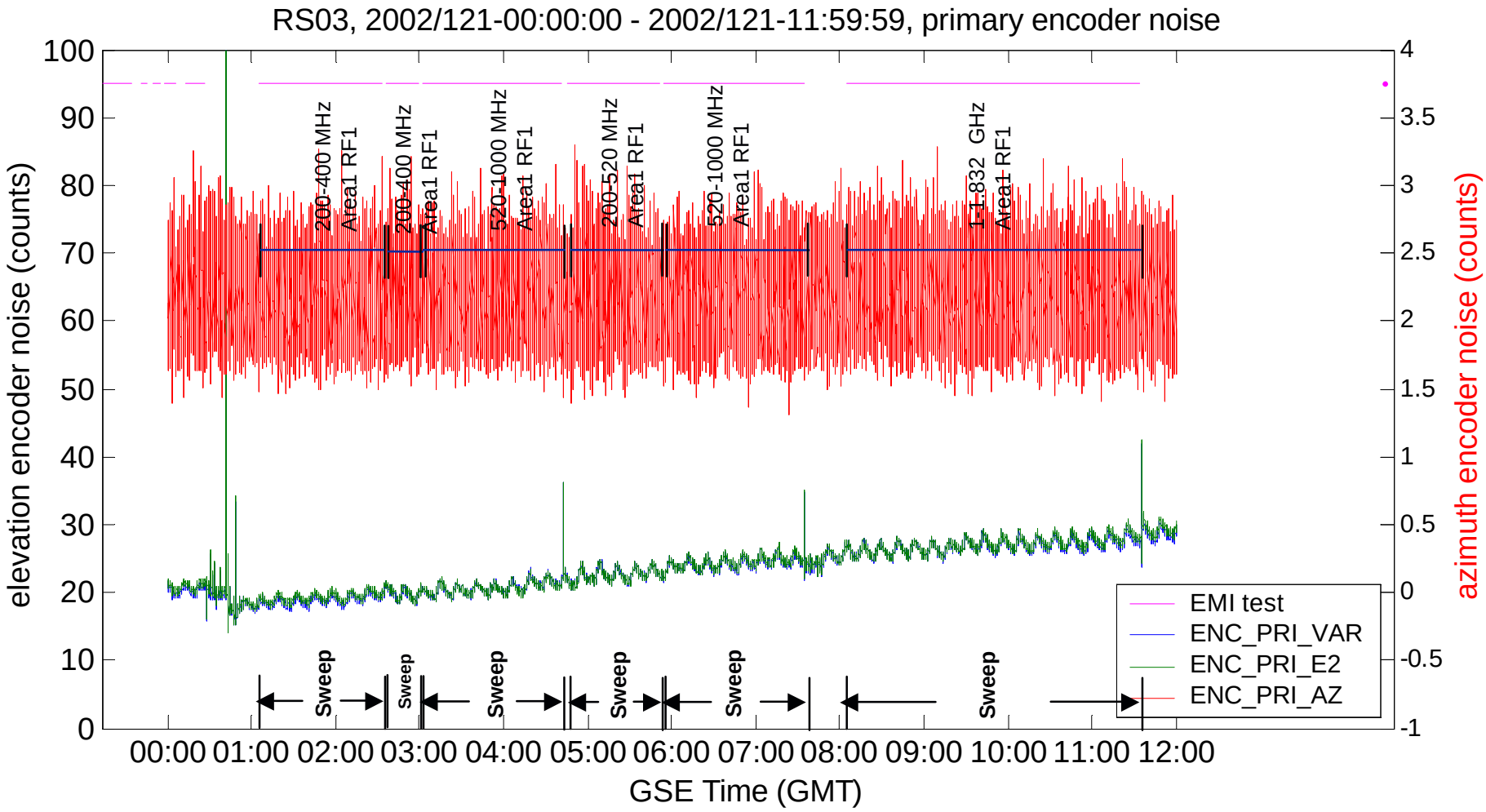
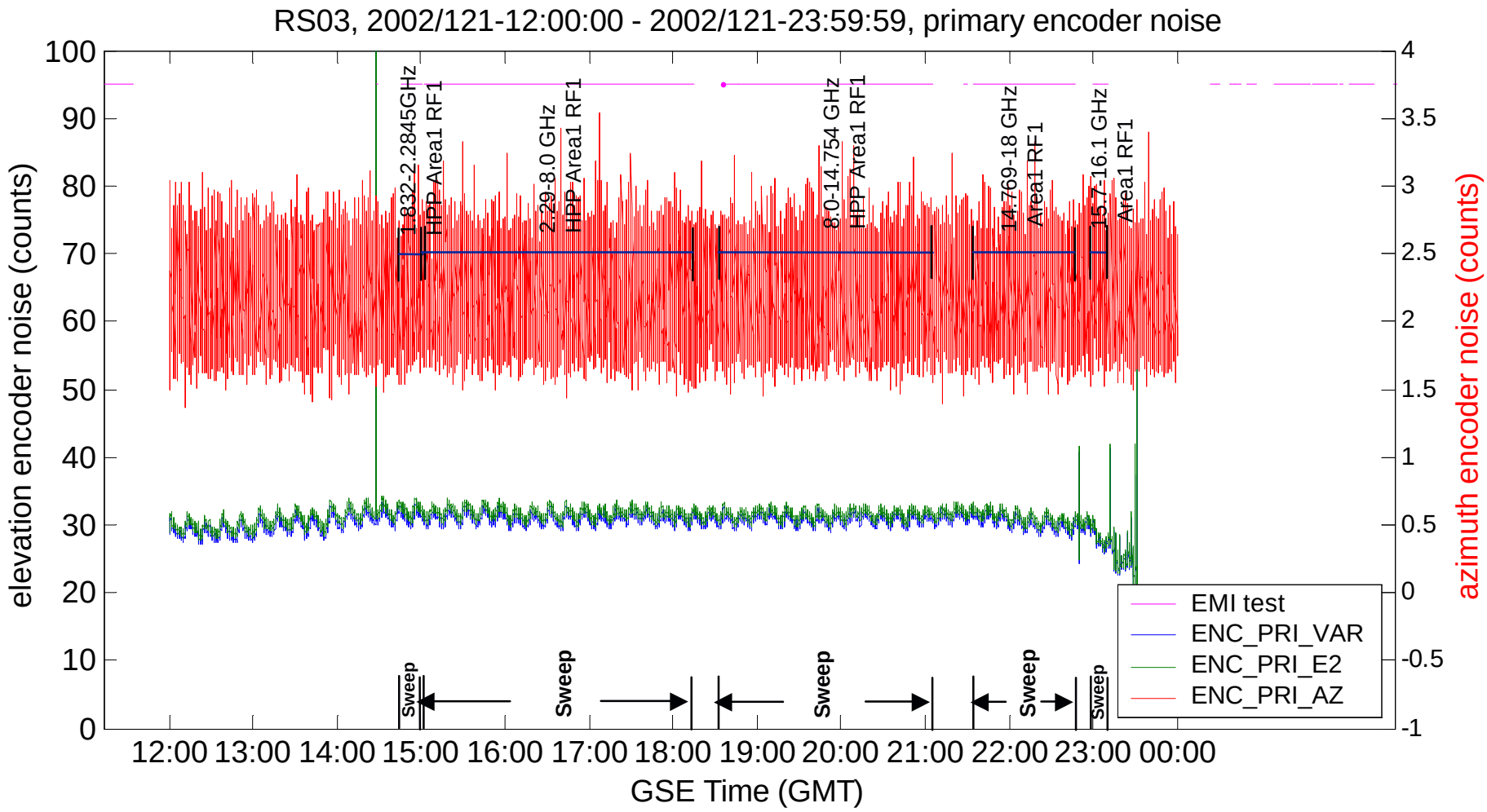
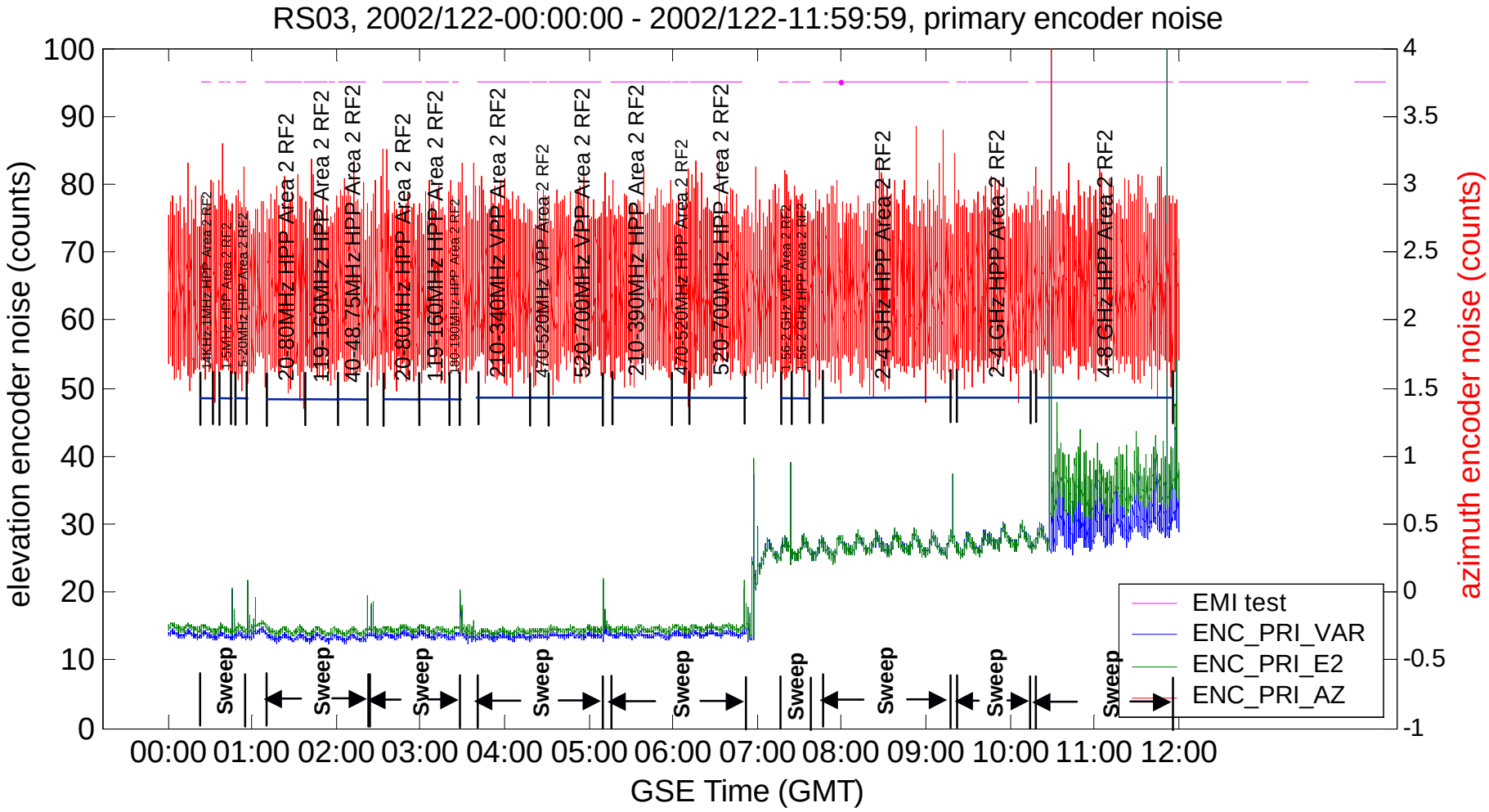


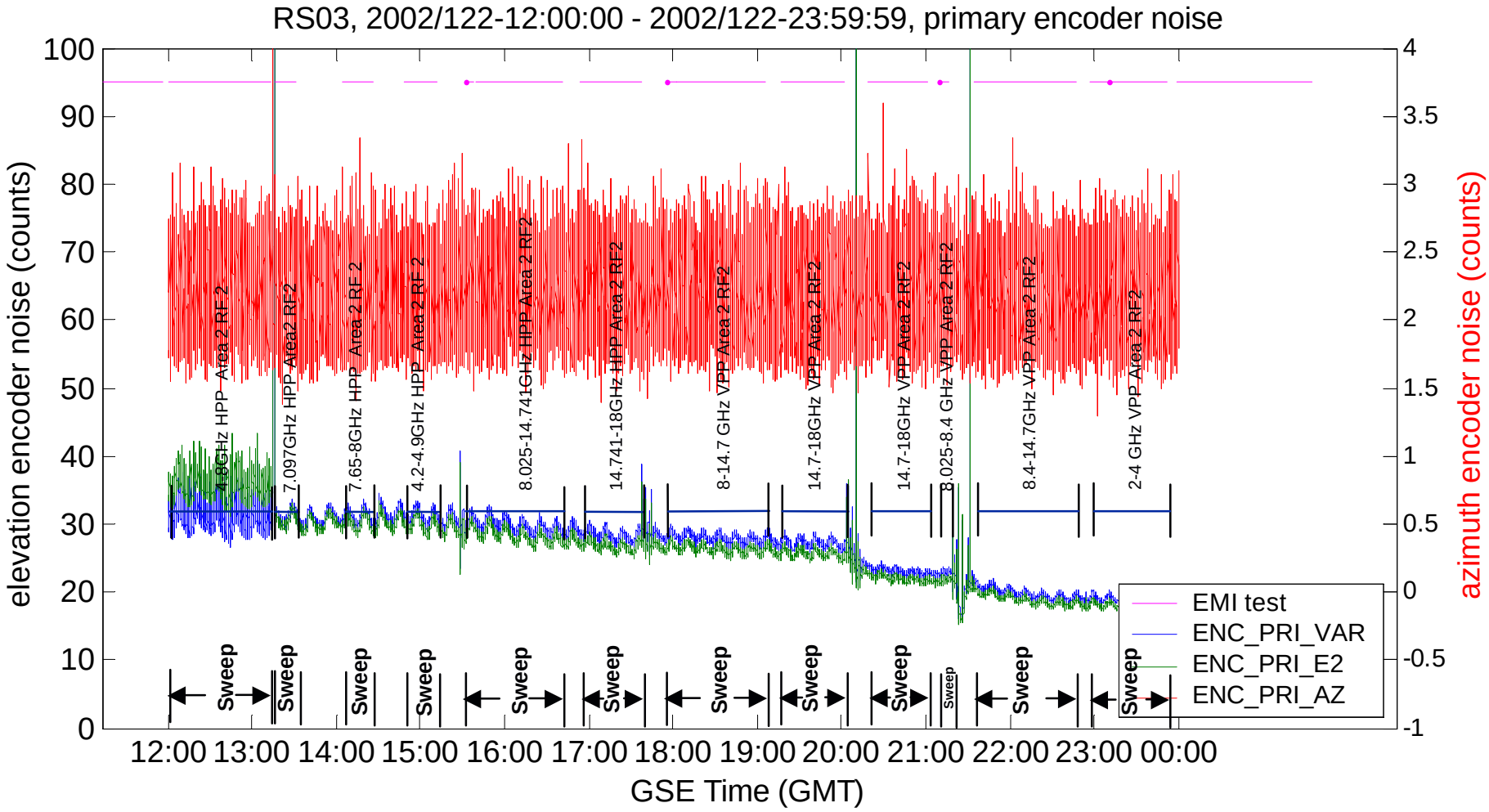
Noise: Primary Encoders (3 of 6)



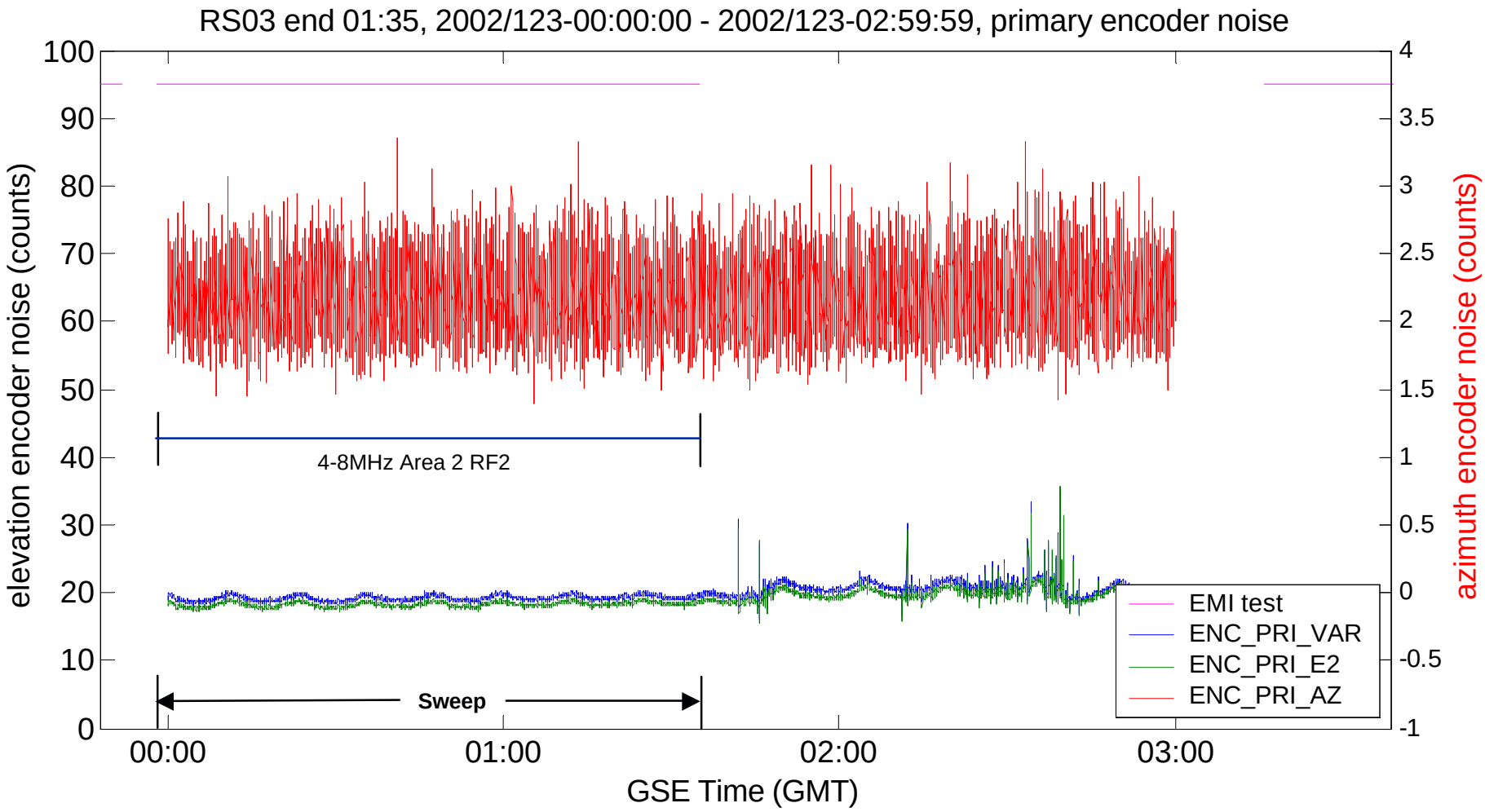
Noise: Primary Encoders (4 of 6)



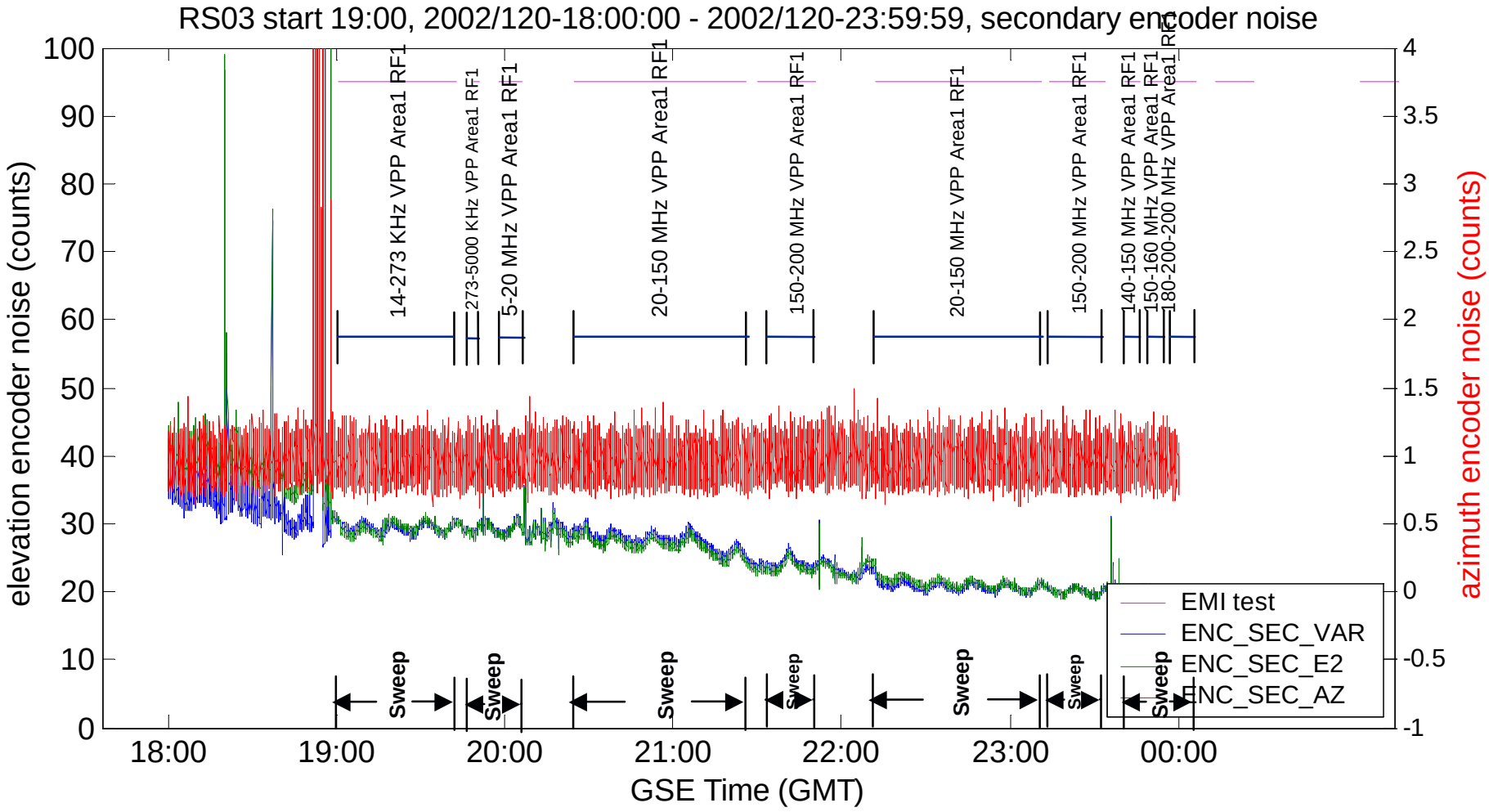
Noise: Primary Encoders (5 of 6)



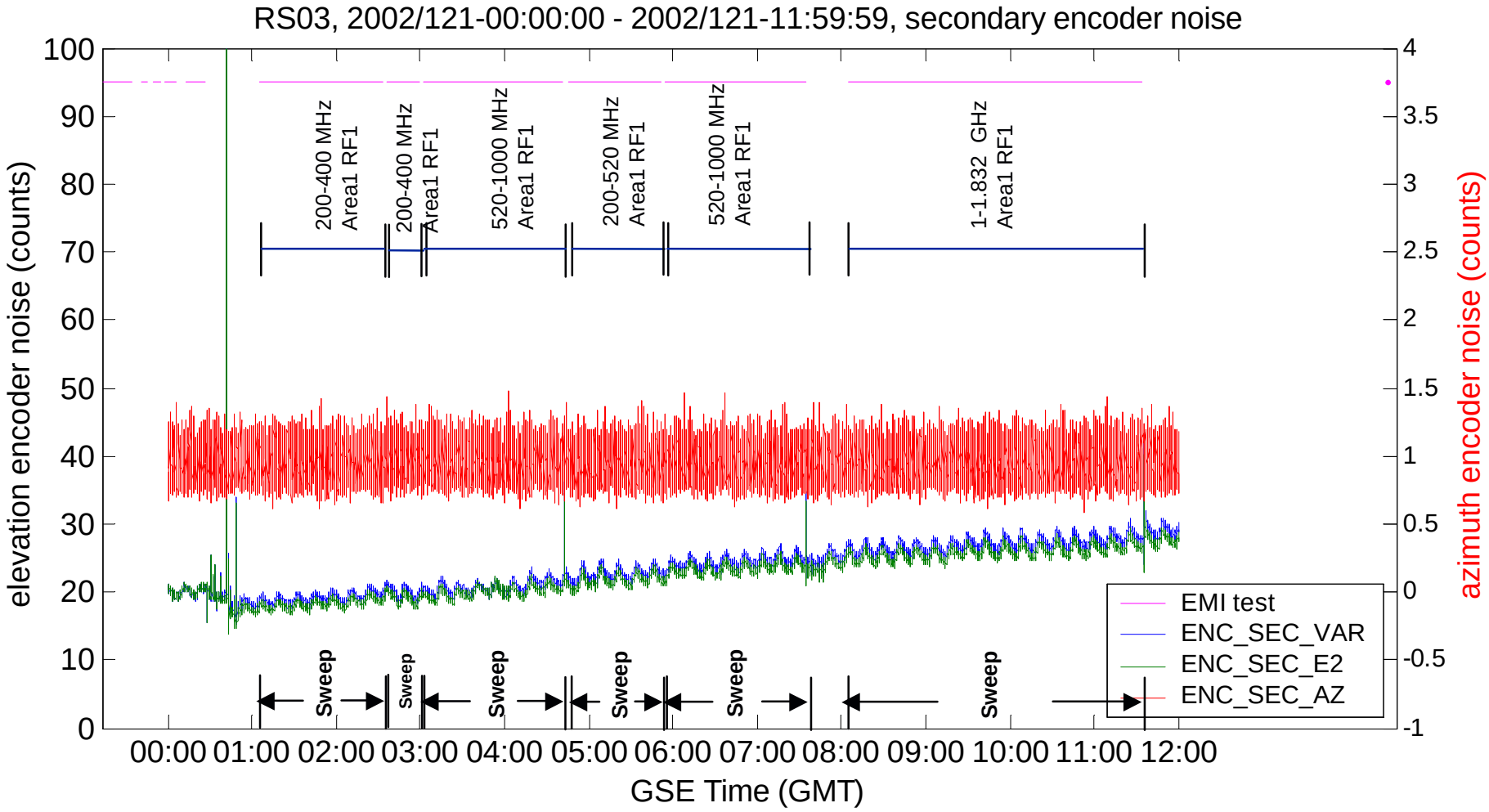
Noise: Primary Encoders (6 of 6)



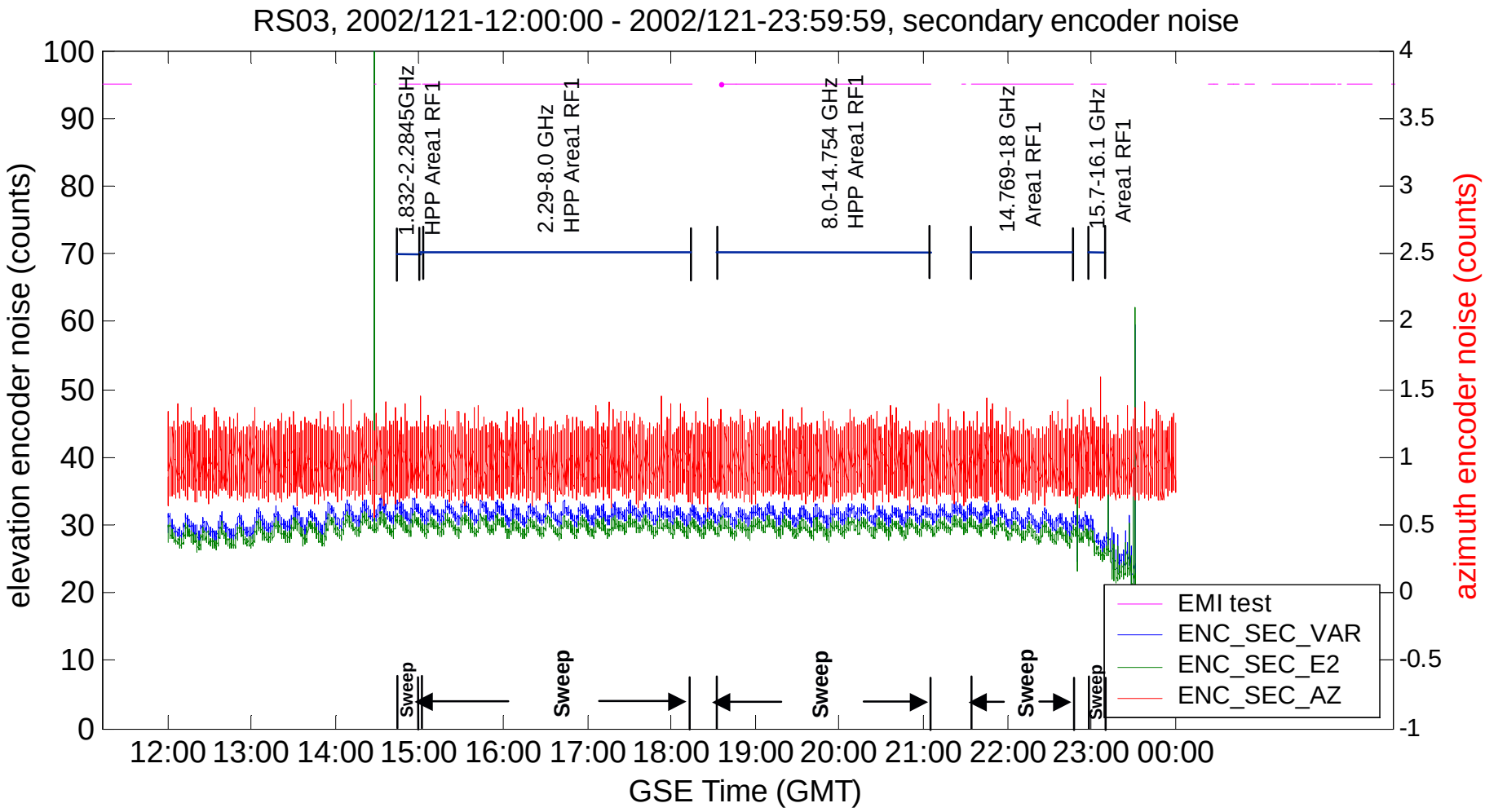
Noise: Secondary Encoders (1 of 6)



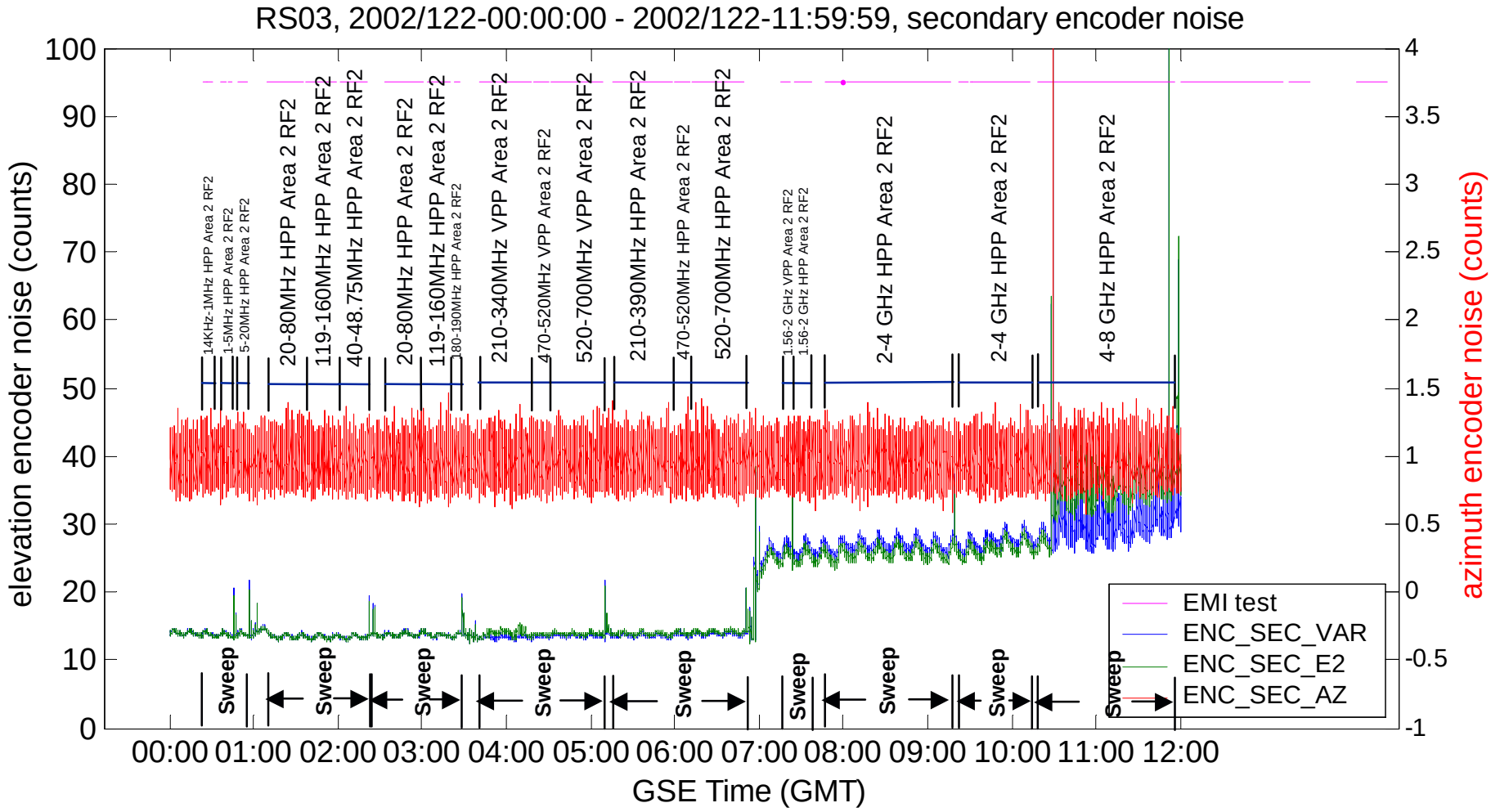
Noise: Secondary Encoders (2 of 6)



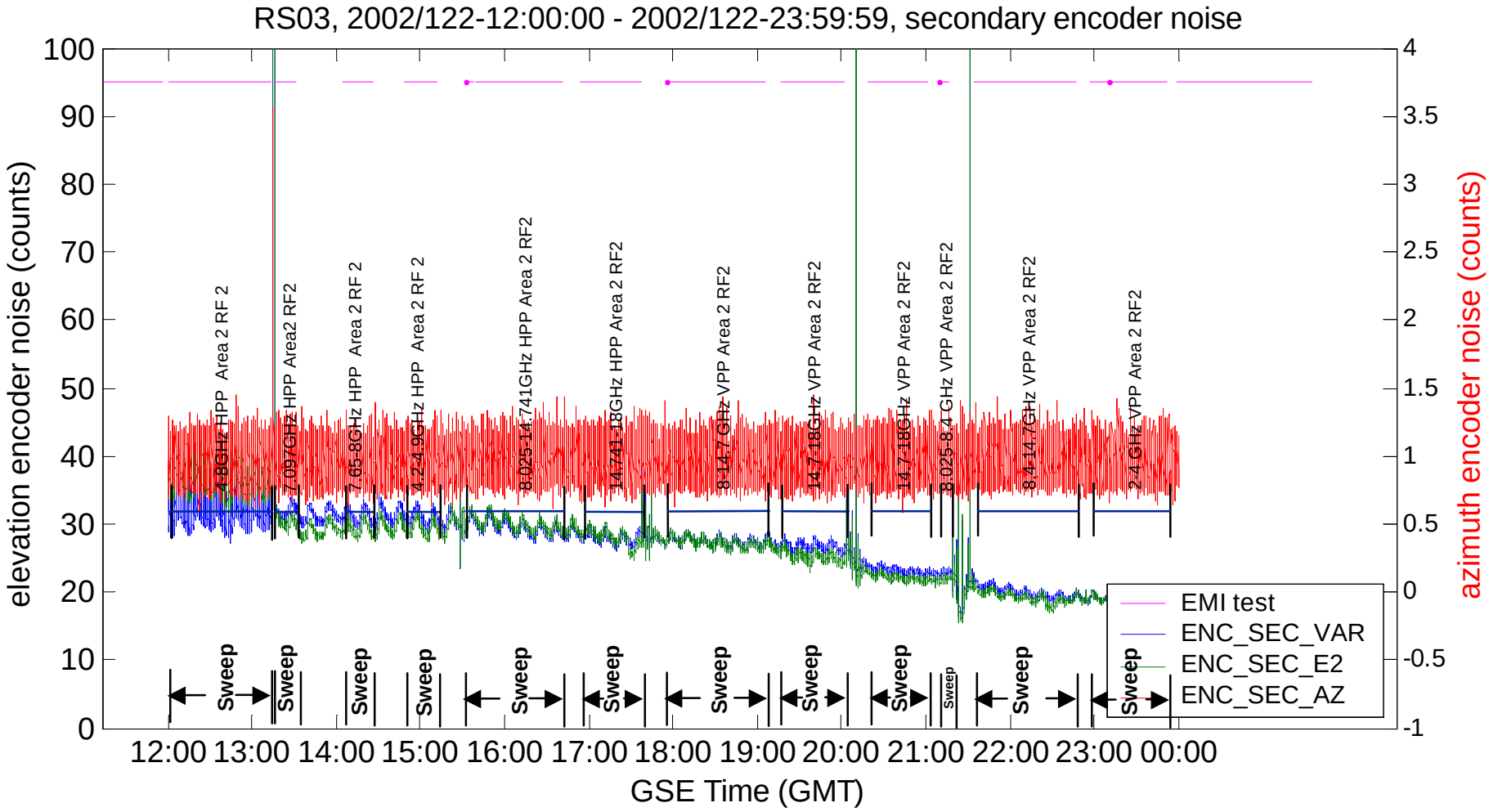
Noise: Secondary Encoders (3 of 6)



Noise: Secondary Encoders (4 of 6)



Noise: Secondary Encoders (5 of 6)



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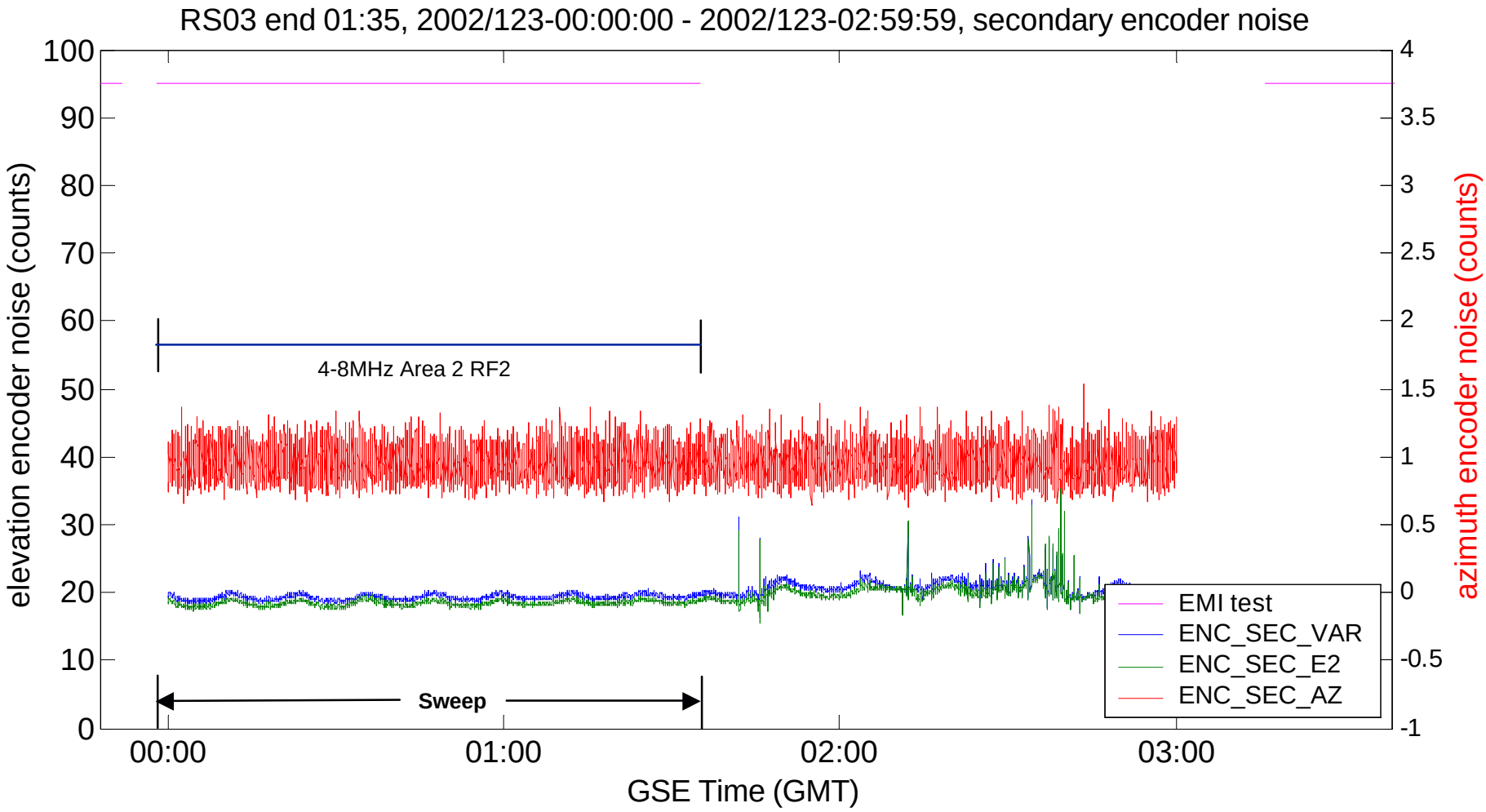
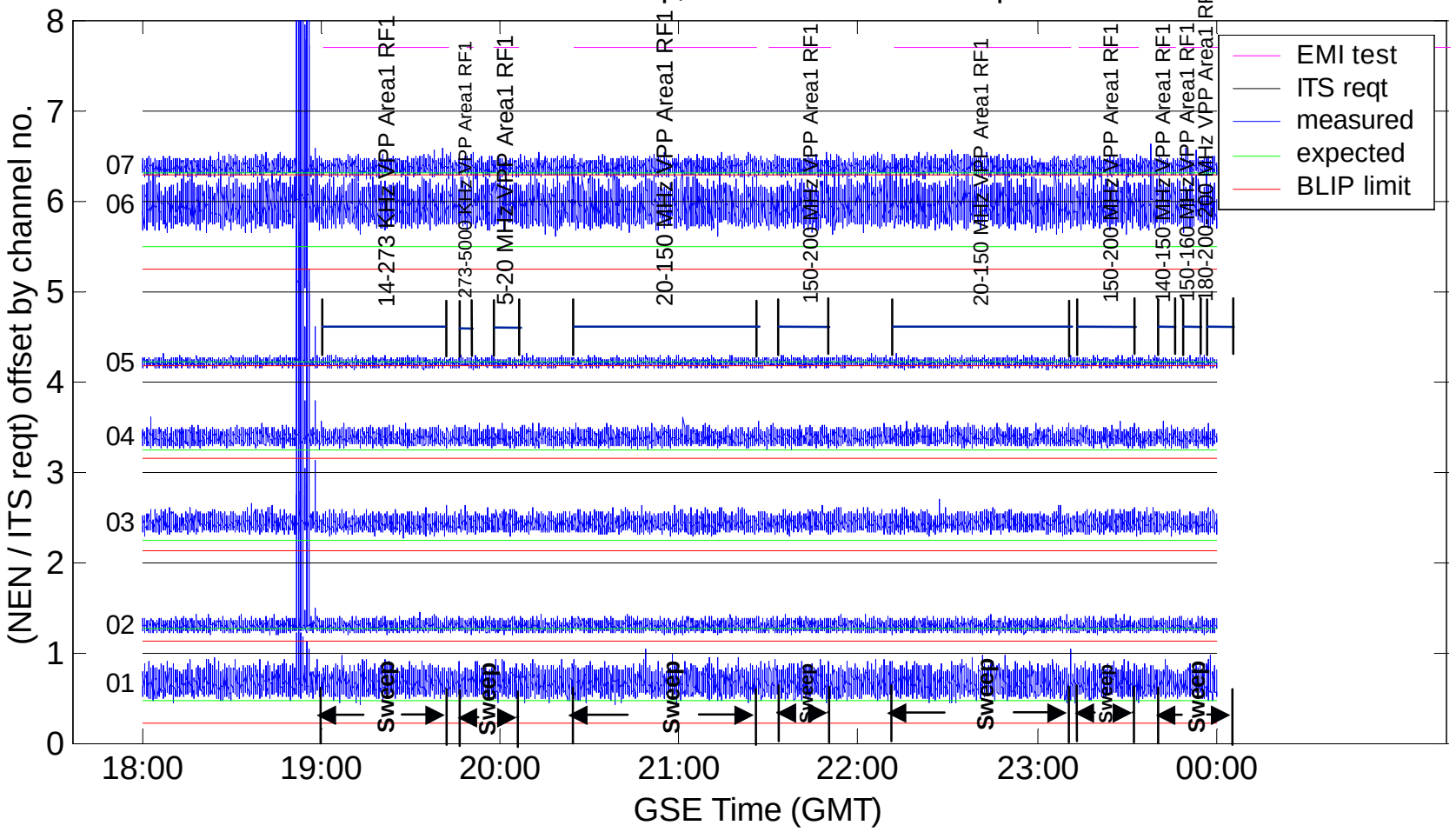
Noise: Secondary Encoders (6 of 6)

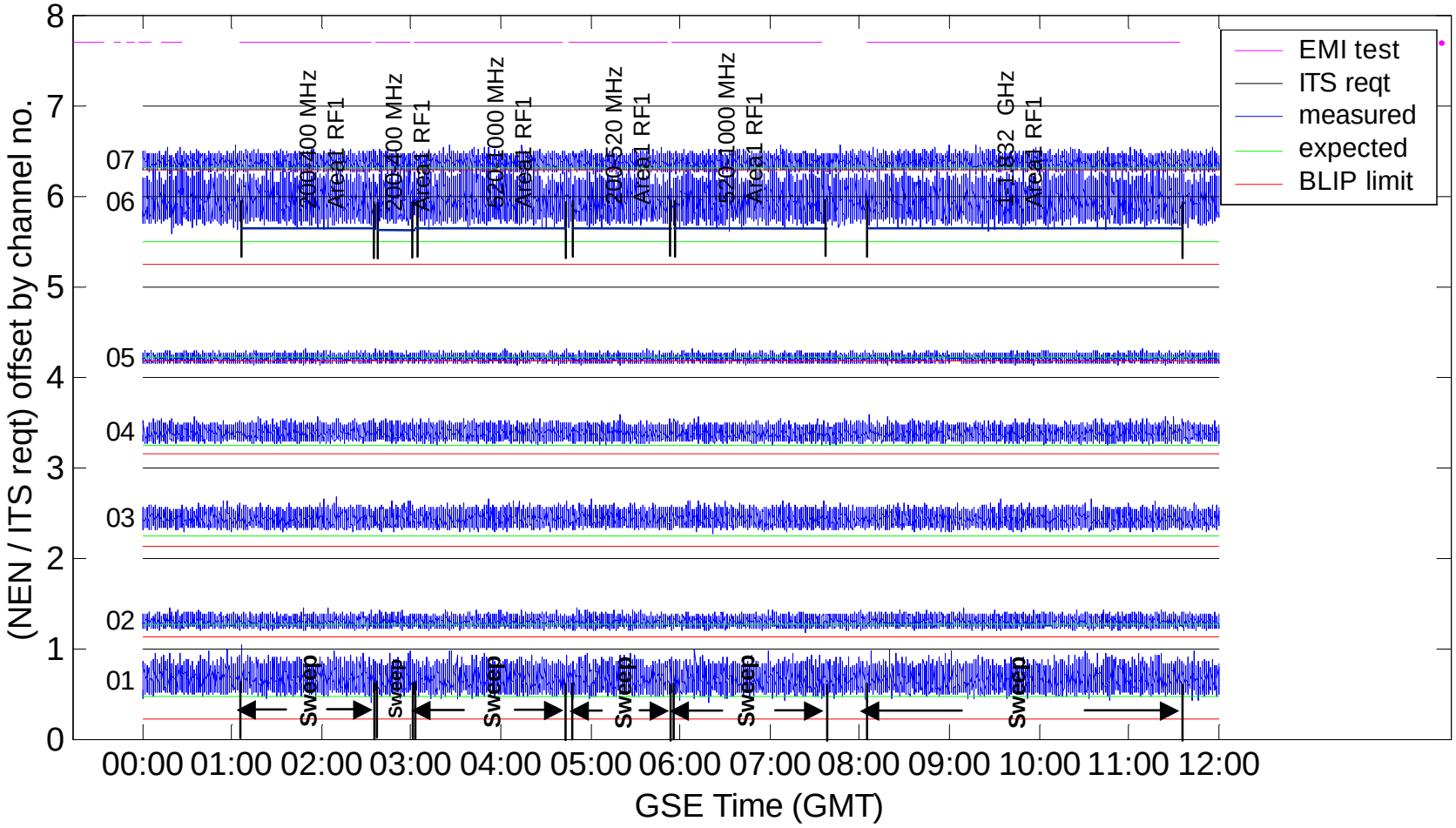


Noise: Radiance Channels 1-7 (1 of 6)

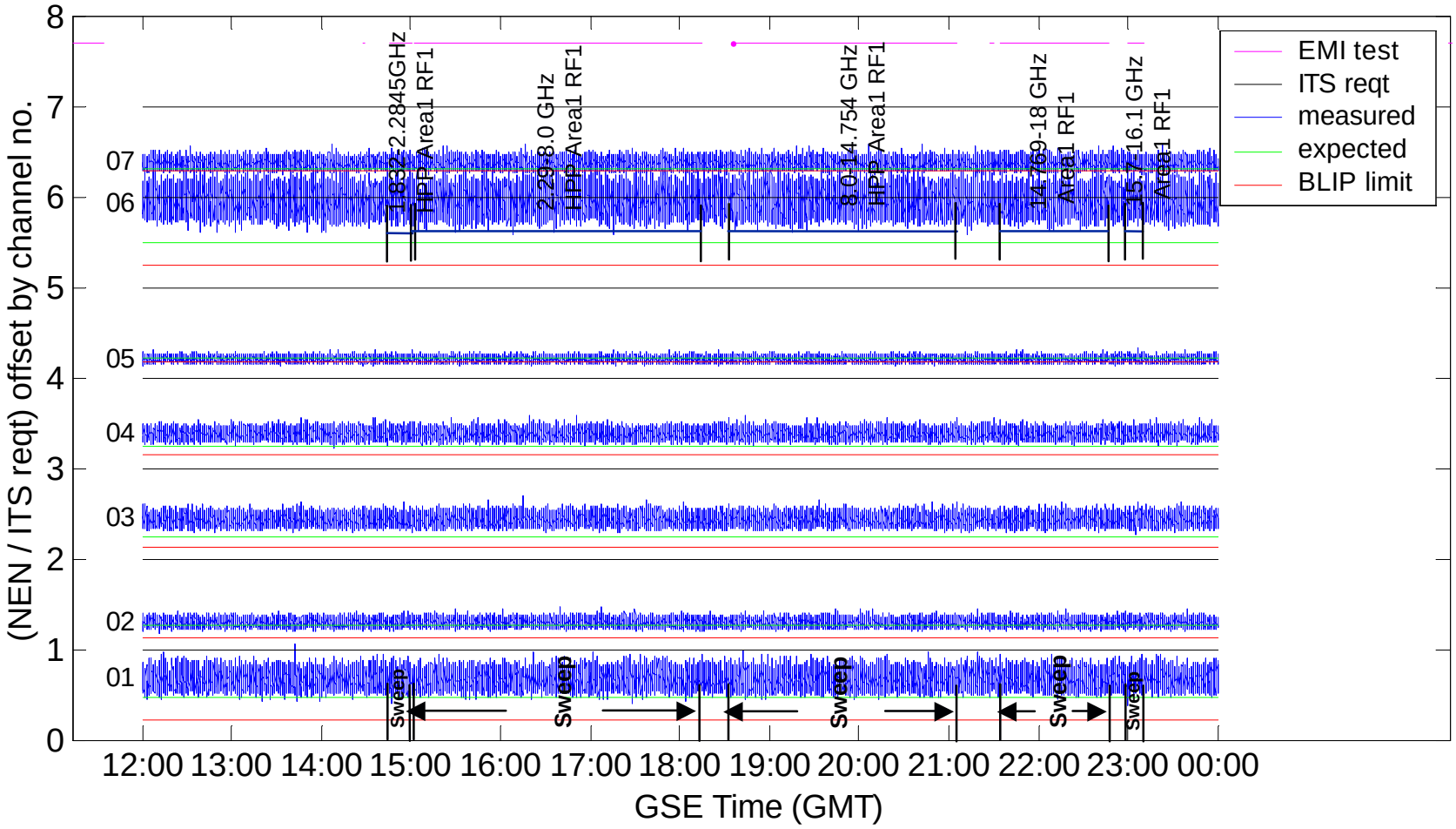


Noise: Radiance Channels 1-7 (2 of 6)

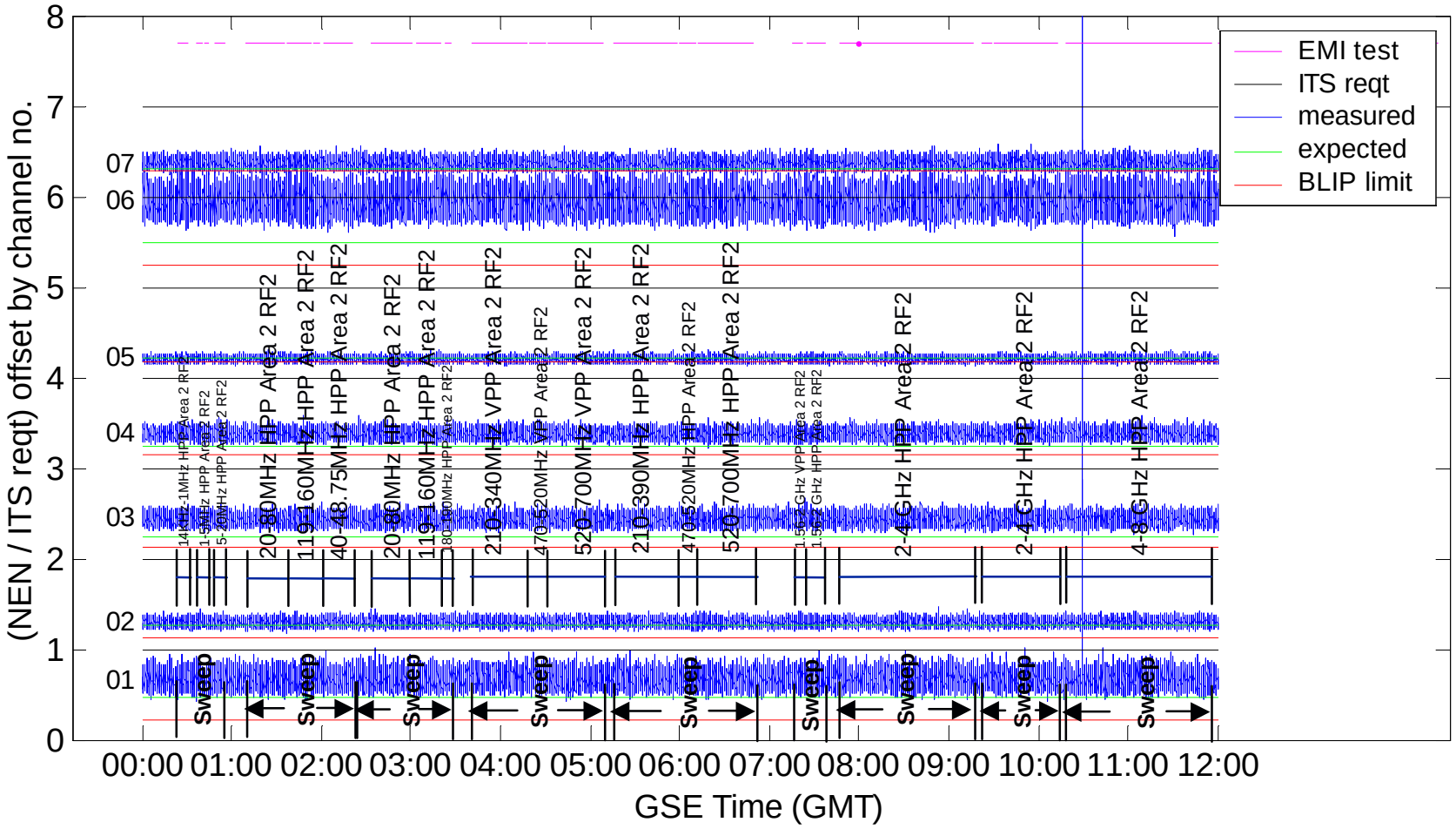
RS03, 2002/121-00:00:00 - 2002/121-11:59:59, radiance noise ch 1-7
Ratio of NEN in 7.66-Hz BW to ITS reqt, with BLIP limit and expected value for cold source



Noise: Radiance Channels 1-7 (3 of 6)

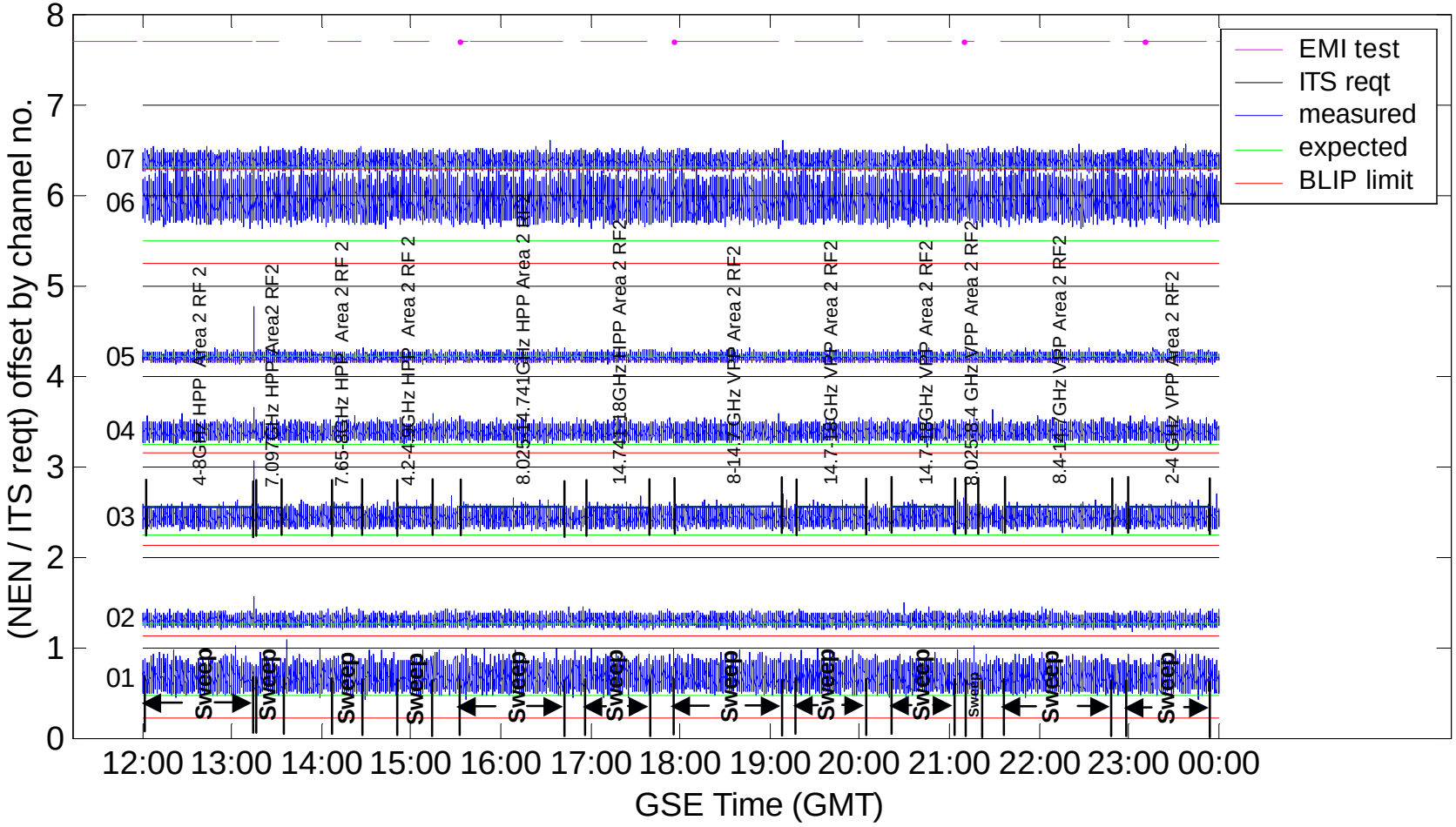


Noise: Radiance Channels 1-7 (4 of 6)

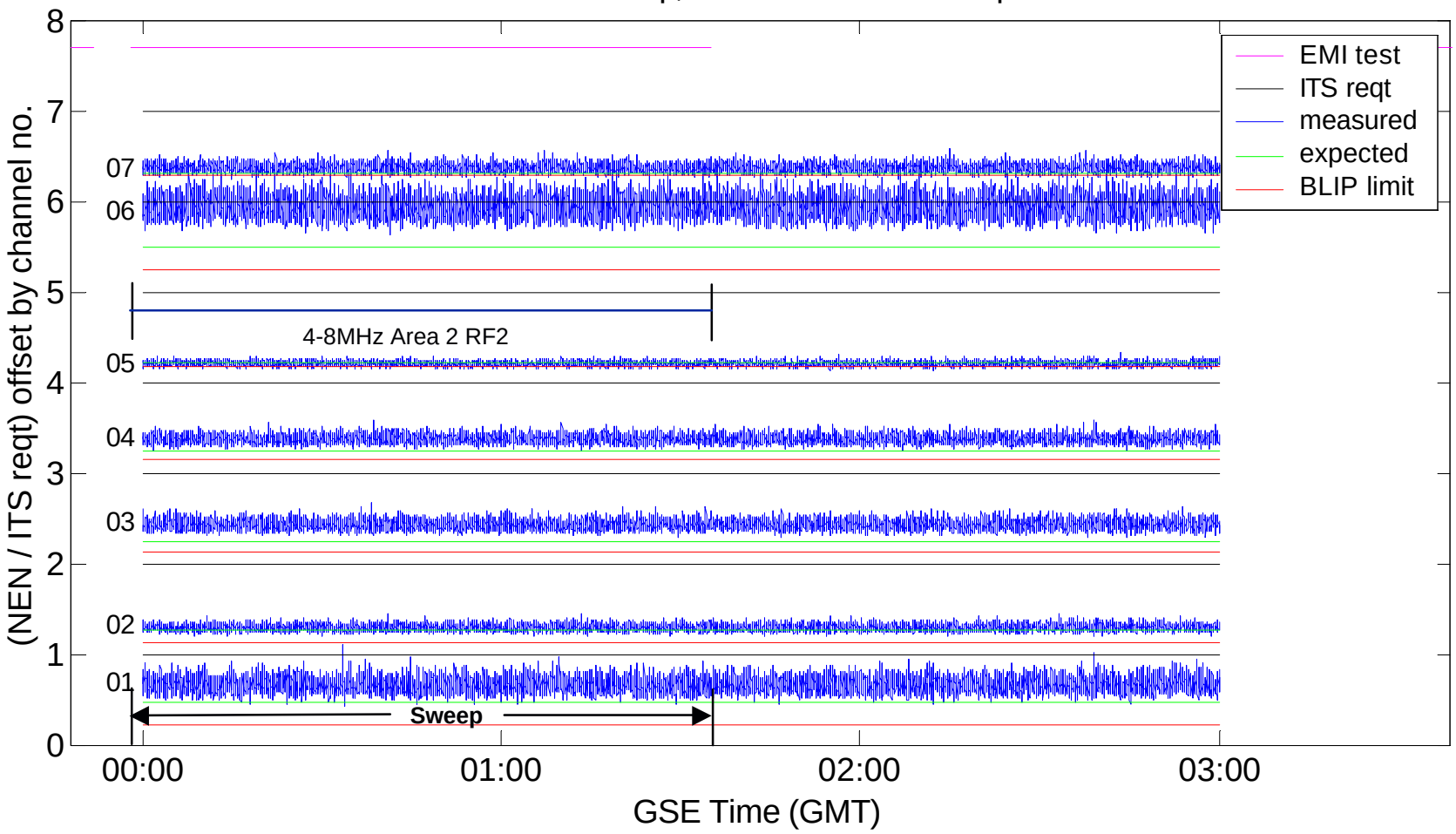


Noise: Radiance Channels 1-7 (5 of 6)

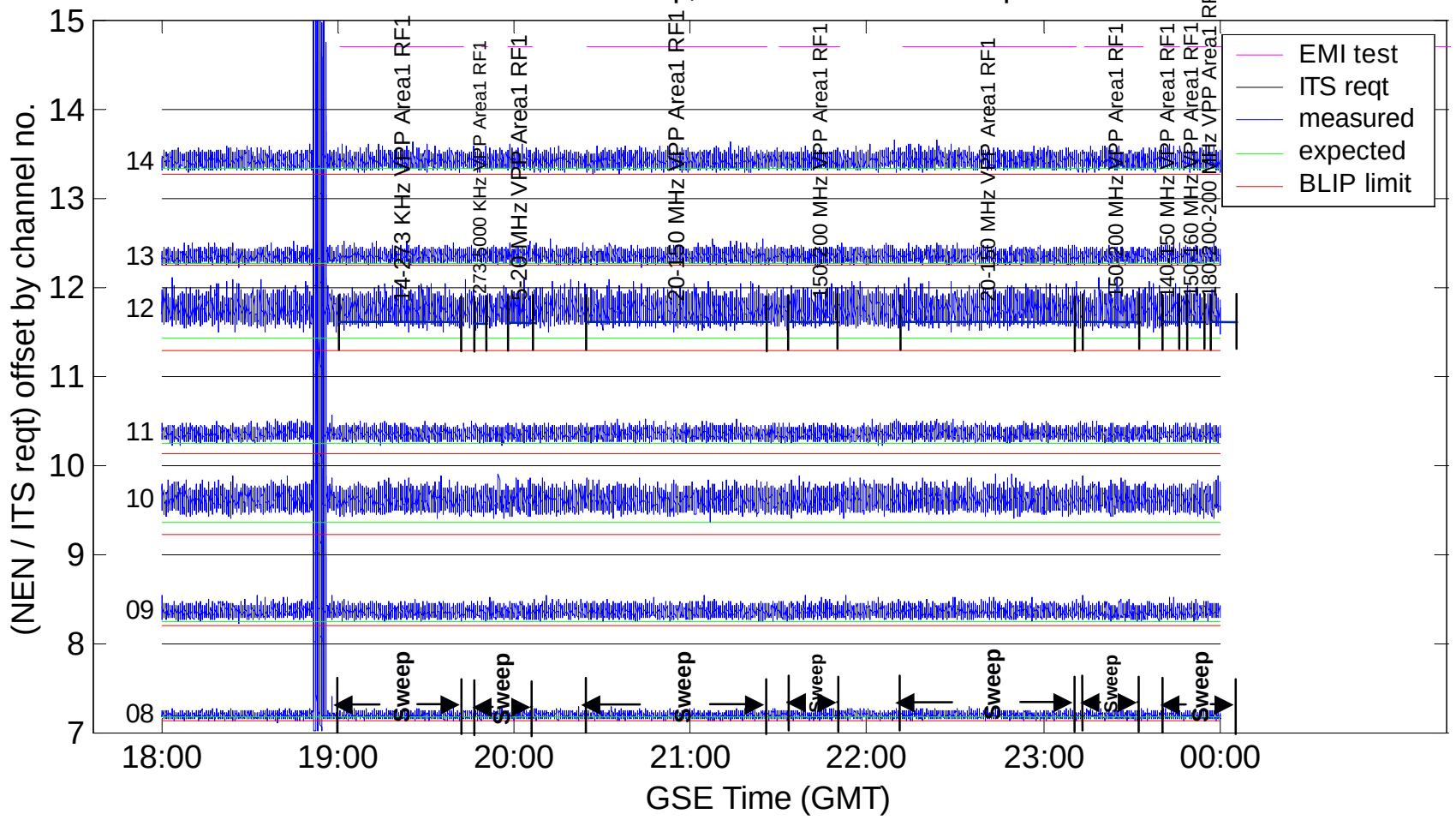
RS03, 2002/122-12:00:00 - 2002/122-23:59:59, radiance noise ch 1-7
Ratio of NEN in 7.66-Hz BW to ITS reqt, with BLIP limit and expected value for cold source



Noise: Radiance Channels 1-7 (6 of 6)

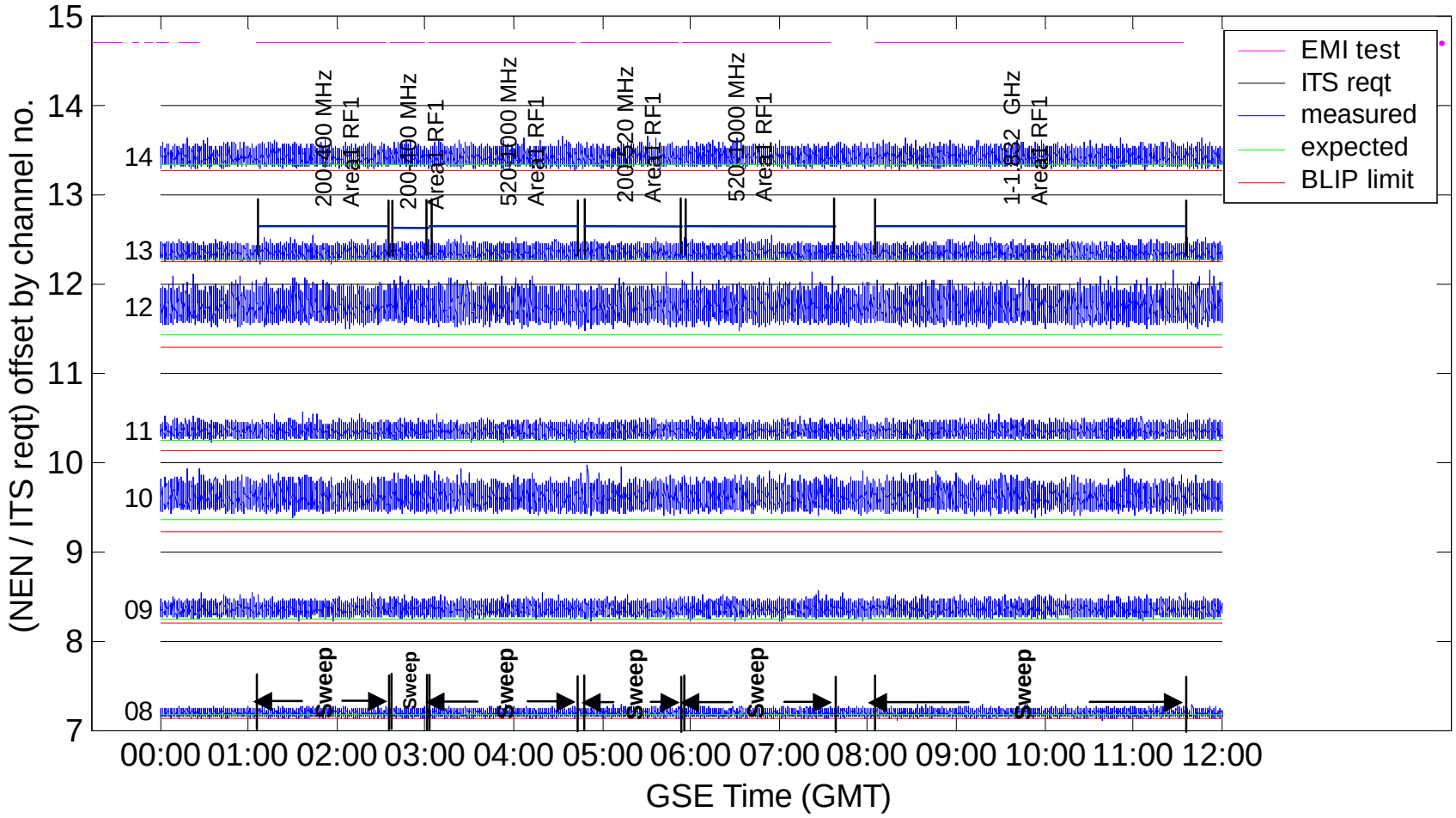


Noise: Radiance Channels 8-14 (1 of 6)



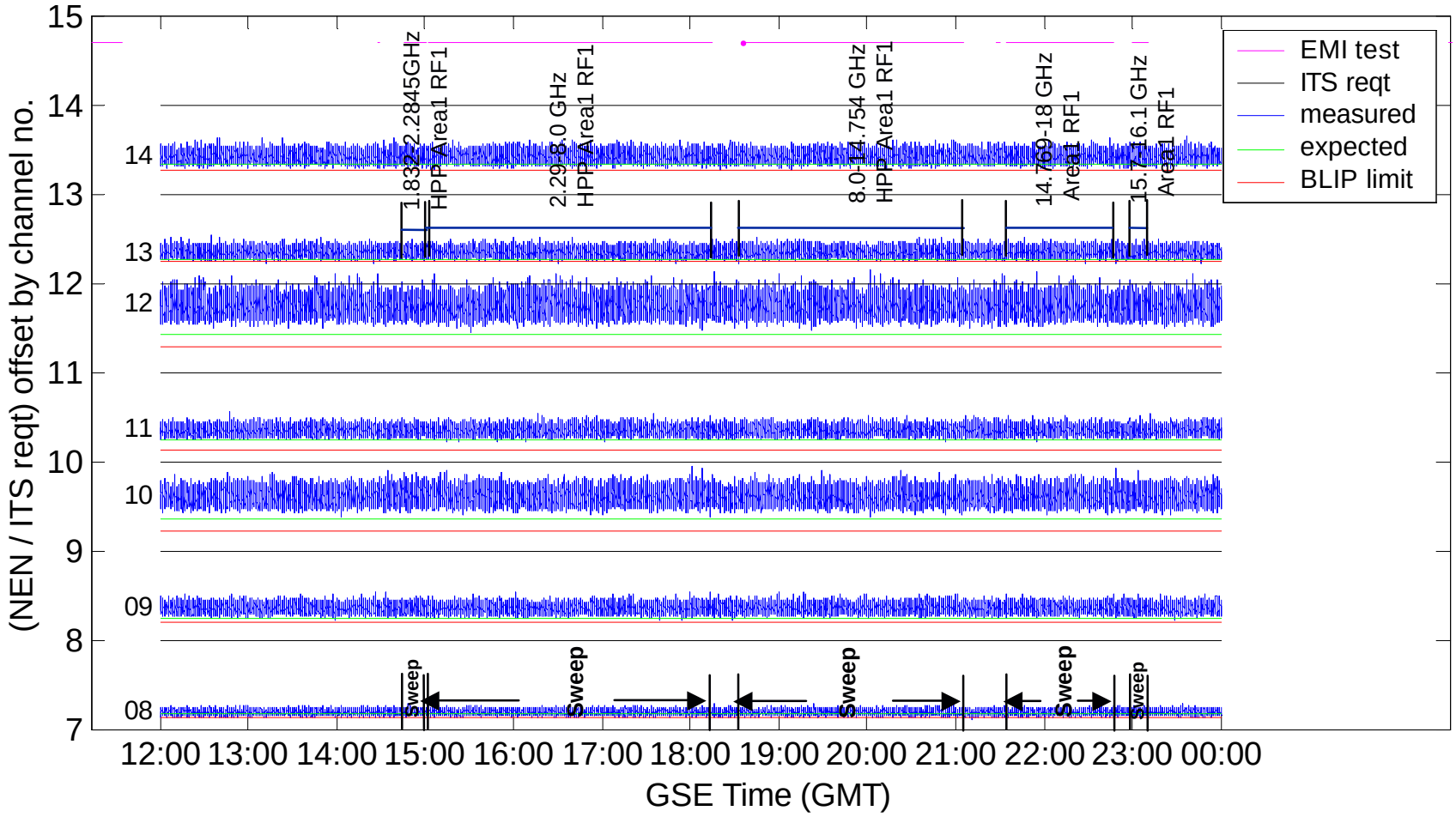
Noise: Radiance Channels 8-14 (2 of 6)

RS03, 2002/121-00:00:00 - 2002/121-11:59:59, radiance noise ch 8-14
Ratio of NEN in 7.66-Hz BW to ITS reqt, with BLIP limit and expected value for cold source

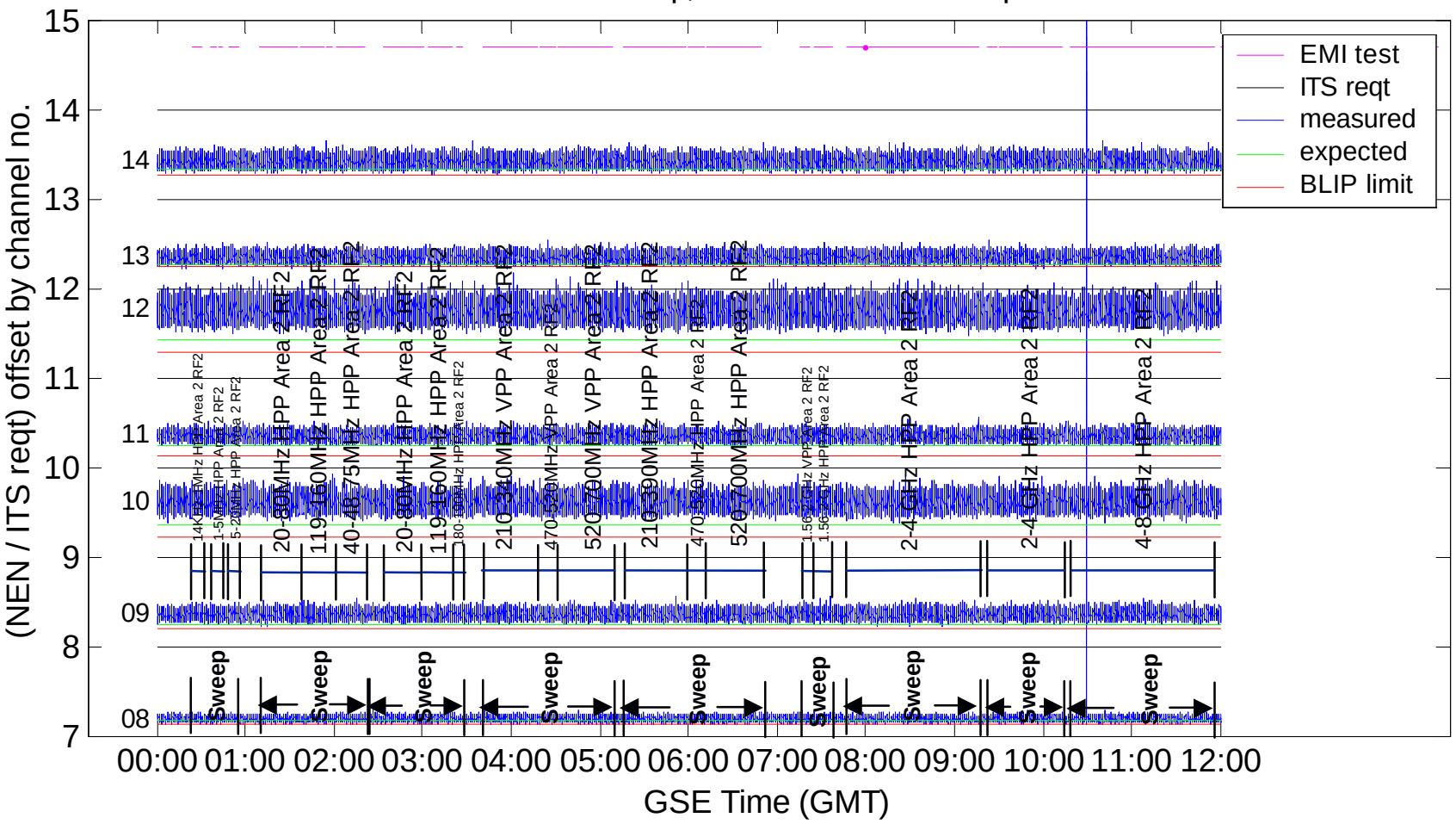


Noise: Radiance Channels 8-14 (3 of 6)

RS03, 2002/121-12:00:00 - 2002/121-23:59:59, radiance noise ch 8-14
Ratio of NEN in 7.66-Hz BW to ITS reqt, with BLIP limit and expected value for cold source

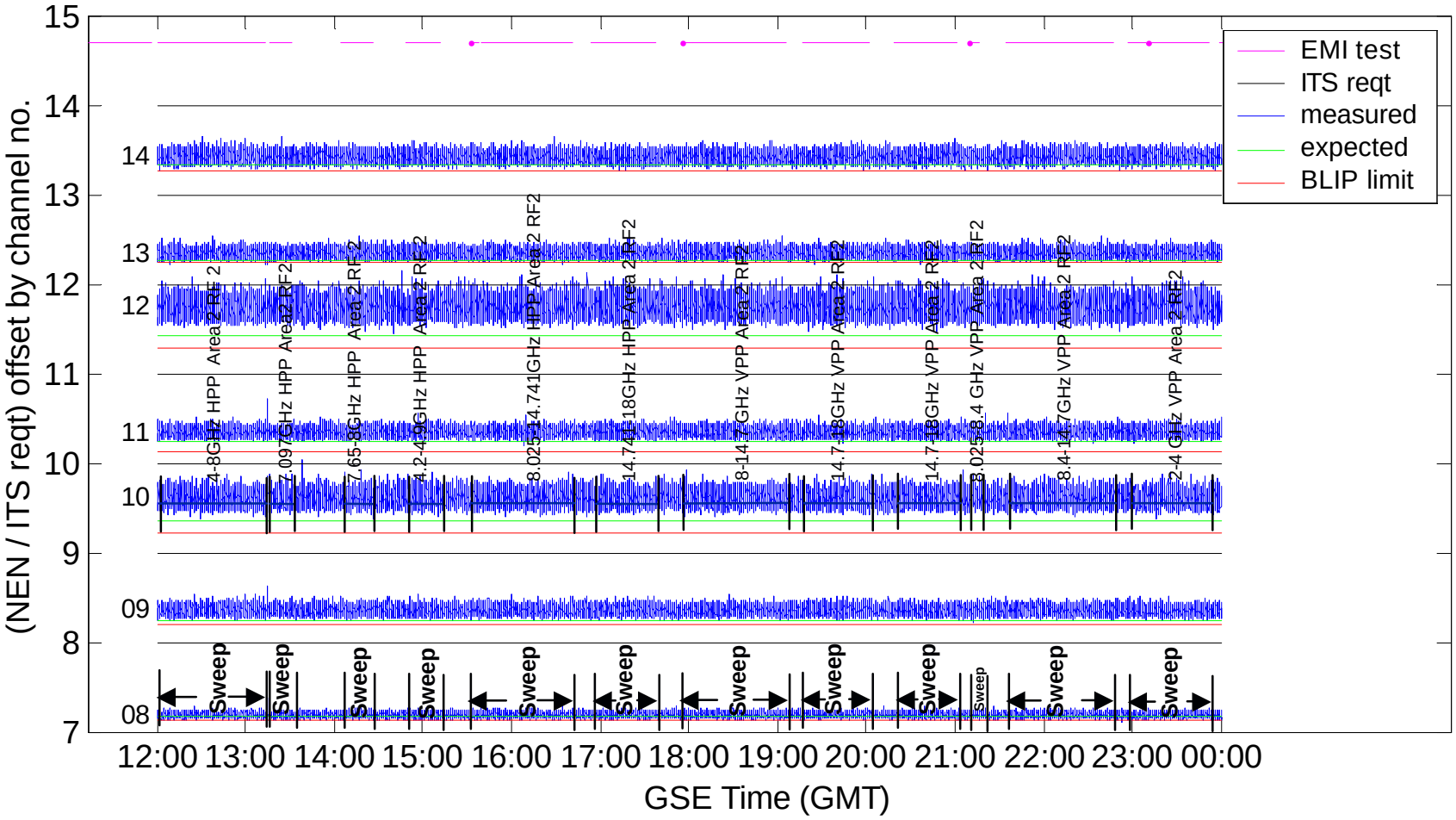


Noise: Radiance Channels 8-14 (4 of 6)

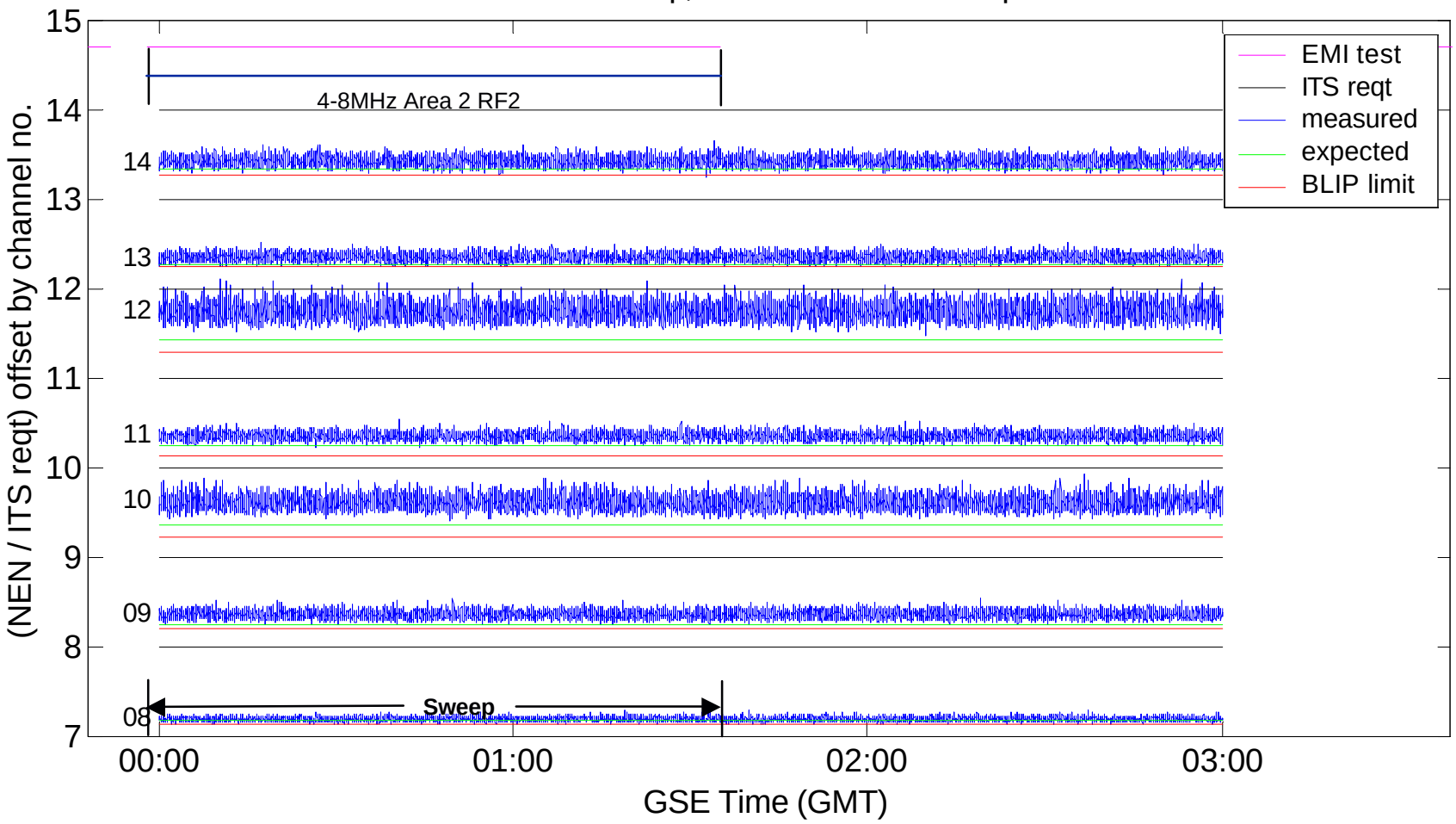


Noise: Radiance Channels 8-14 (5 of 6)

RS03, 2002/122-12:00:00 - 2002/122-23:59:59, radiance noise ch 8-14
Ratio of NEN in 7.66-Hz BW to ITS reqt, with BLIP limit and expected value for cold source

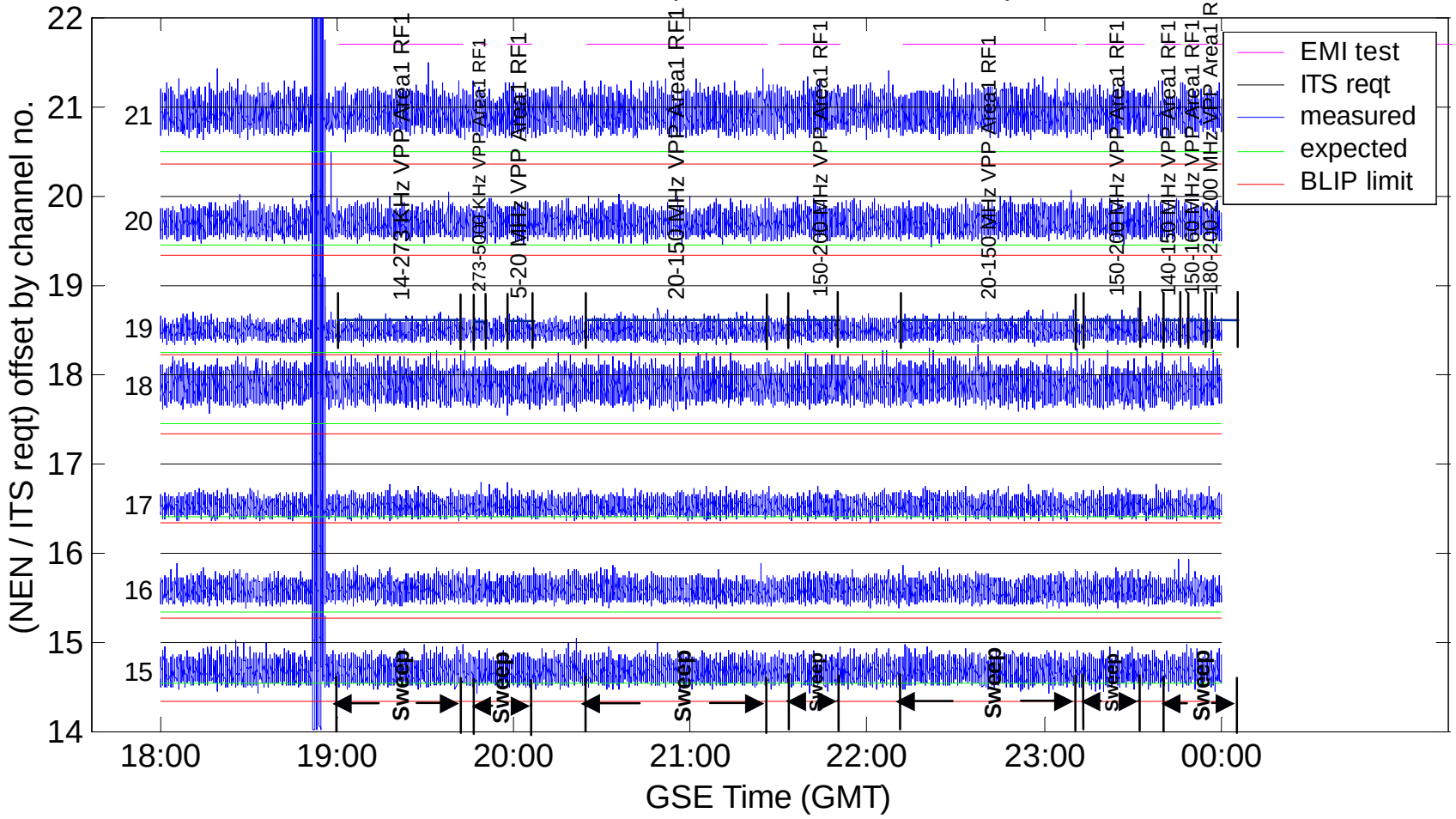


Noise: Radiance Channels 8-14 (6 of 6)



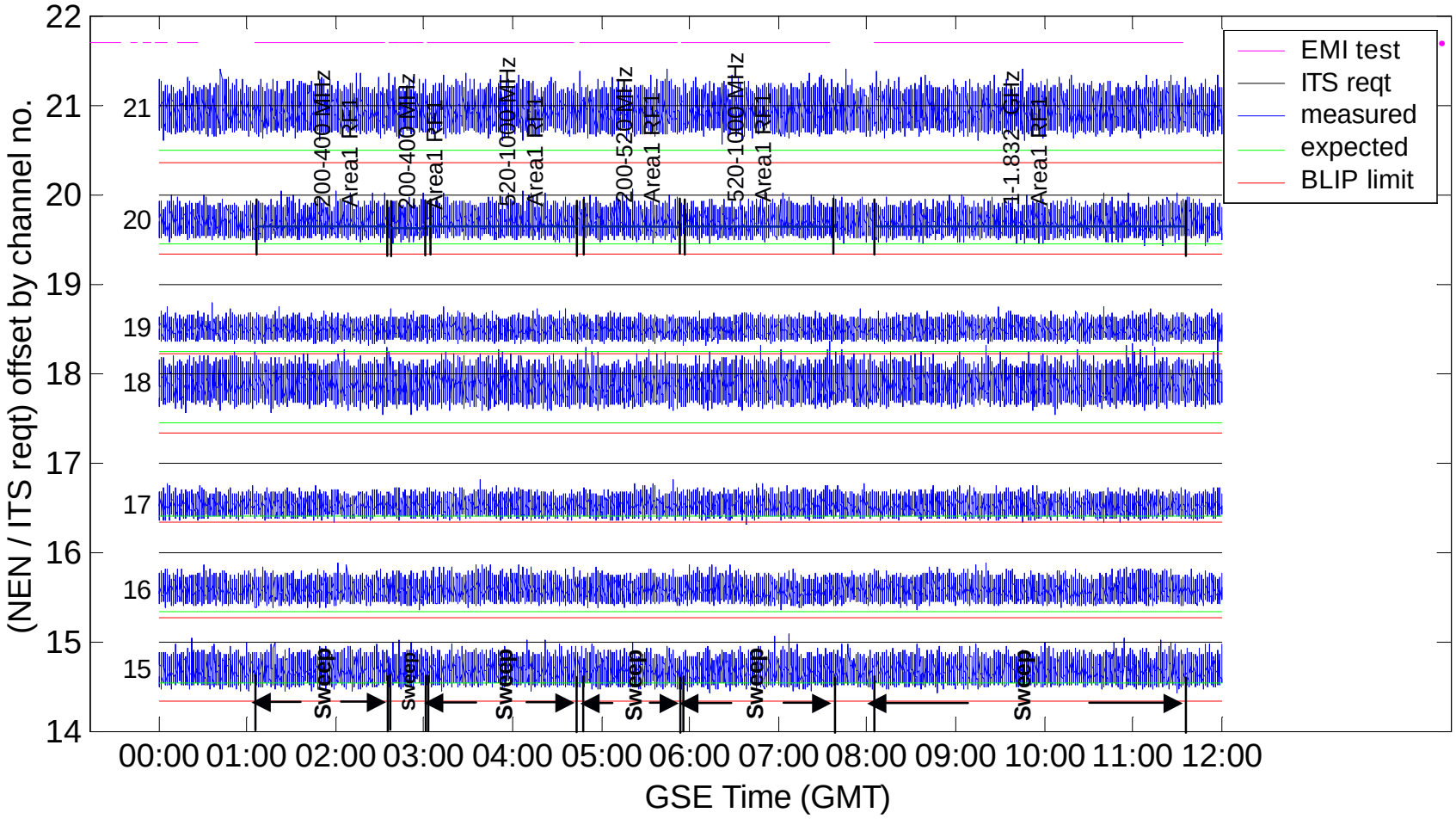
Noise: Radiance Channels 15-21 (1 of 6)

RS03 start 19:00, 2002/120-18:00:00 - 2002/120-23:59:59, radiance noise ch 15-21
Ratio of NEN in 7.66-Hz BW to ITS reqt, with BLIP limit and expected value for cold source

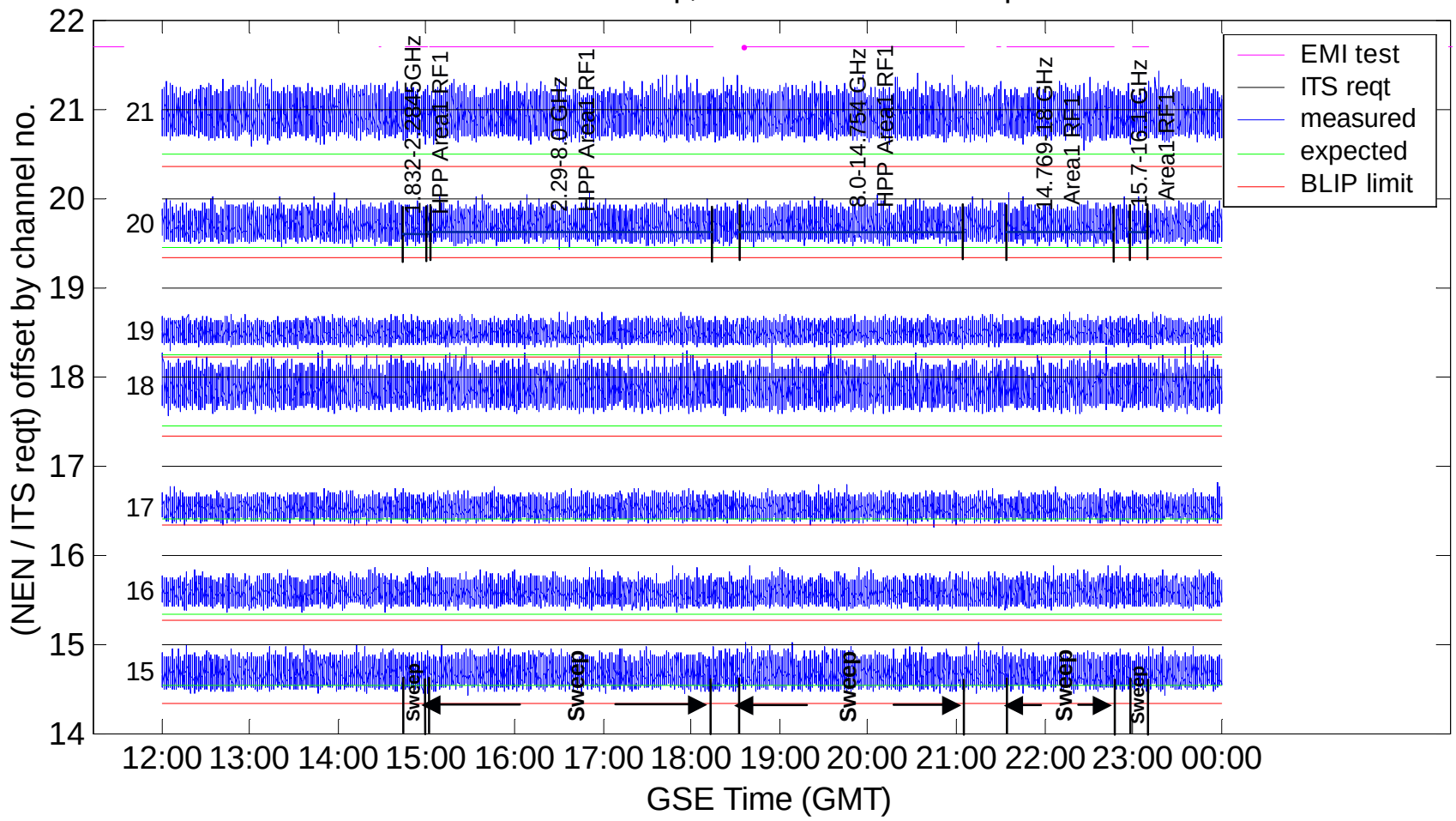


Noise: Radiance Channels 15-21 (2 of 6)

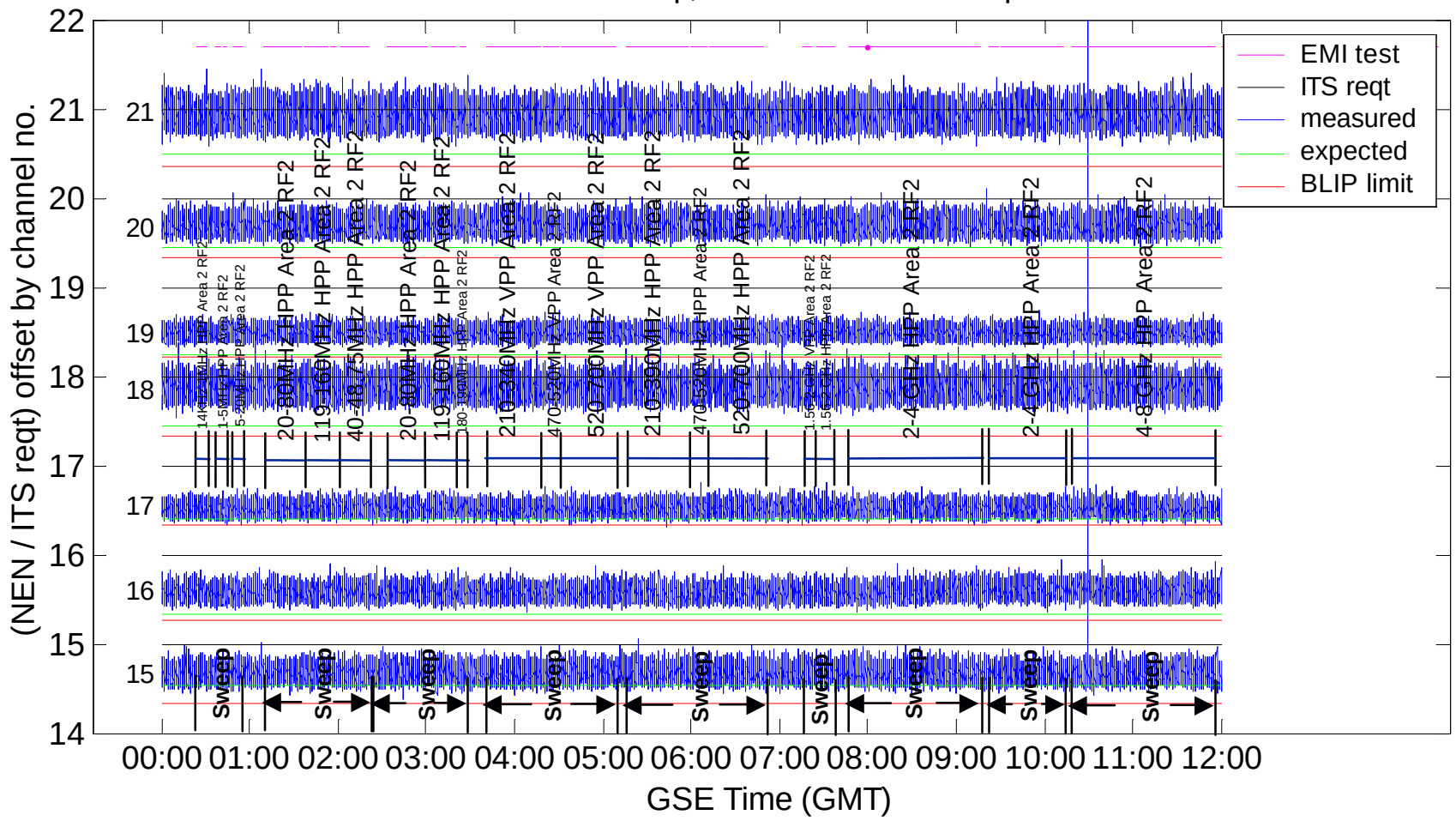
RS03, 2002/121-00:00:00 - 2002/121-11:59:59, radiance noise ch 15-21
Ratio of NEN in 7.66-Hz BW to ITS reqt, with BLIP limit and expected value for cold source



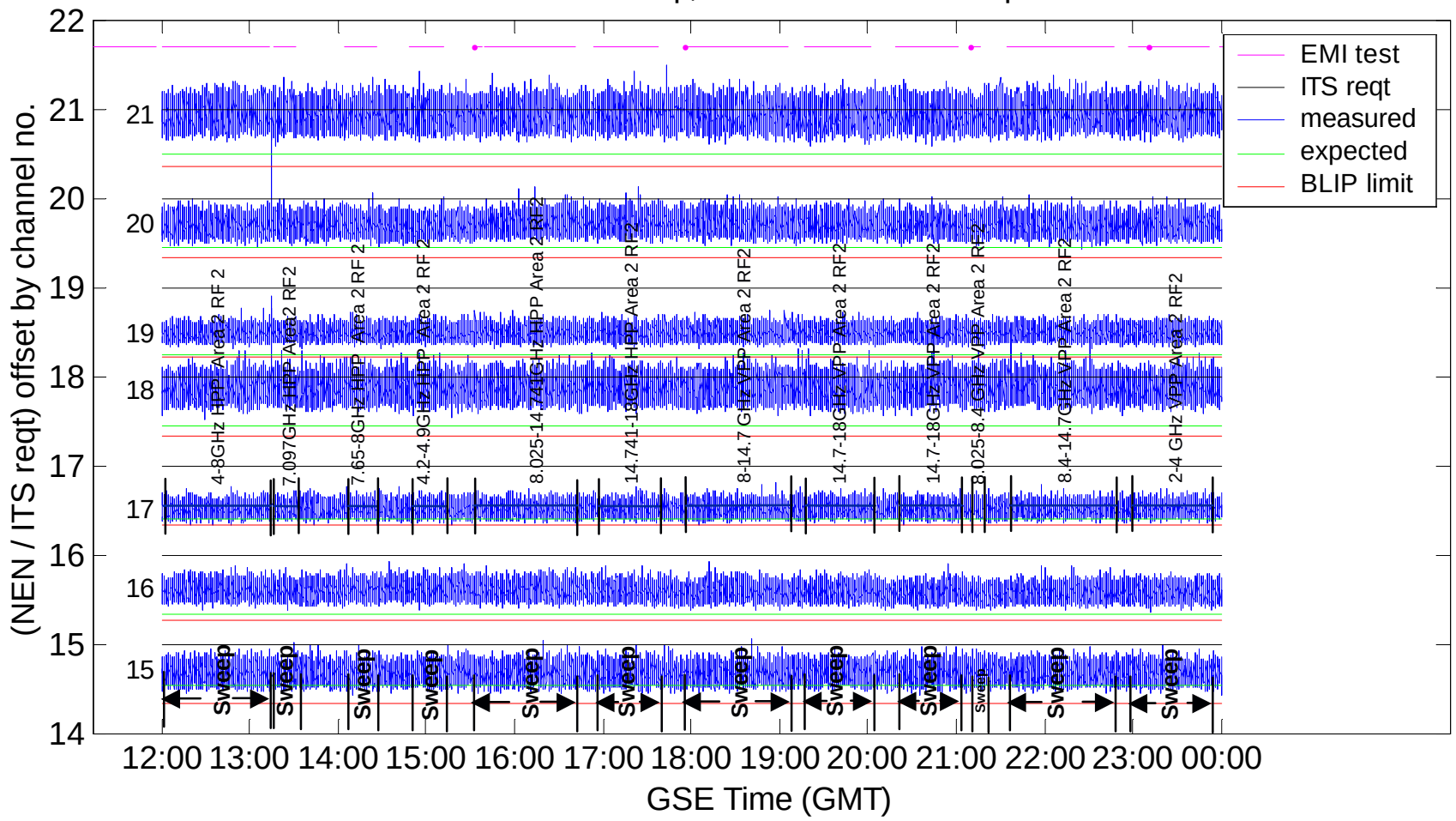
Noise: Radiance Channels 15-21 (3 of 6)



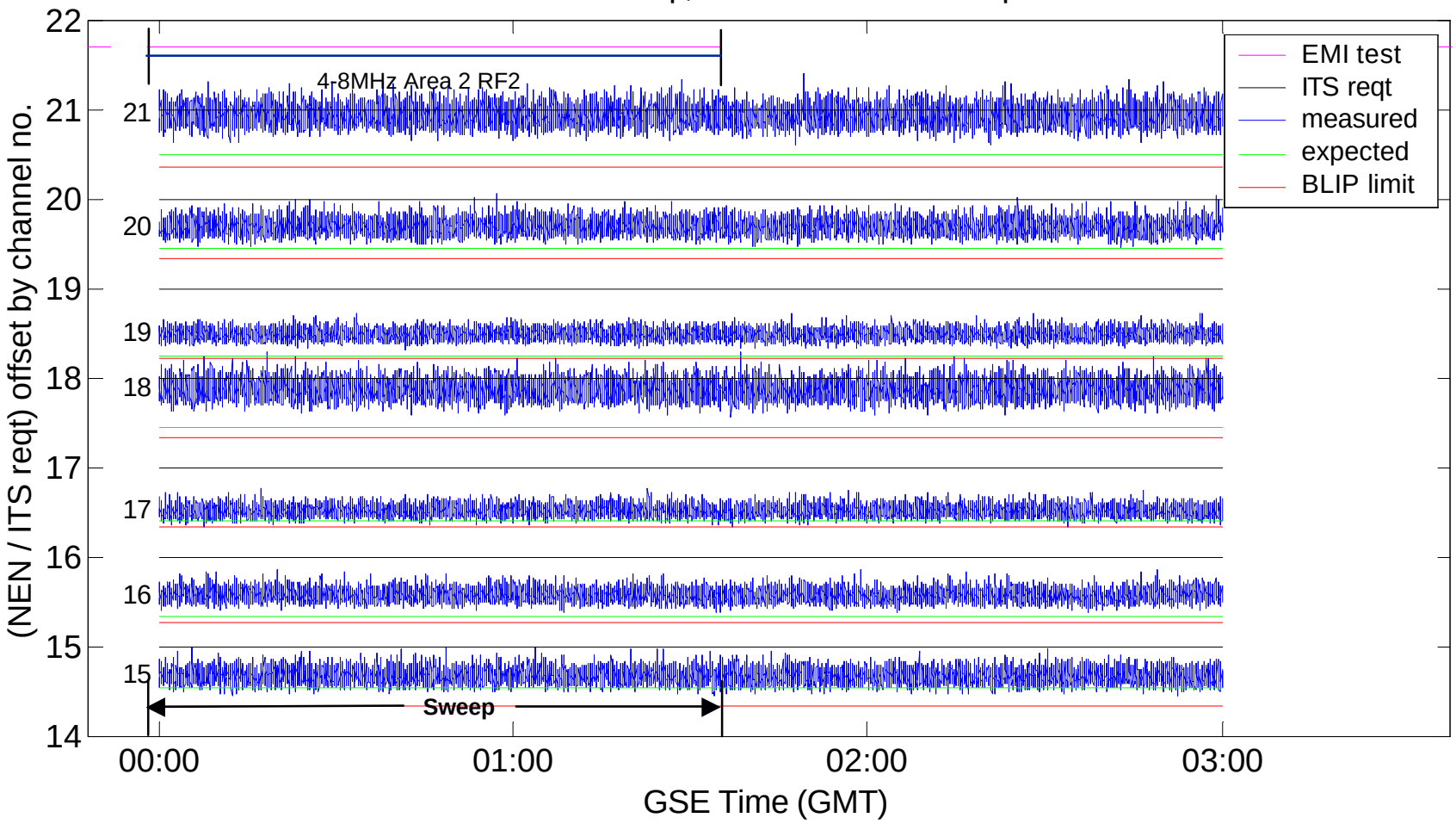
Noise: Radiance Channels 15-21 (4 of 6)



Noise: Radiance Channels 15-21 (5 of 6)

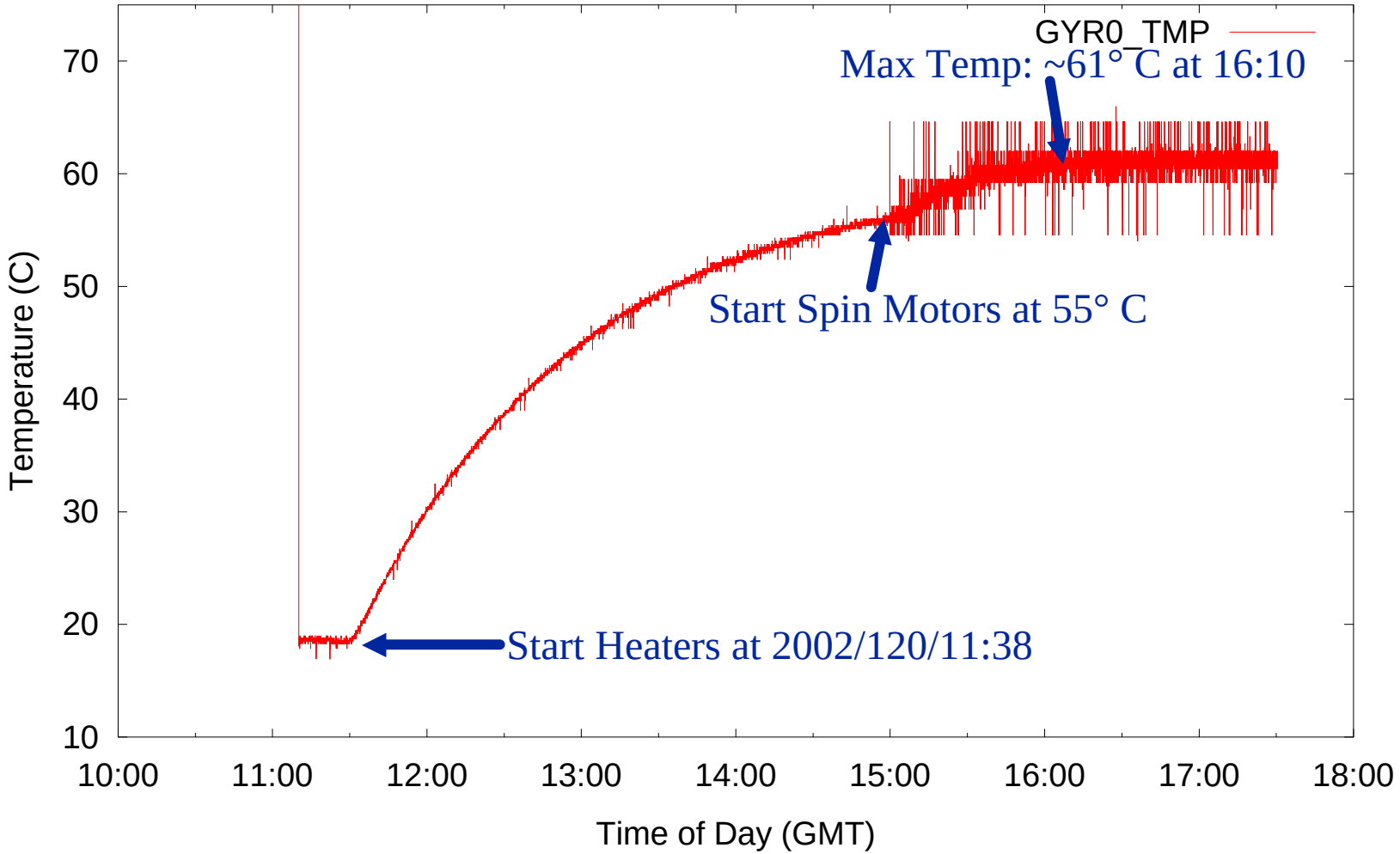


Noise: Radiance Channels 15-21 (6 of 6)



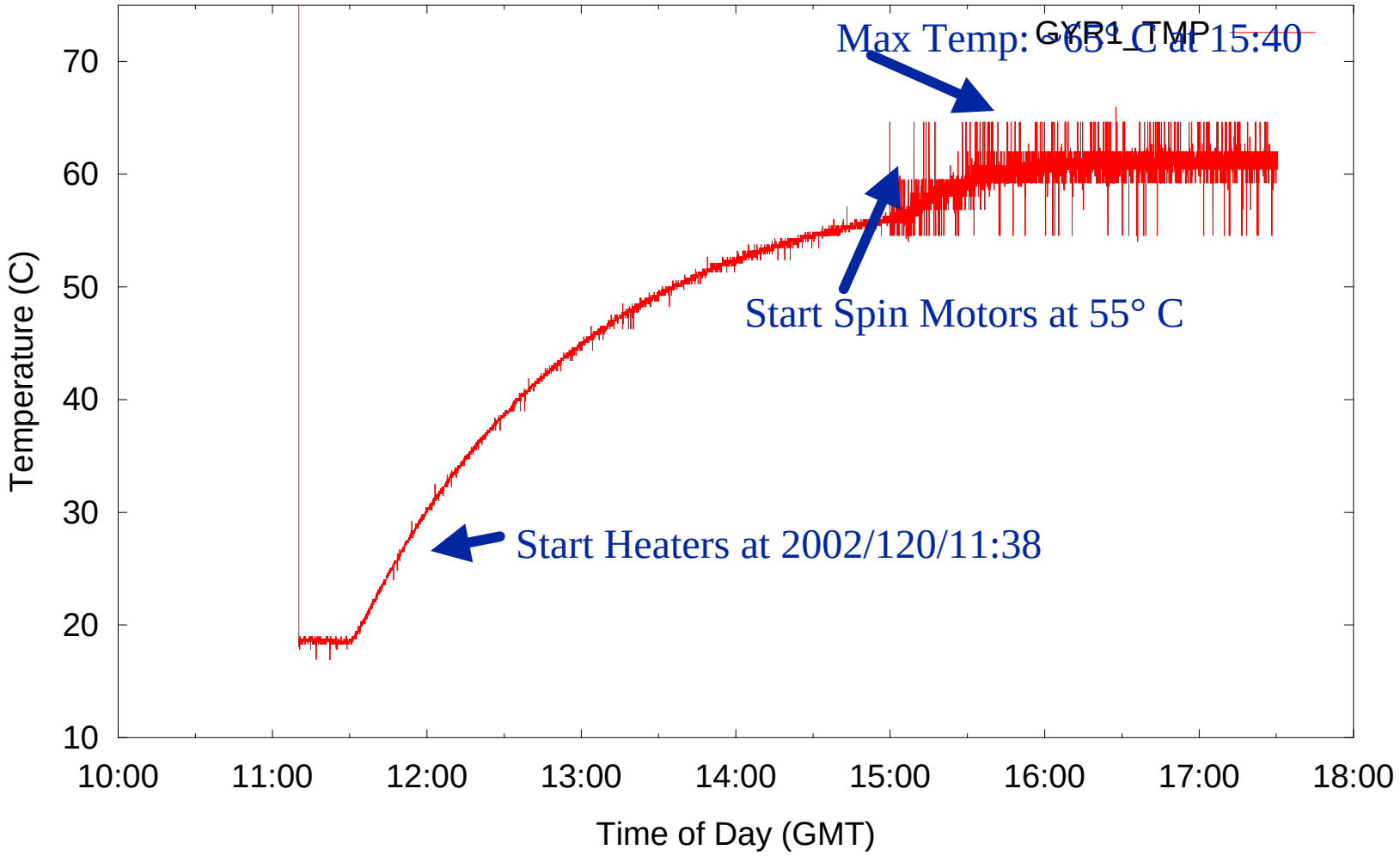
Day 120: Gyro 0 Warm & Spin-up

gyro Temperatures



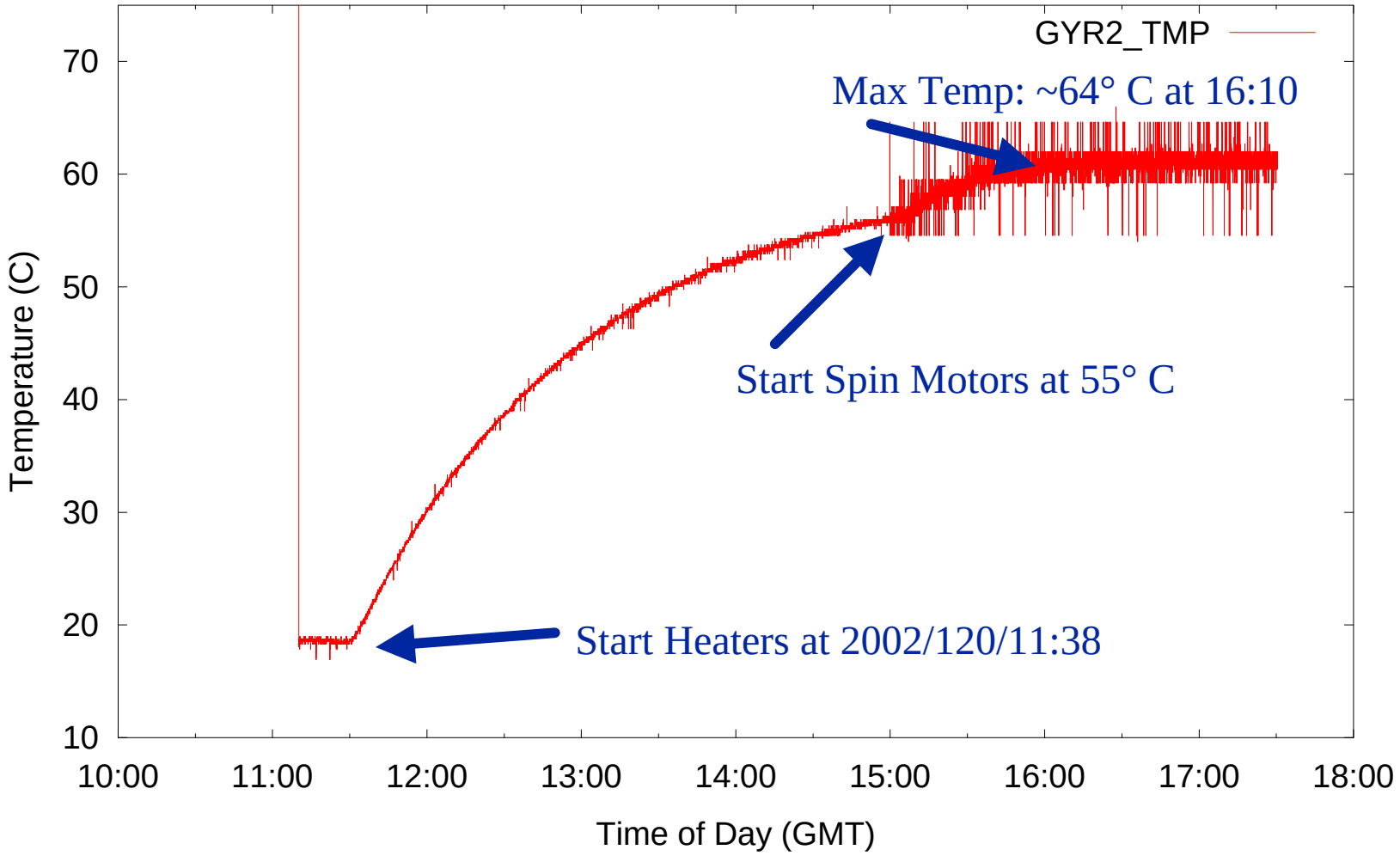
Day 120: Gyro 1 Warm & Spin-up

gyro Temperatures

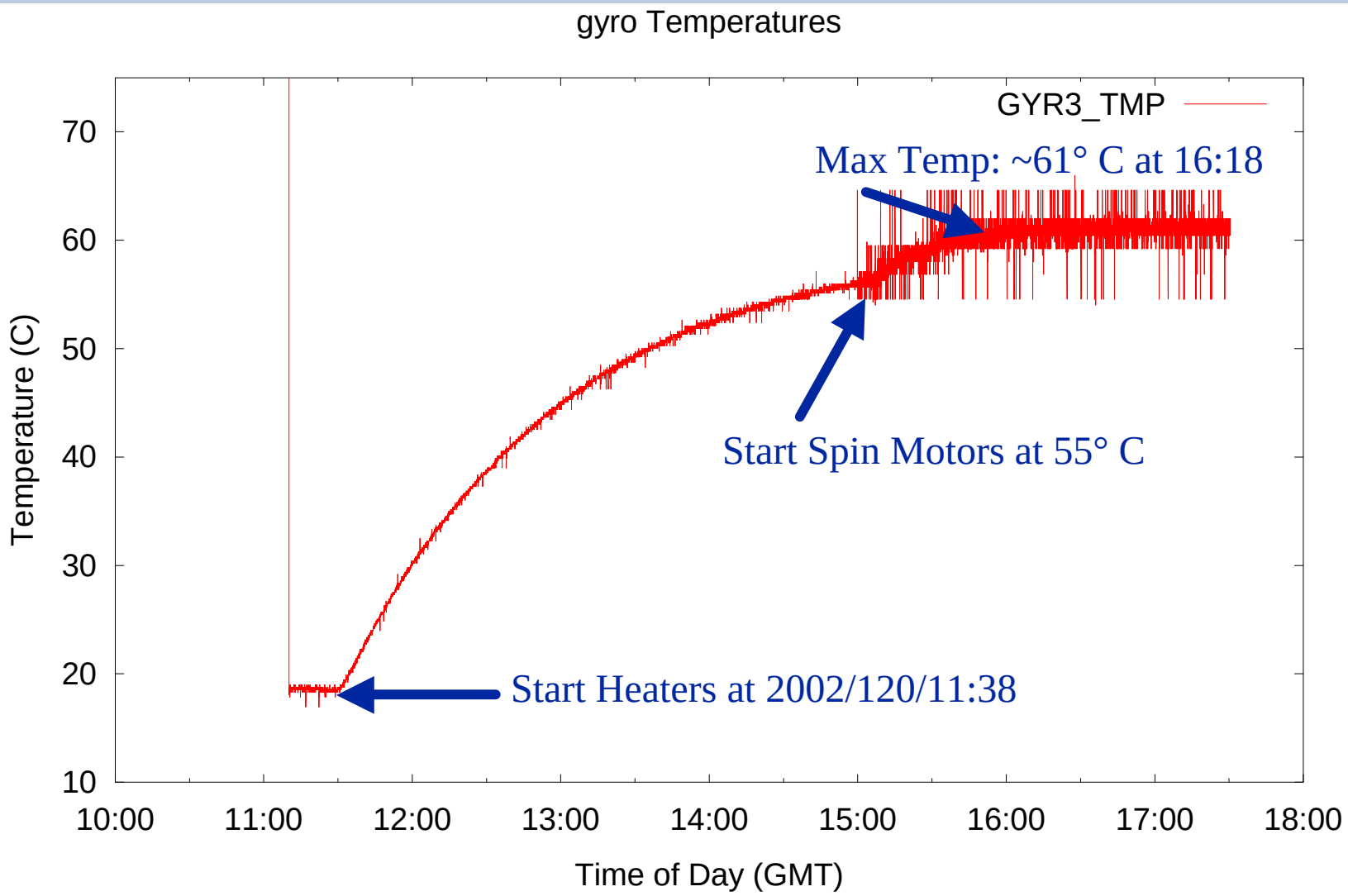


Day 120: Gyro 2 Warm & Spin-up

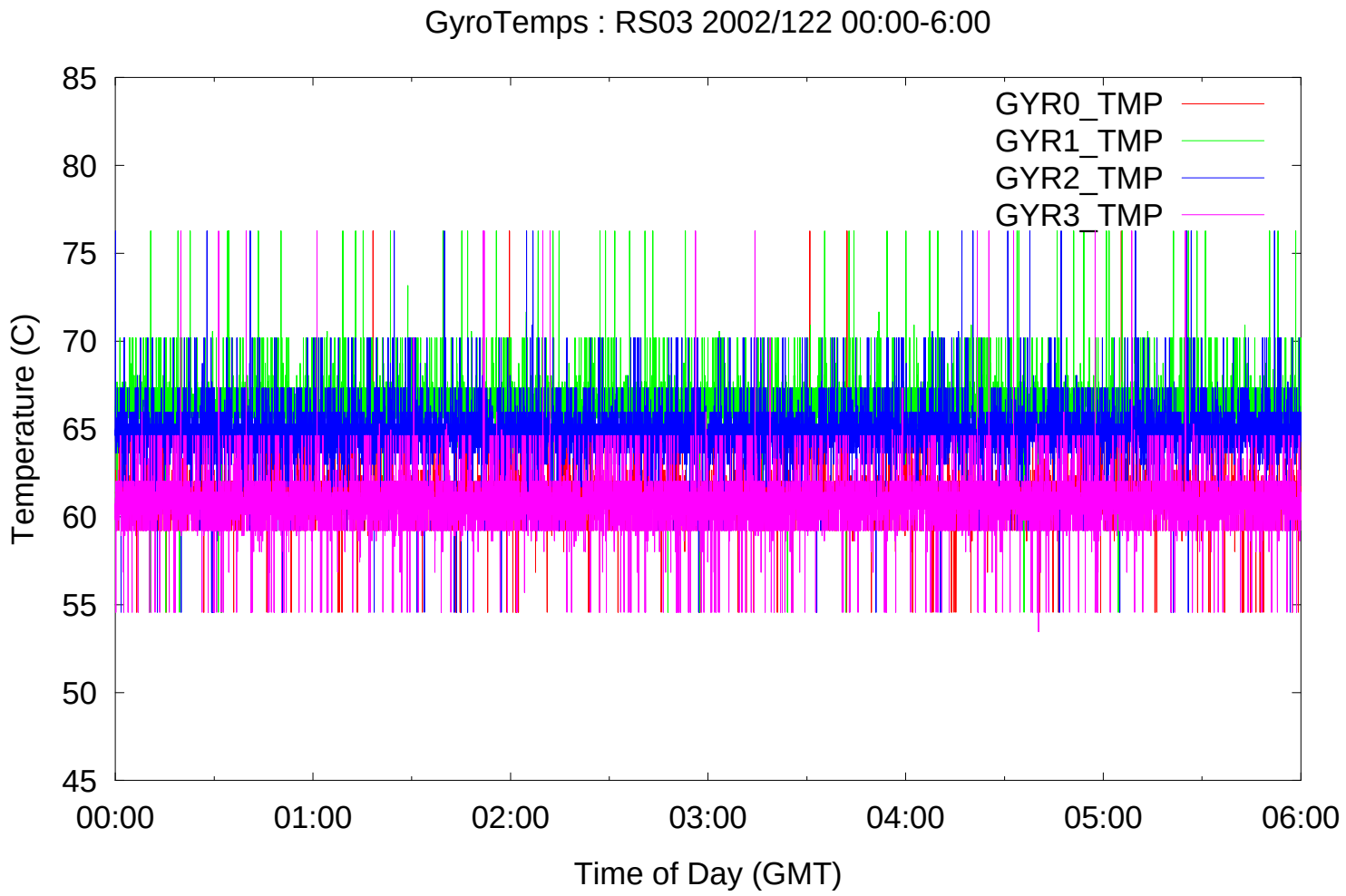
gyro Temperatures



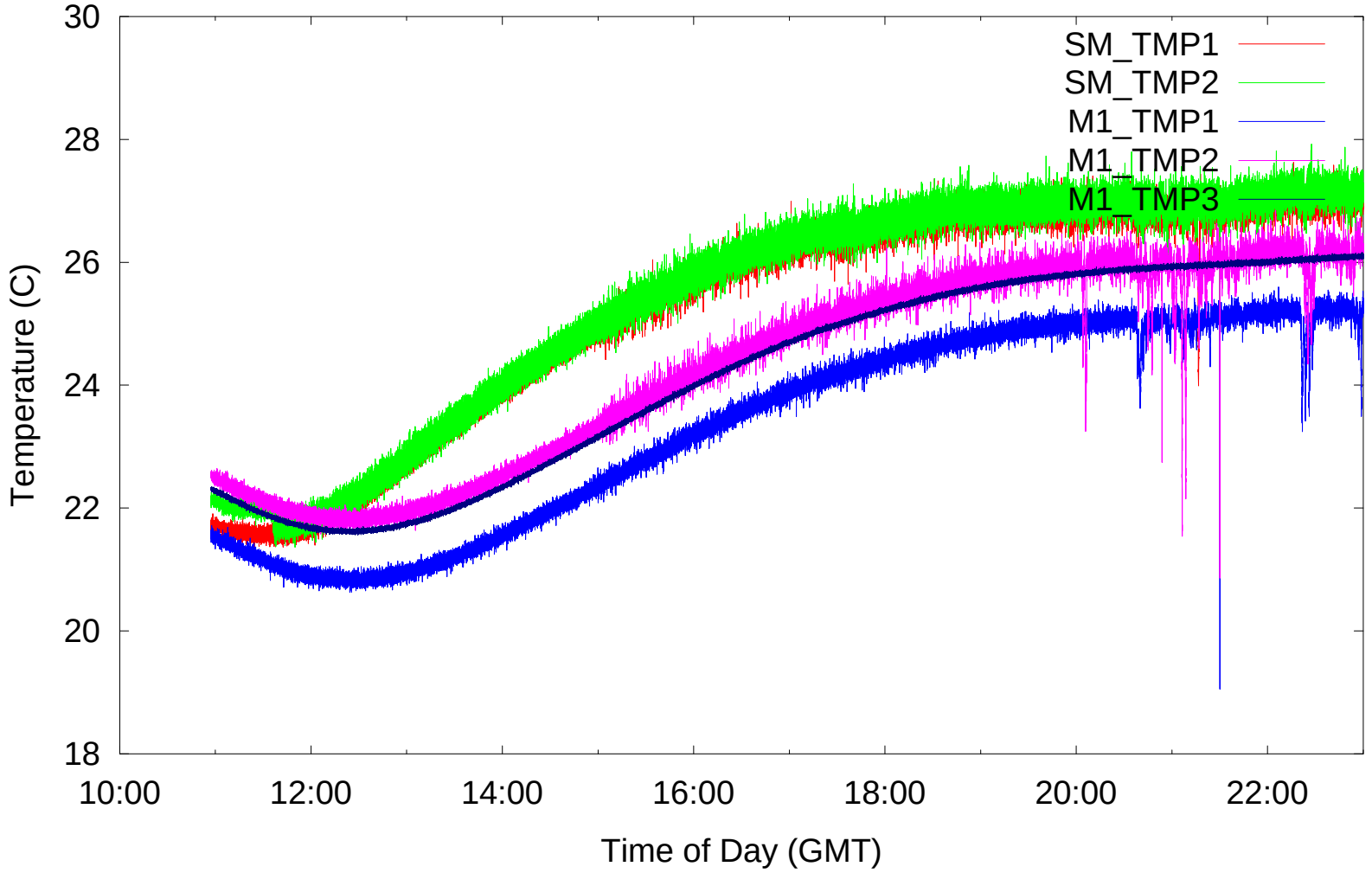
Day 120: Gyro 3 Warm & Spin-up



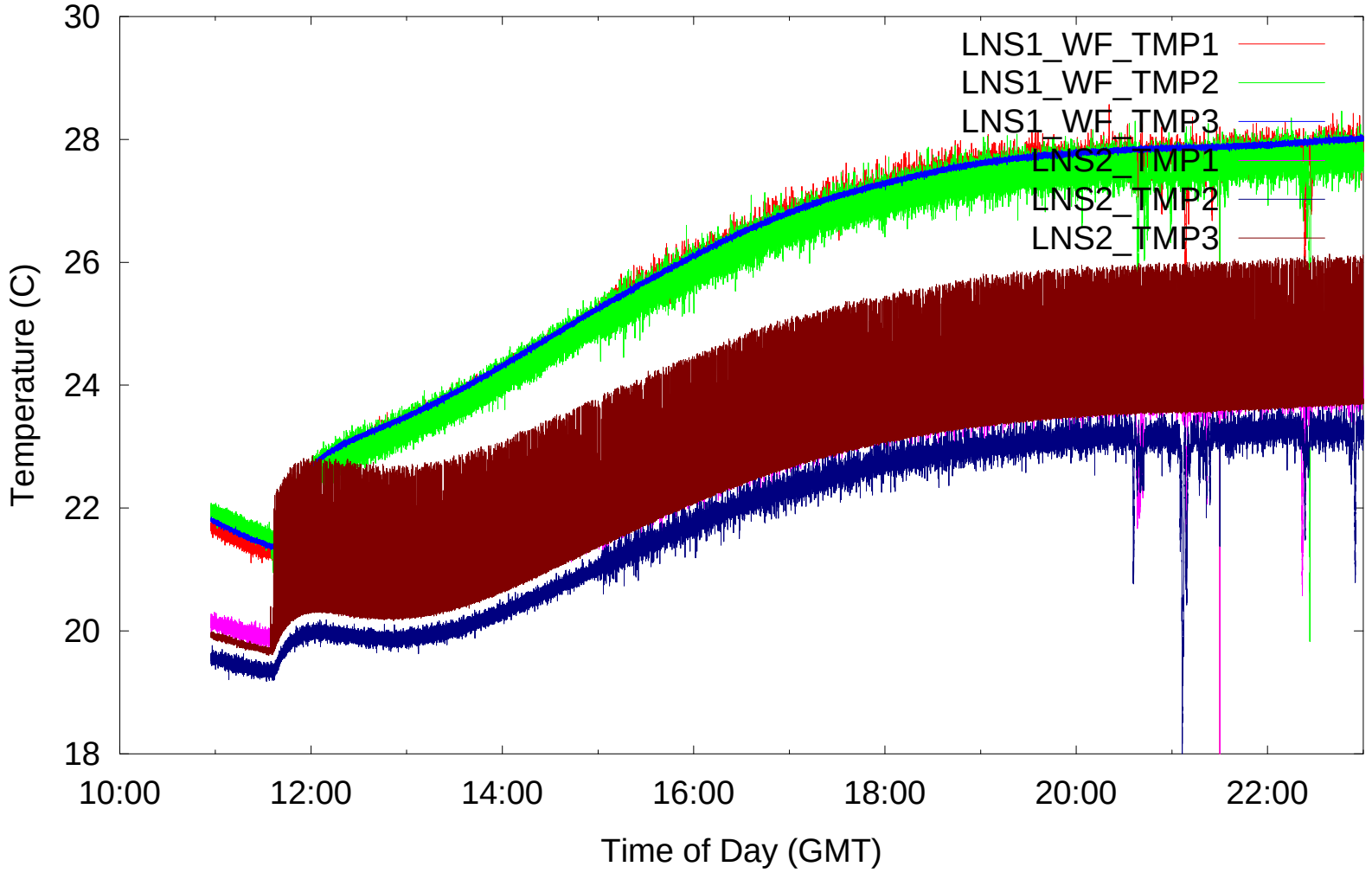
Gyro Temps Day 122/ 00:00 - 06:00



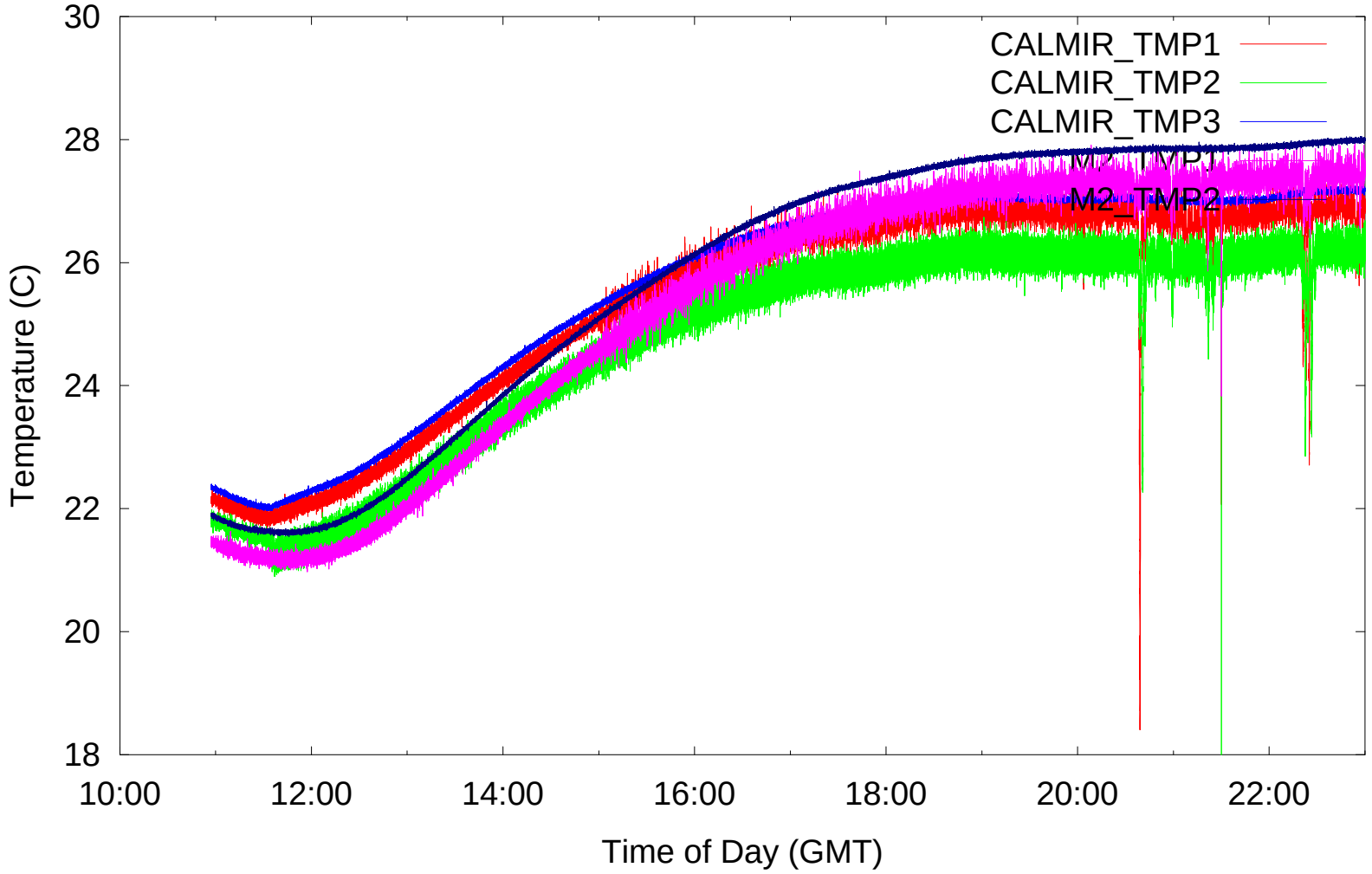
OBA Temp Sensors: Day 120



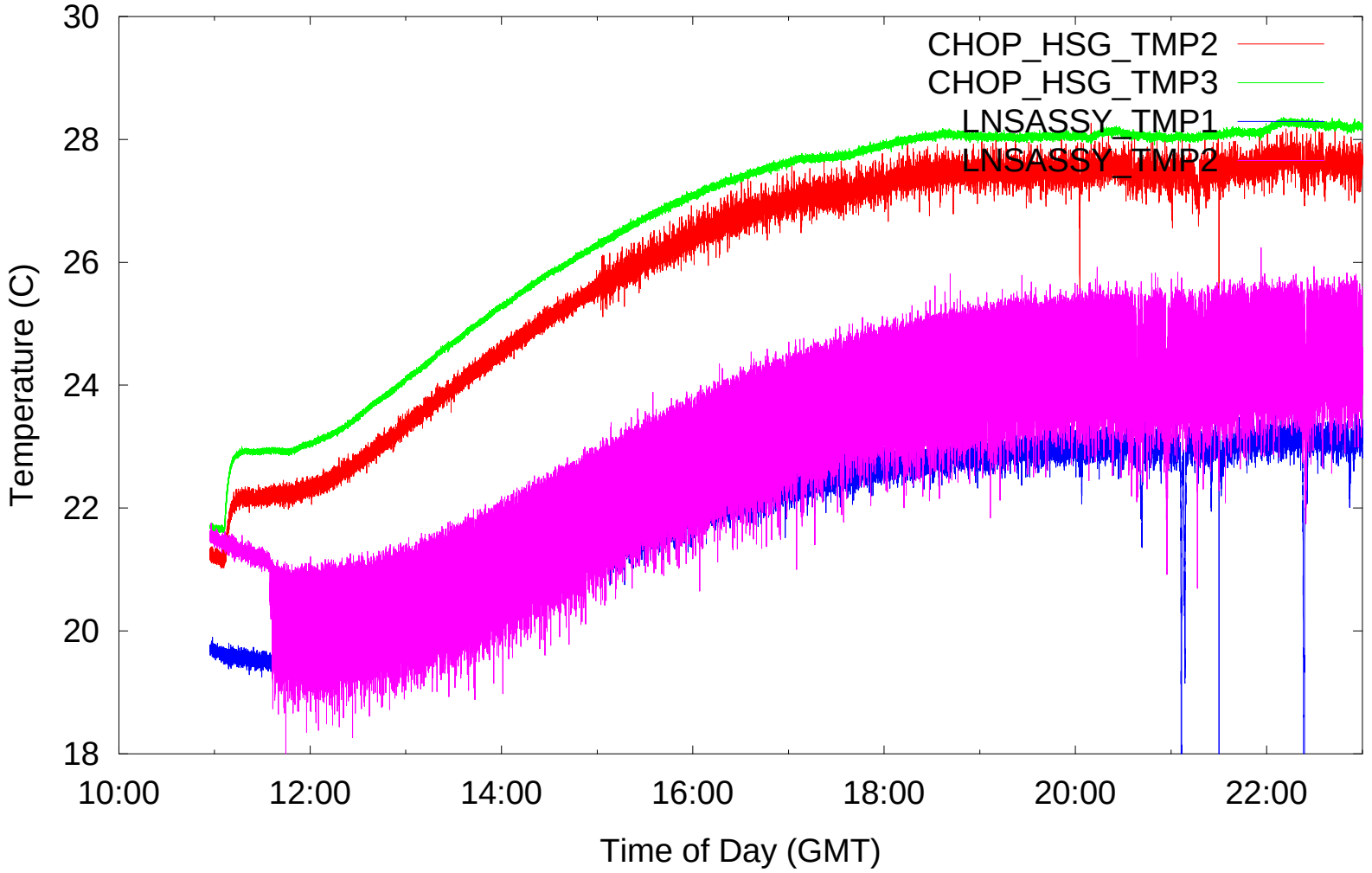
OBA Temp Sensors: Day 120



OBA Temp Sensors: Day 120



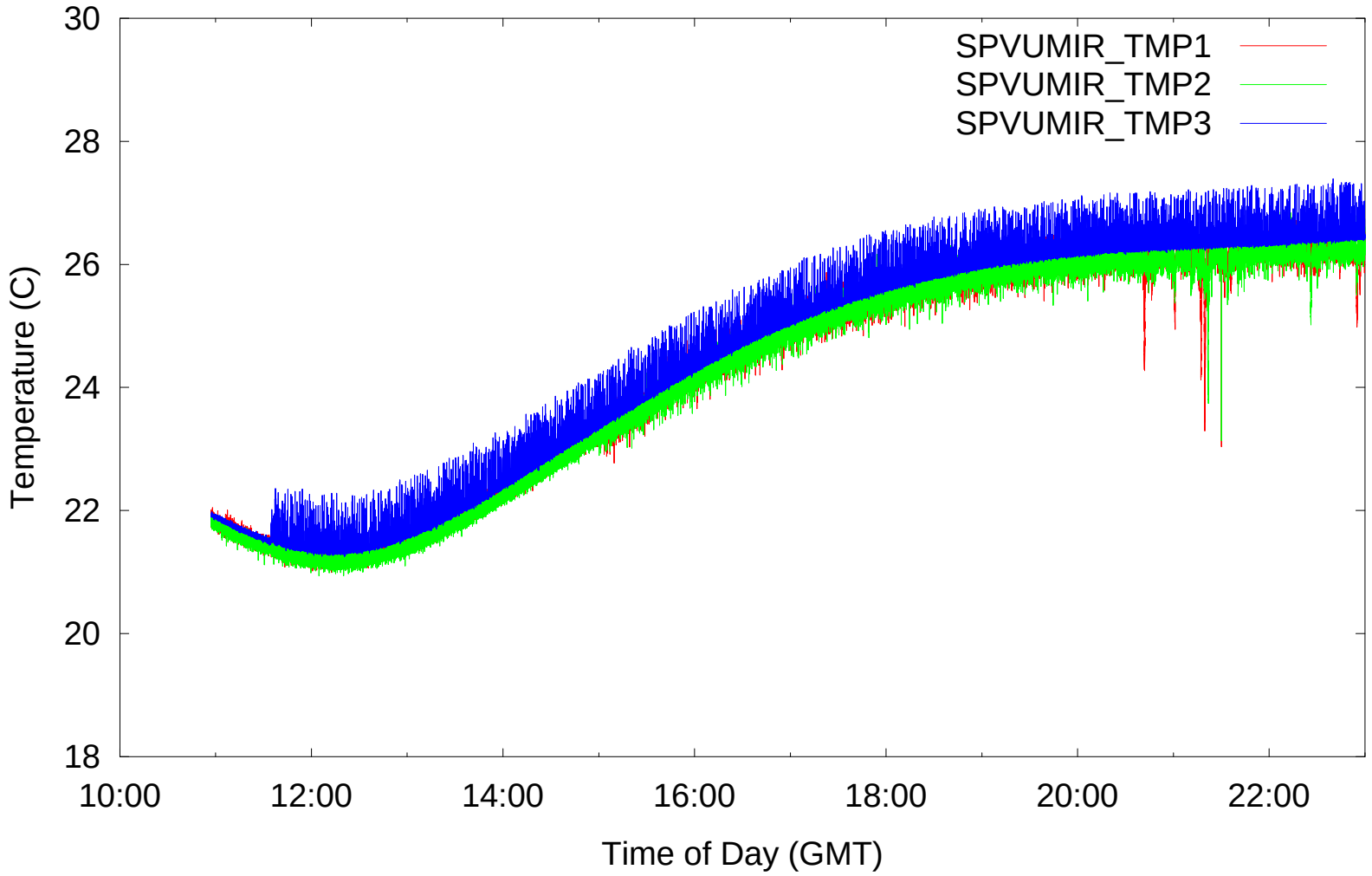
OBA Temp Sensors: Day 120



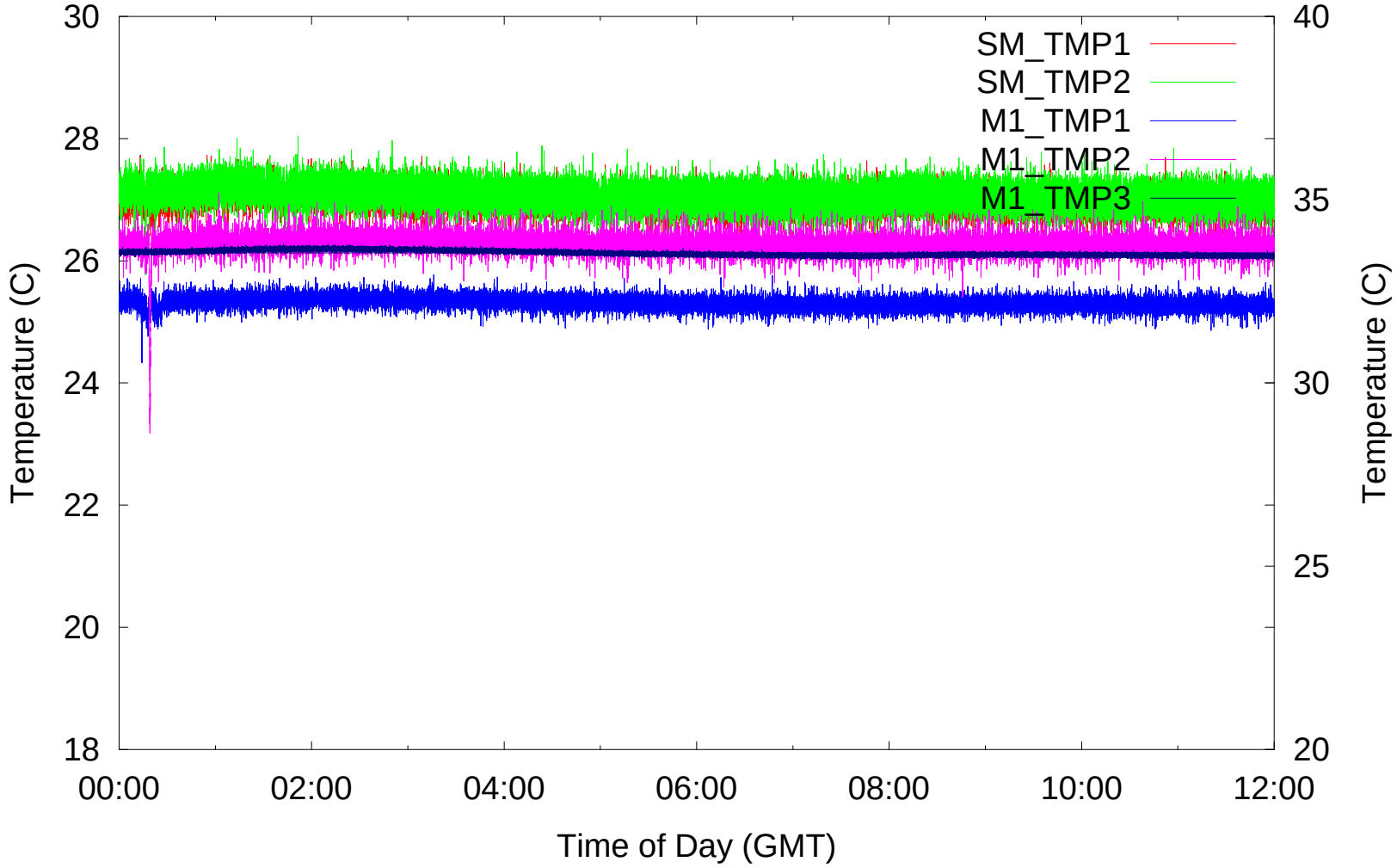
LOCKHEED MARTIN

OBA Temp Sensors: Day 120

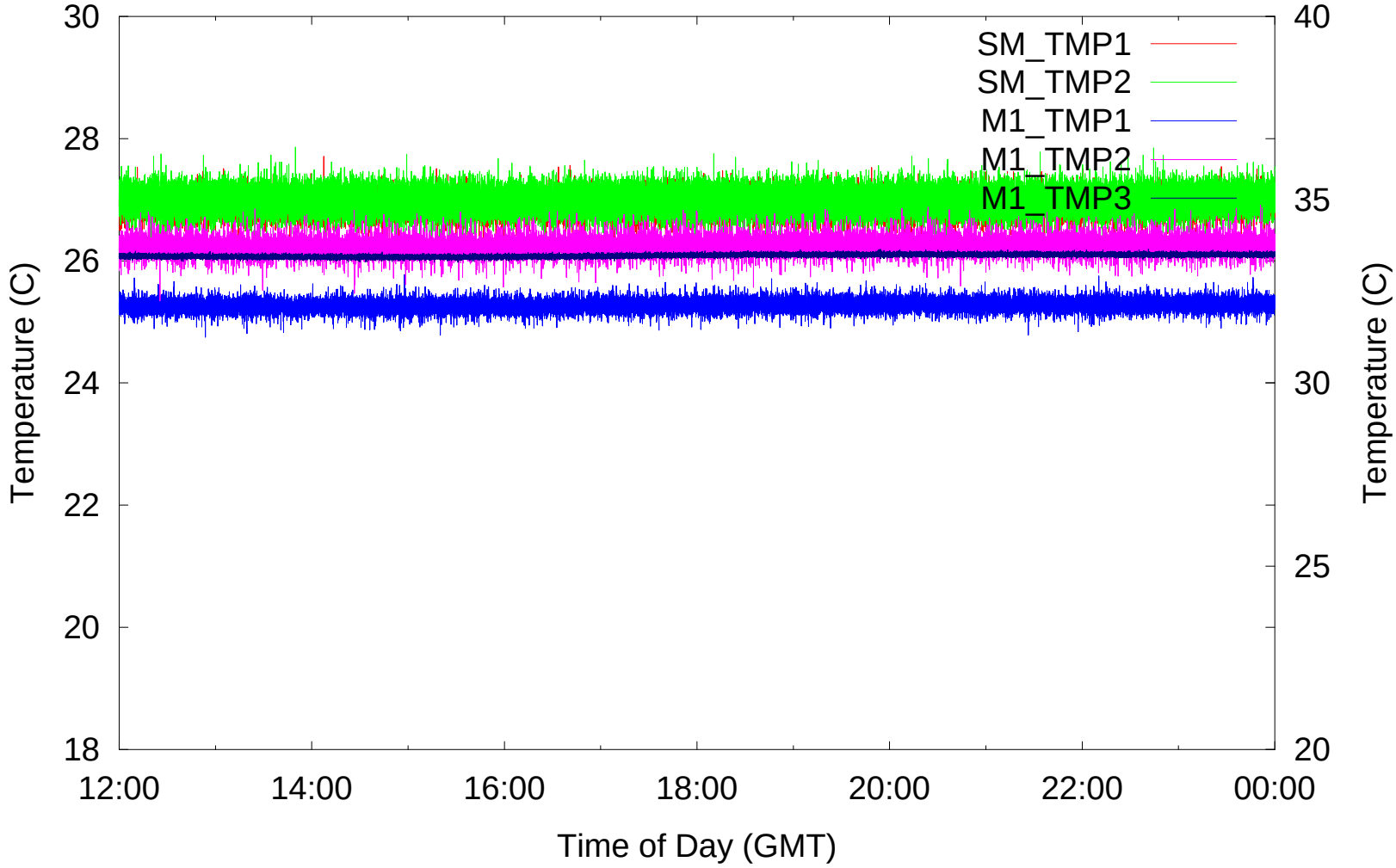
RS03 Temperatures for OBA: Day 120



OBA Temps: Day 121-1 Scan Mirror and M1



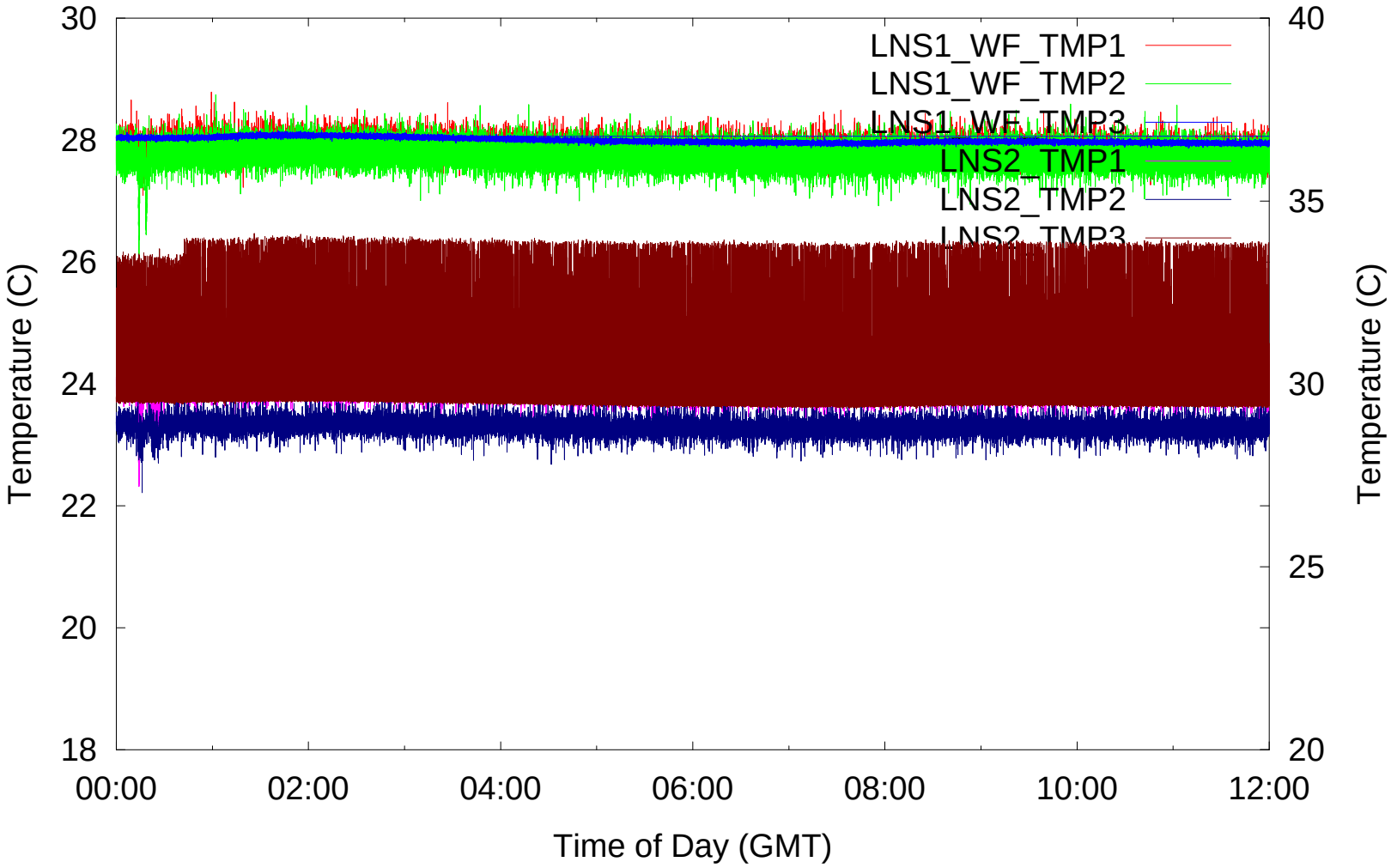
OBA Temps: Day 121-2 Scan Mirror and M1



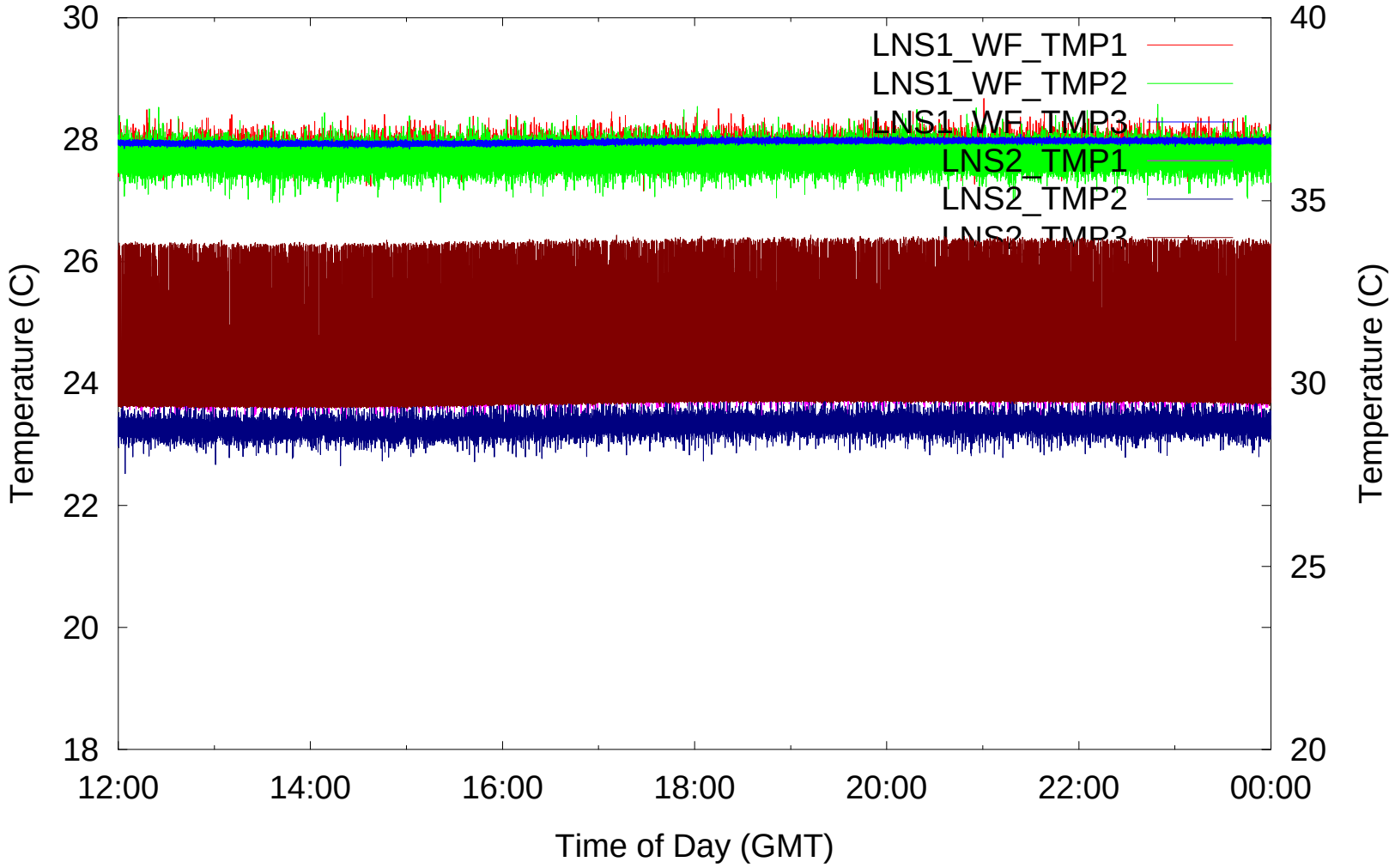
LOCKHEED MARTIN

OBA Temps: Day 121-1 Lens1 & Lens2

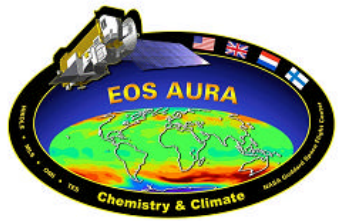
RS03 Temperatures for OBA: Day 121



OBA Temps: Day 121-2 Lens1 & Lens2

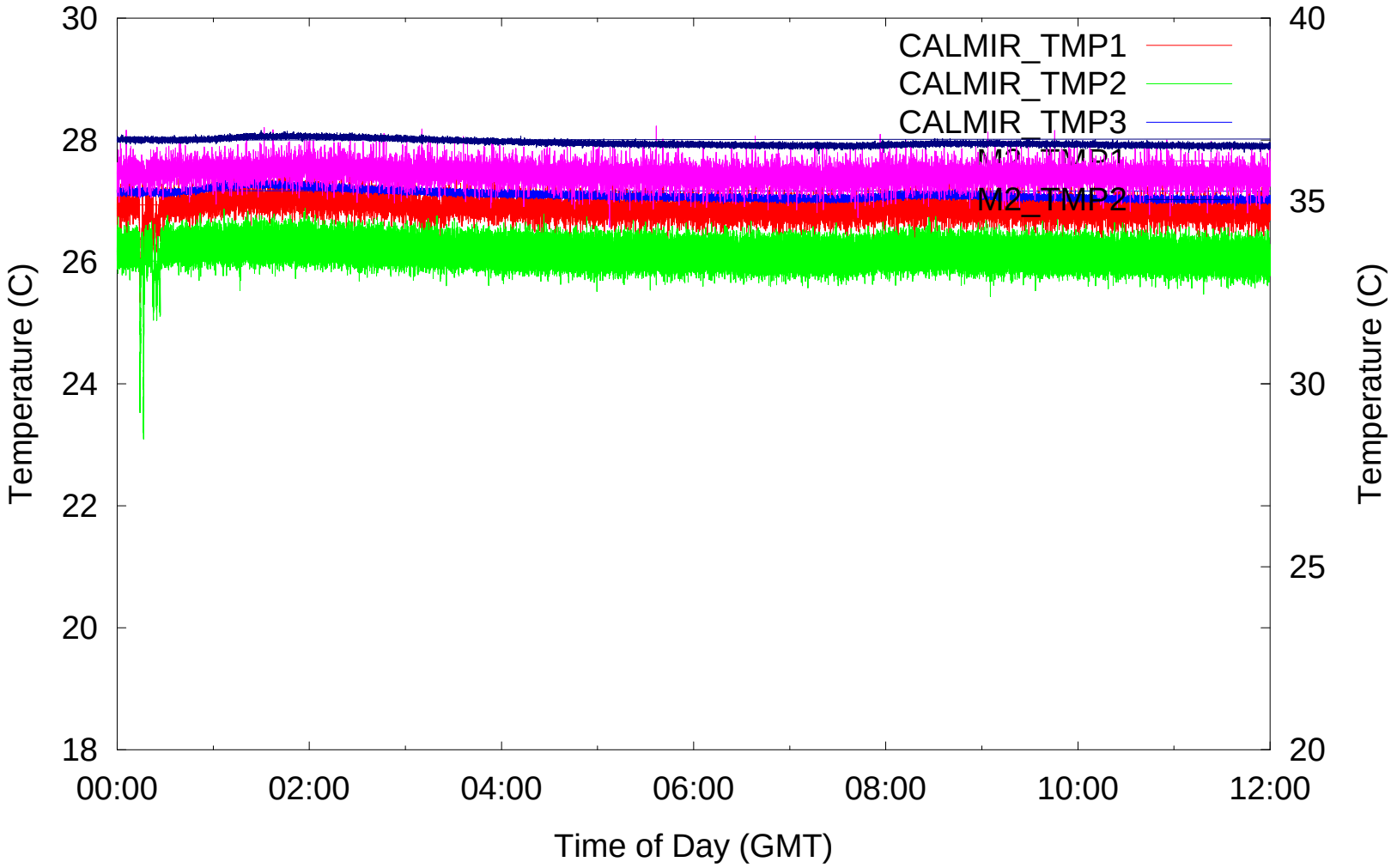


LOCKHEED MARTIN

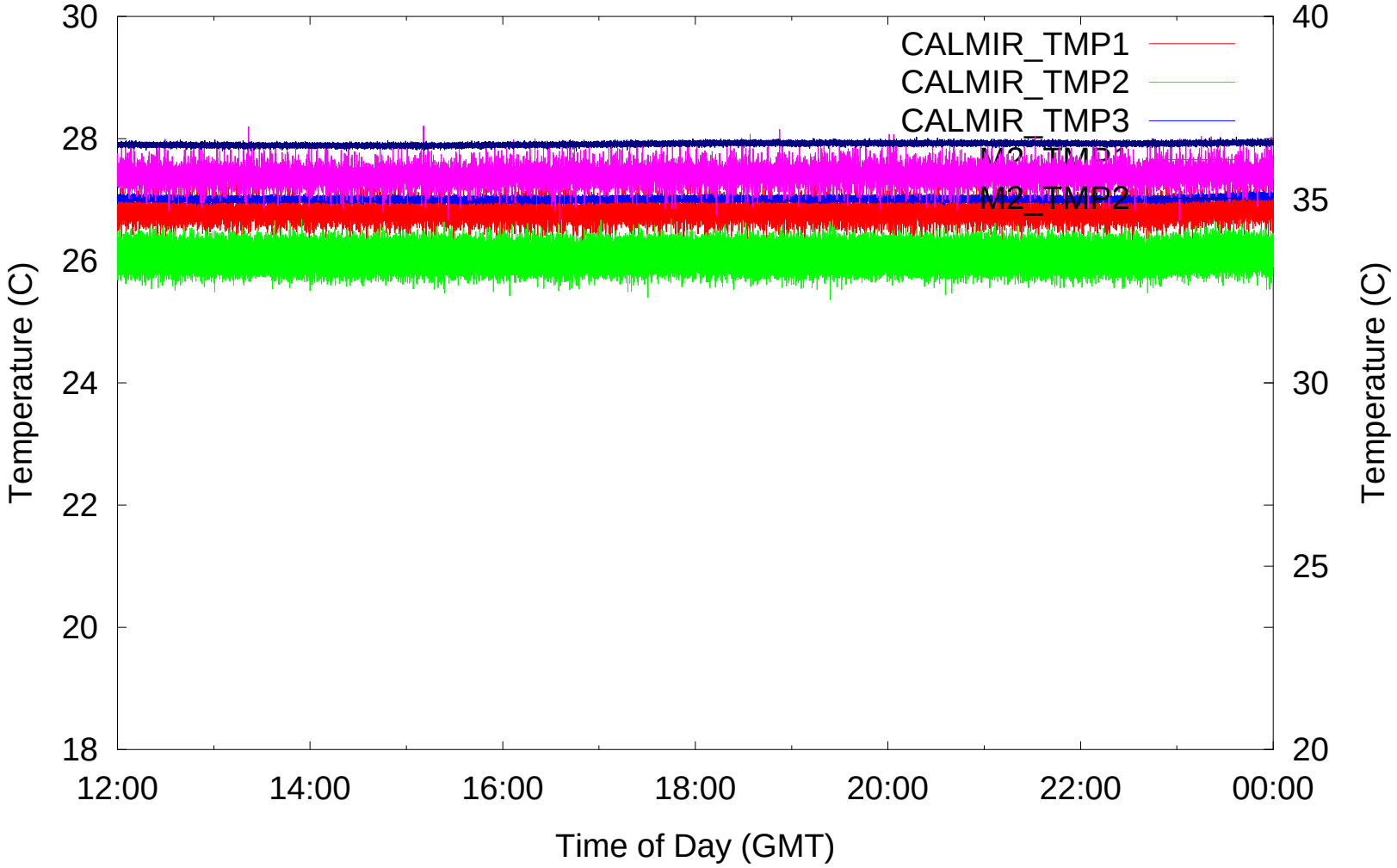


OBA Temps: Day 121-1 Cal Mirror, M2

RS03 Temperatures for OBA: Day 121



OBA Temps: Day 121-2 Cal Mirror, M2



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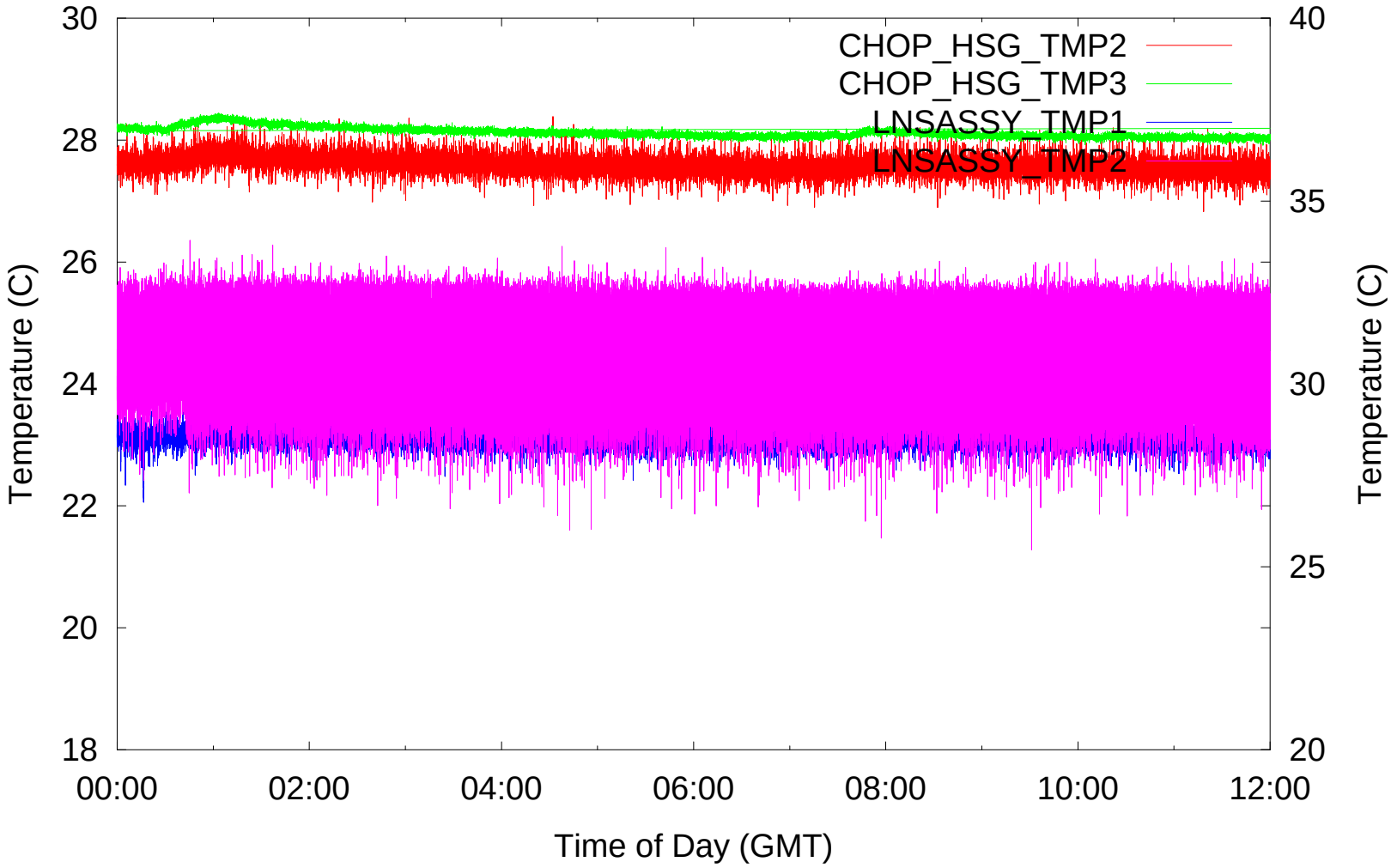
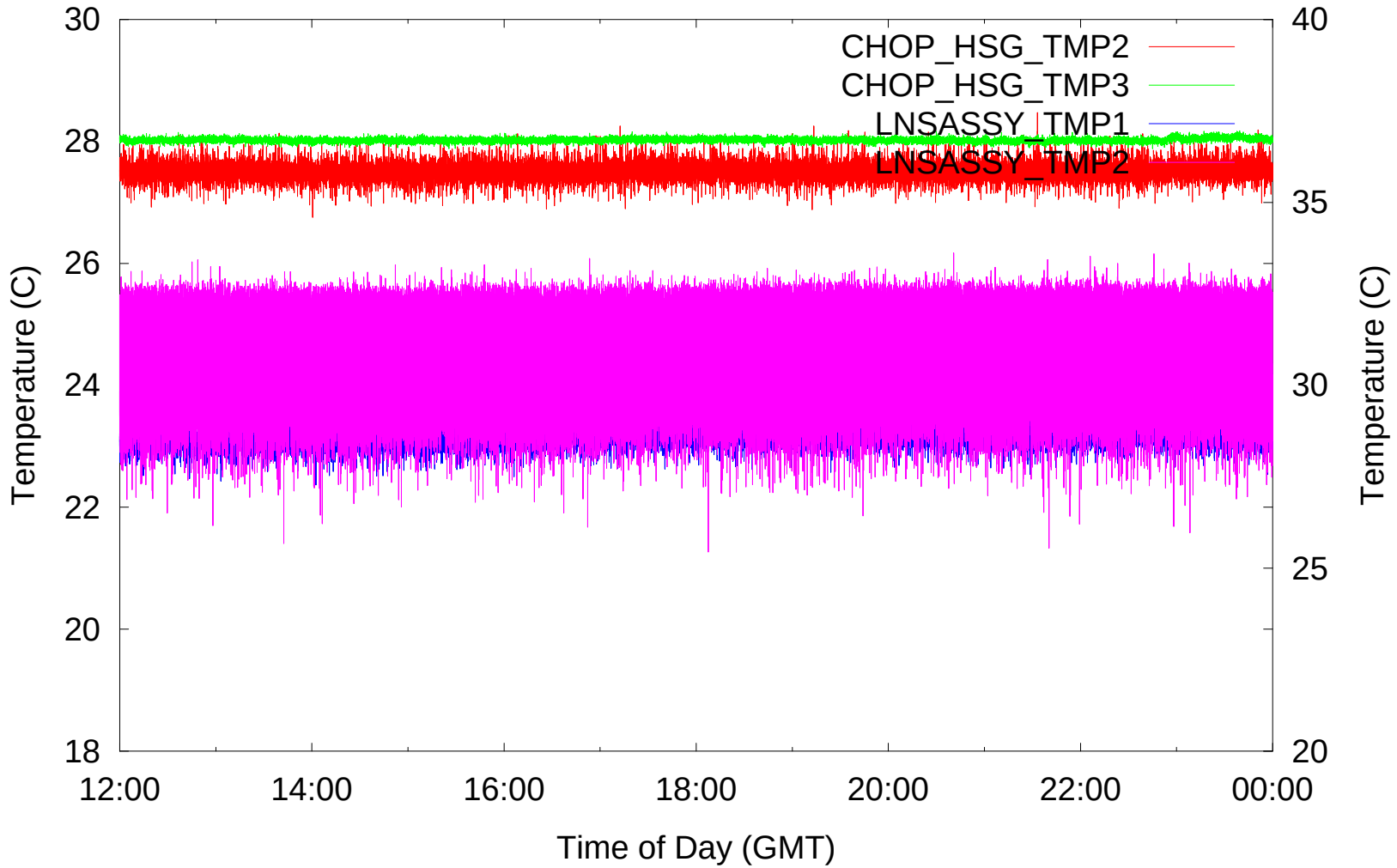
OBA Temps: Day 121-1
Chopper Housing and Lens Assembly

RS03 Temperatures for OBA: Day 121

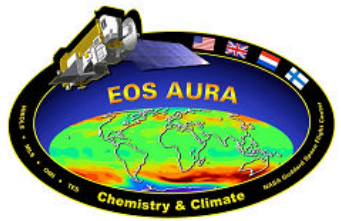


OBA Temps: Day 121-2
Chopper Housing and Lens Assembly

RS03 Temperatures for OBA: Day 121

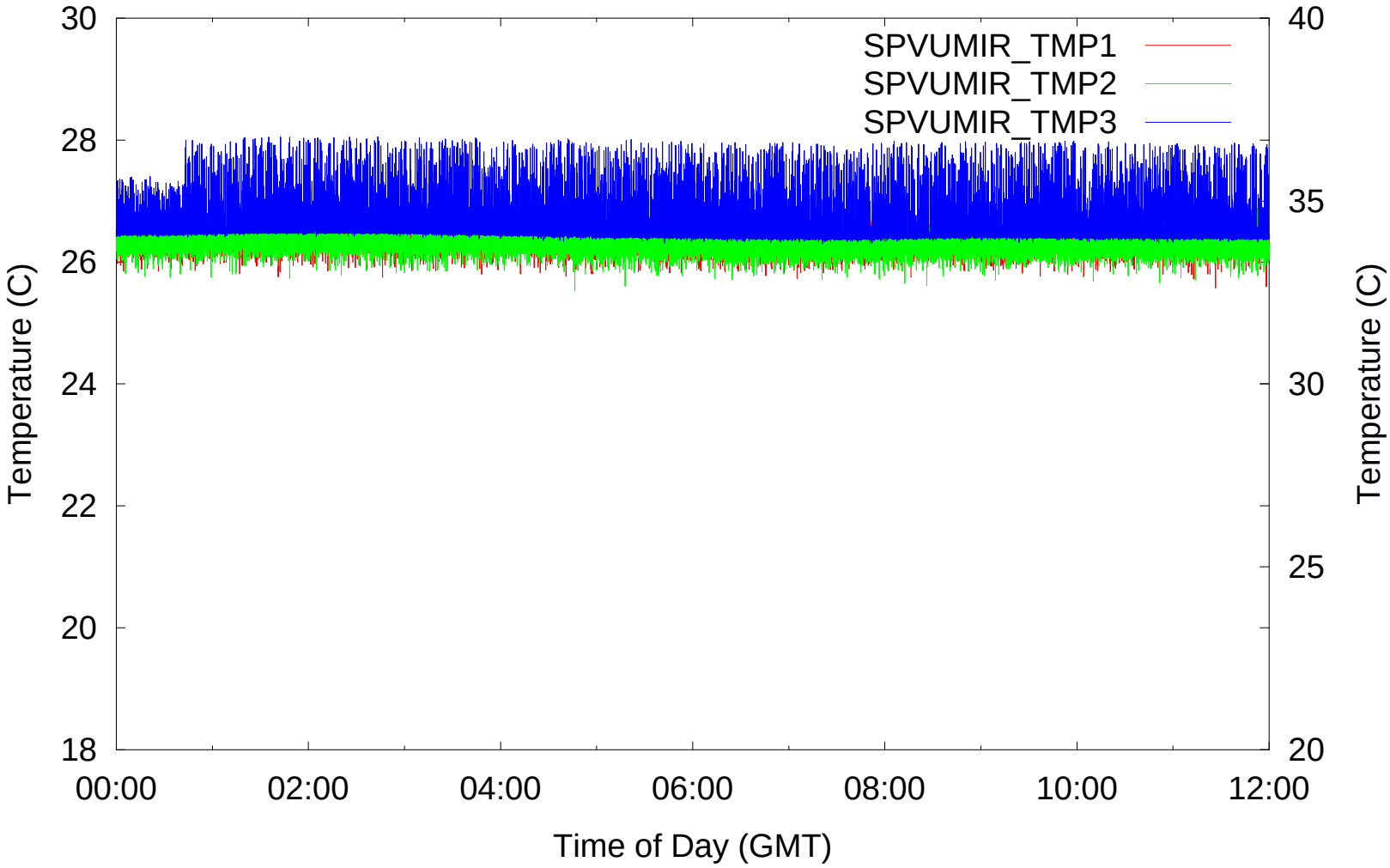


LOCKHEED MARTIN

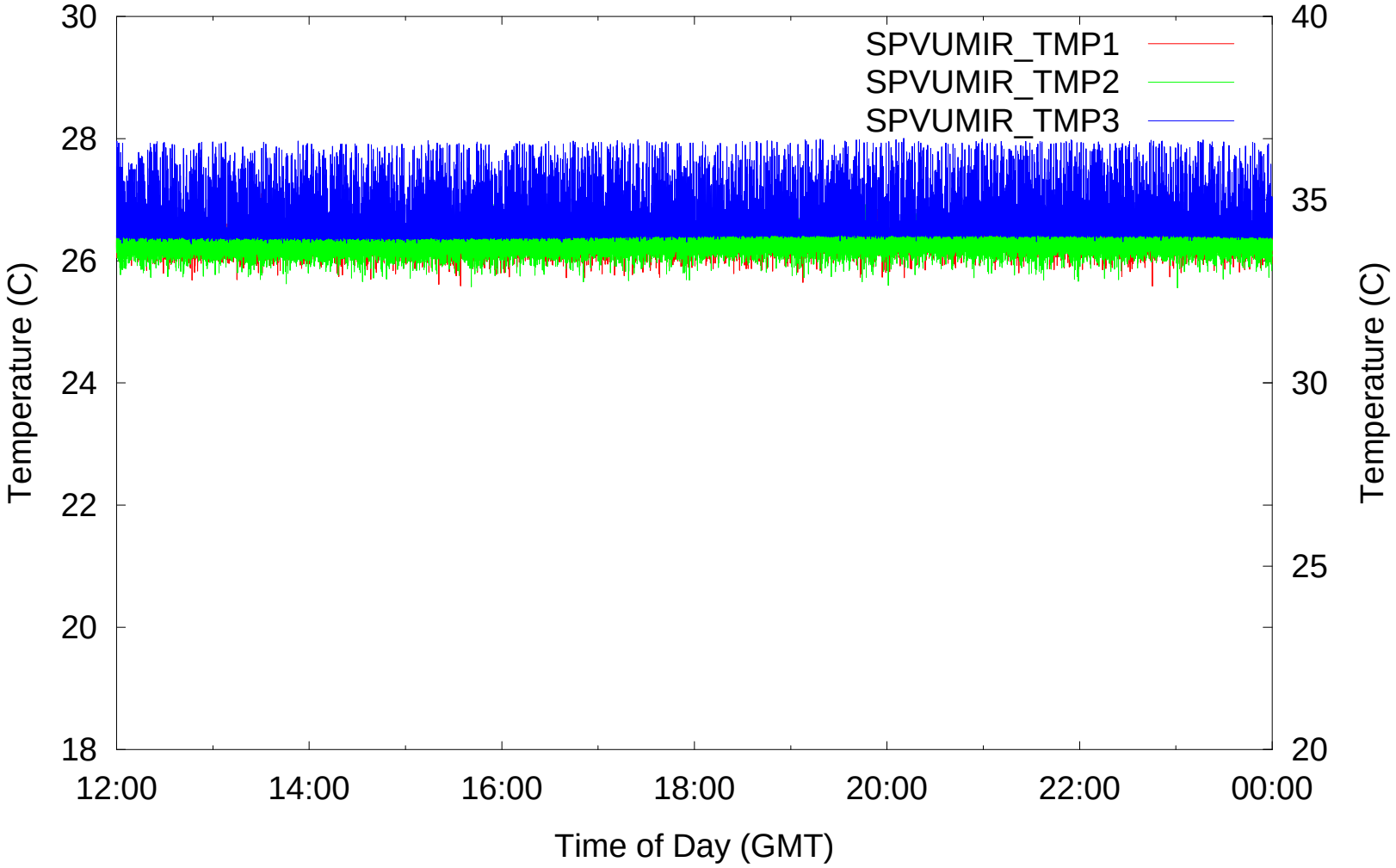


OBA Temps: Day 121-1 Space View Mirror

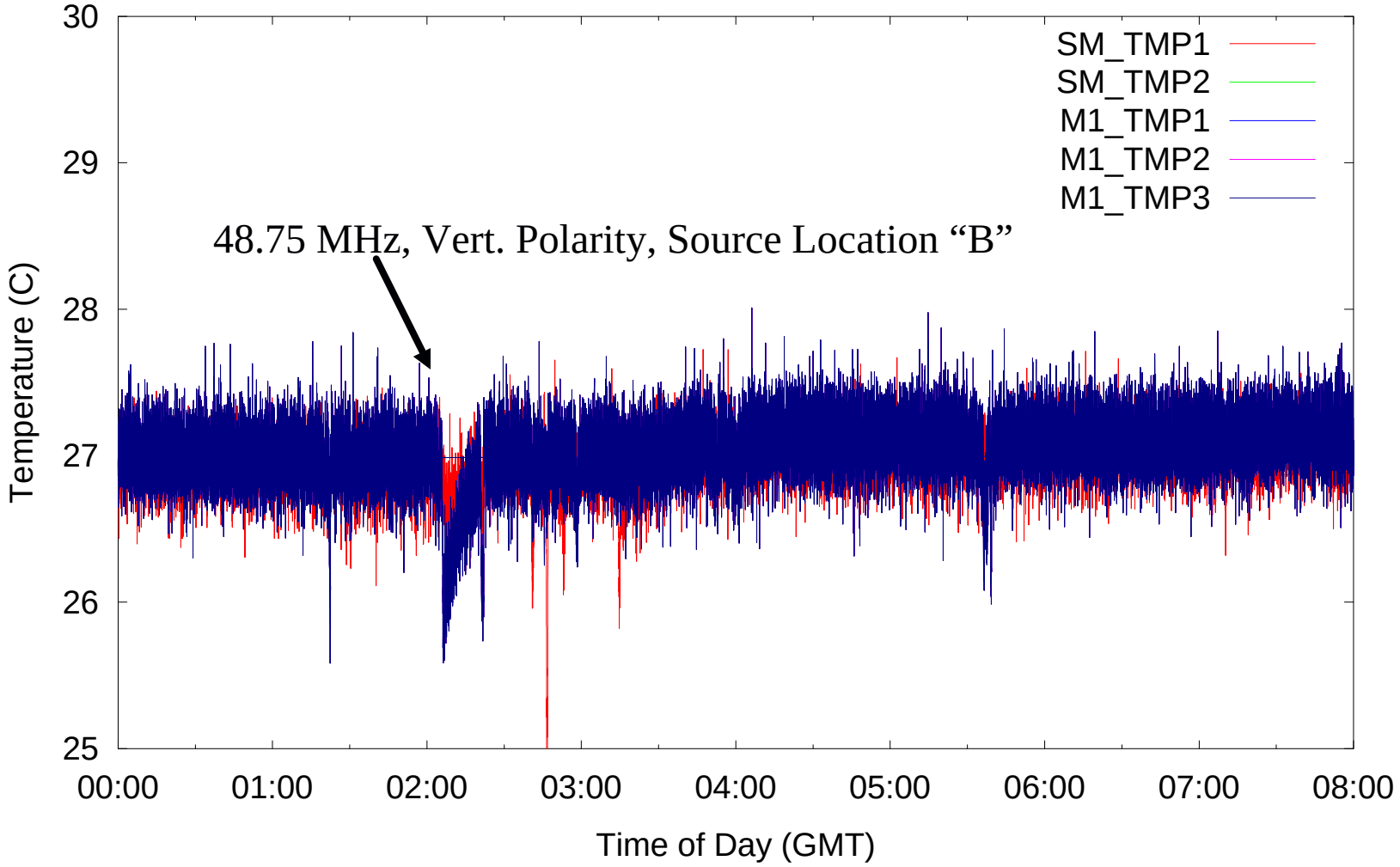
RS03 Temperatures for OBA: Day 121



OBA Temps: Day 121-2 Space View Mirror

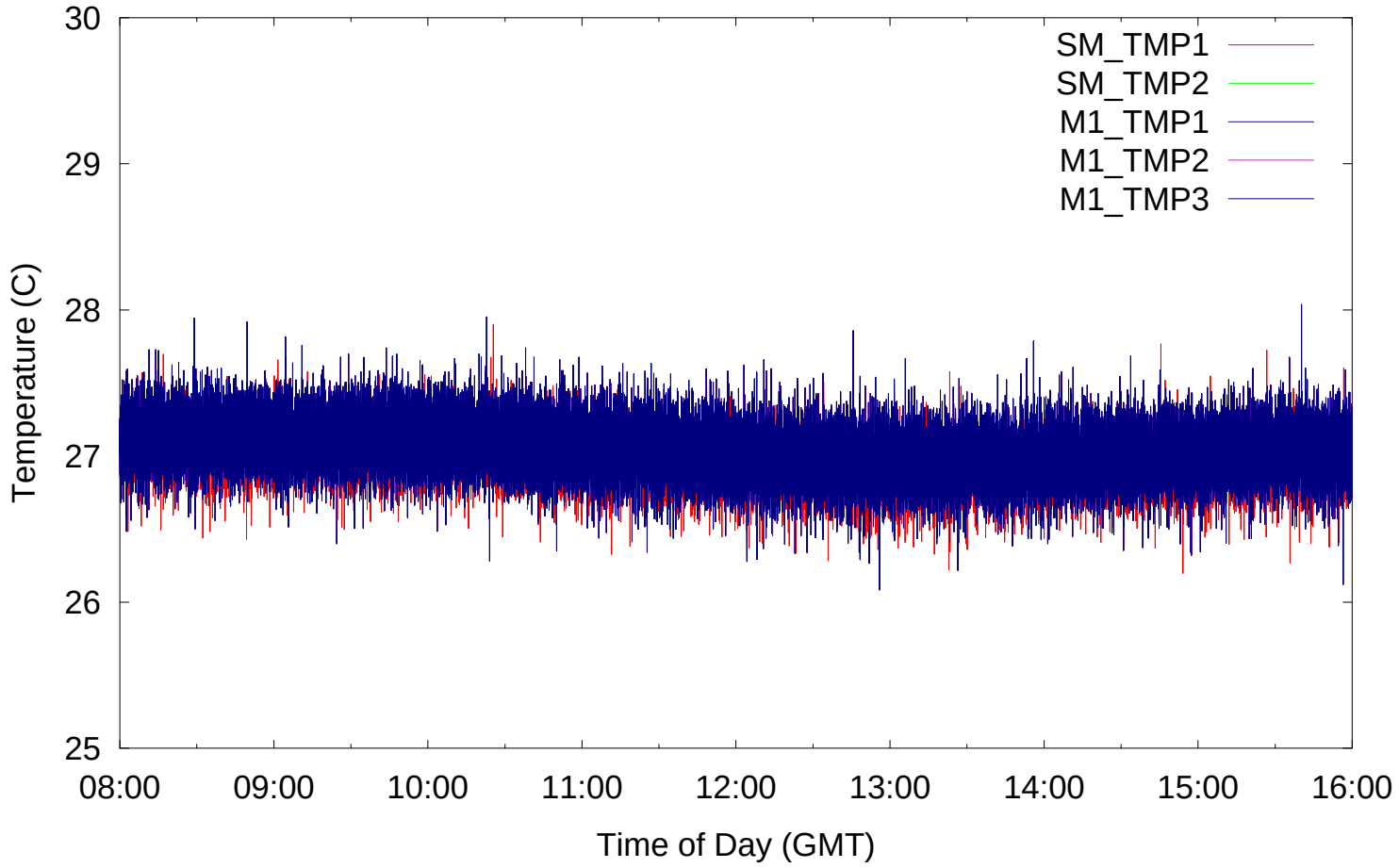


OBA Temps: Day 122-1 Scan Mirror and M1

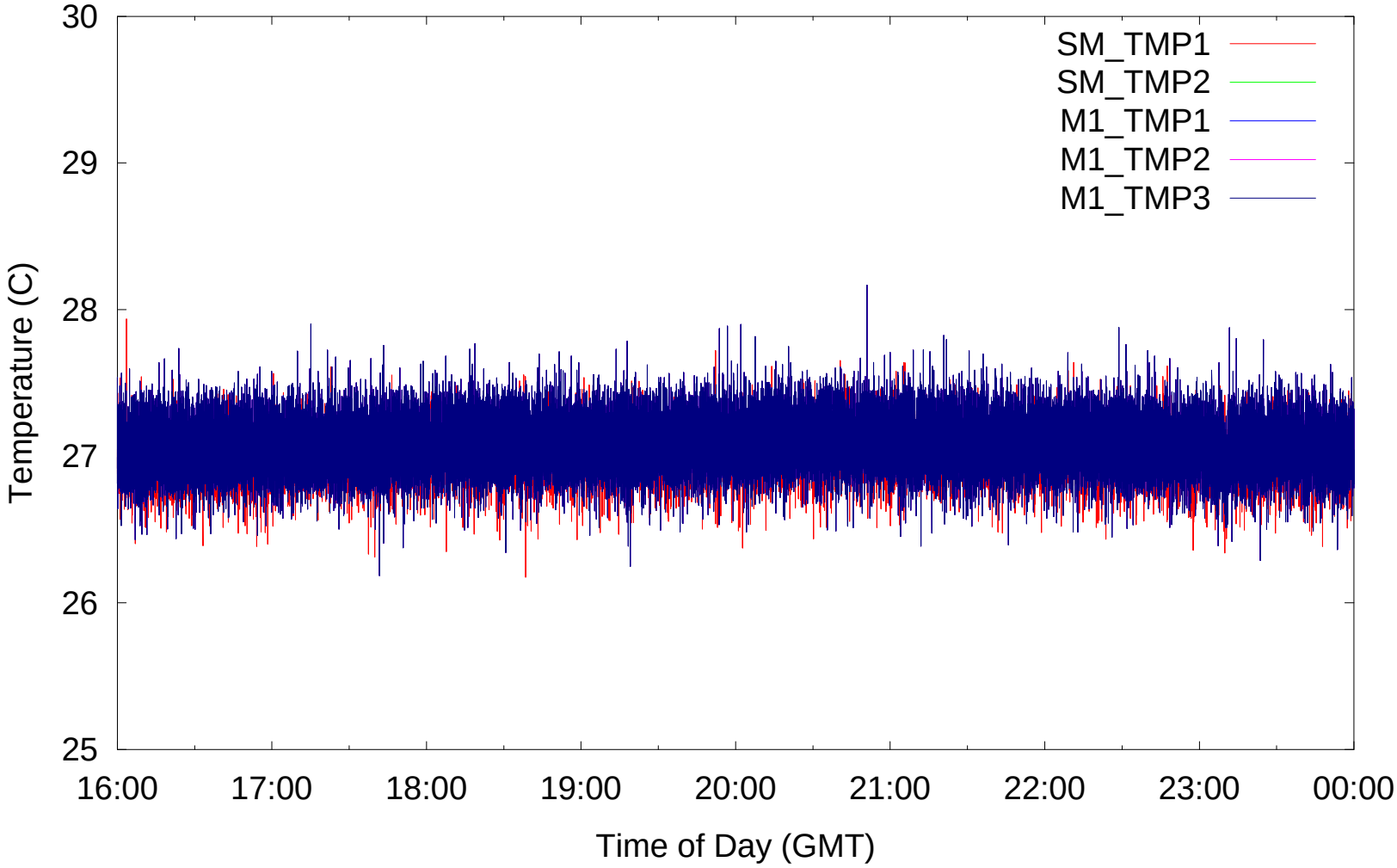


OBA Temps: Day 122-2 Scan Mirror and M1

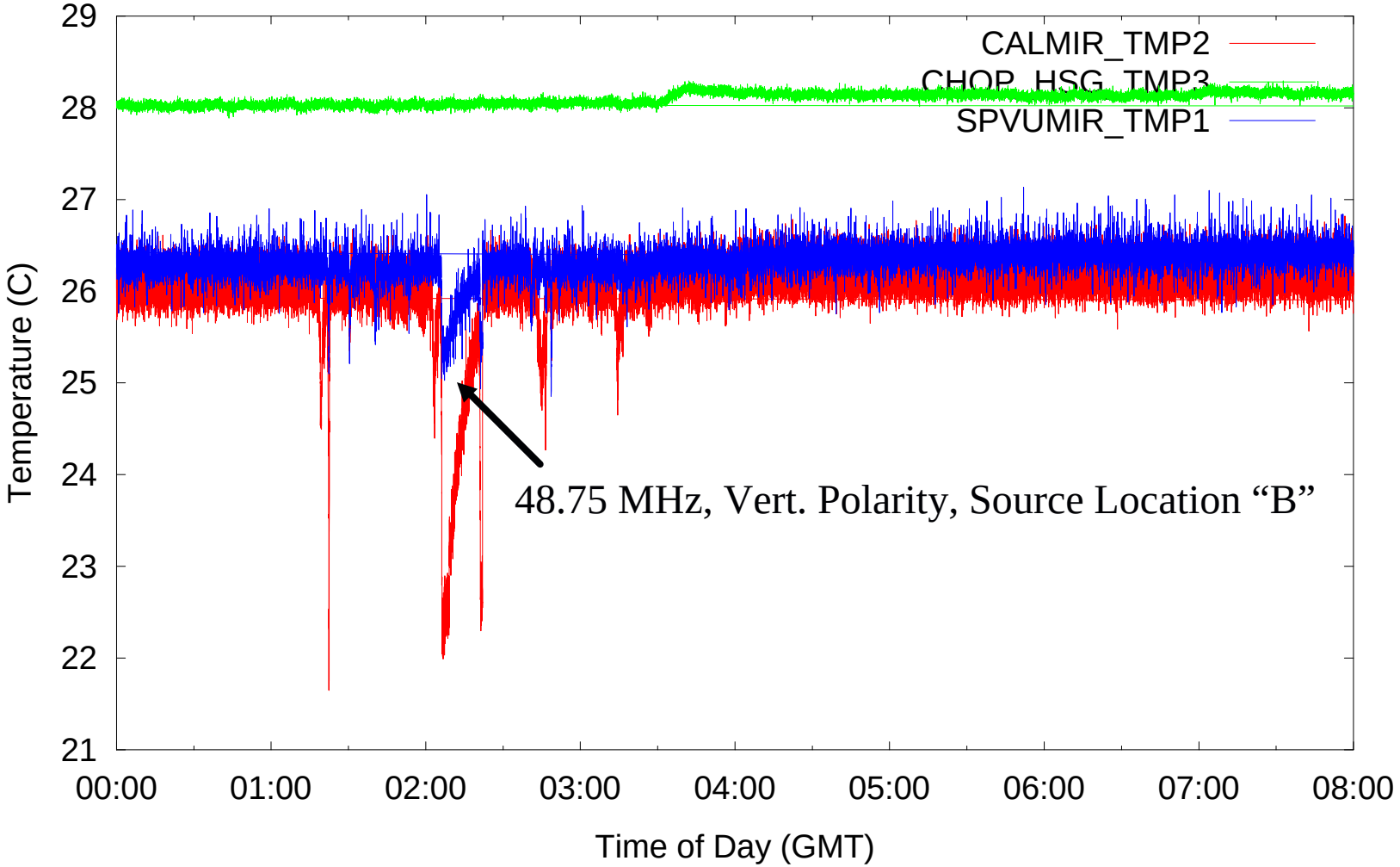
RS03 Temperatures for OBA: Day 122



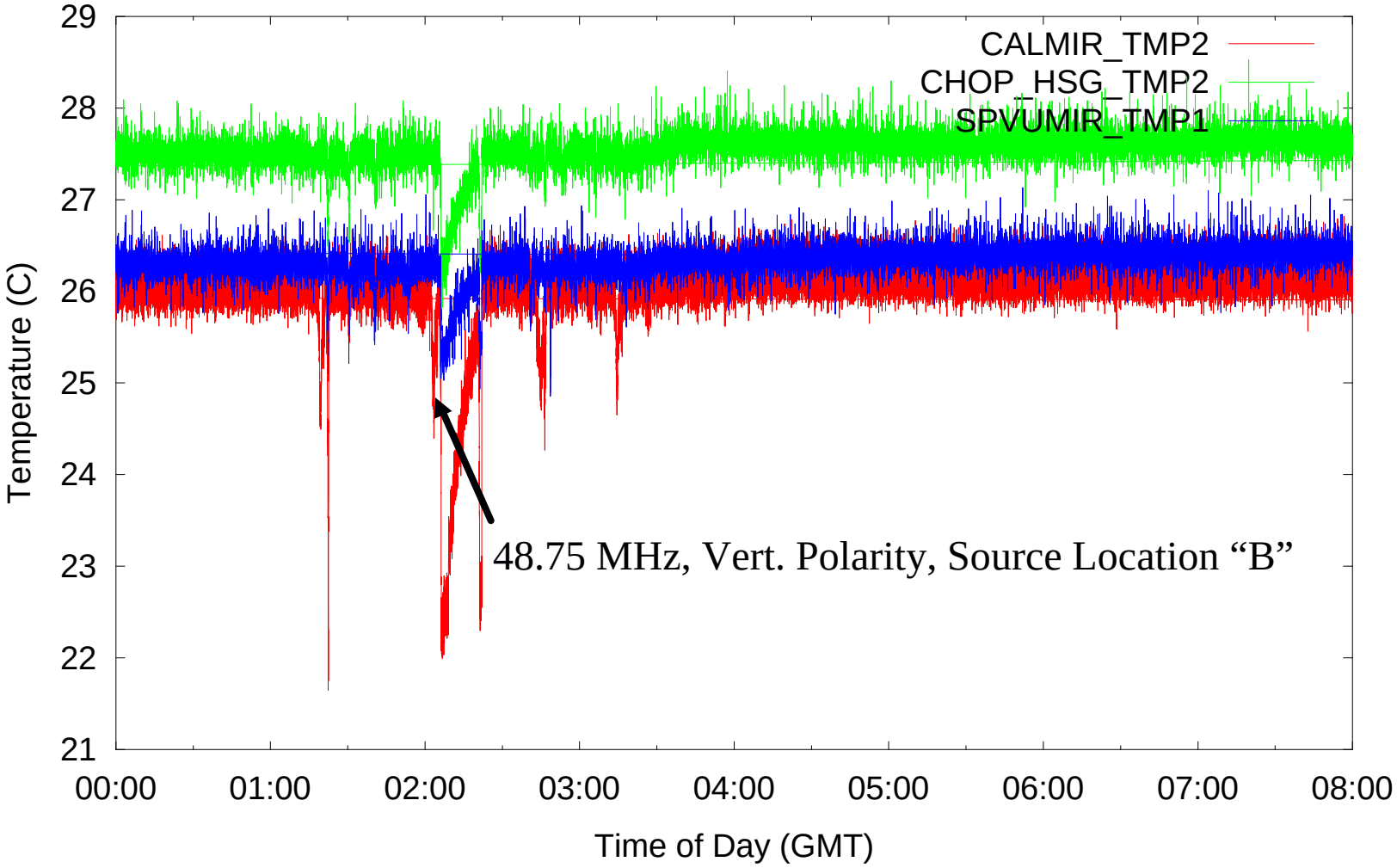
OBA Temps: Day 122-3 Scan Mirror and M1



OBA Temps: Day 122-1 Cal Mirror, Space View Mirror, and Chopper Housing

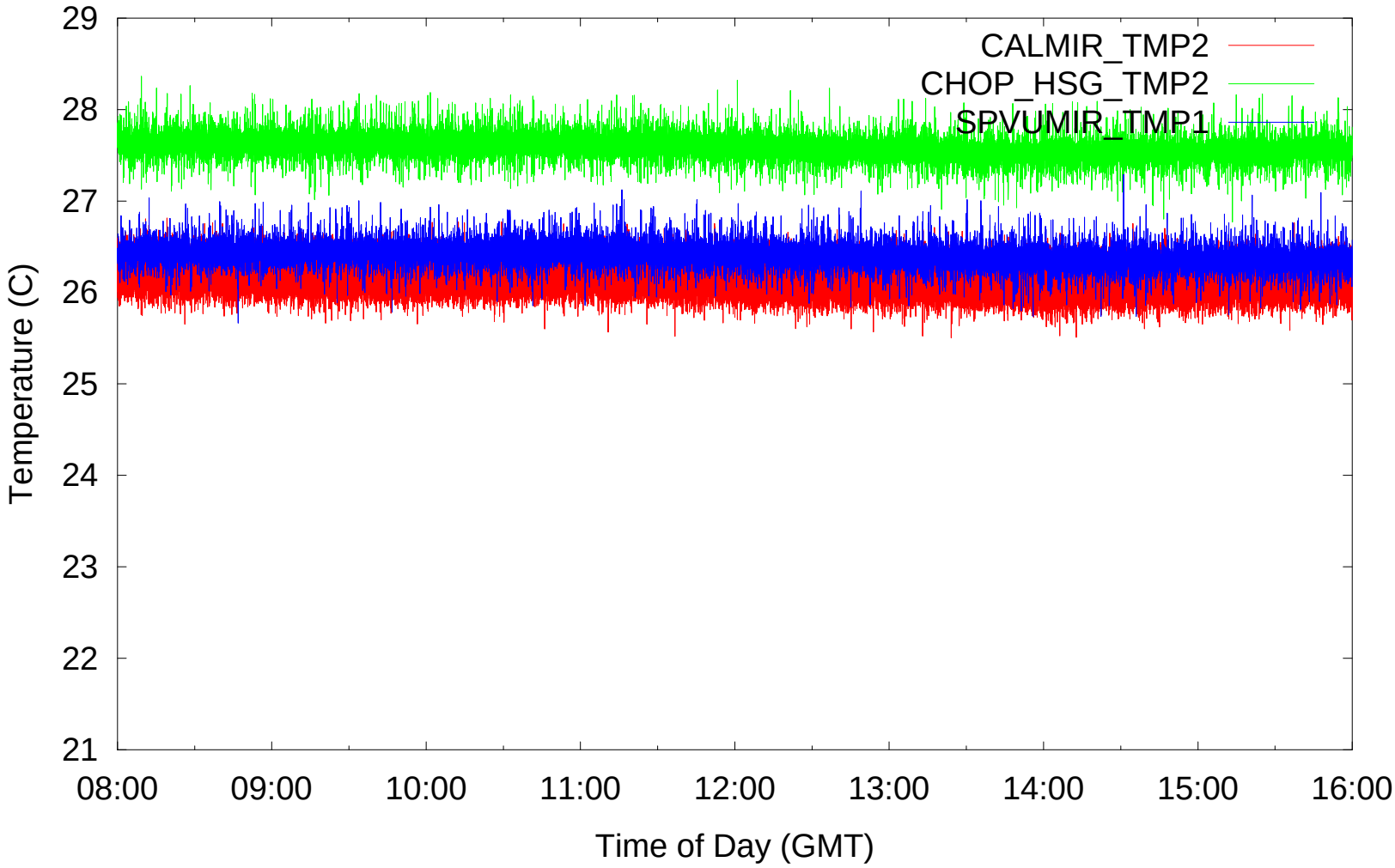


OBA Temps: Day 122-1 Cal Mirror, Space View Mirror, and Chopper Housing



OBA Temps: Day 122-2 Cal Mirror, Space View Mirror, and Chopper Housing

RS03 Temperatures for OBA: Day 122



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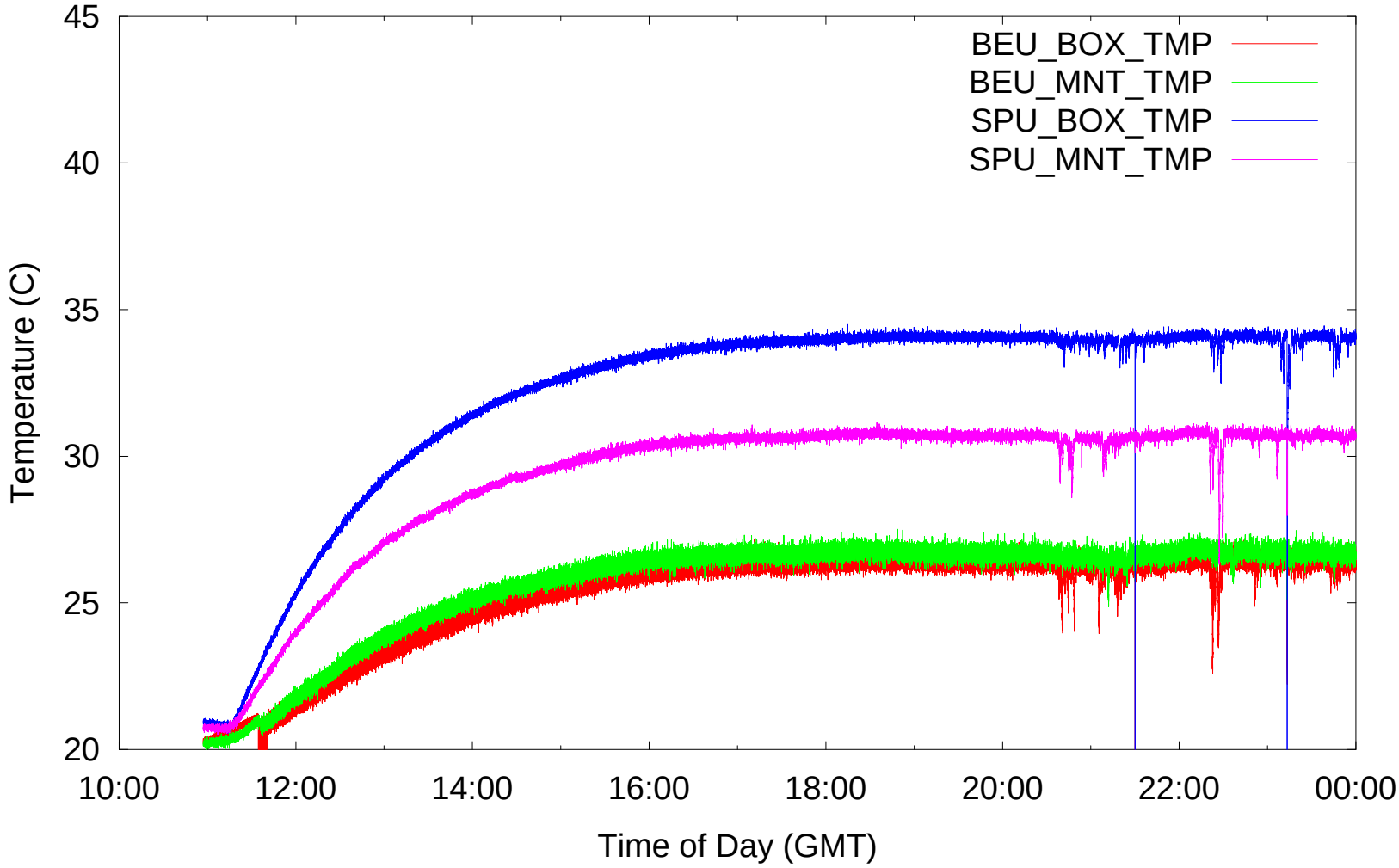
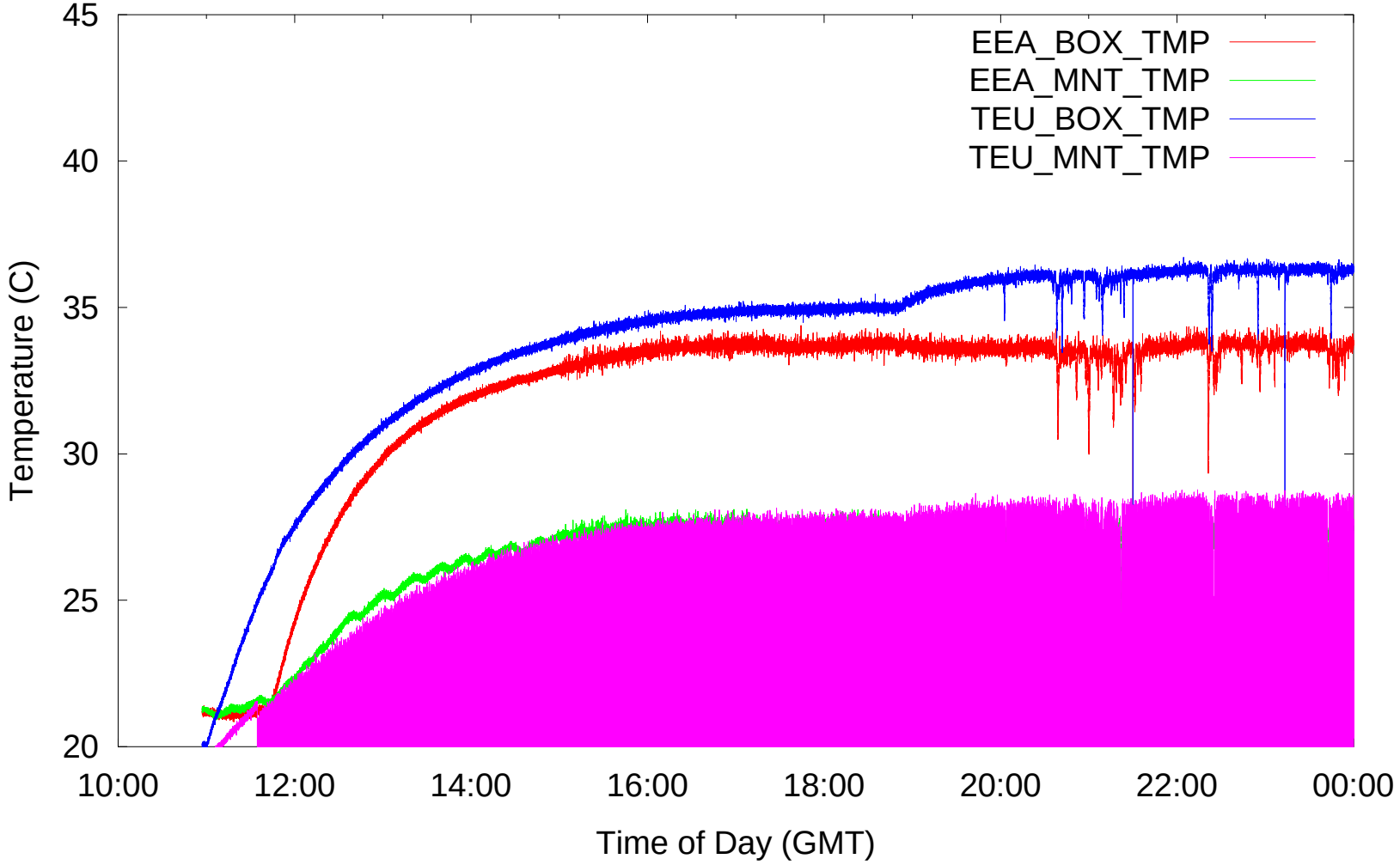
Box Temps 2002/120 (1 of 3)

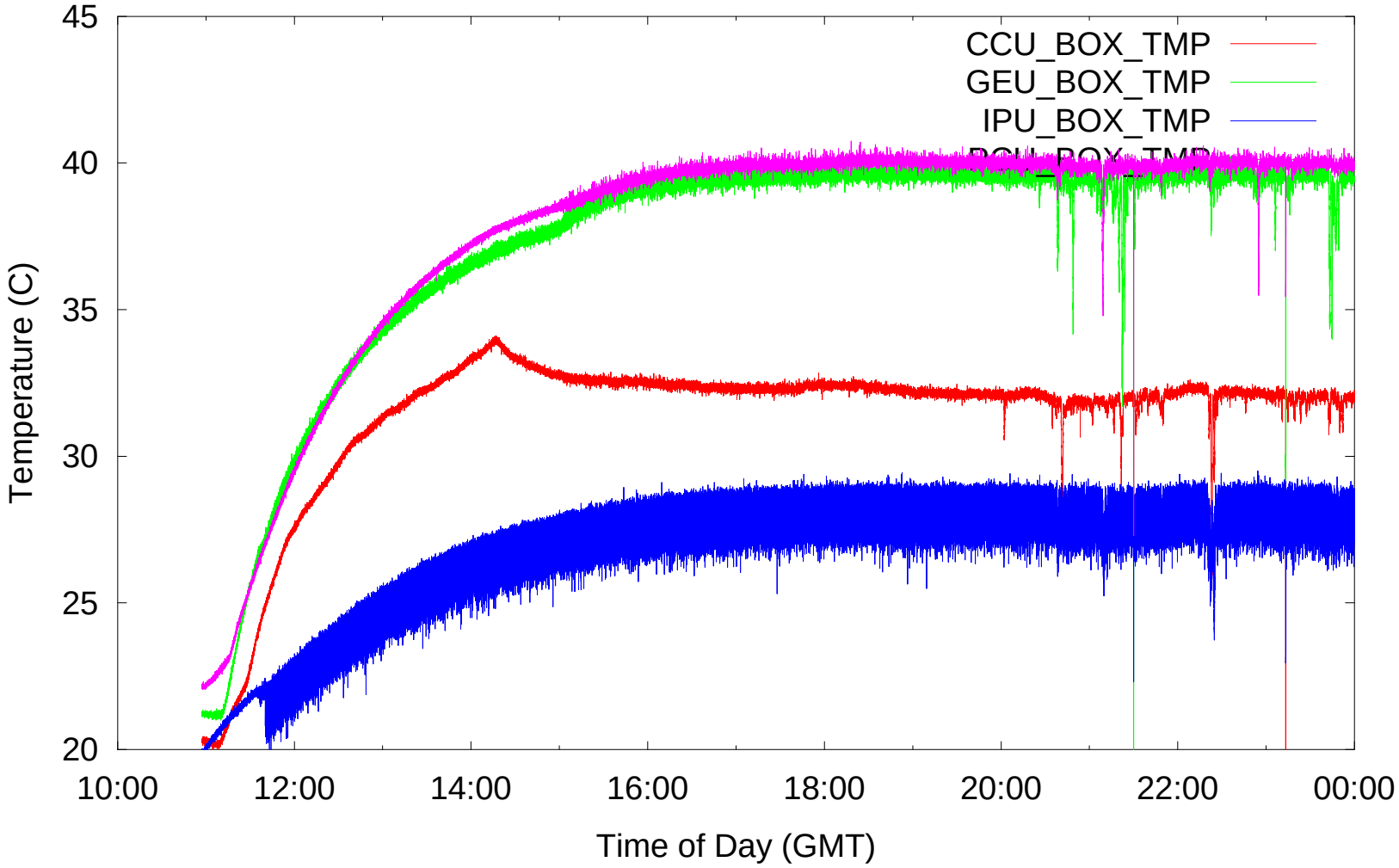
Box Temperatures for RS03, Day 2002/ 120



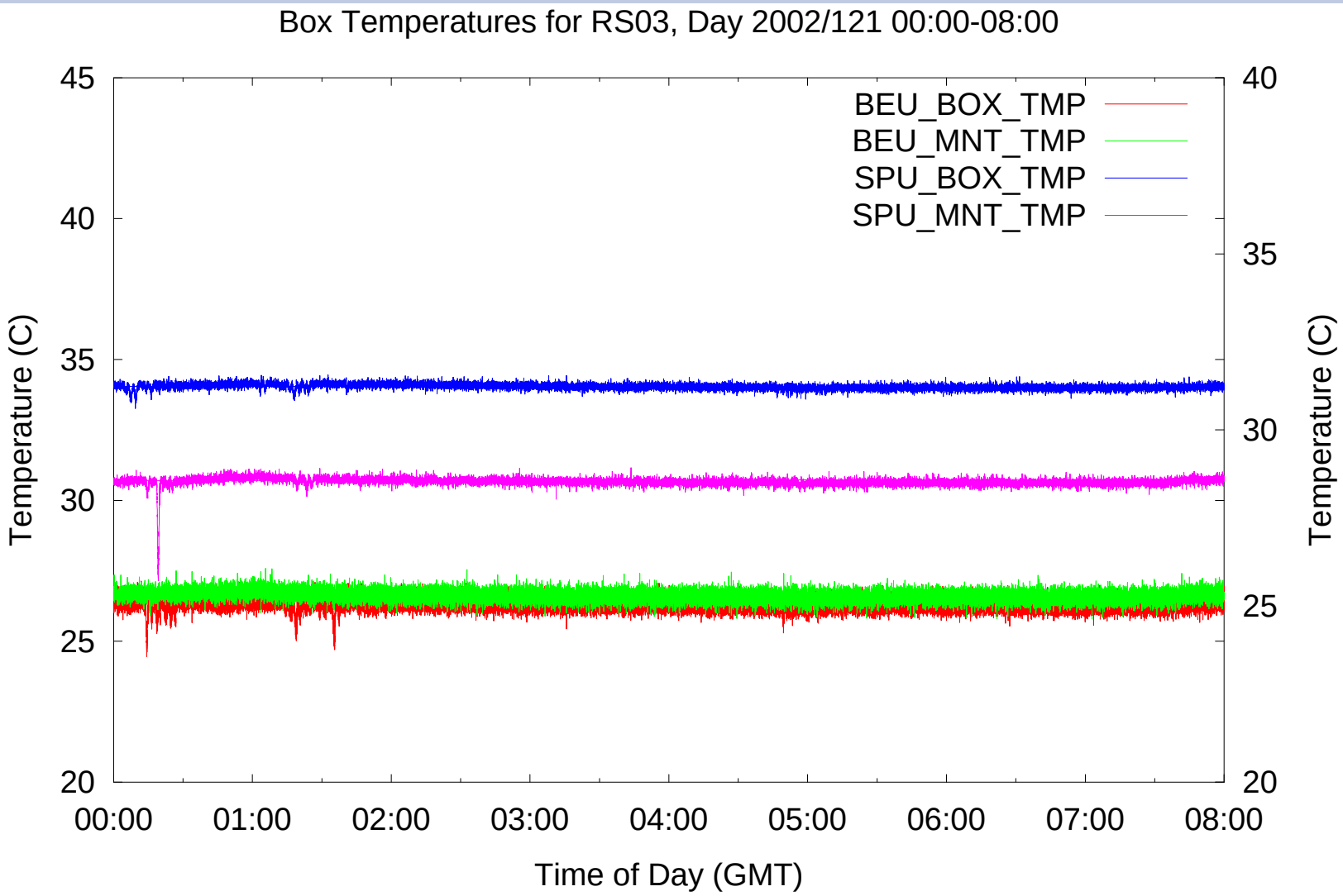
Box Temps 2002/120 (2 of 3)



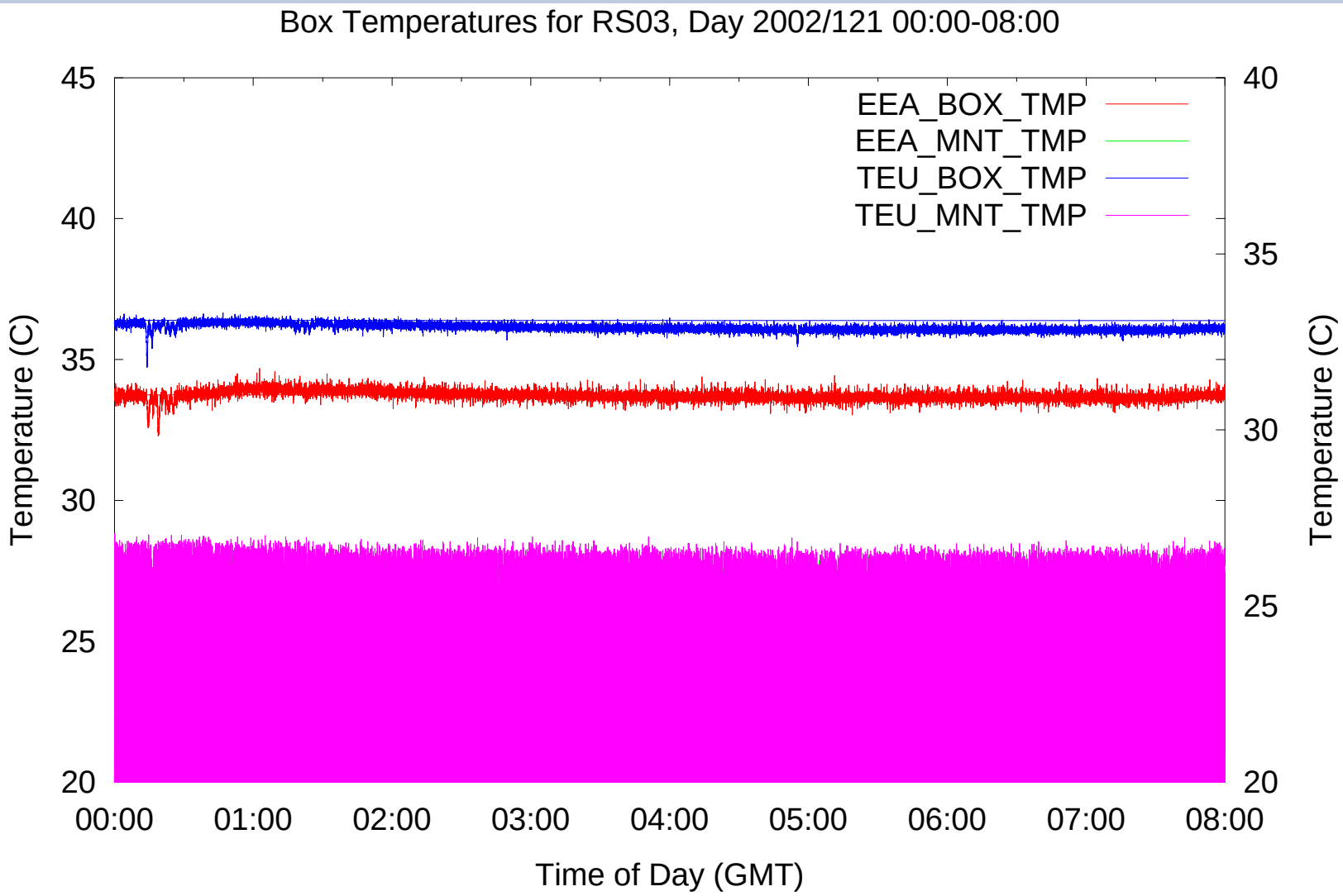
Box Temps 2002/120 (3 of 3)



Box Temps 2002/121 (1 of 9)

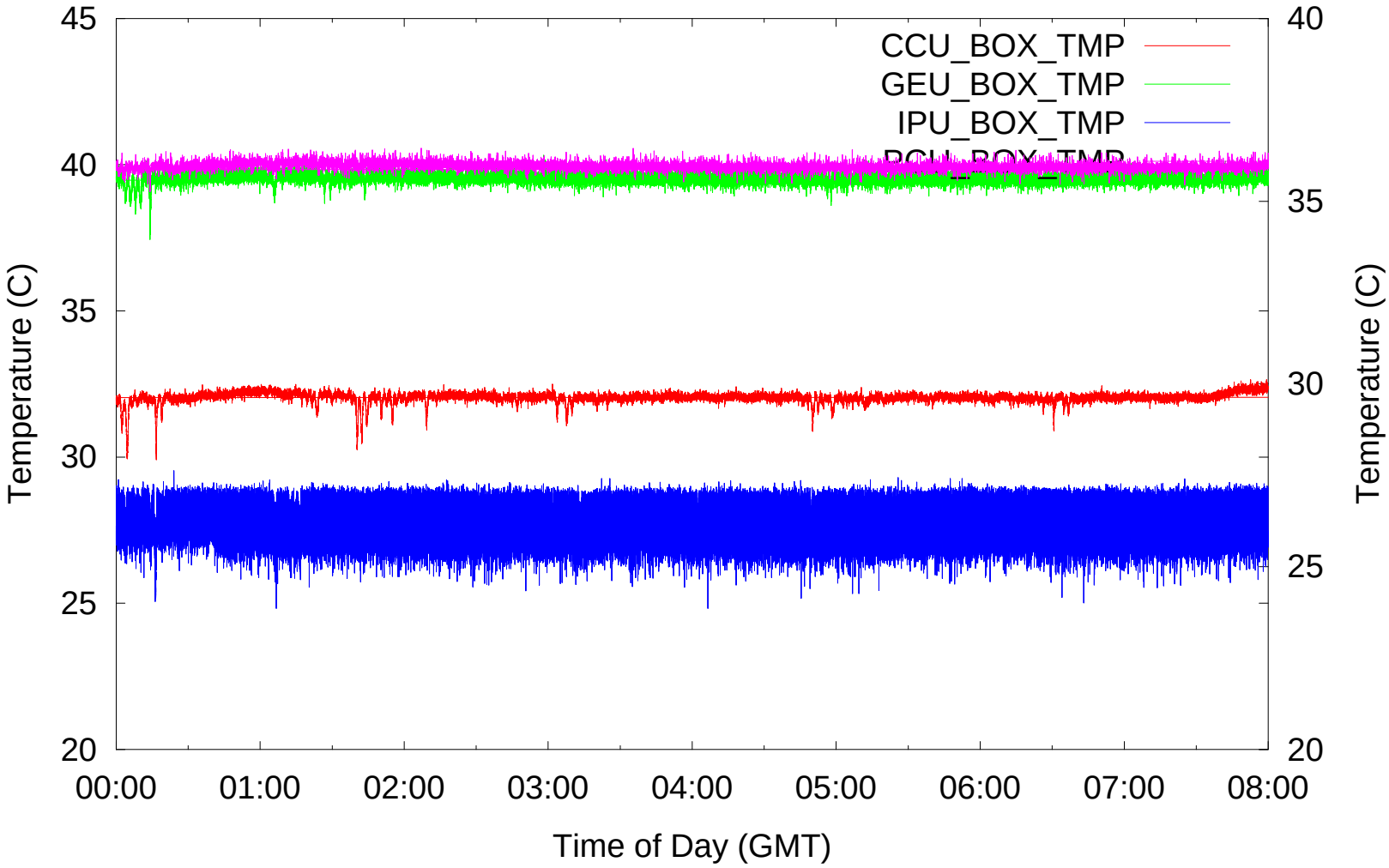


Box Temps 2002/121 (2 of 9)

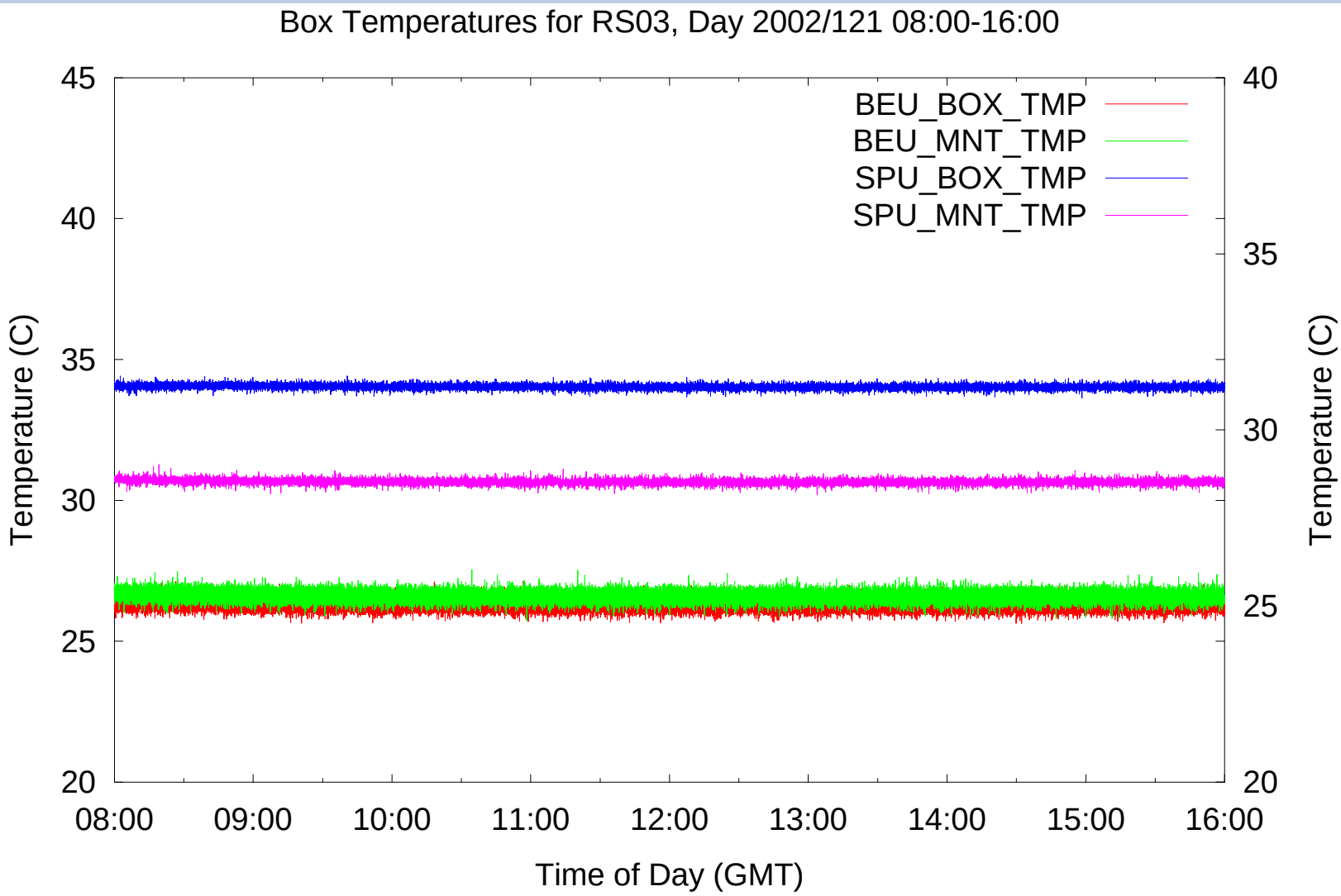


Box Temps 2002/121 (3 of 9)

Box Temperatures for RS03, Day 2002/121 00:00-08:00

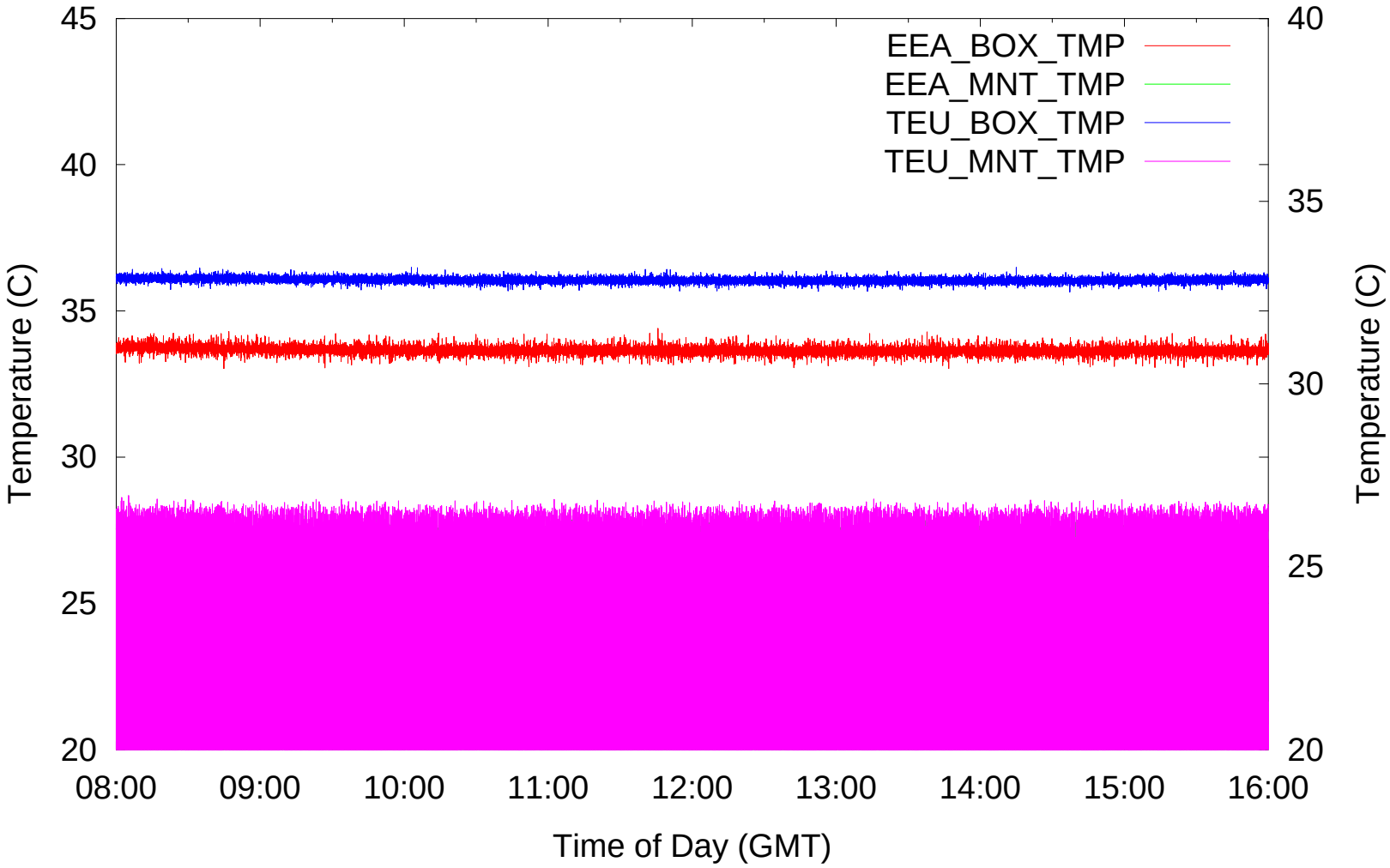


Box Temps 2002/121 (4 of 9)

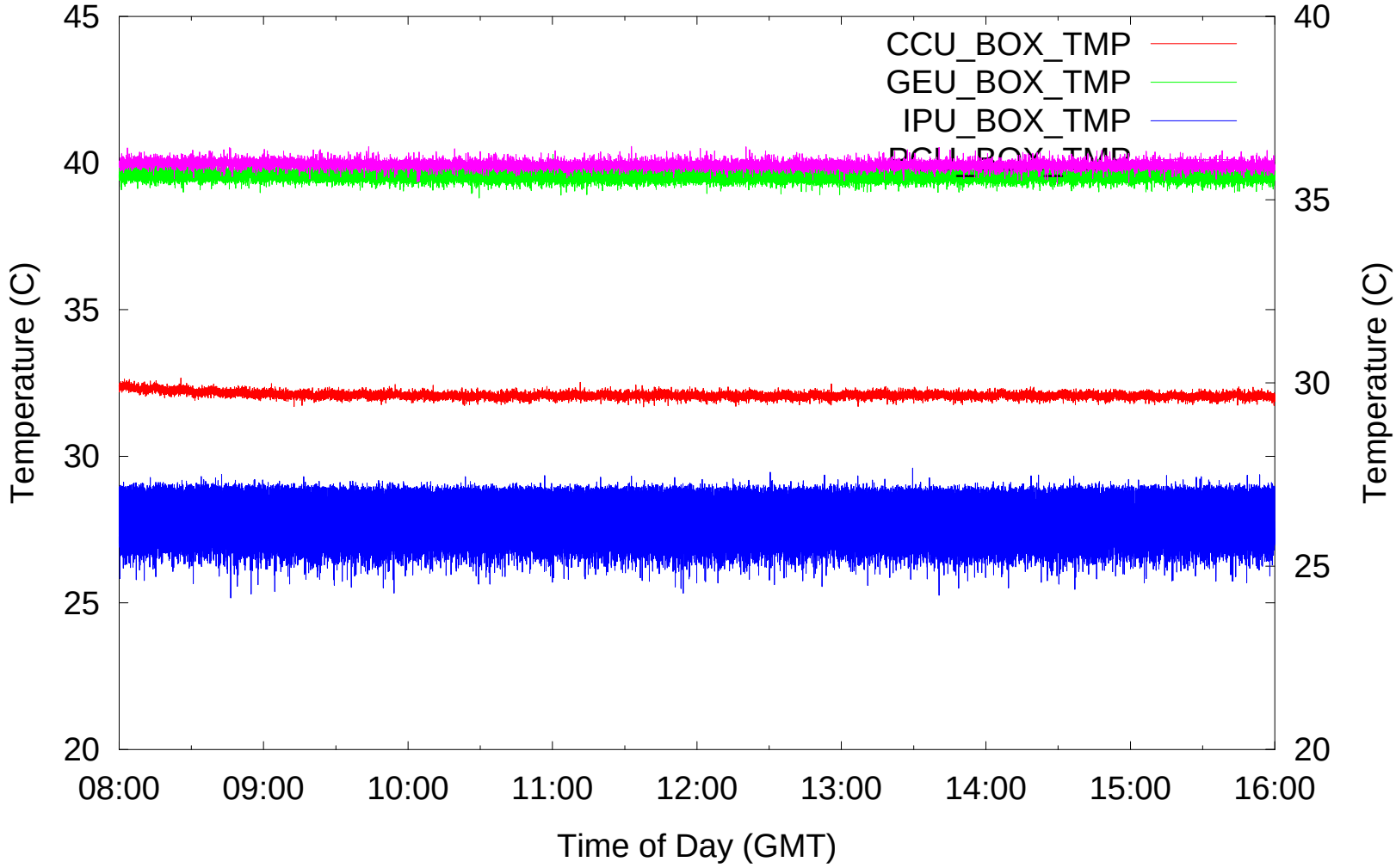


Box Temps 2002/121 (5 of 9)

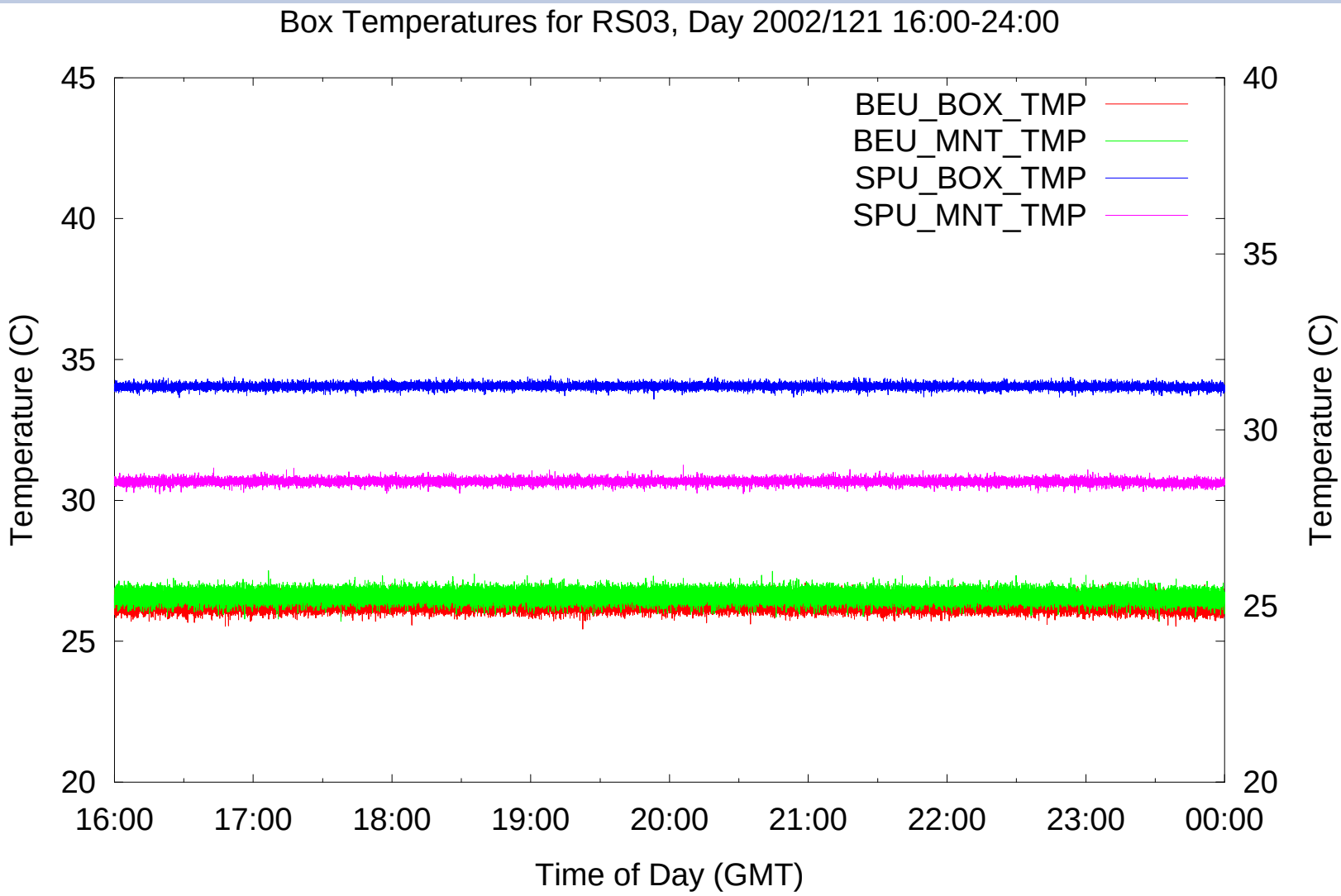
Box Temperatures for RS03, Day 2002/121 08:00-16:00



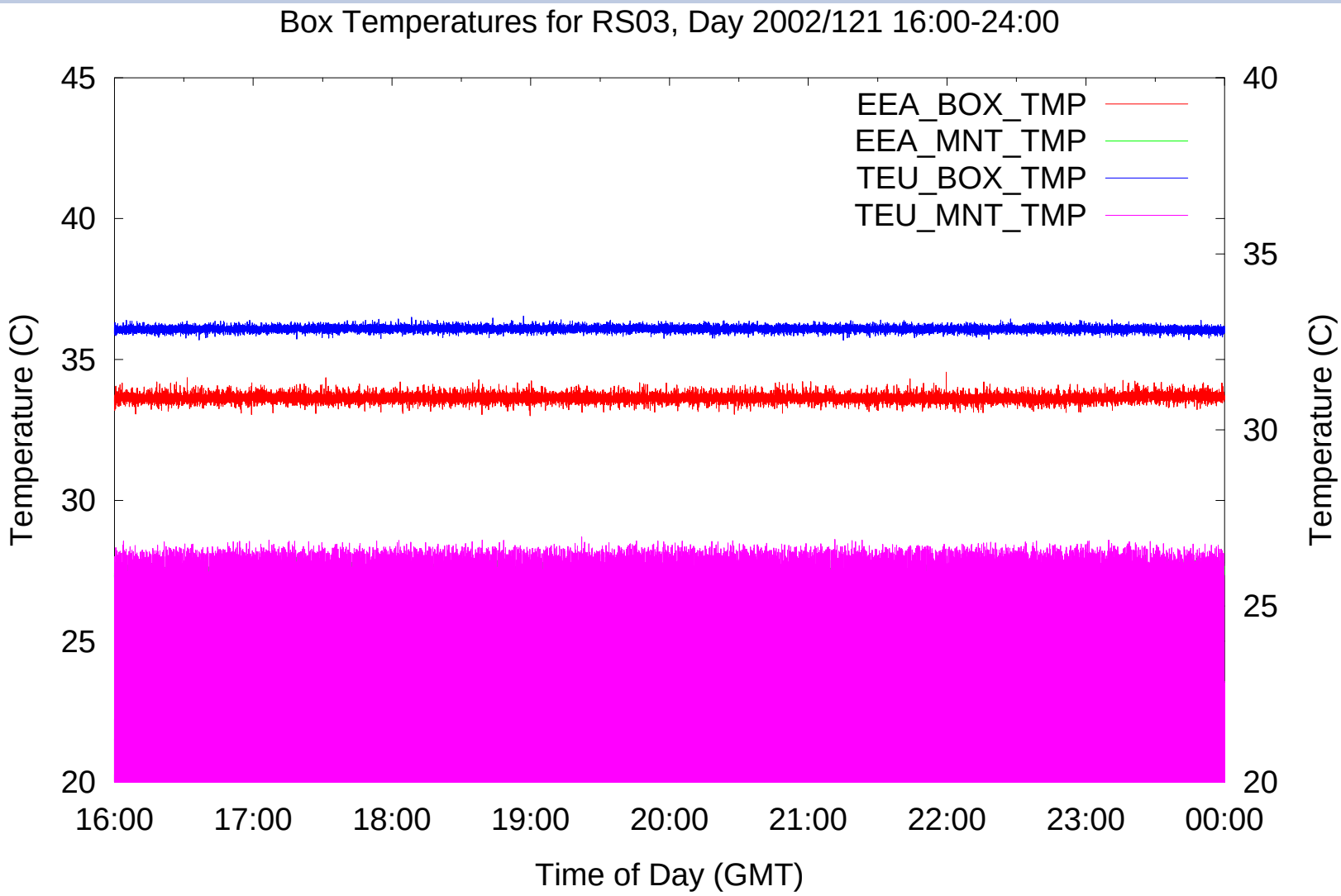
Box Temps 2002/121 (6 of 9)



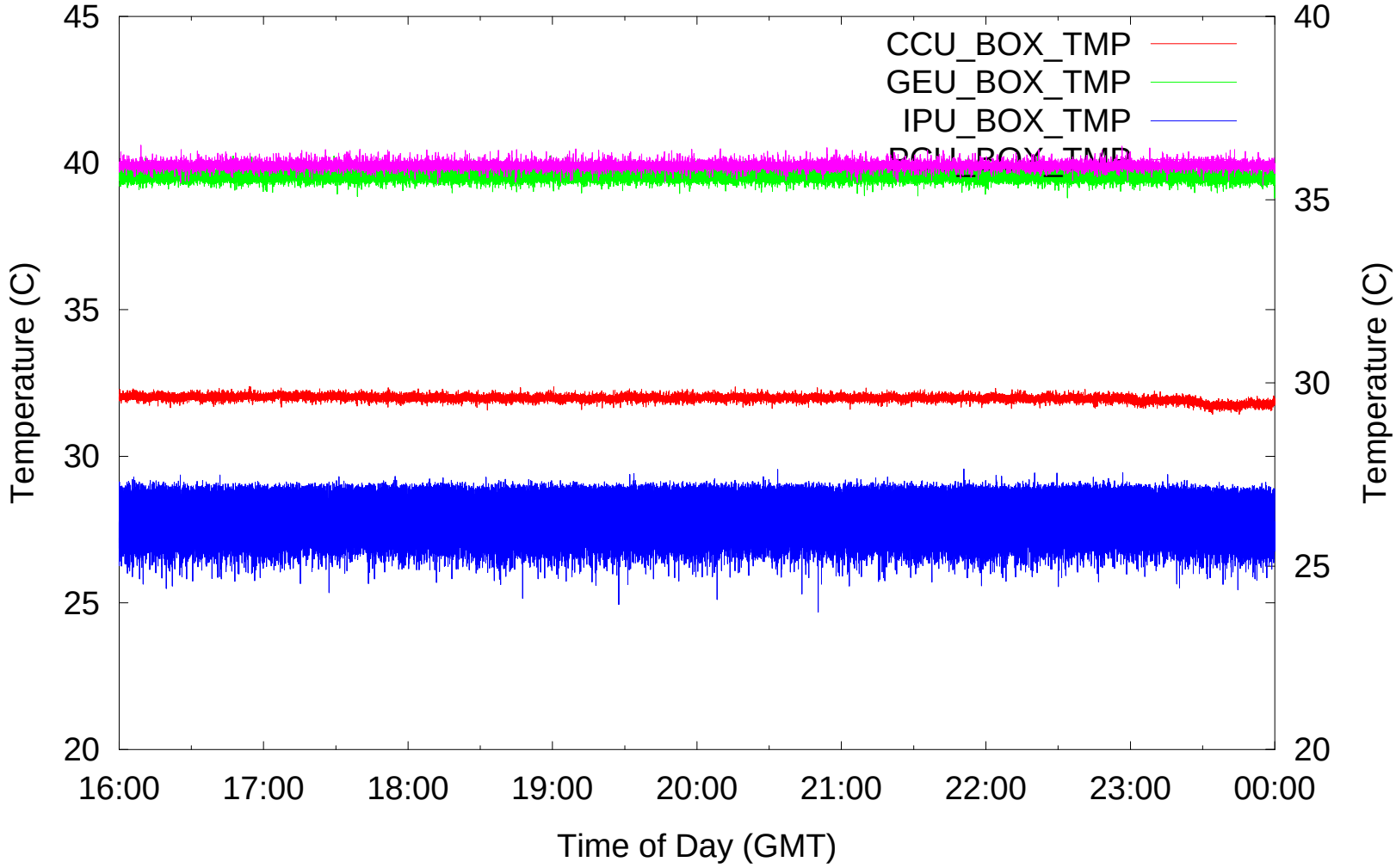
Box Temps 2002/121 (7 of 9)



Box Temps 2002/121 (8 of 9)



Box Temps 2002/121 (9 of 9)



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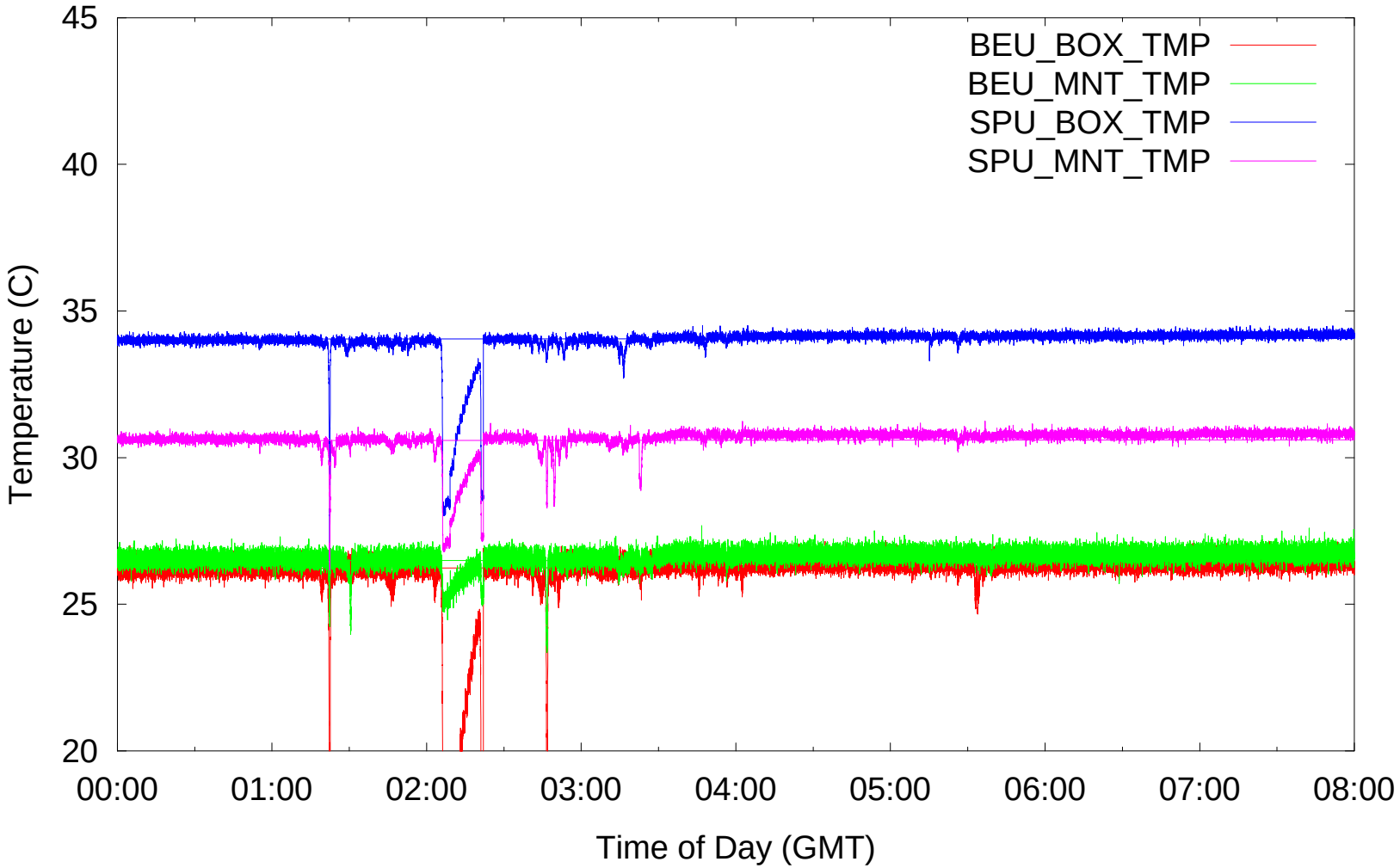
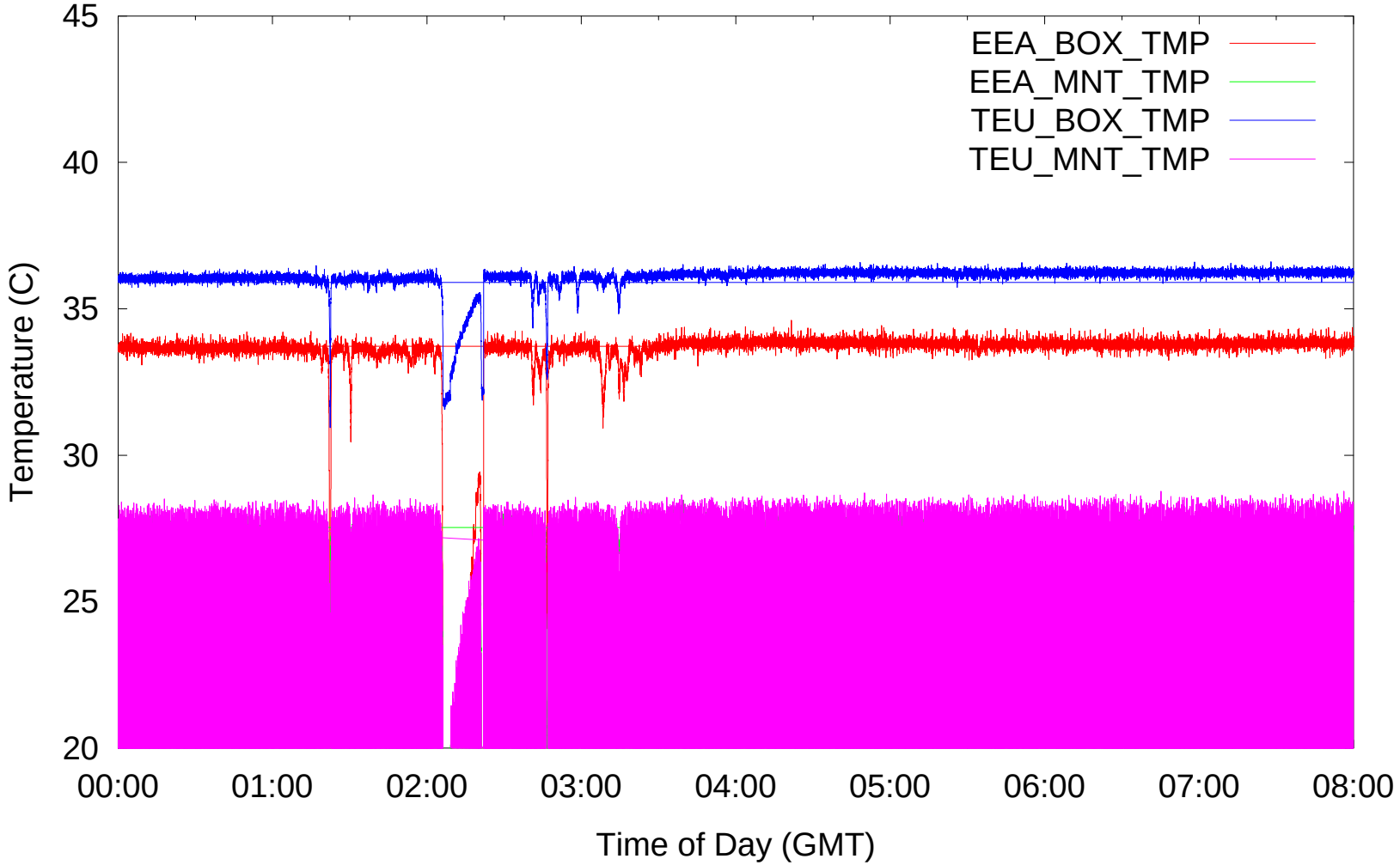
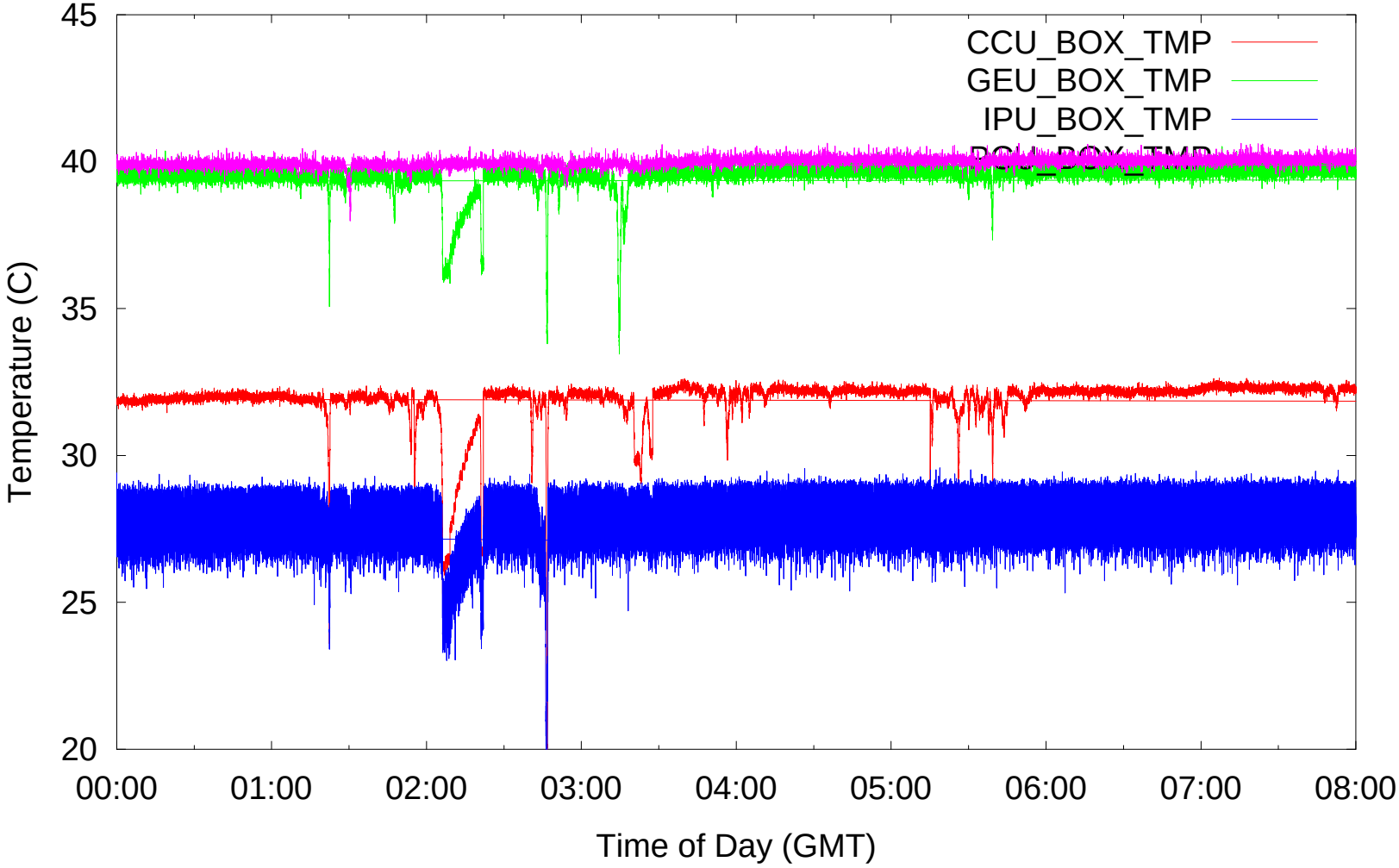
Box Temperatures for RS03, Day 2002/122 00:00-08:00



LOCKHEED MARTIN

Box Temperatures for RS03, Day 2002/122 00:00-08:00




Box Temperatures for RS03, Day 2002/122 00:00-08:00
CCU_BOX_TMP
GEU_BOX_TMP
IPU_BOX_TMP
Temperature (C)
45
40
35
30
25
20
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
Time of Day (GMT)

LOCKHEED MARTIN

HIRDLS

EMI/EMC TEST - RS01

02 May 2002

2002/123-03:16 Through 2002/123-12:02

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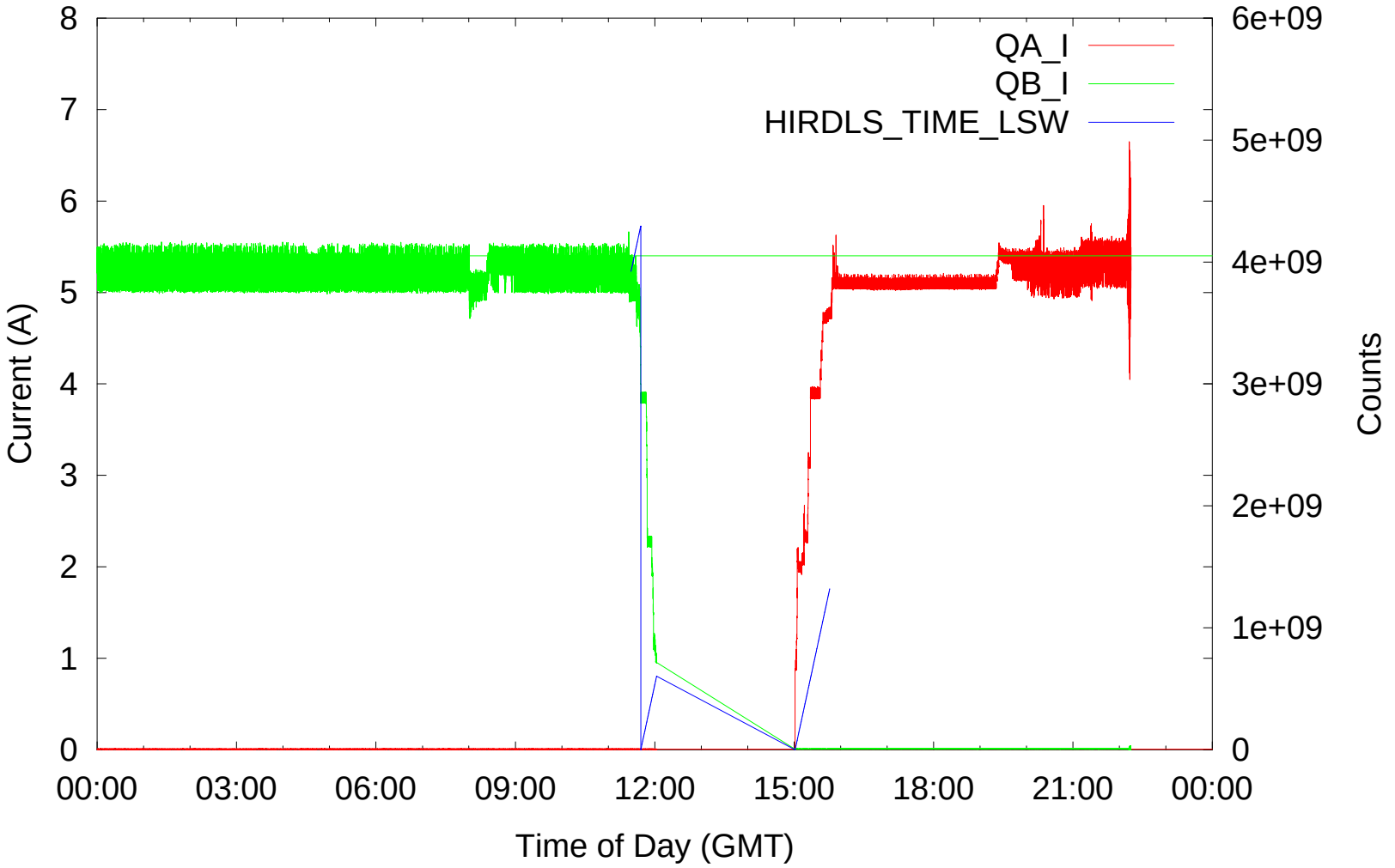
Archive Integrity & Quiet Bus Current: Day 123 (1)

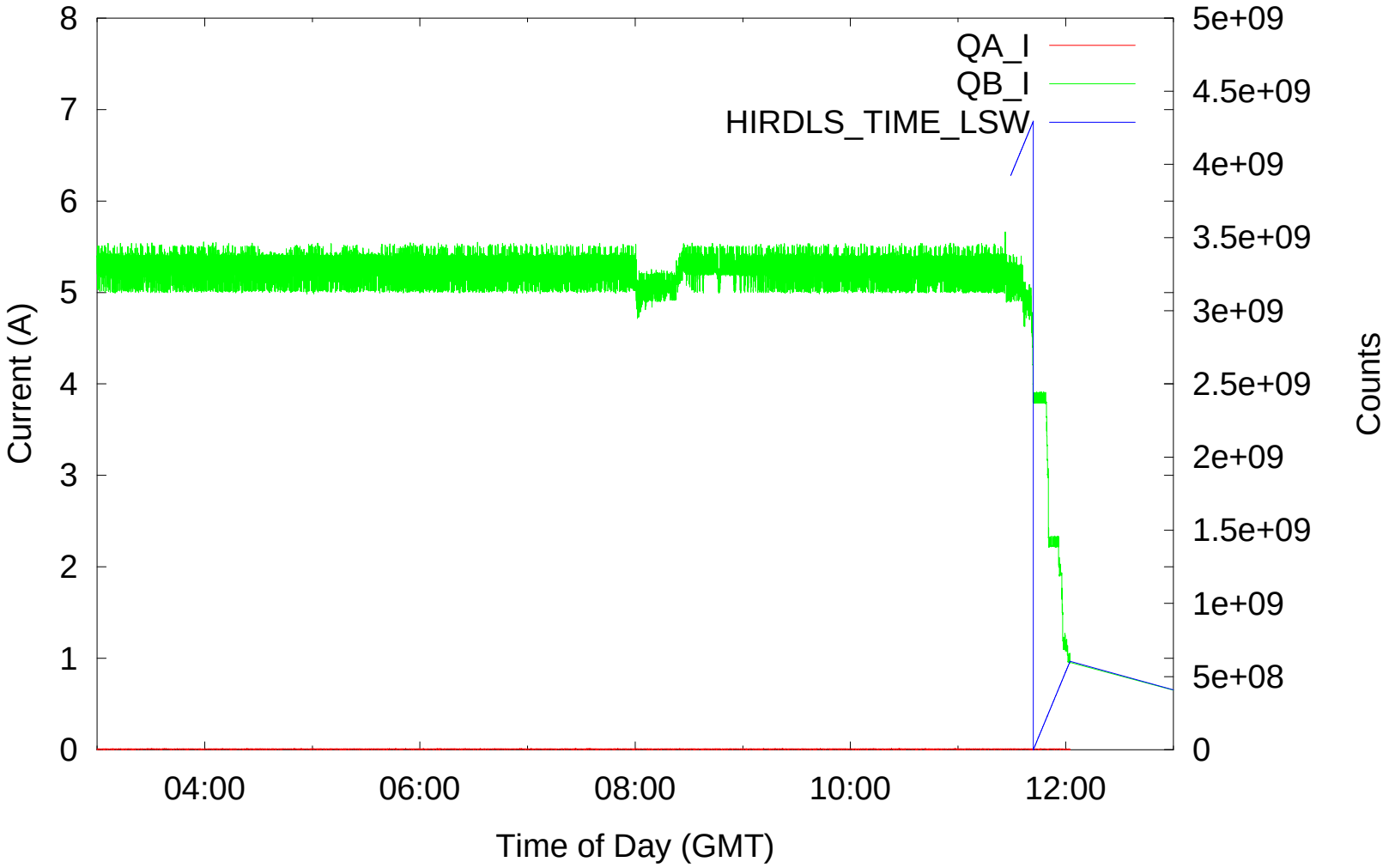
HIRDLS Quiet Bus Current: RS01 2002/123



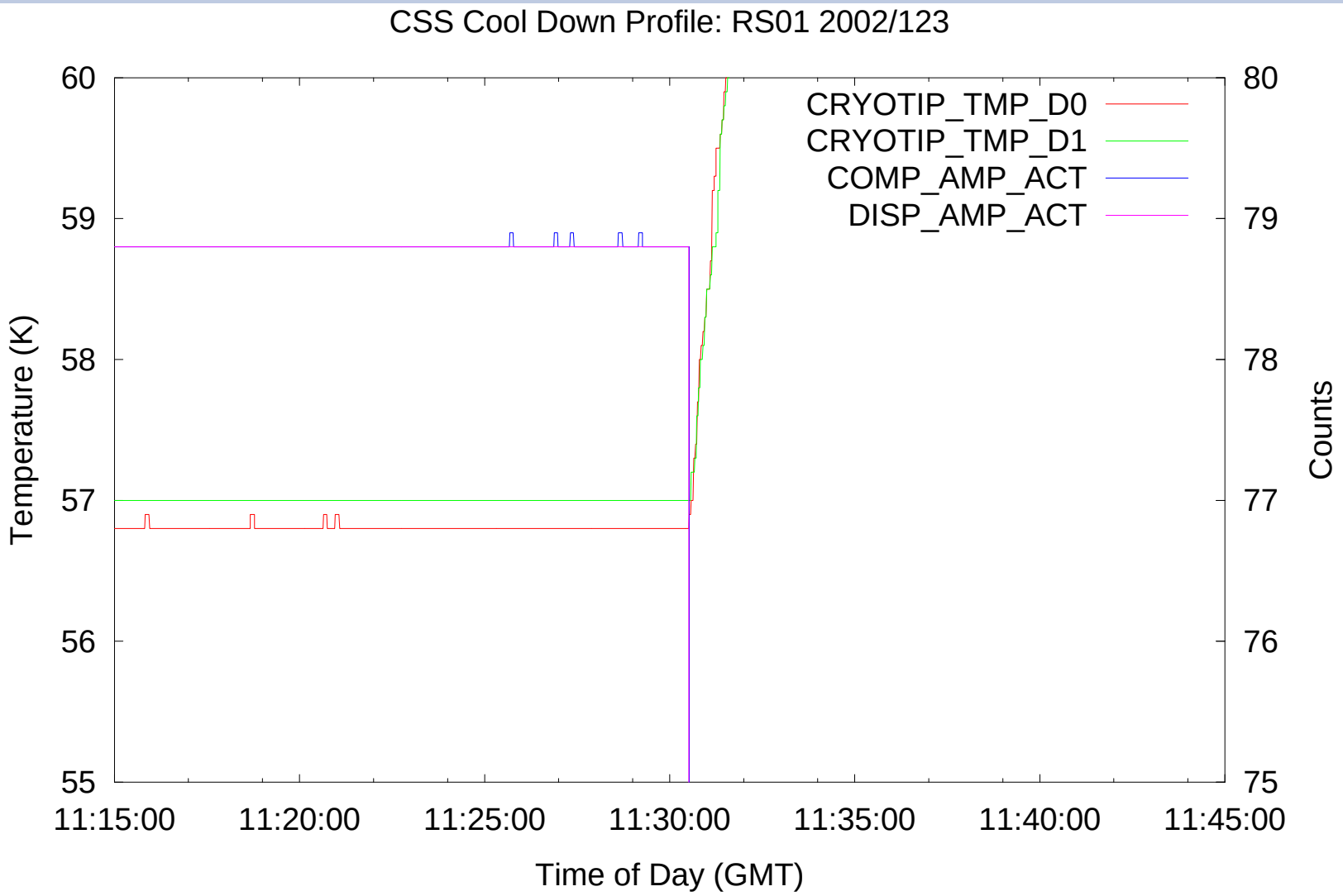
LOCKHEED MARTIN

Archive Integrity & Quiet Bus Current: Day 123 (2)

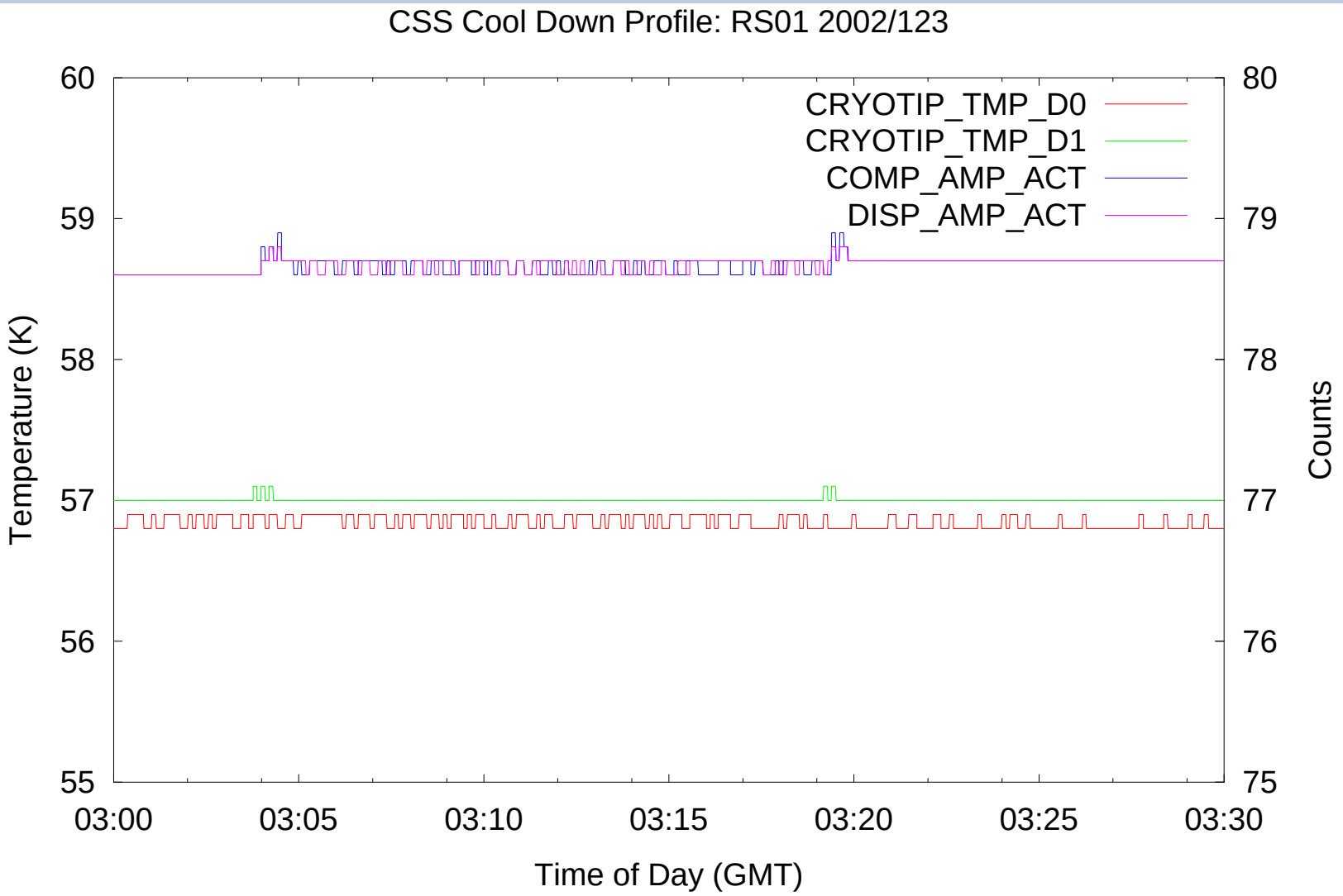
HIRDLS Quiet Bus Current: CPT2 2002/123



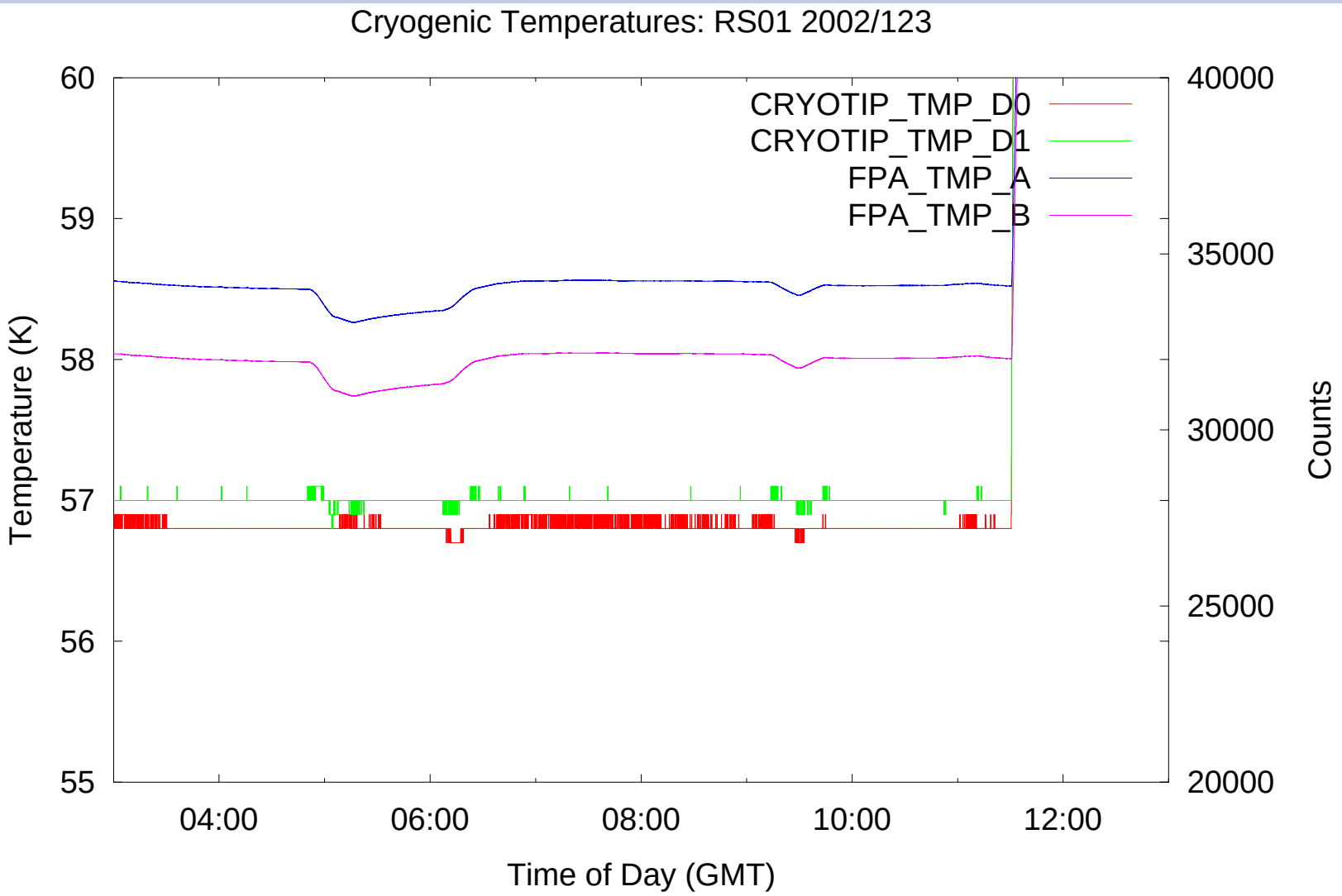
CSS Cool-Down



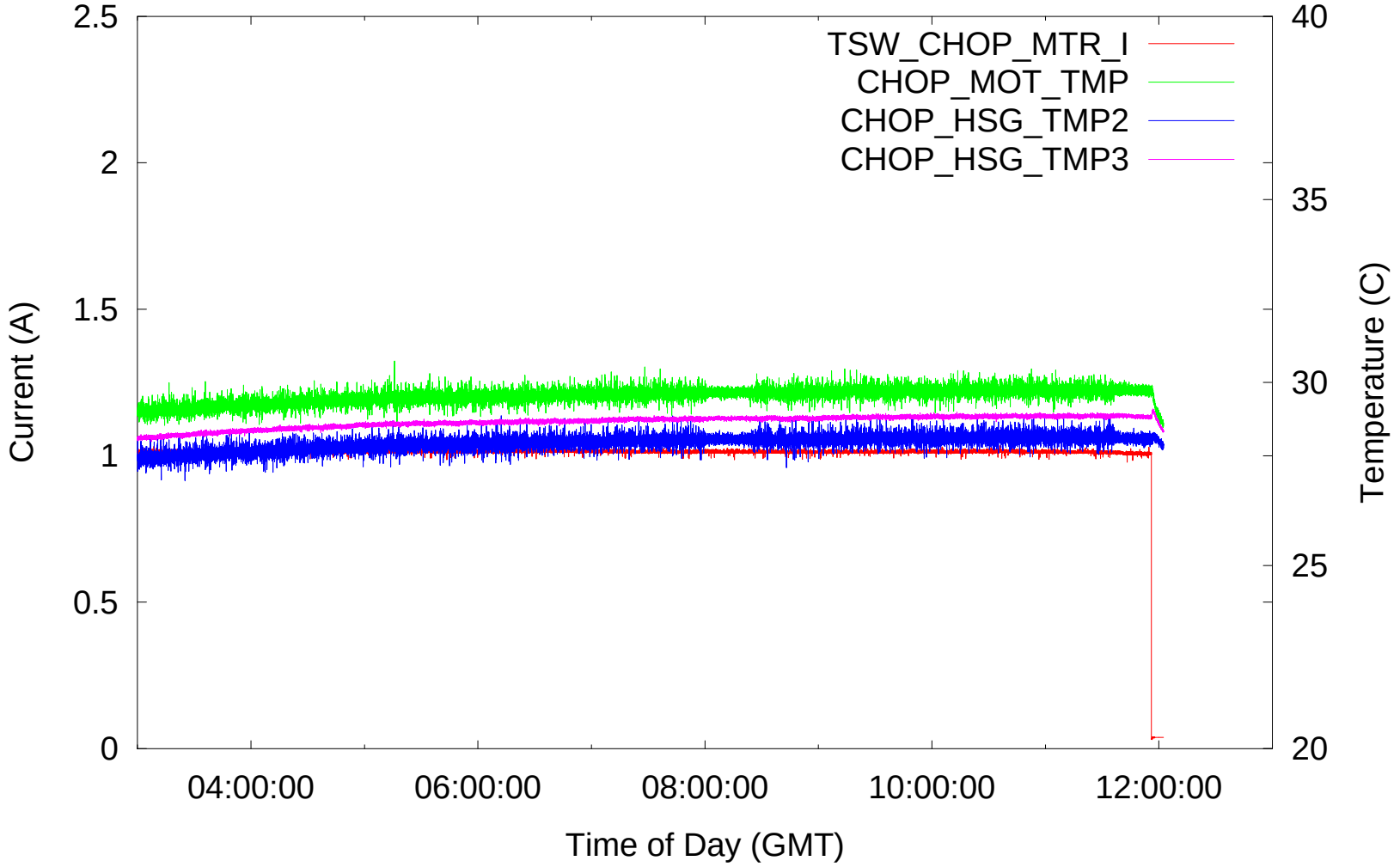
CSS Warm-Up


CSS Cool Down Profile: RS01 2002/123
CRYOTIP_TMP_D0
CRYOTIP_TMP_D1
COMP_AMP_ACT
DISP_AMP_ACT
Temperature (K)
Counts
60
59
58
57
56
55
80
79
78
77
76
75
03:00
03:05
03:10
03:15
03:20
03:25
03:30
Time of Day (GMT)

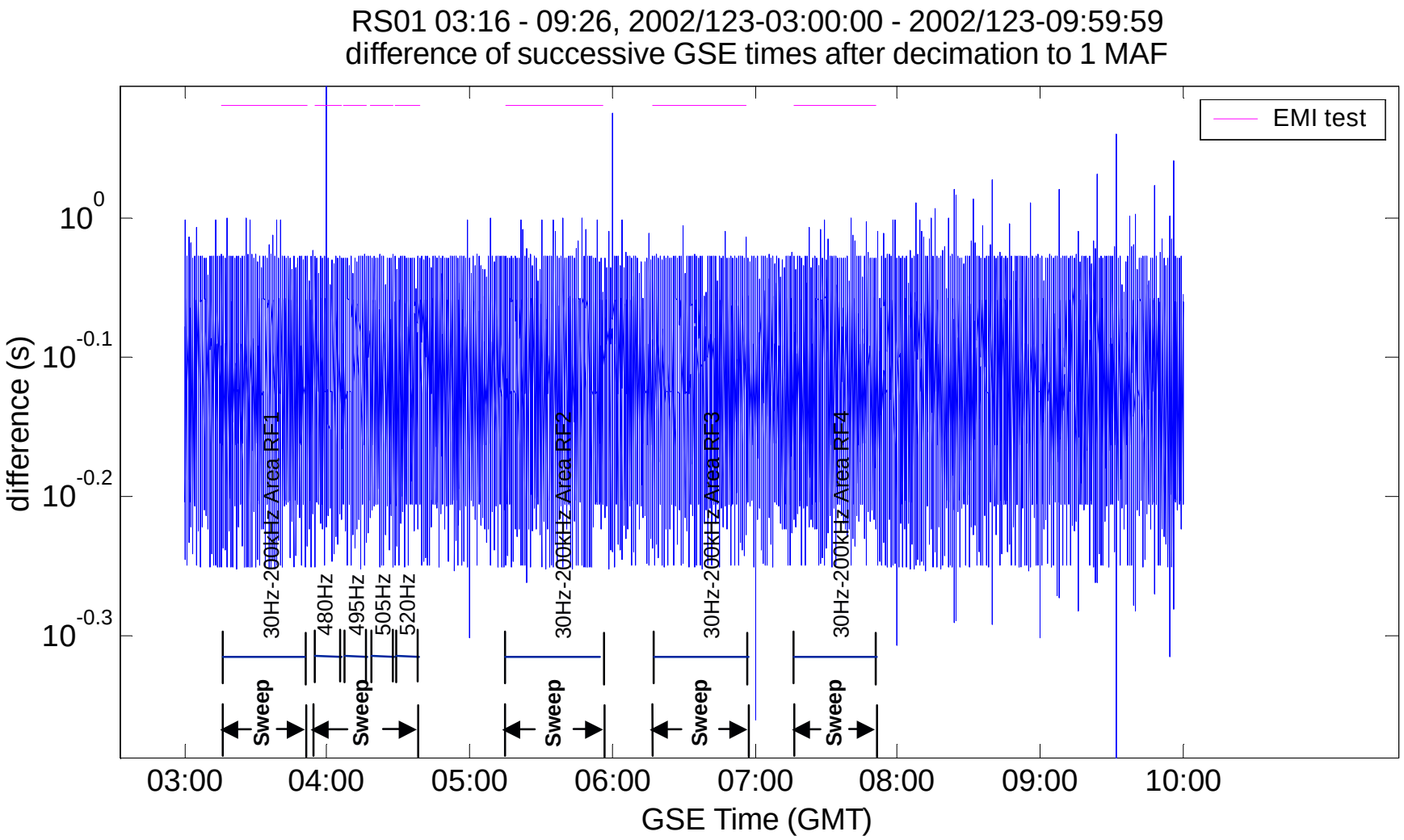
Cryogenic Temperatures: Day 123



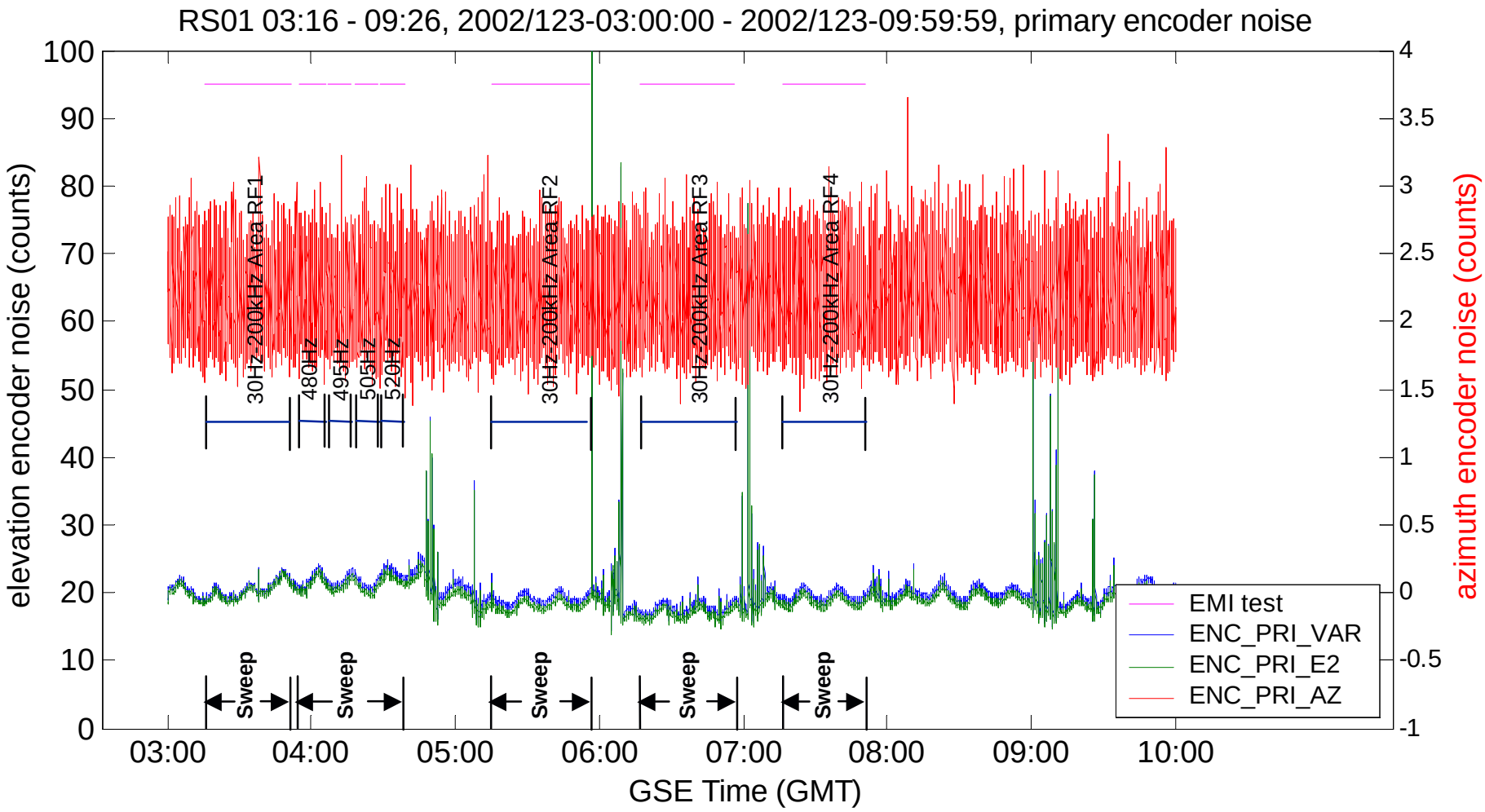
Chopper: Day 123



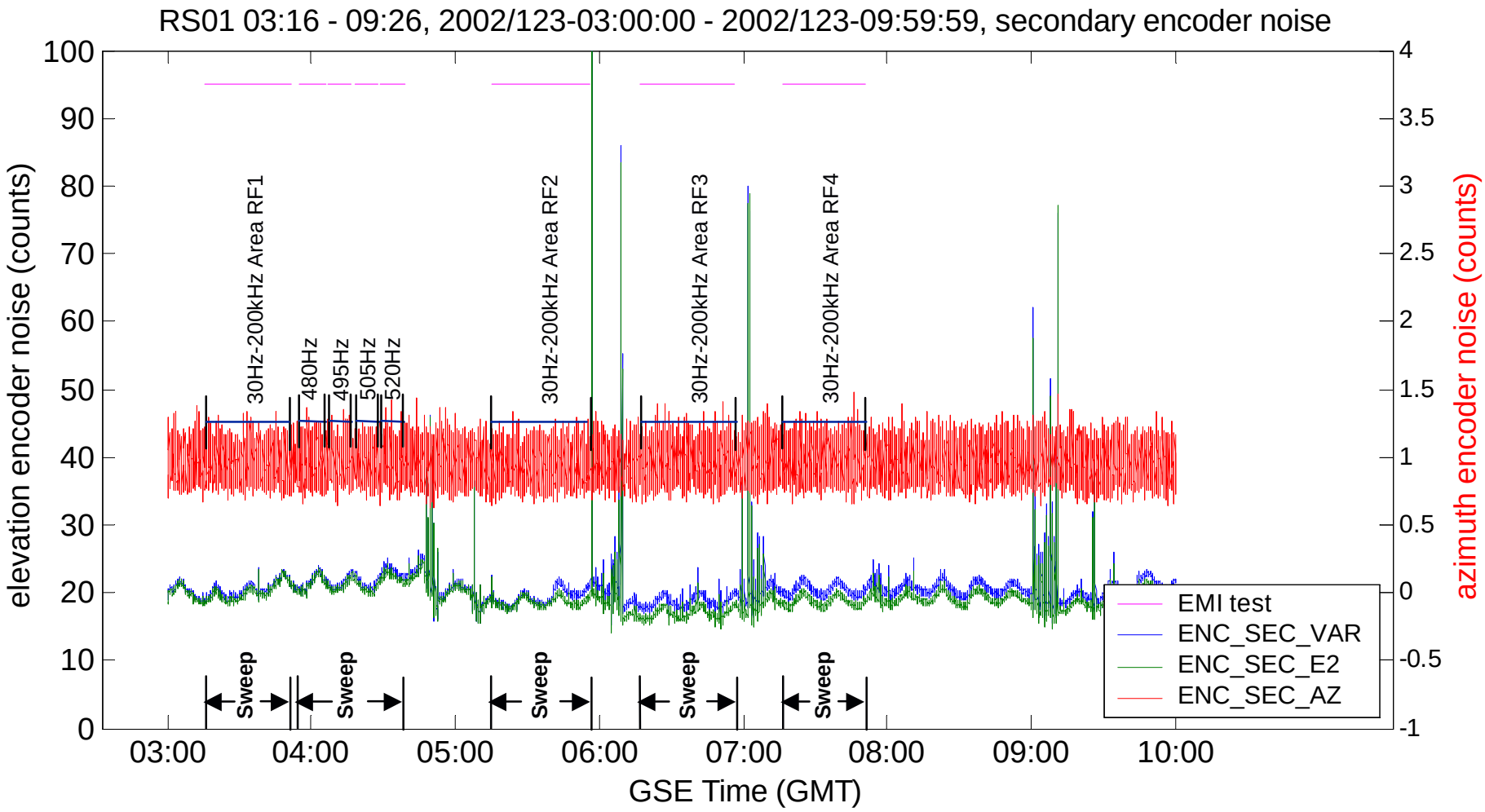
Check Time Sequence



Noise: Primary Encoders

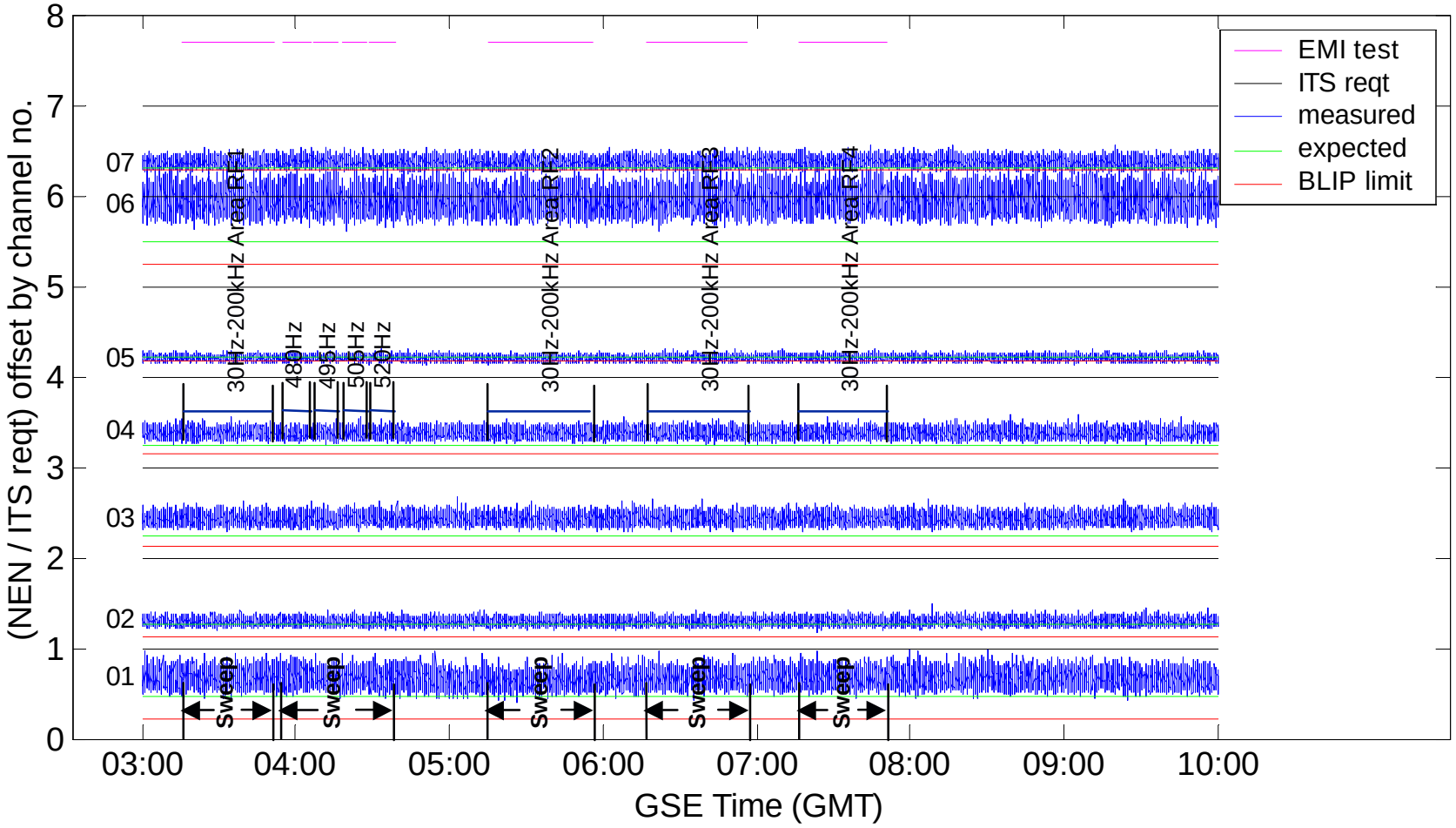


Noise: Secondary Encoders

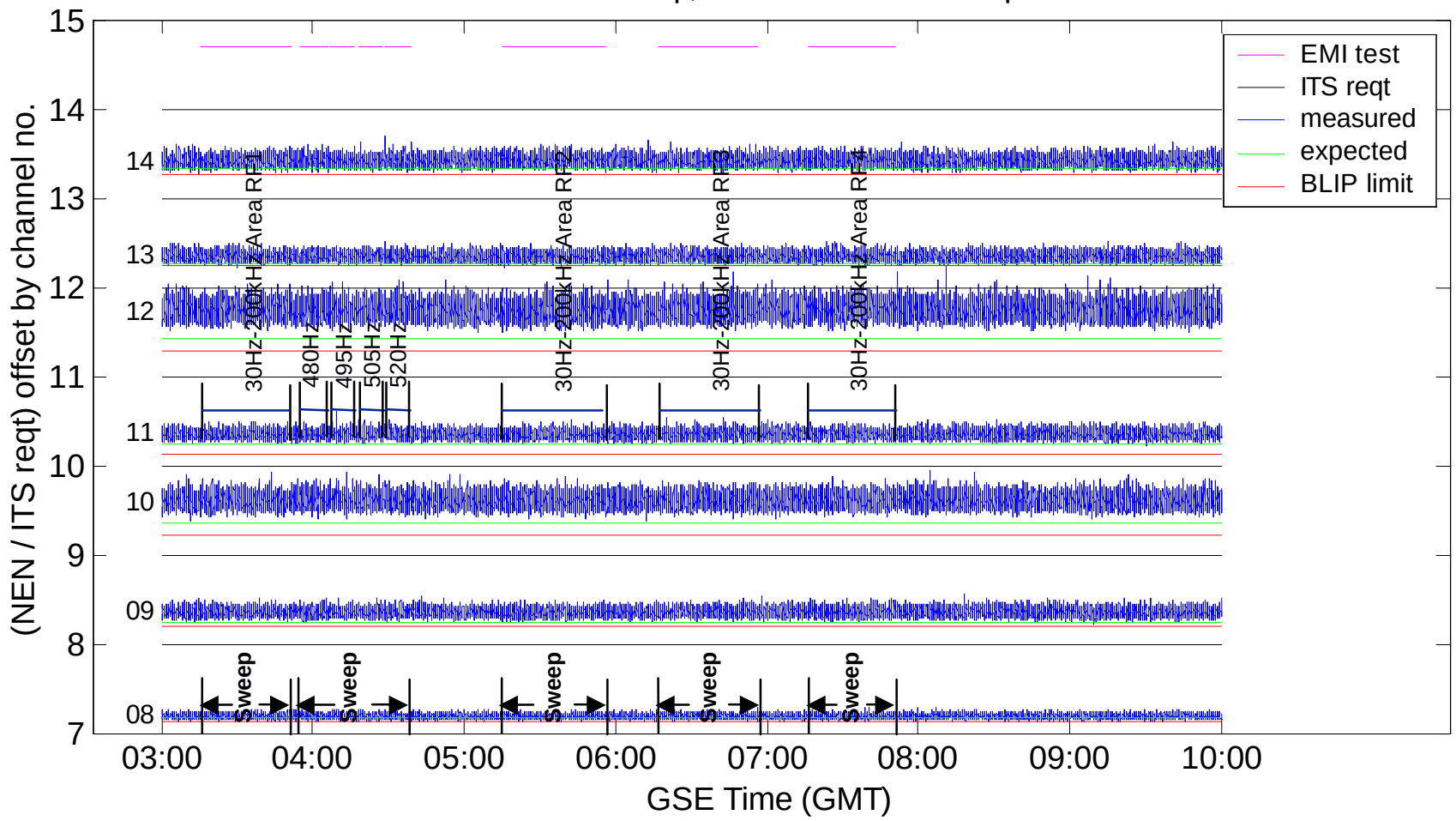


Noise: Radiance Channels 1-7

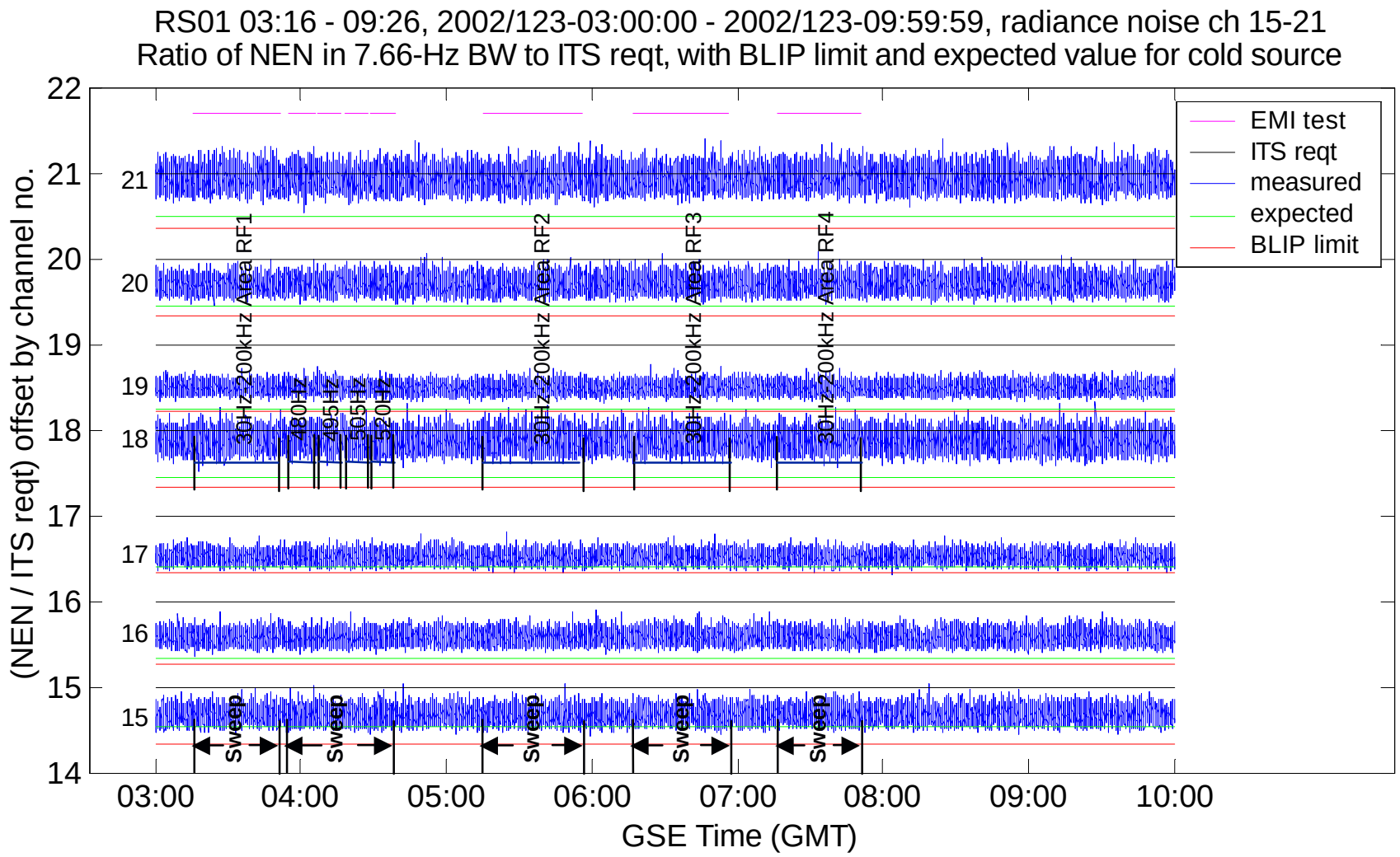
RS01 03:16 - 09:26, 2002/123-03:00:00 - 2002/123-09:59:59, radiance noise ch 1-7
Ratio of NEN in 7.66-Hz BW to ITS reqt, with BLIP limit and expected value for cold source



Noise: Radiance Channels 8-14



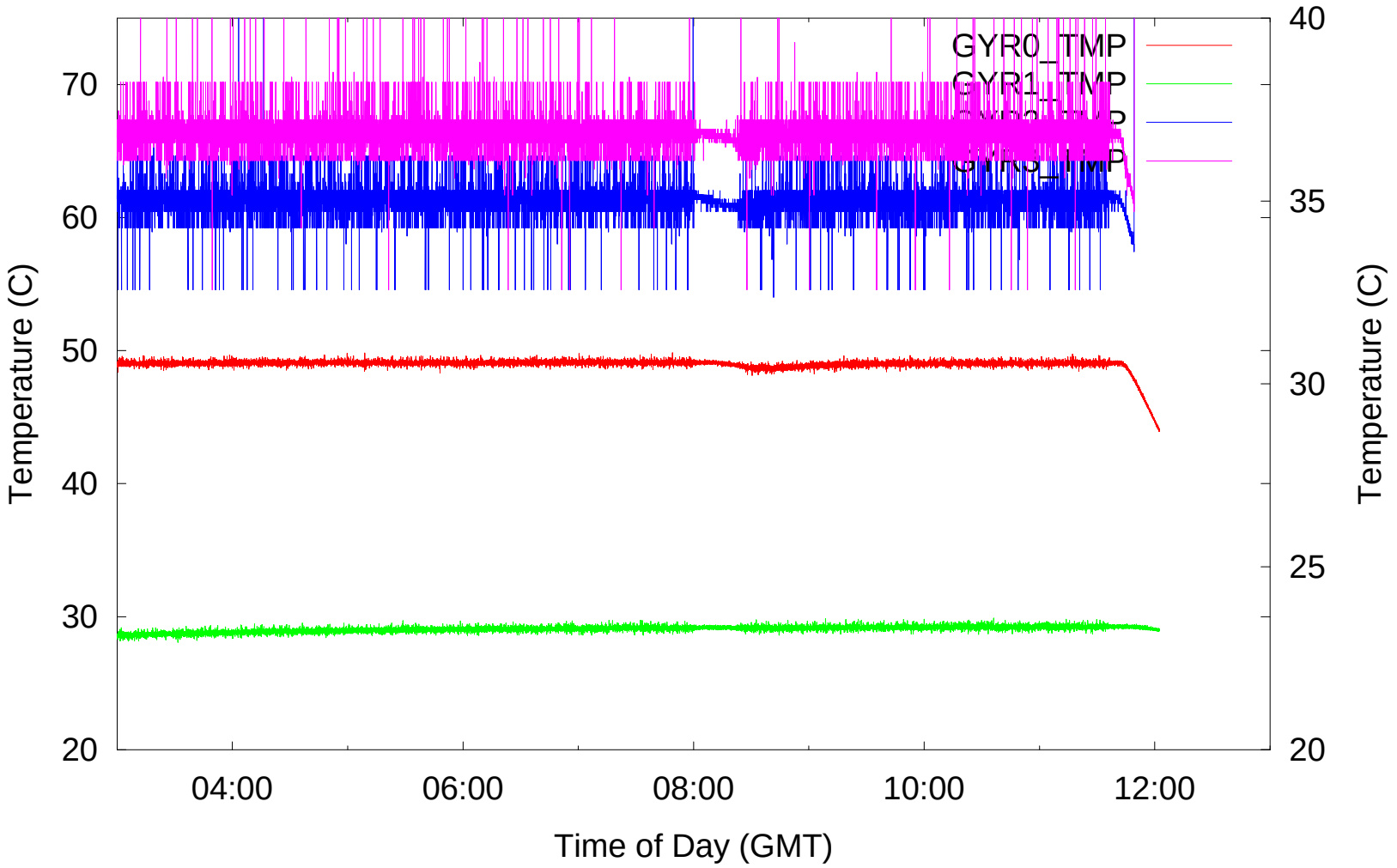
Noise: Radiance Channels 15-21



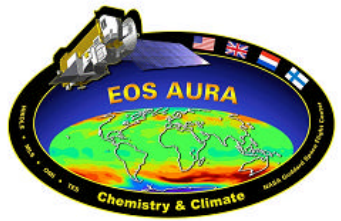
LOCKHEED MARTIN

Gyro Temps Day 123

GyroTemps : RS01 2002/123

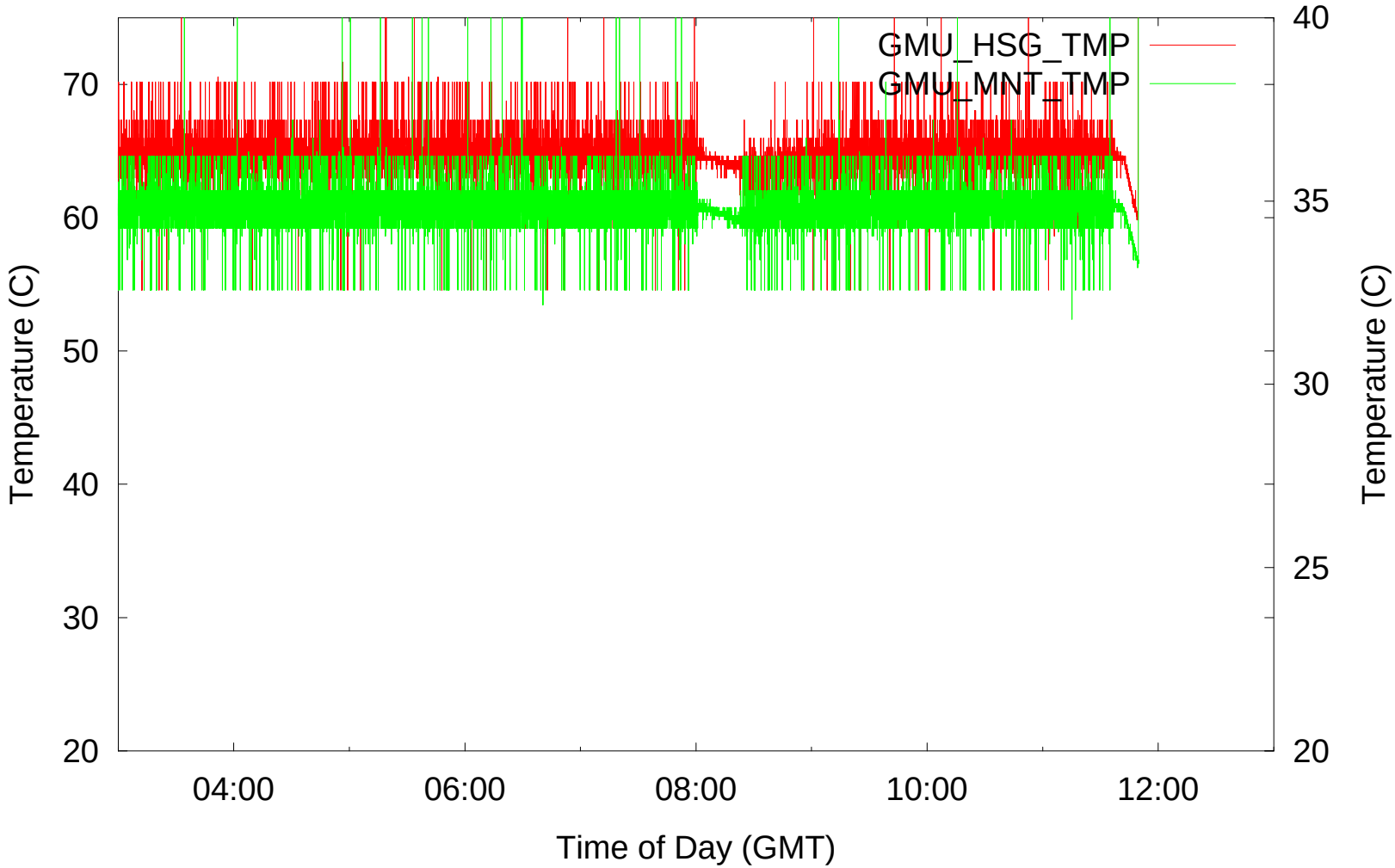


LOCKHEED MARTIN



Gyro Temps Day 123

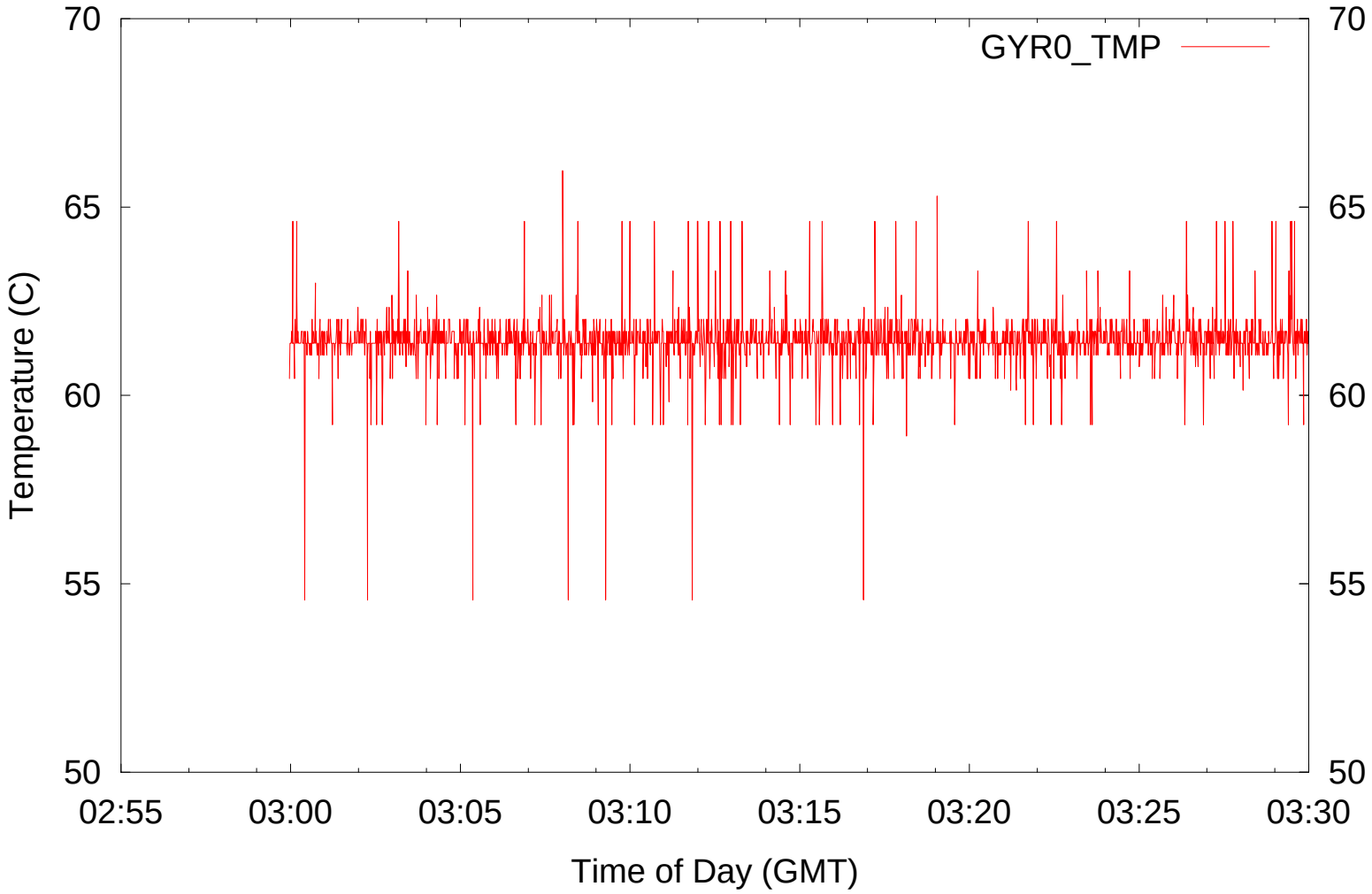
GyroTemps : RS01 2002/123



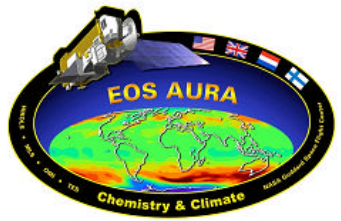
LOCKHEED MARTIN

Day 123: Gyro 0 Warm & Spin-up

Gyro Temperatures at Warm Up: Gyro 0

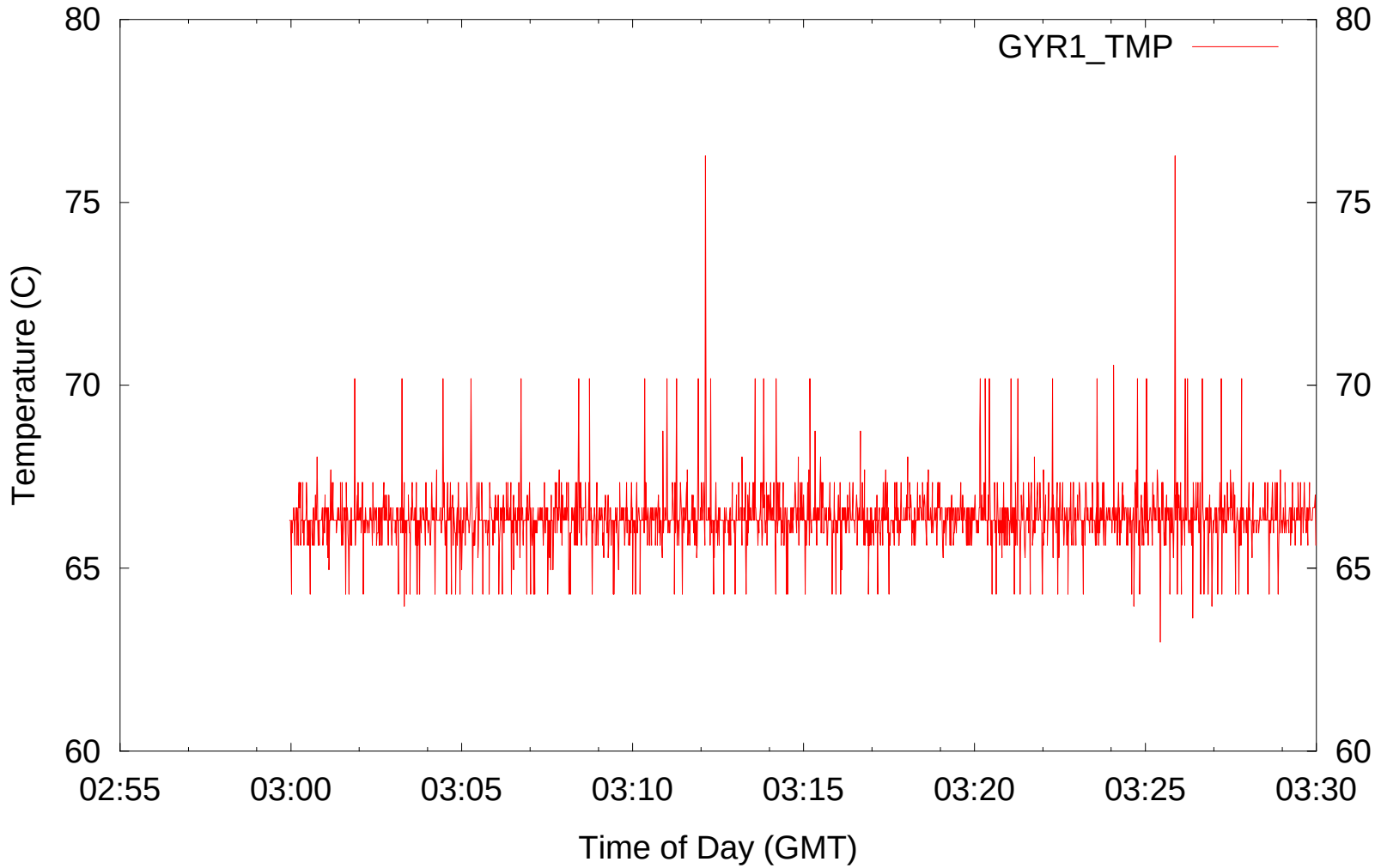


LOCKHEED MARTIN

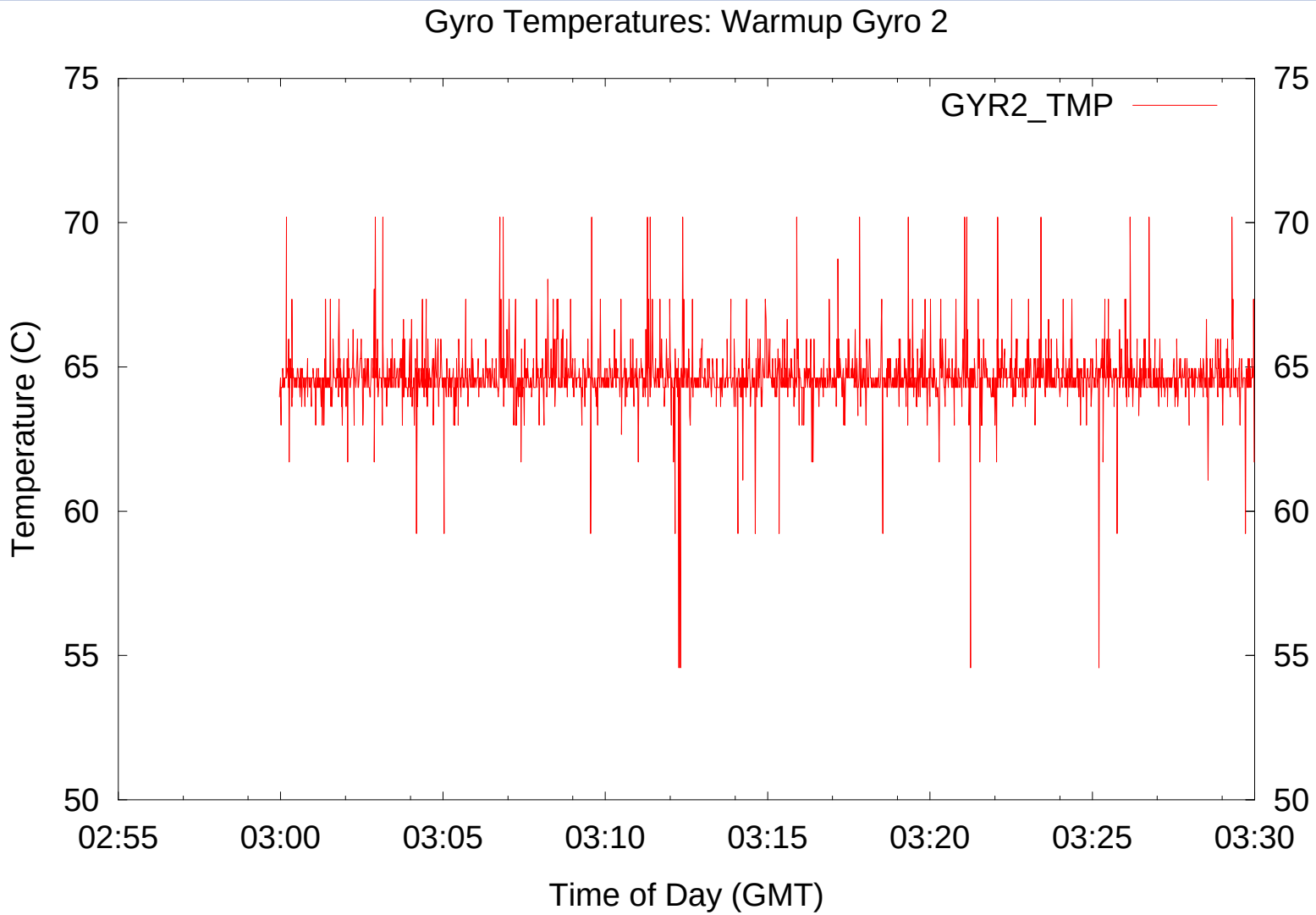


Day 123: Gyro 1 Warm & Spin-up

Gyro Temperatures at Warm Up: Gyro 1

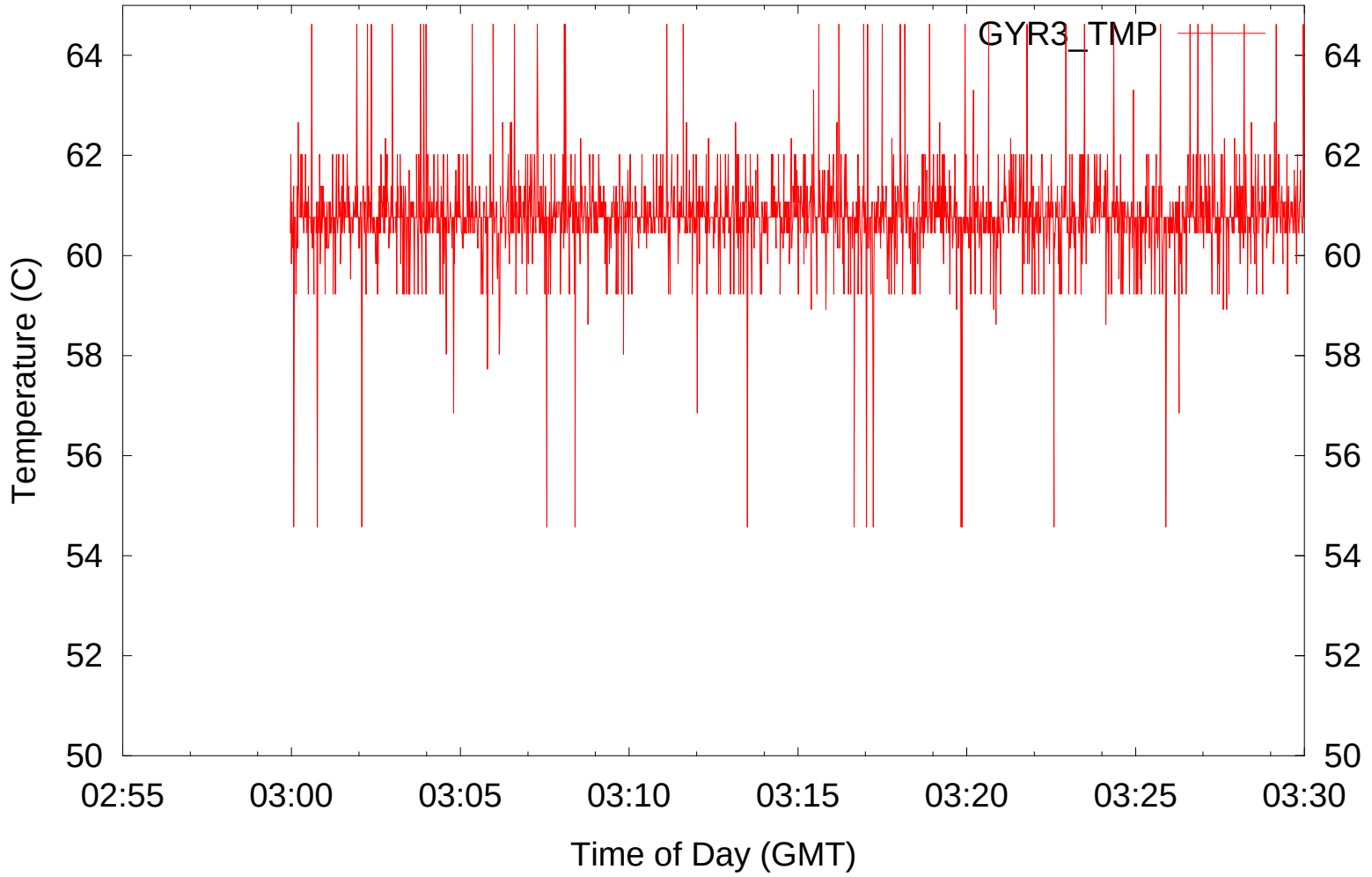


Day 123: Gyro 2 Warm & Spin-up

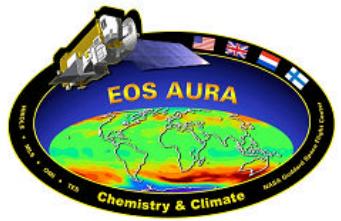


Day 123: Gyro 3 Warm & Spin-up

Warmup gyro Temperatures: Gyro 3

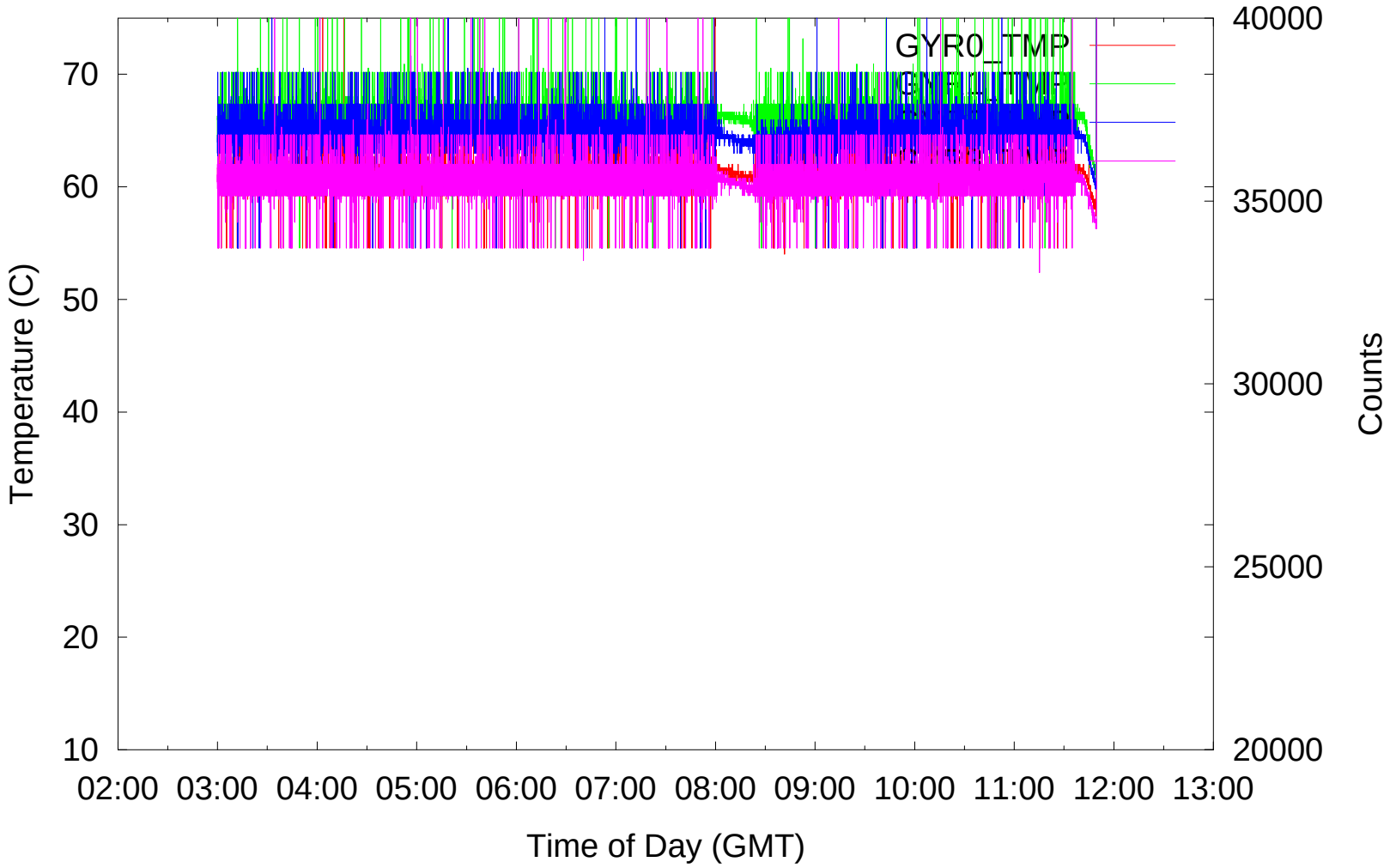


LOCKHEED MARTIN

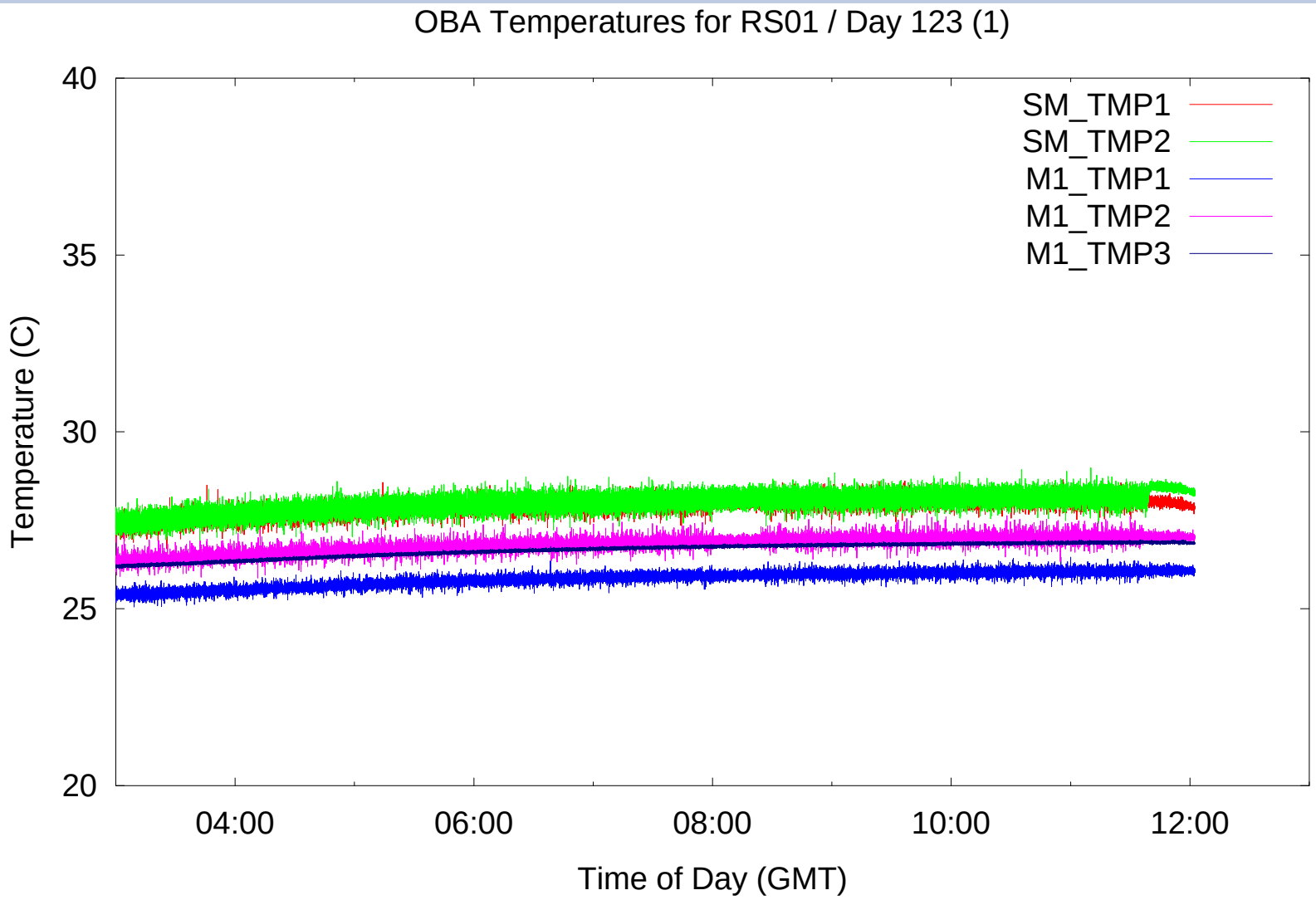


Gyro Temps Day 123/ 03:00 - 13:00

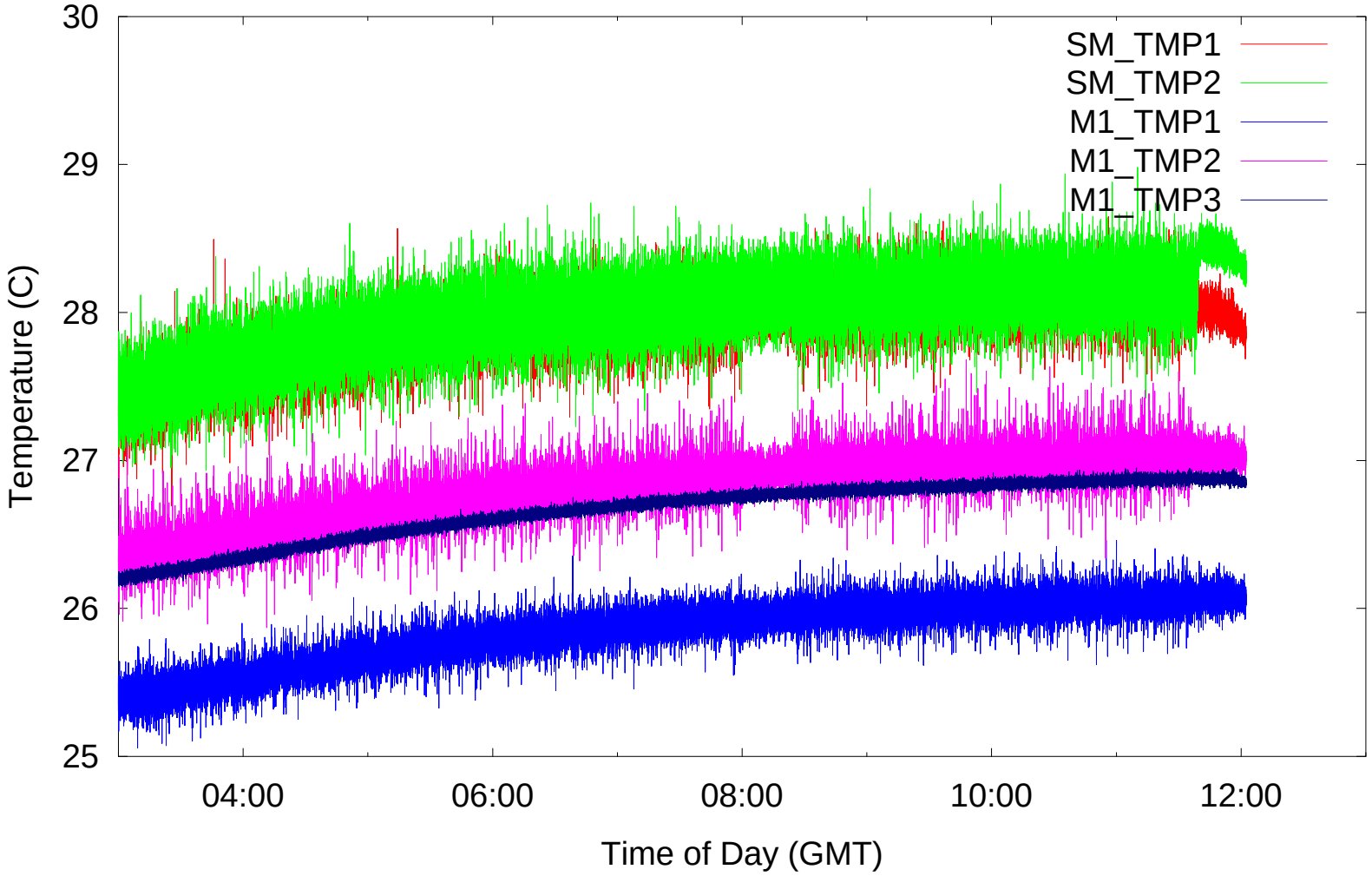
Gyro Temperatures RS01 / 2002 Day 123



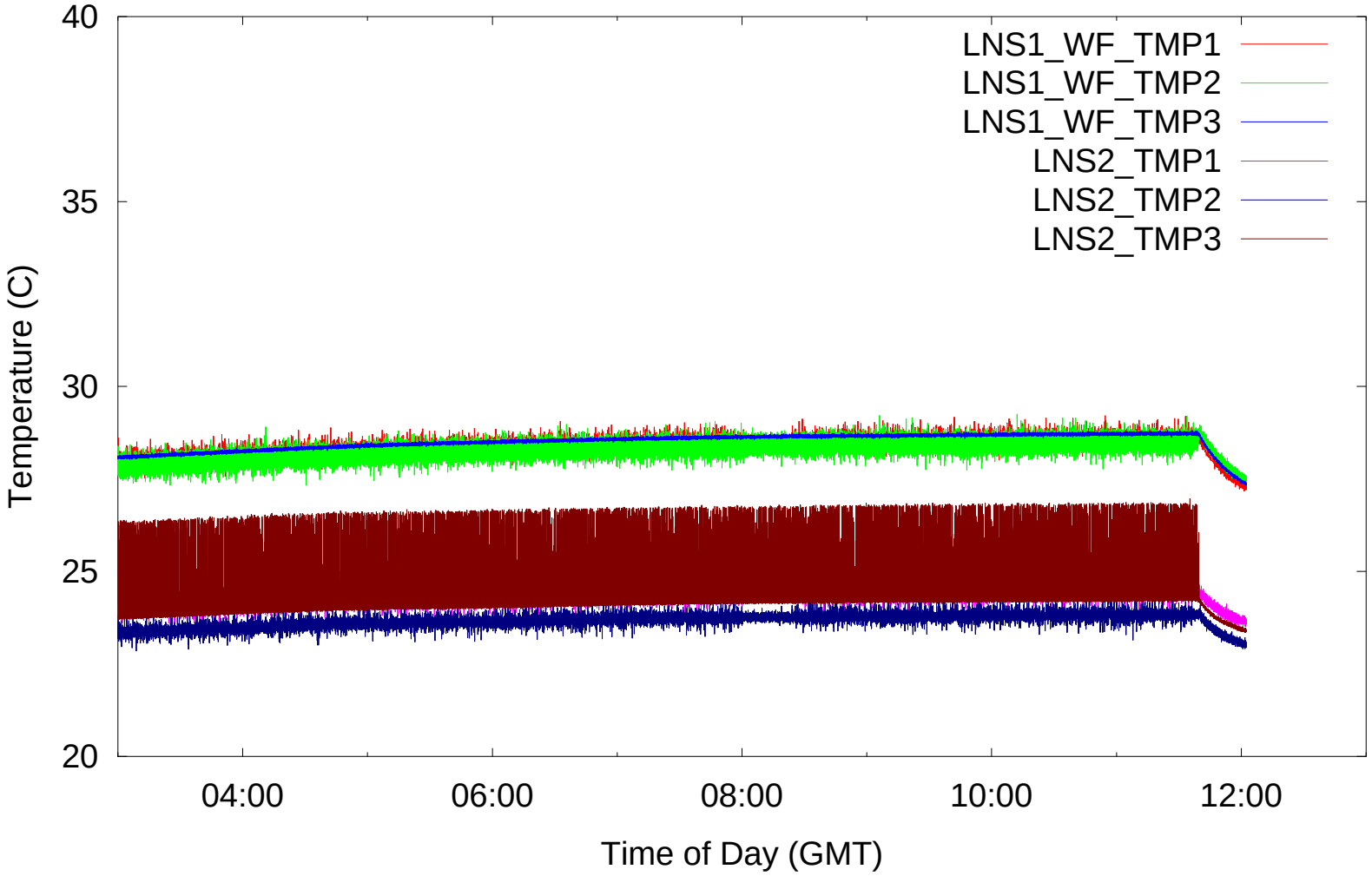
OBA Temp Sensors: Day 123



OBA Temps: Day 123 Scan Mirror and M1 – Detail



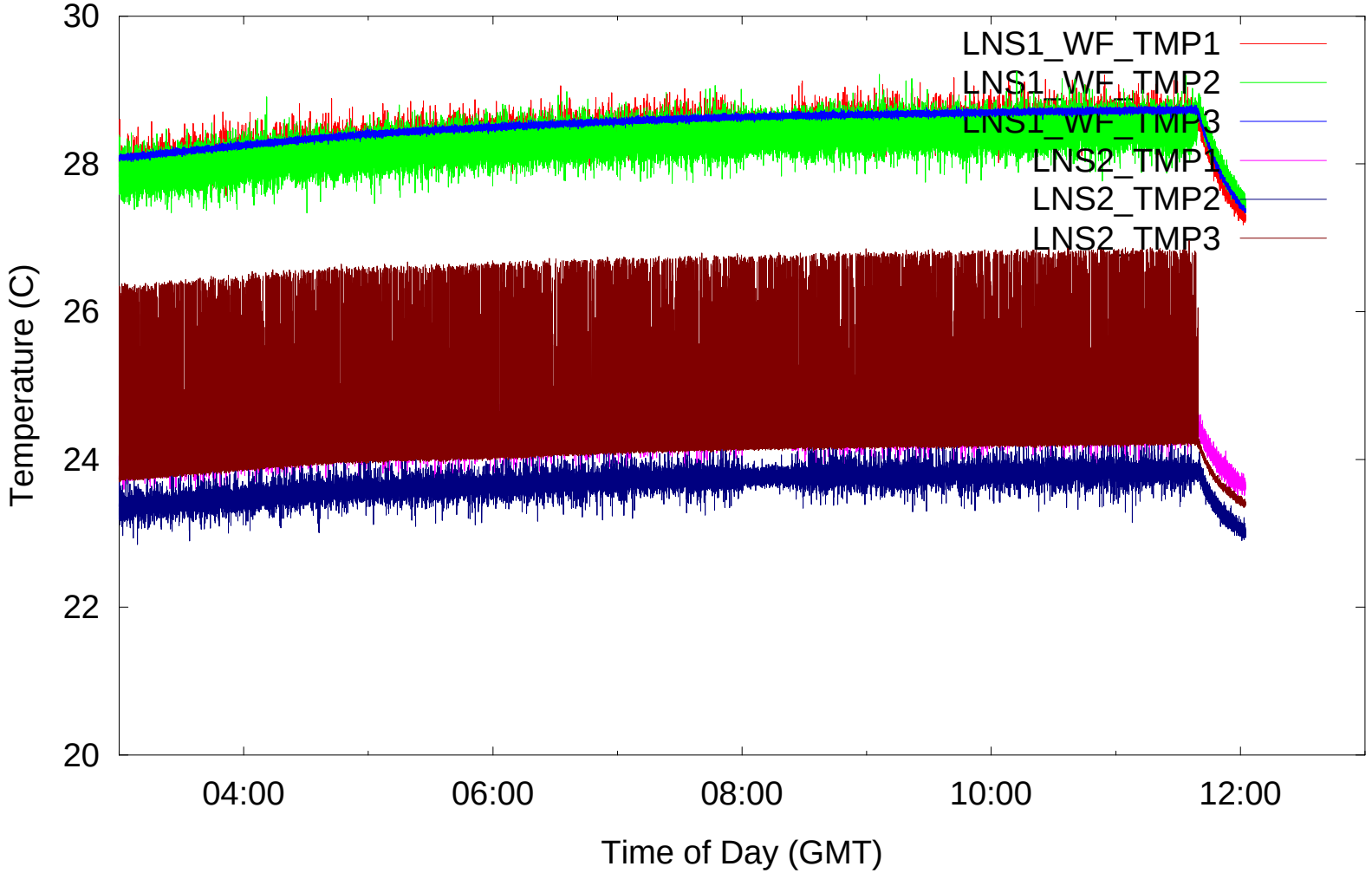
OBA Temp Sensors: Day 123



LOCKHEED MARTIN

OBA Temps: Day 123 Cal Mirror, Space View Mirror, and Chopper Housing - Detail

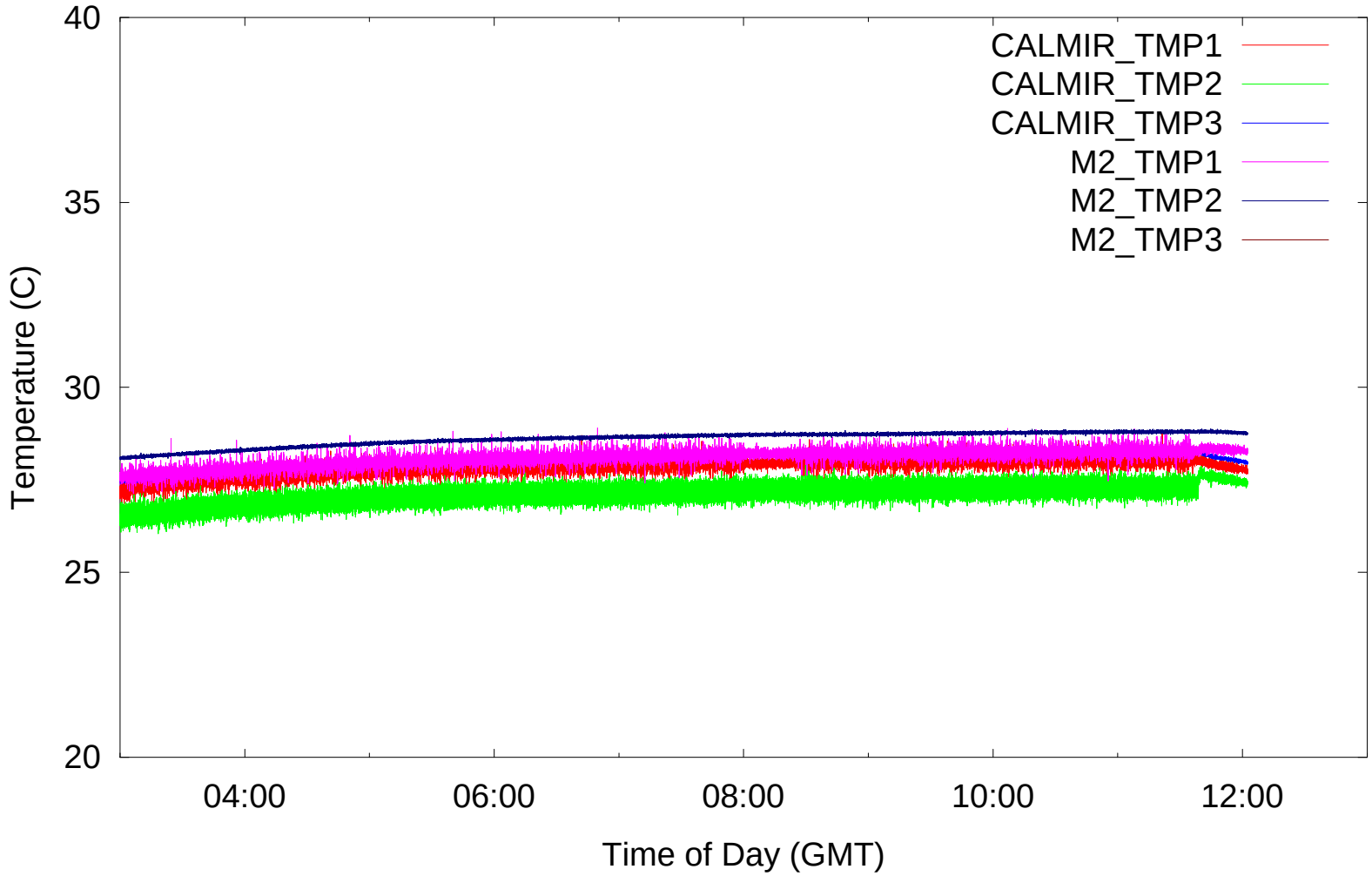
OBA Temperatures for RS01 / Day 123



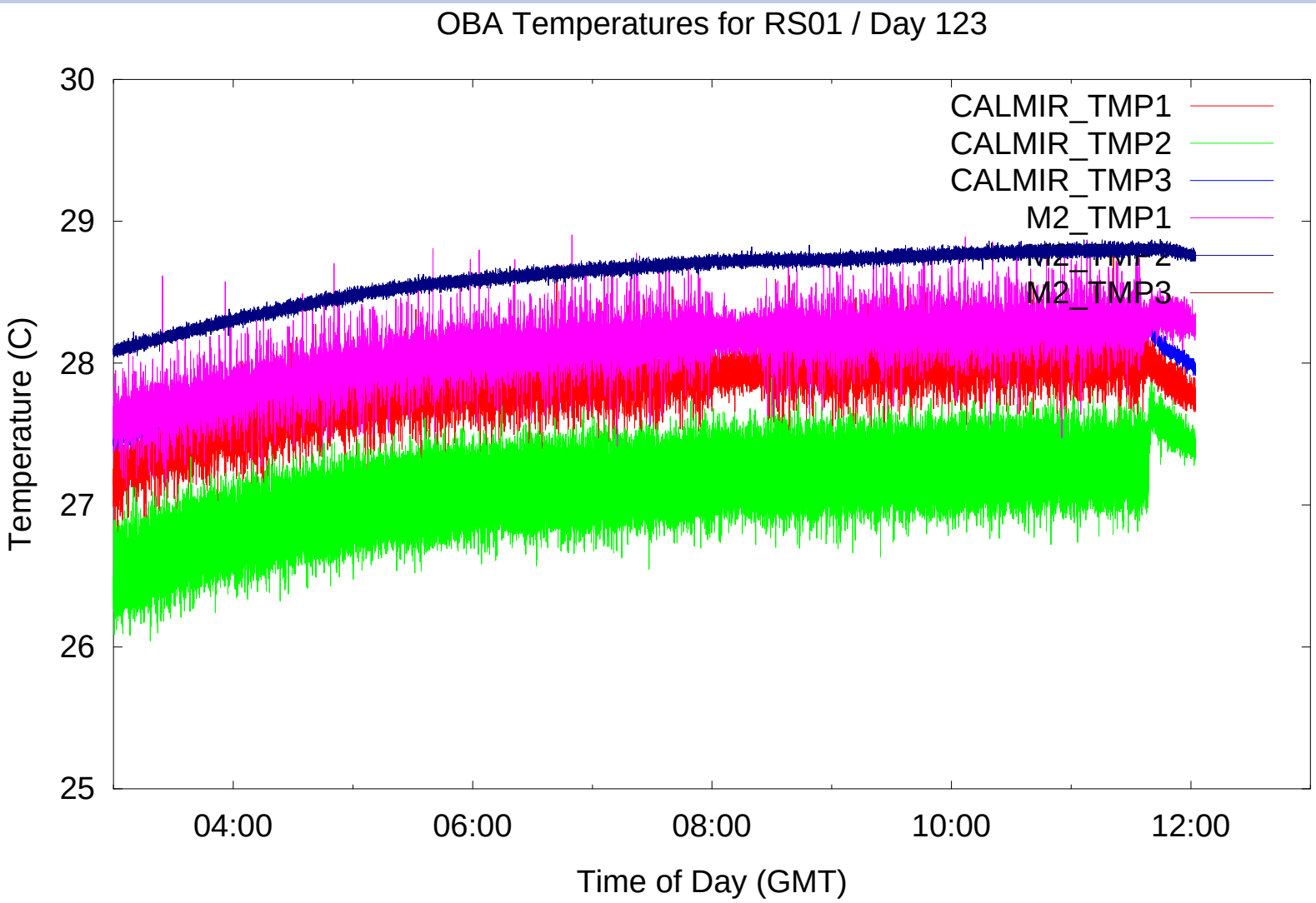
LOCKHEED MARTIN

OBA Temp Sensors: Day 123

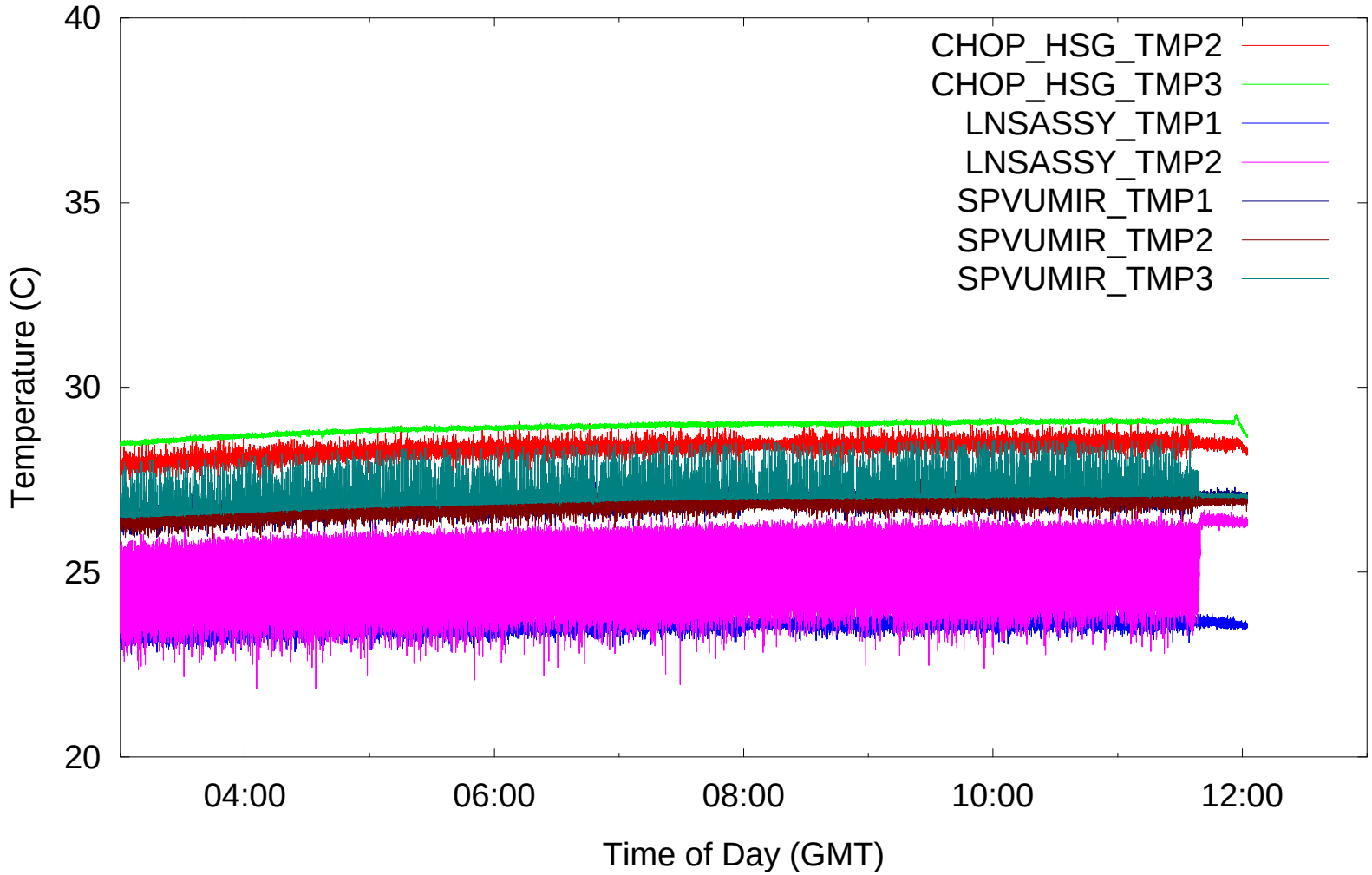
OBA Temperatures for RS01 / Day 123 (3)



OBA Temp Sensors: Day 123 – Detail



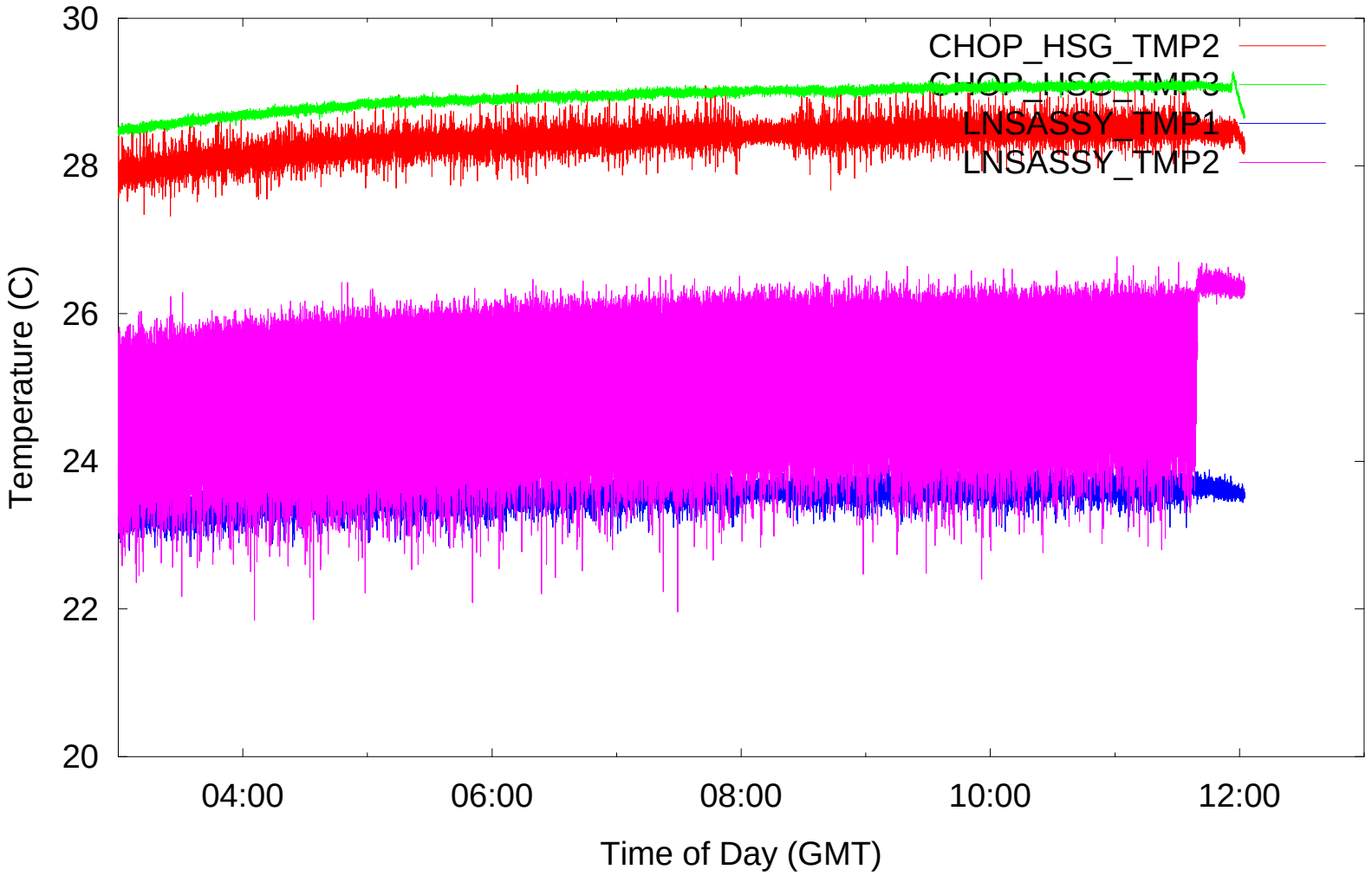
OBA Temp Sensors: Day 123



LOCKHEED MARTIN

OBA Temp Sensors: Day 123 - Detail

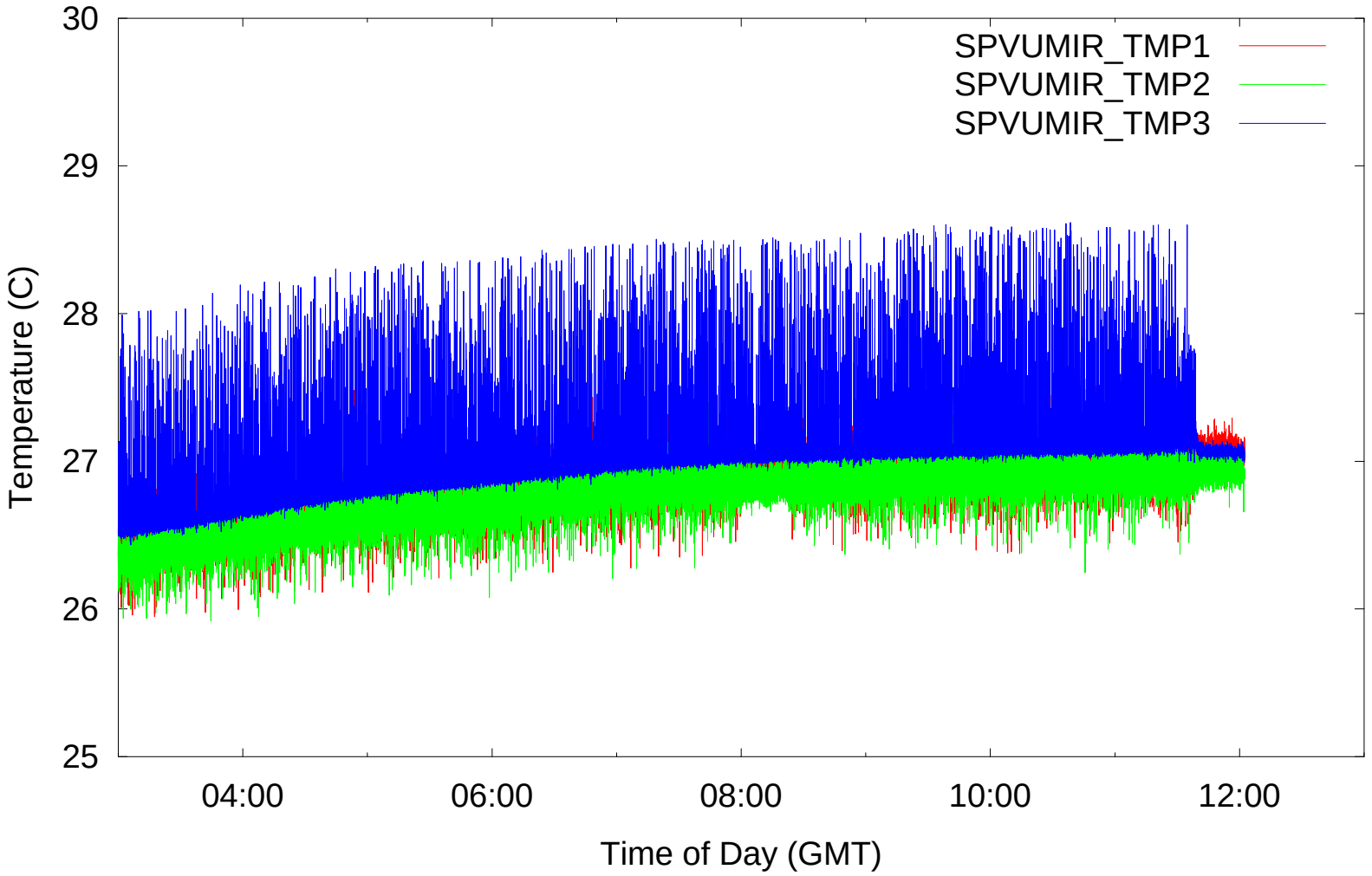
OBA Temperatures for RS01 / Day 123



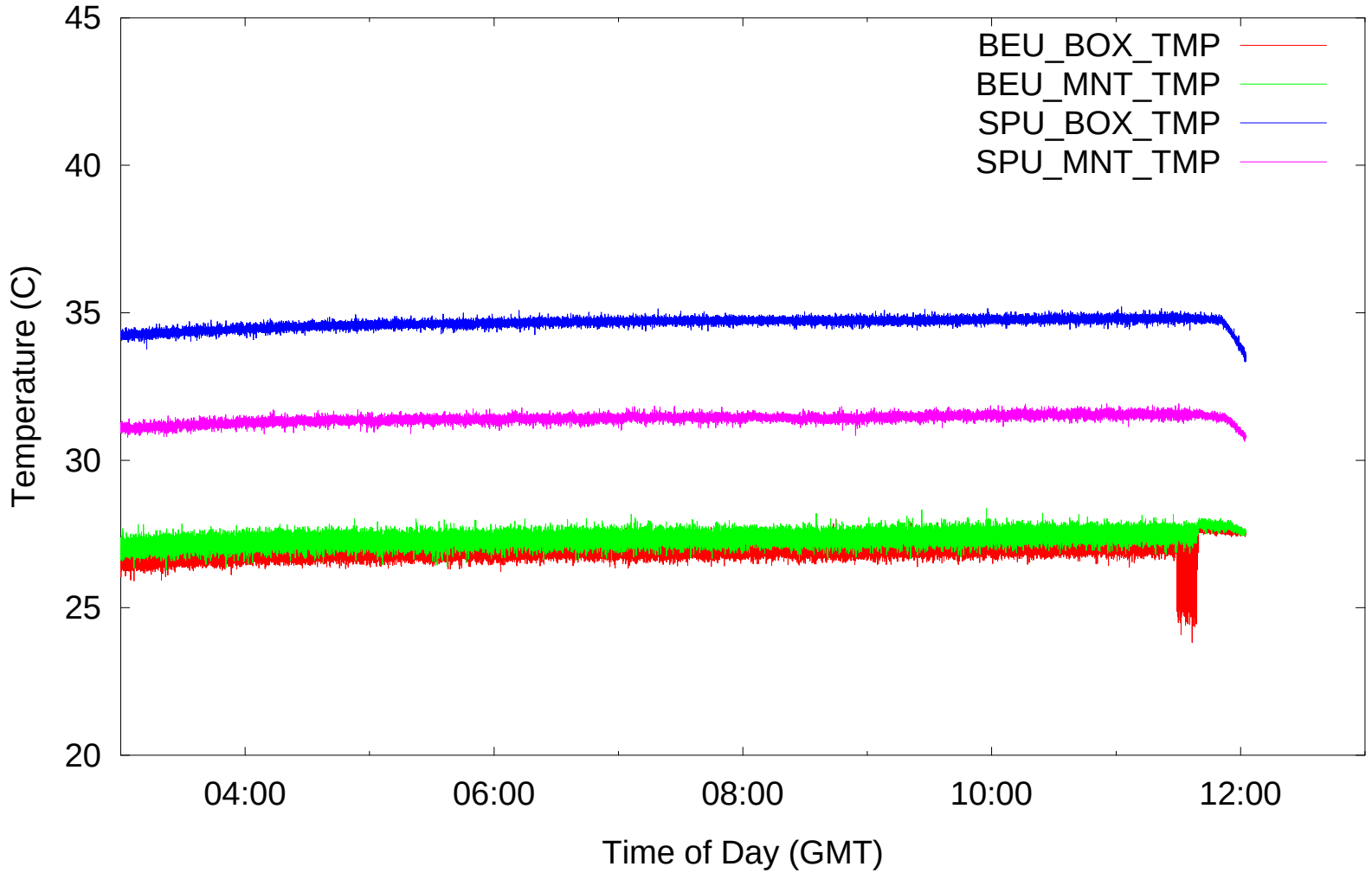
LOCKHEED MARTIN

OBA Temp Sensors: Day 123 - Detail

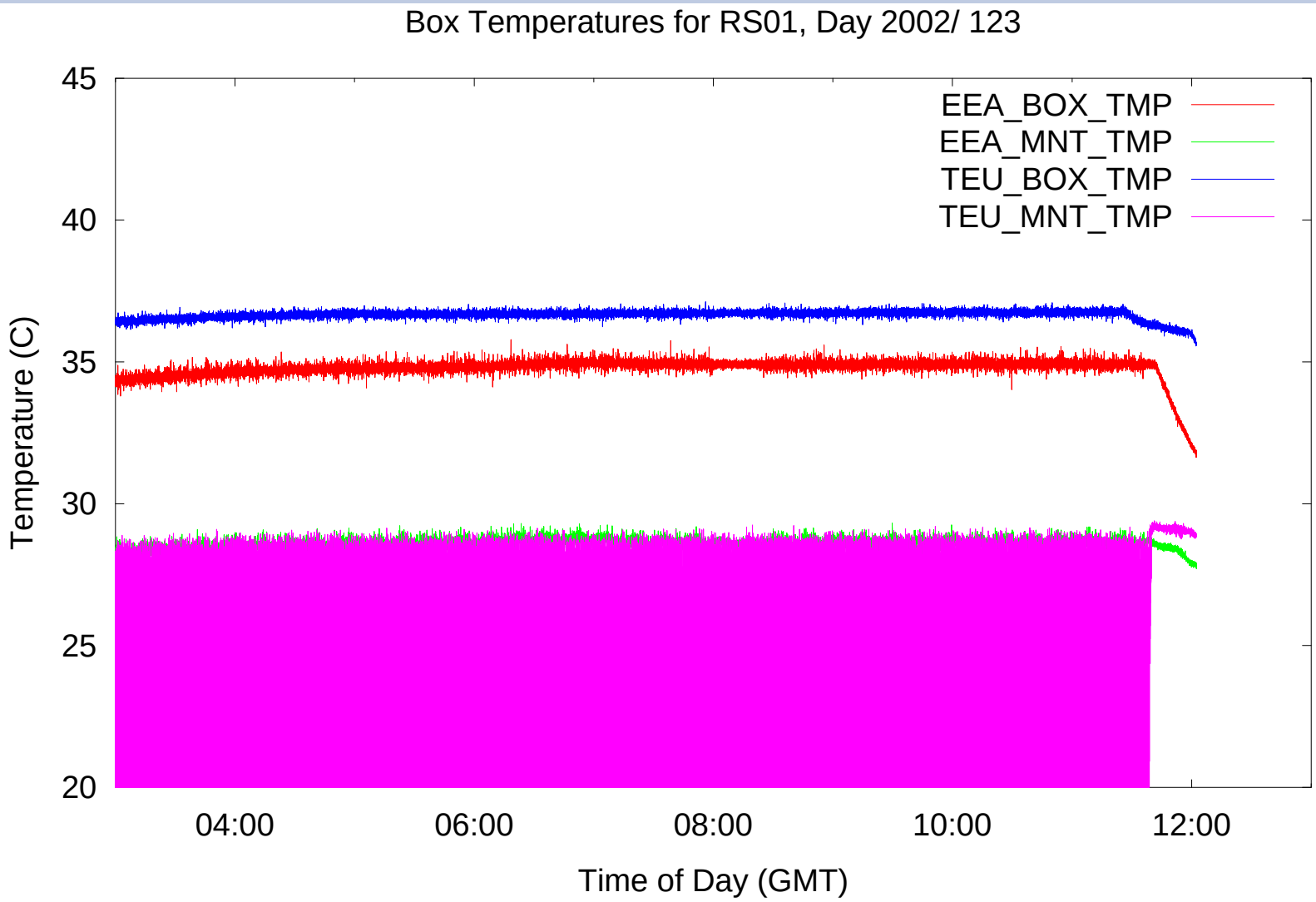
RS01 Temperatures for 2002/123



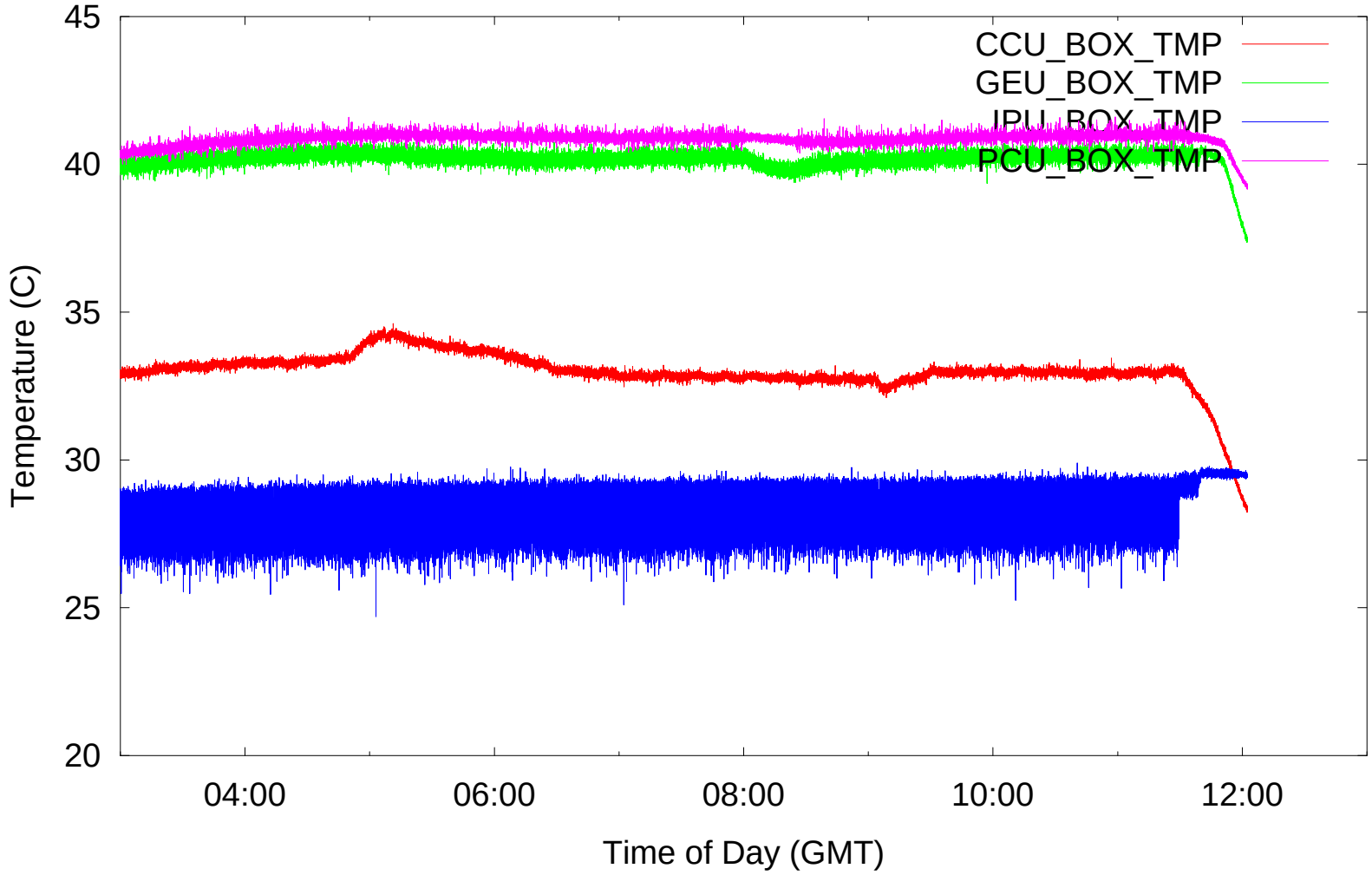
Box Temps 2002/123 (1 of 3)



Box Temps 2002/123 (2 of 3)



Box Temps 2002/123 (3 of 3)



LOCKHEED MARTIN

HIRDLS

EMI/EMC TEST - CS06

5 May 2002

2002/125-13:30 Through 2002/125-16:16

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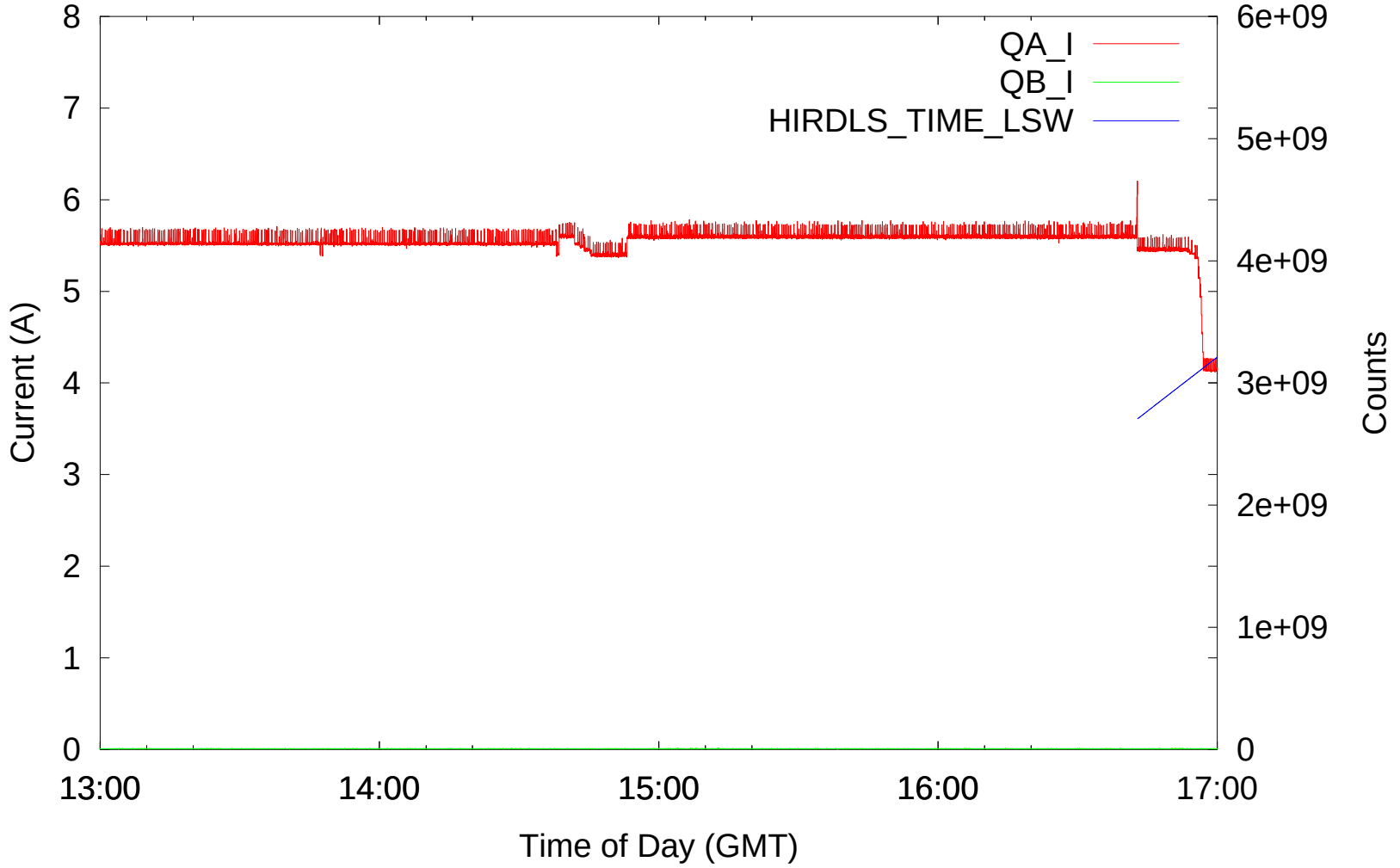
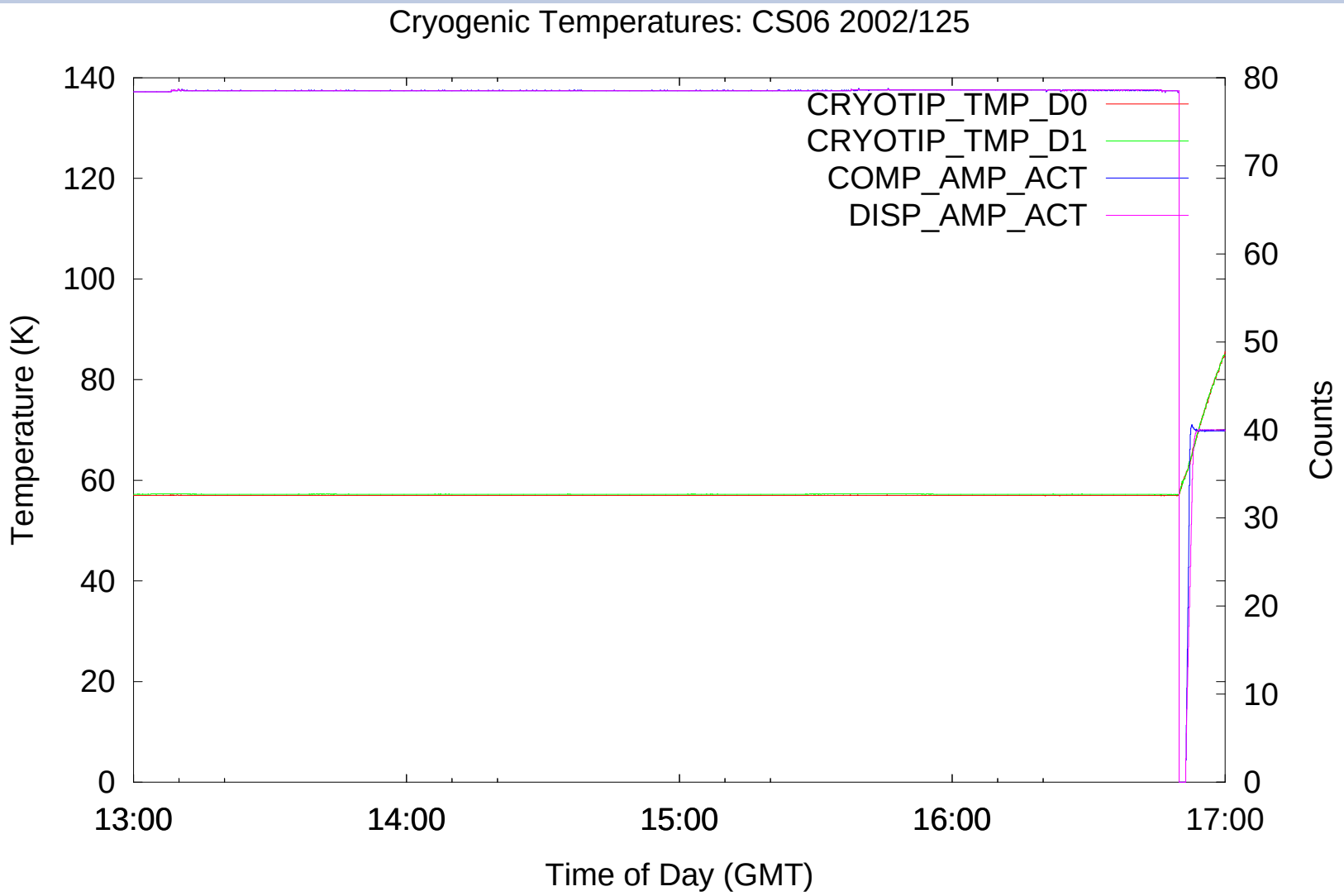
Archive integrity & Quiet Bus Current



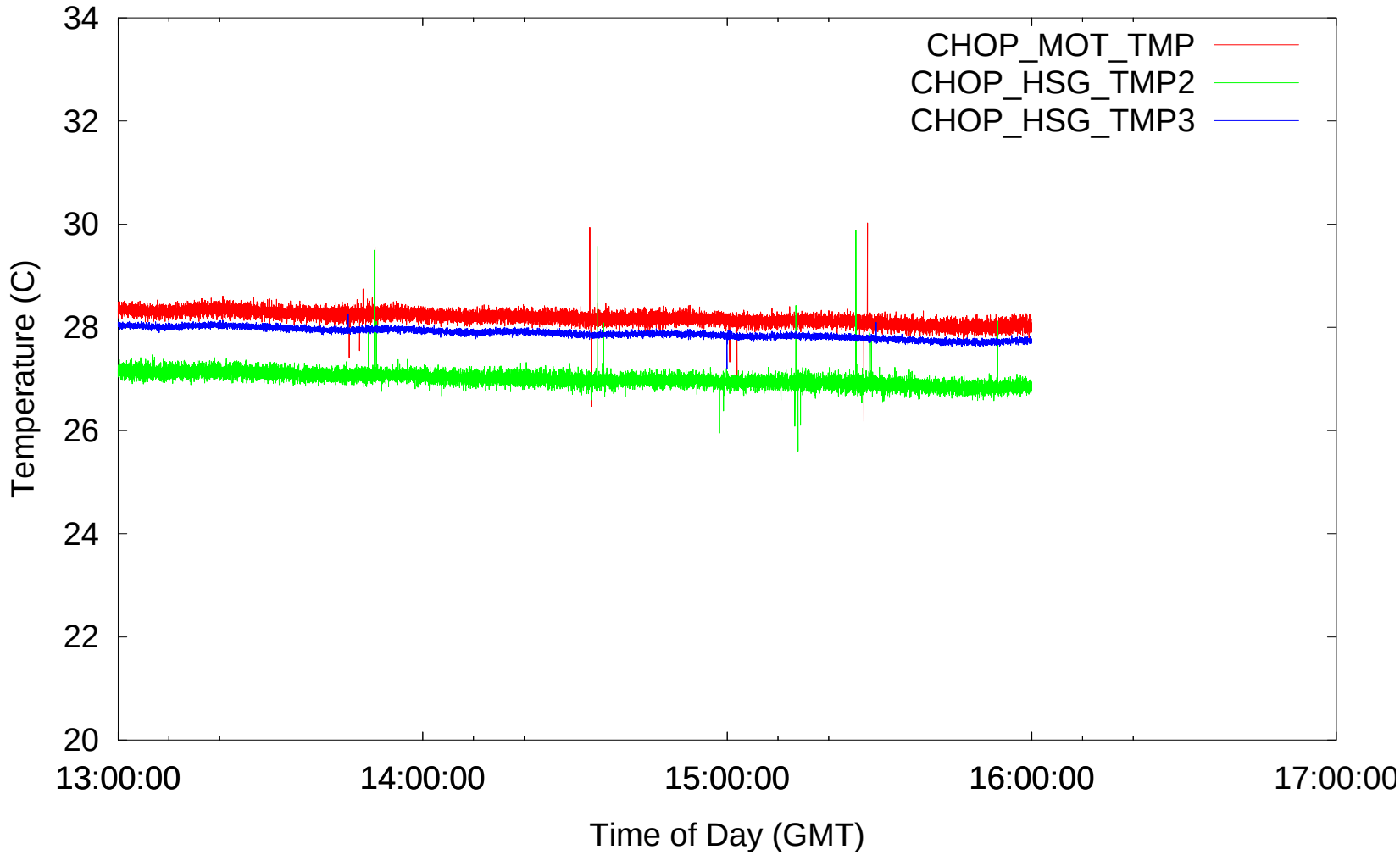
CS06 CSS Temps 2002/125



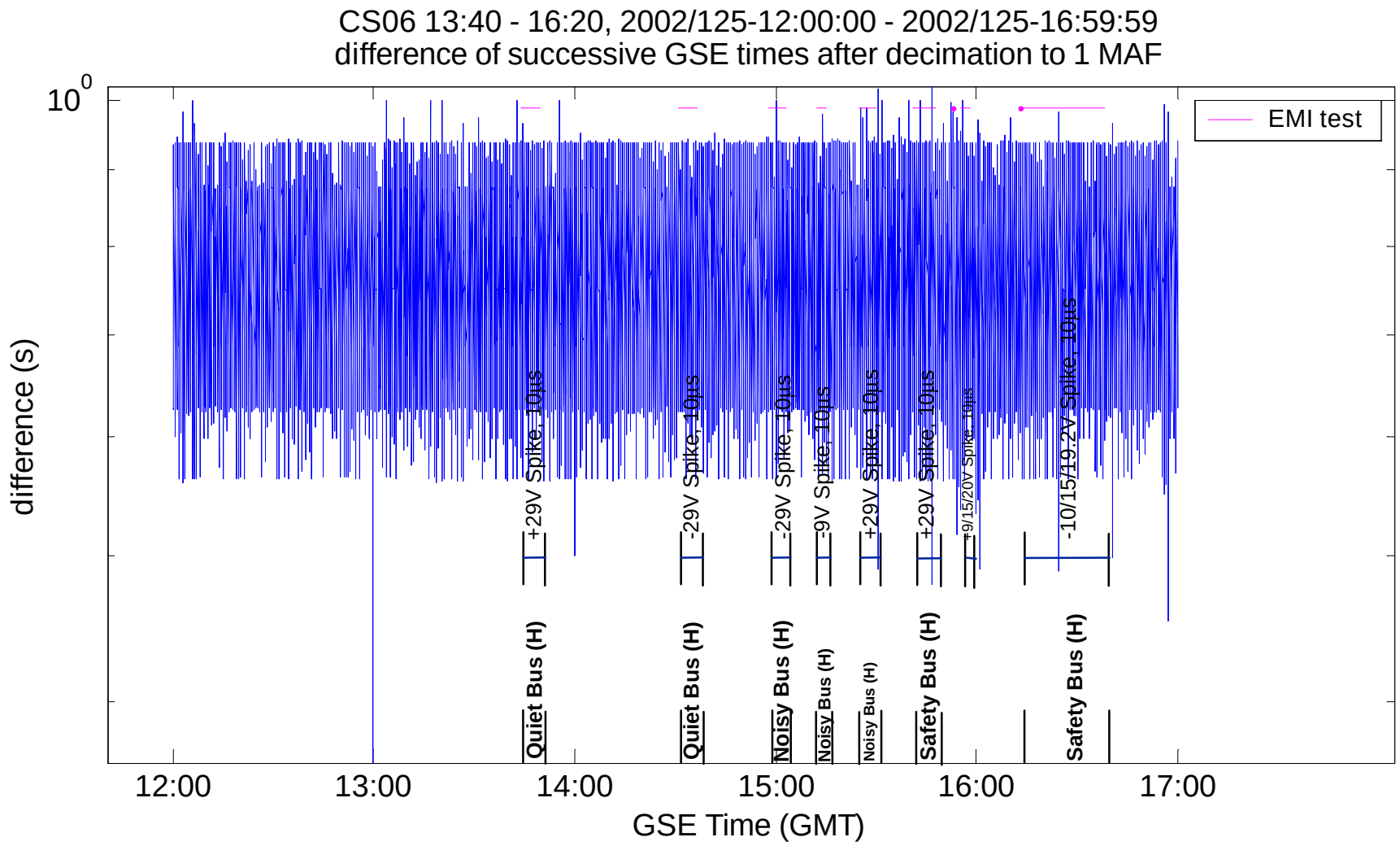
LOCKHEED MARTIN

CS06 Chopper Temps: 2002/125

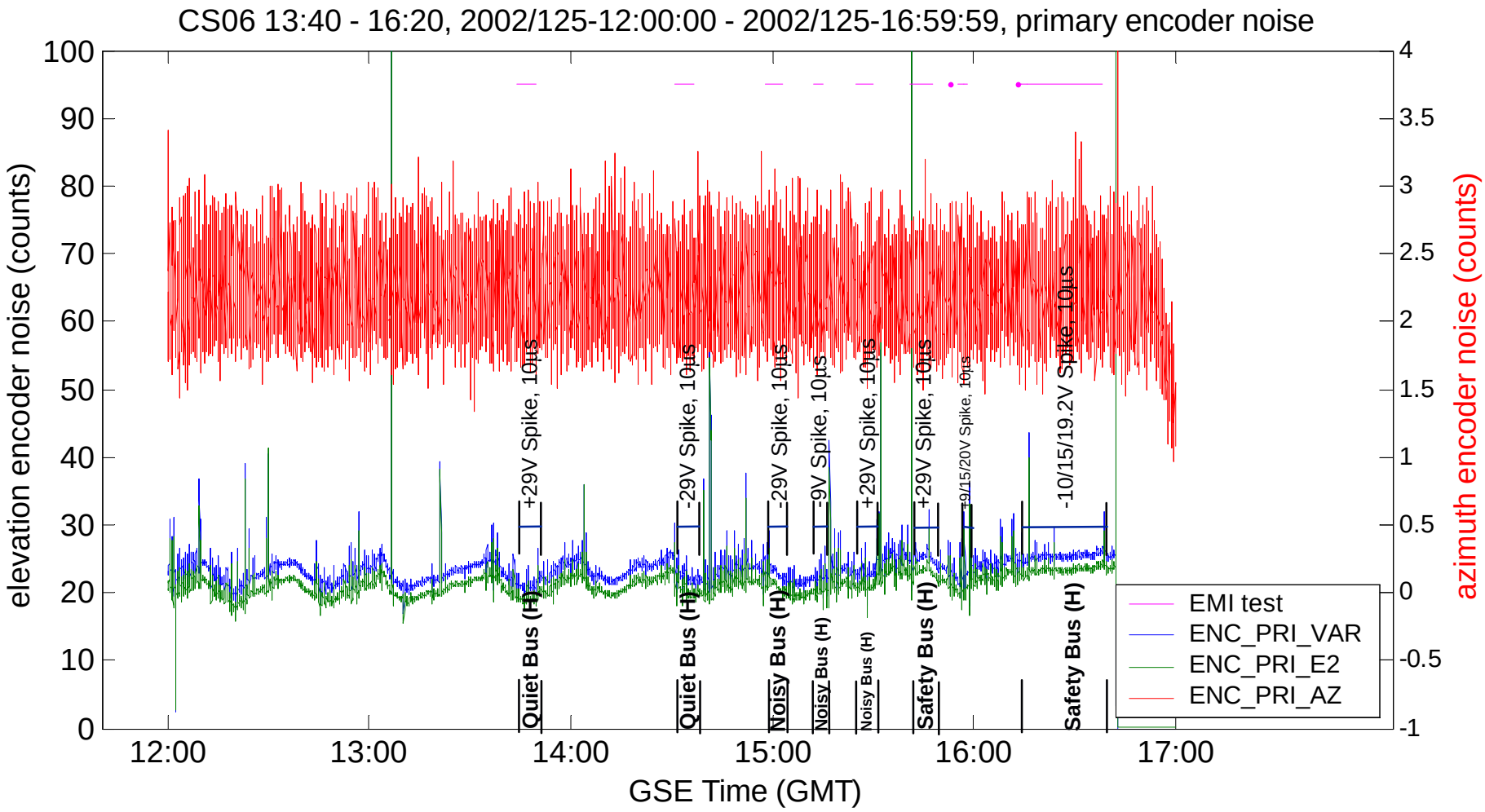
Chopper: CS06 2002/125



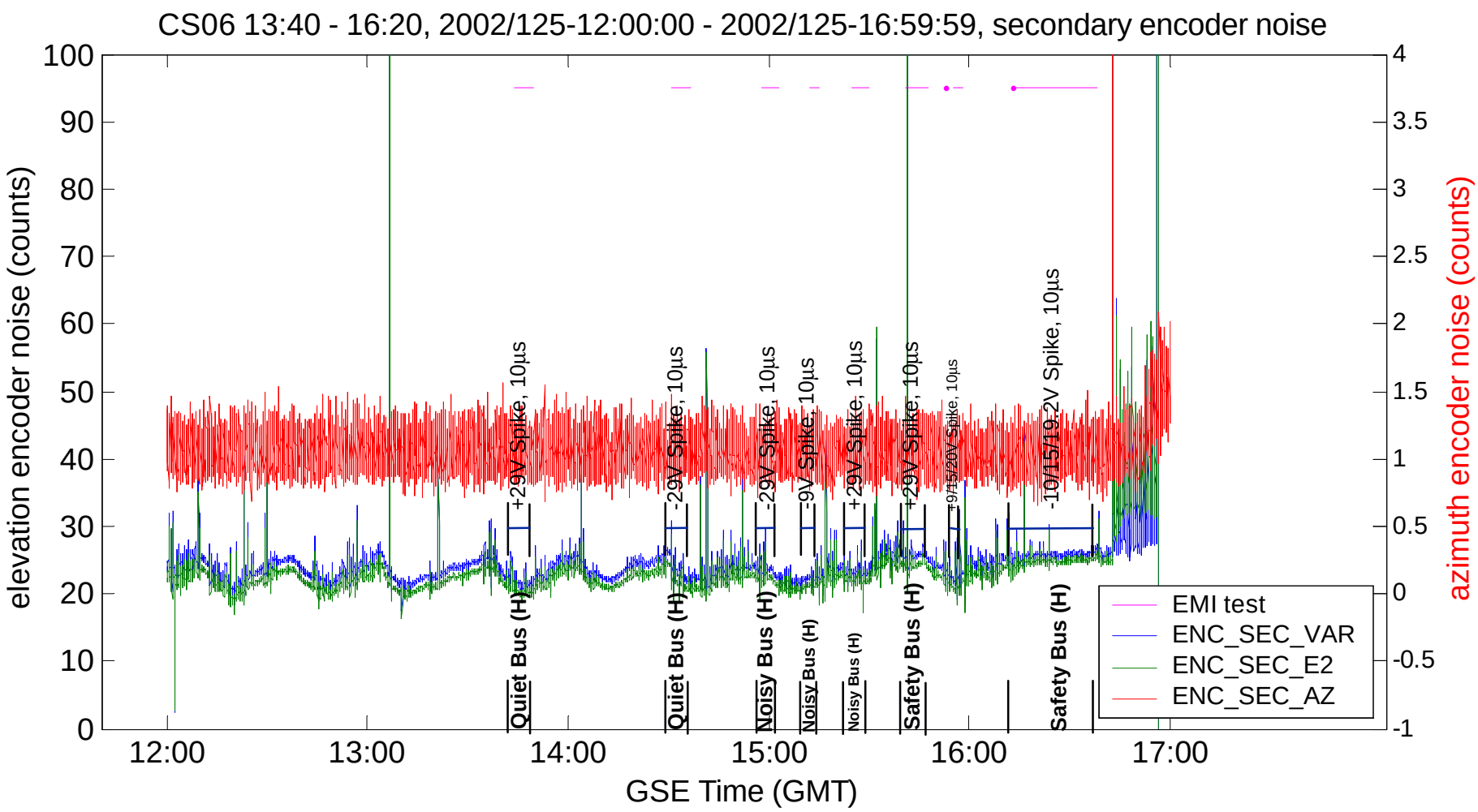
Check Time Sequence



Noise: Primary Encoders

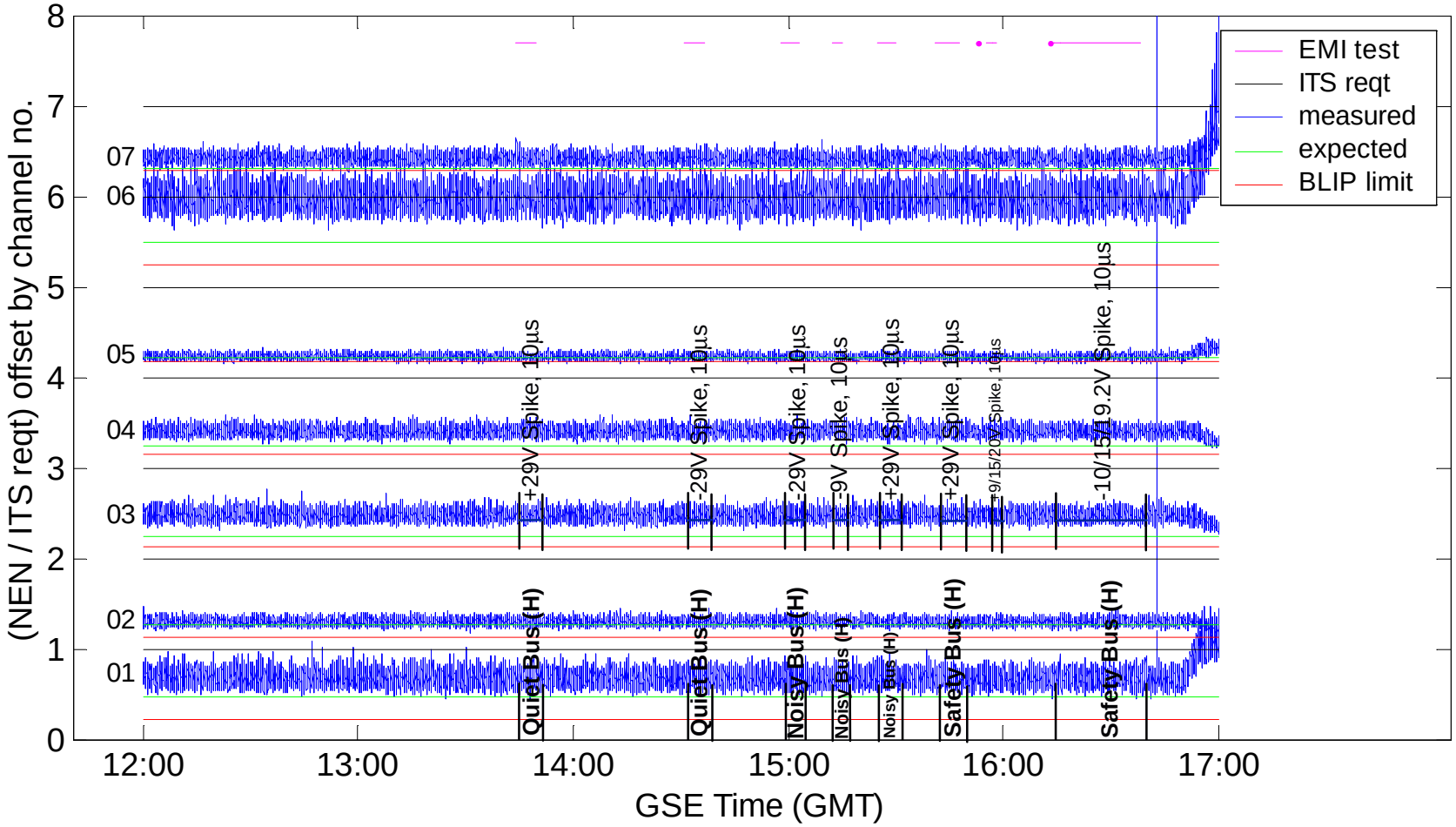


Noise: Secondary Encoders

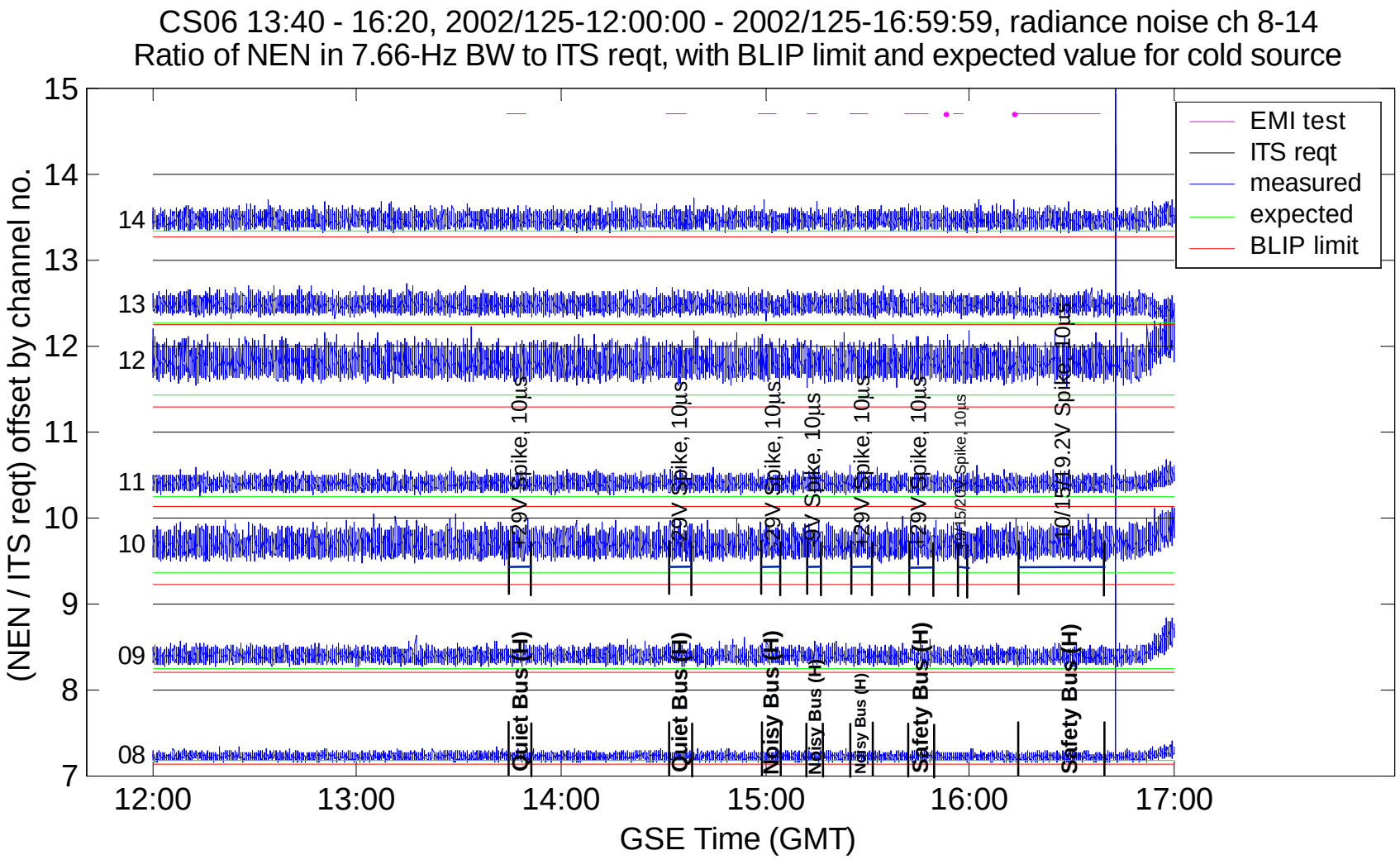


Noise: Radiance Channels 1-7

CS06 13:40 - 16:20, 2002/125-12:00:00 - 2002/125-16:59:59, radiance noise ch 1-7
Ratio of NEN in 7.66-Hz BW to ITS reqt, with BLIP limit and expected value for cold source

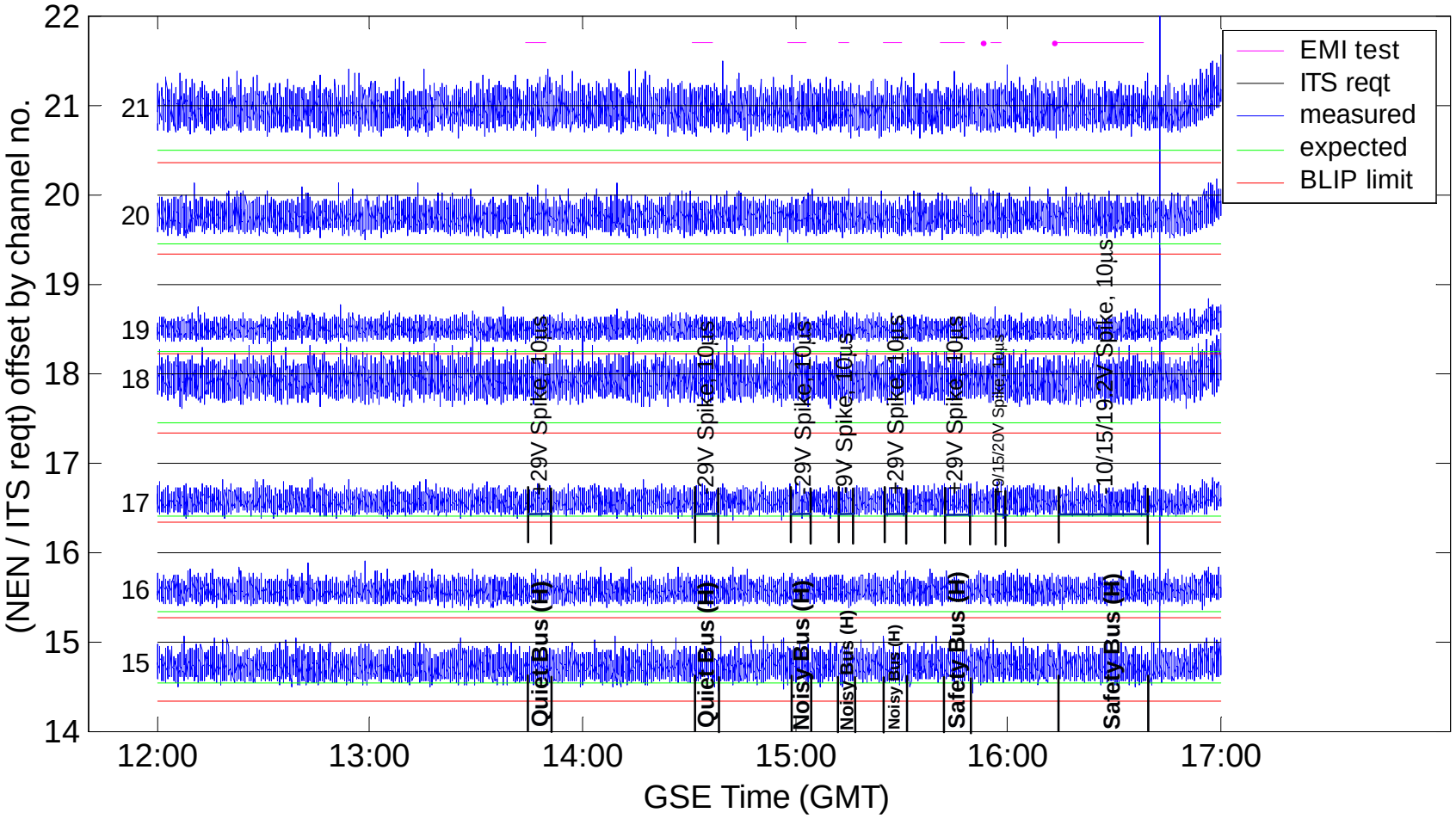


Noise: Radiance Channels 8-14



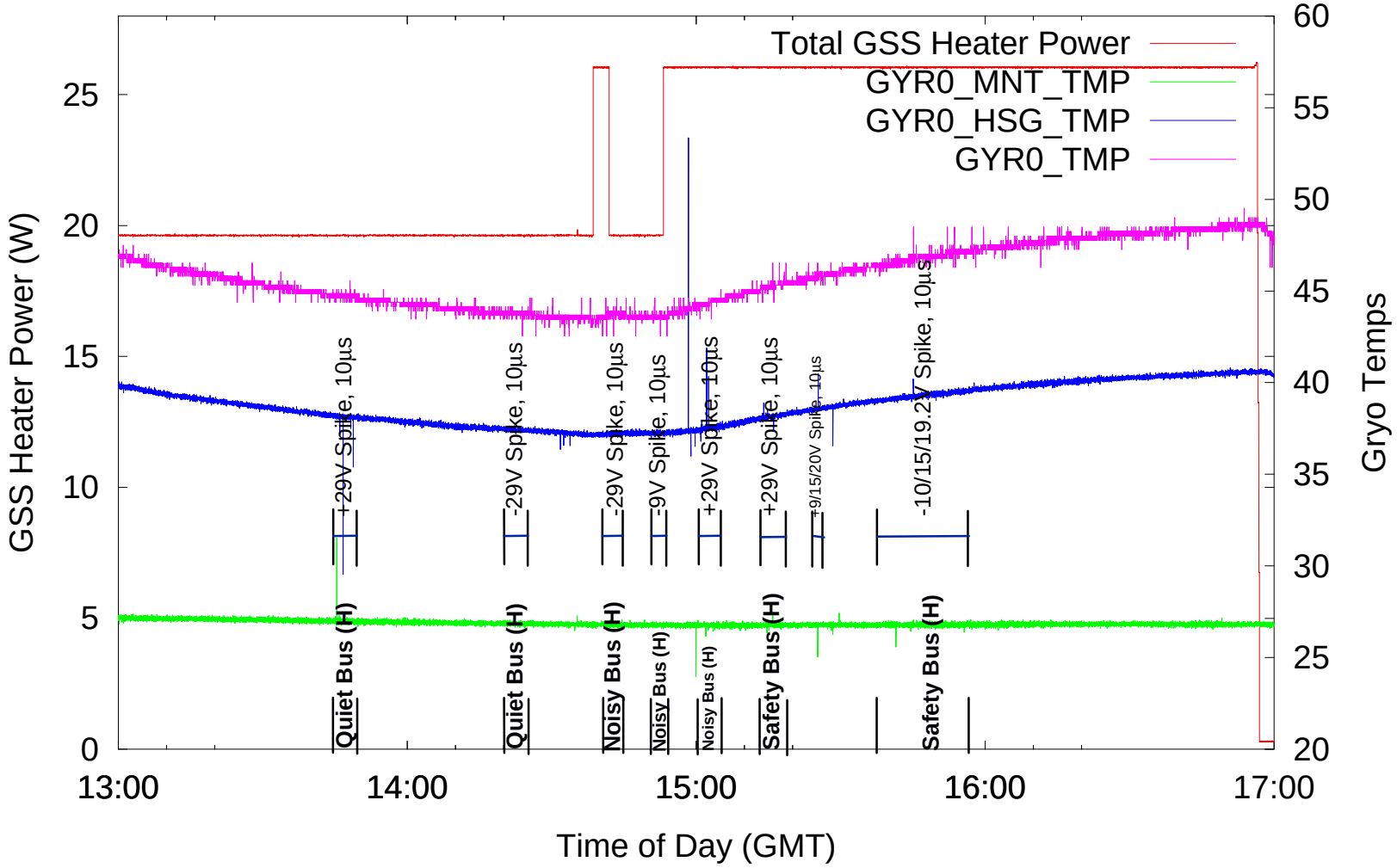
Noise: Radiance Channels 15-21

CS06 13:40 - 16:20, 2002/125-12:00:00 - 2002/125-16:59:59, radiance noise ch 15-21
Ratio of NEN in 7.66-Hz BW to ITS reqt, with BLIP limit and expected value for cold source

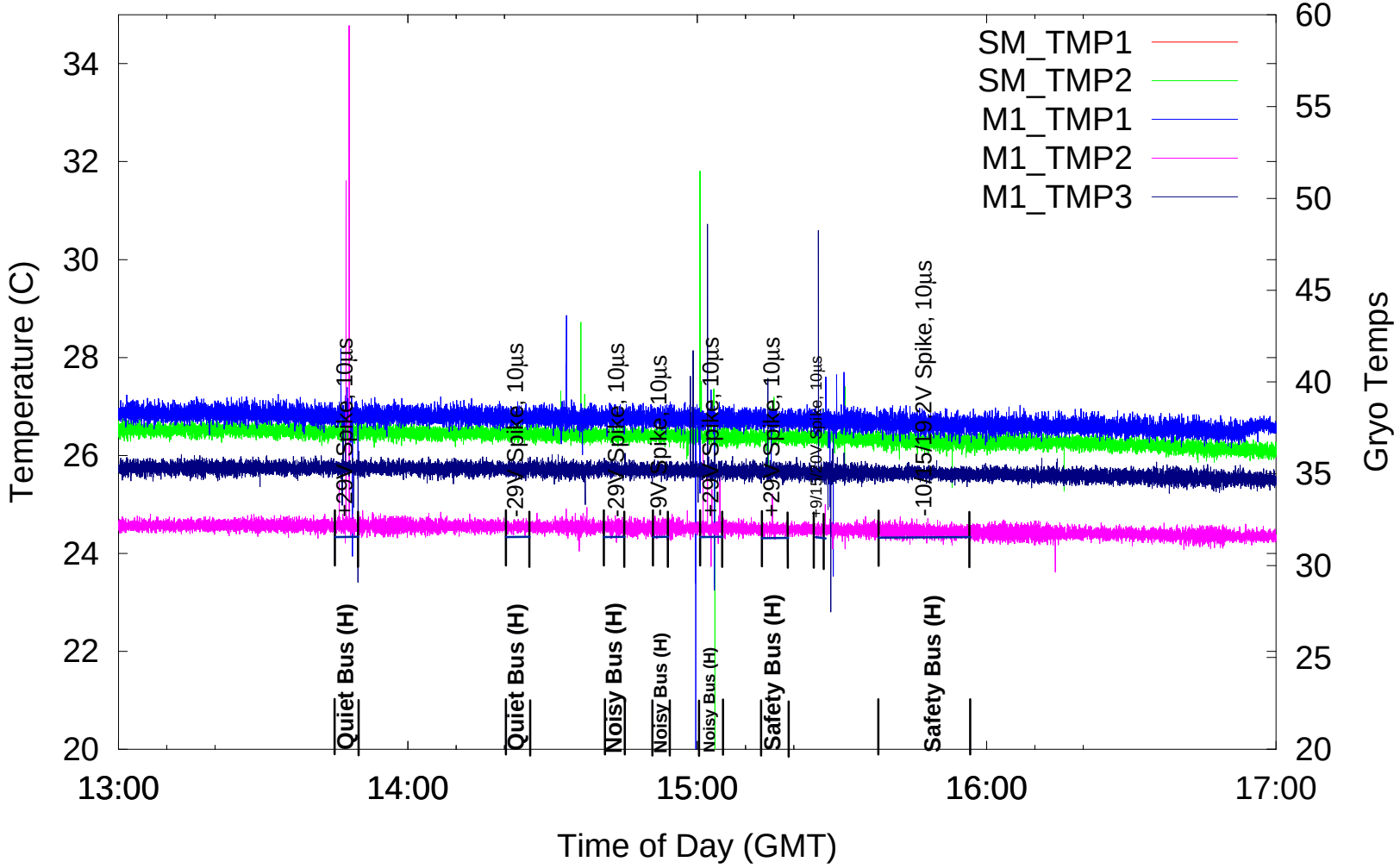


Gyro Failure to Heat to Spin Temperature Day 2002/125

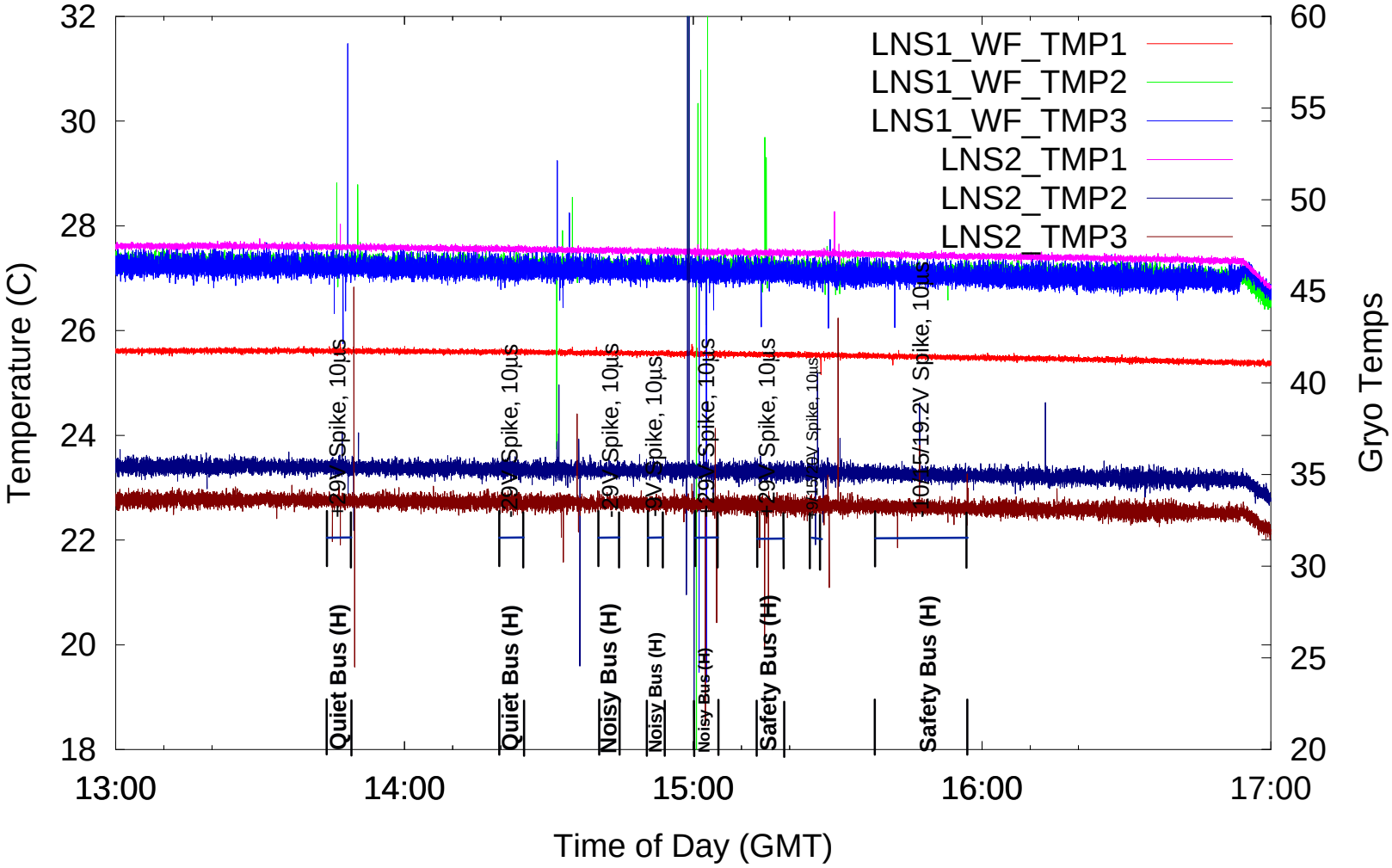
HIRDLS GYRO TEMP Investigation 2002/125



CS06 OBA Temperatures Set:1
Day: 2002/125

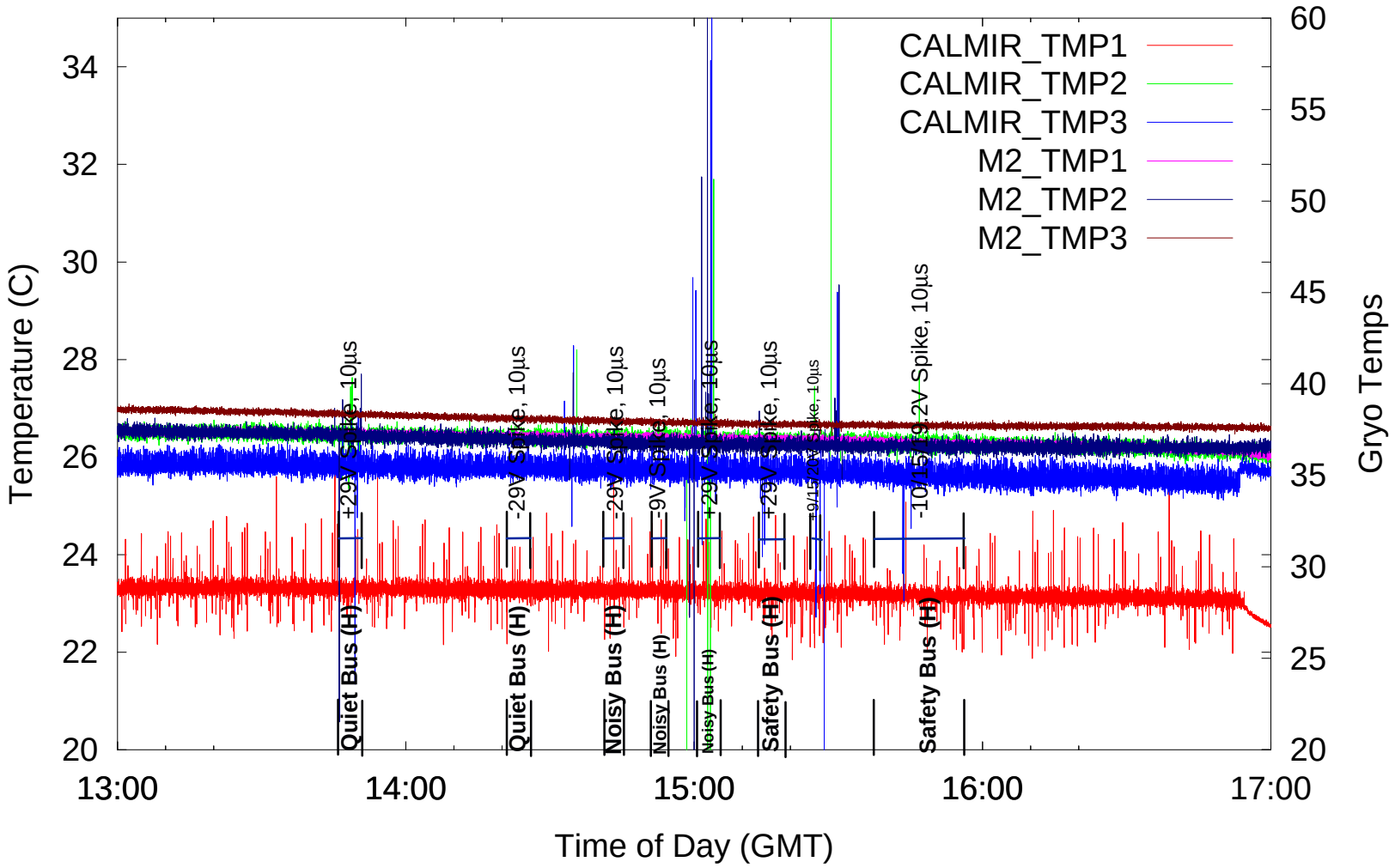


CS06 OBA Temperatures Set:2
Day: 2002/125

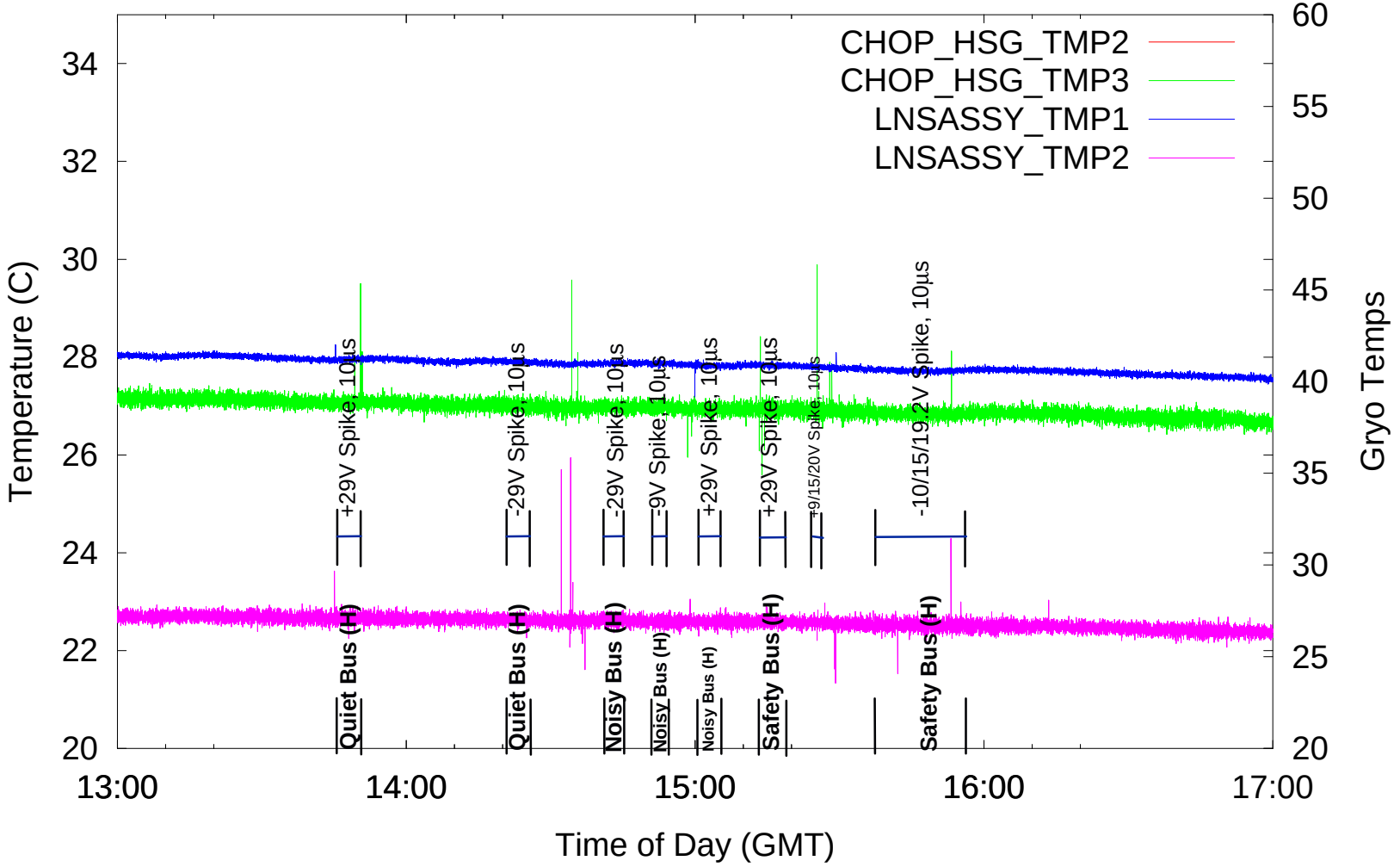


CS06 OBA Temperatures Set:3
Day: 2002/125

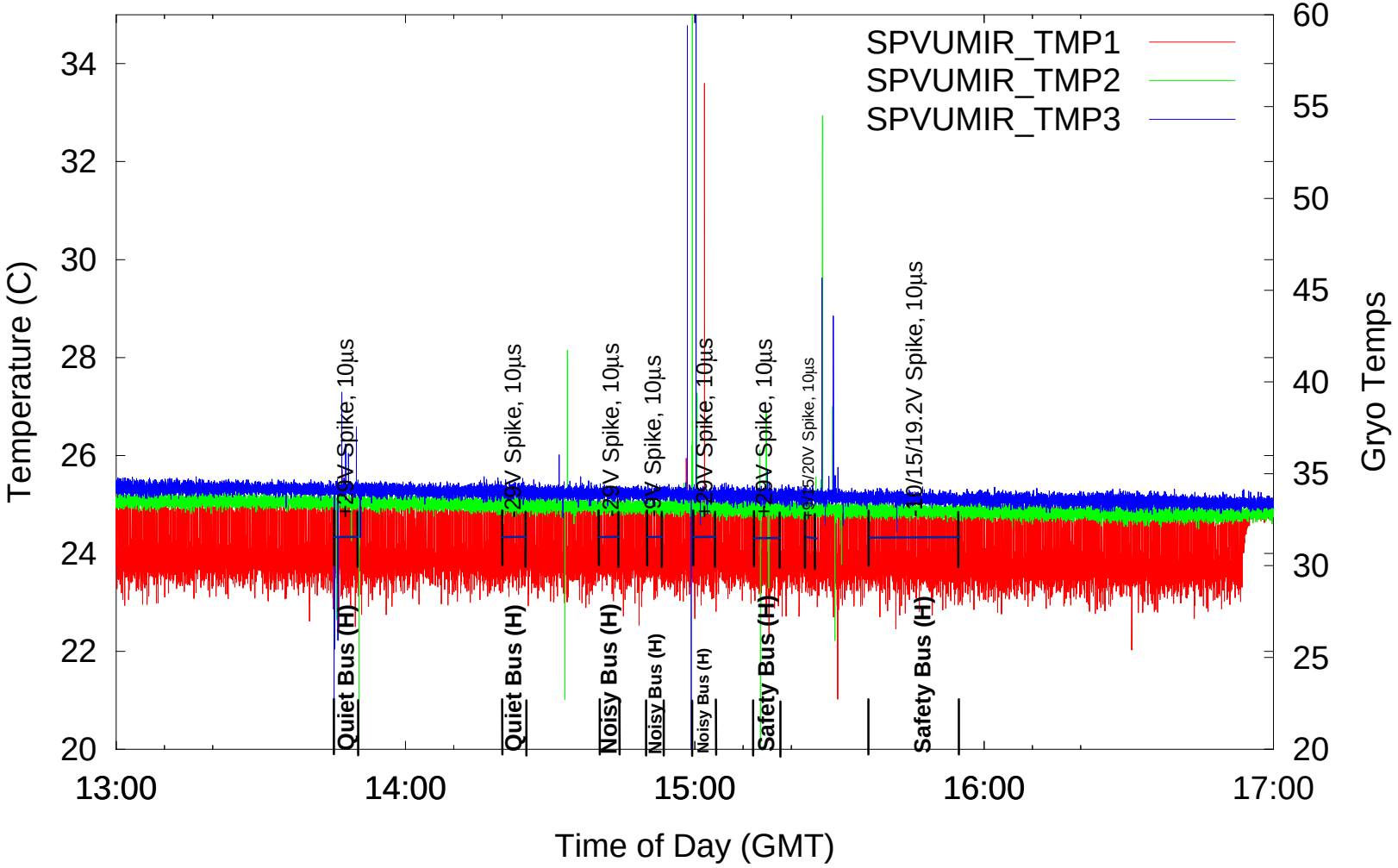
OBA Mirror Temperatures: CS06 Day 2002/125



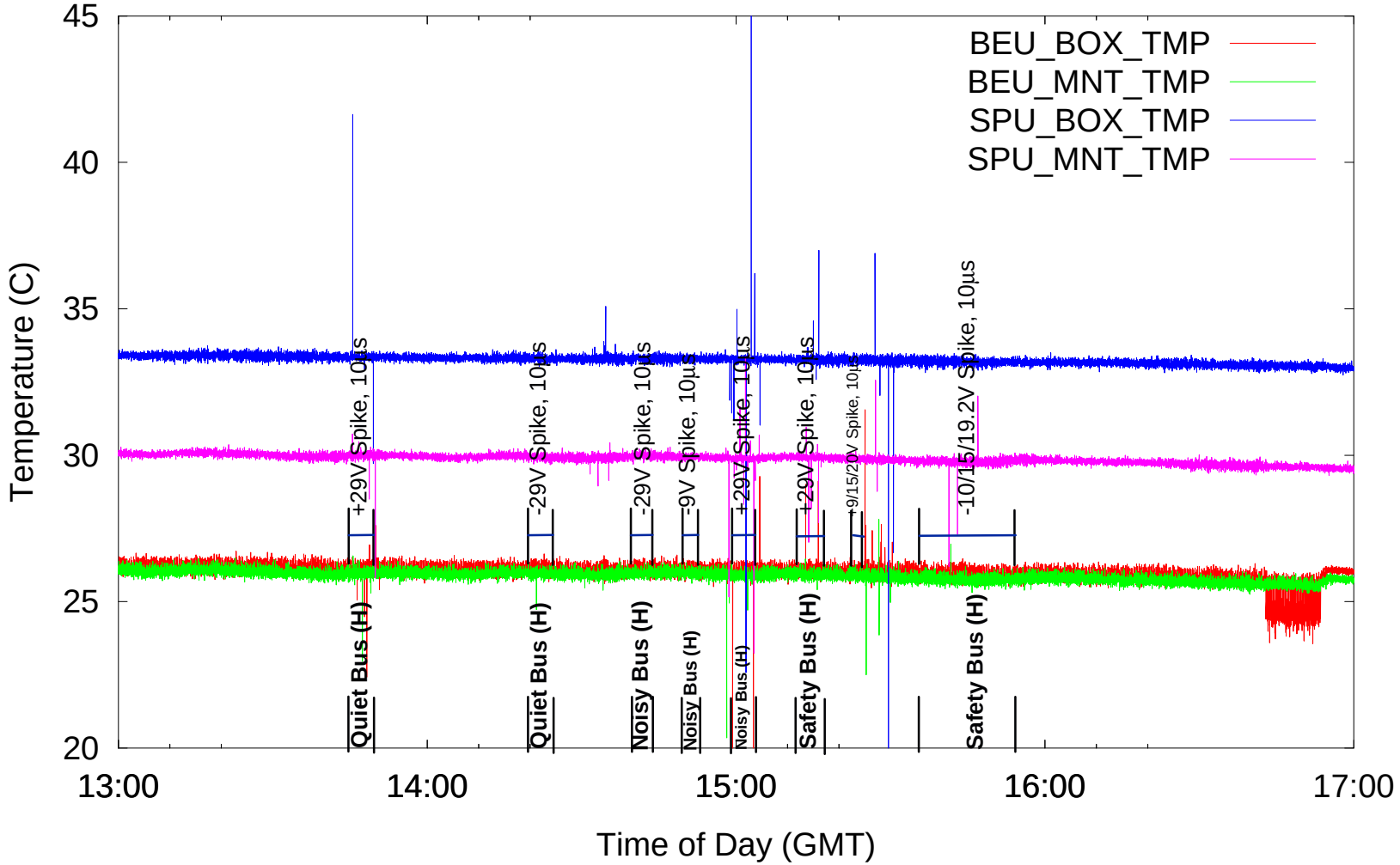
CS06 OBA Temperatures Set:4
Day: 2002/125



CS06 OBA Temperatures Set:5
Day: 2002/125

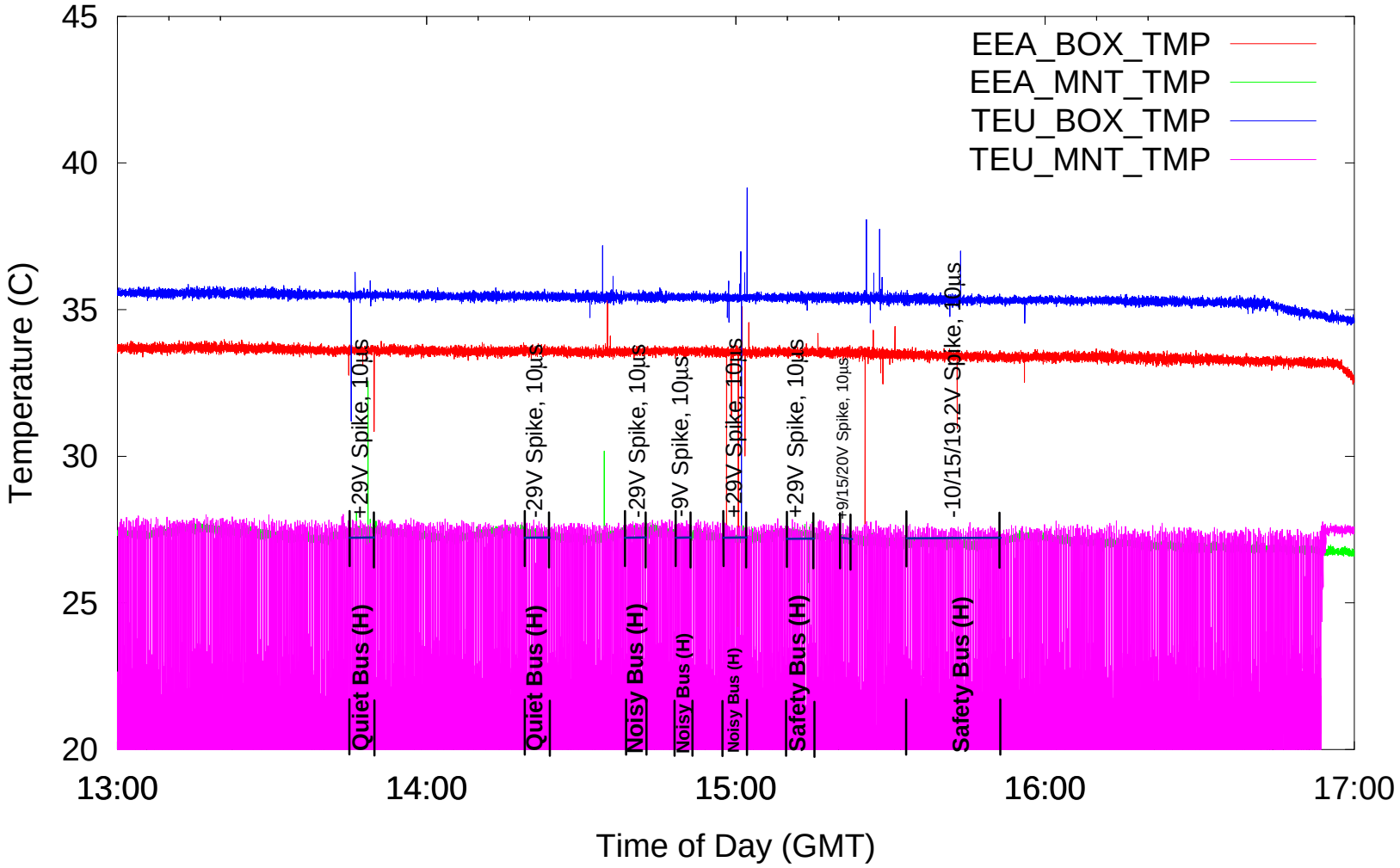


CS06 Day 2002/125 Box Temps Set: 1



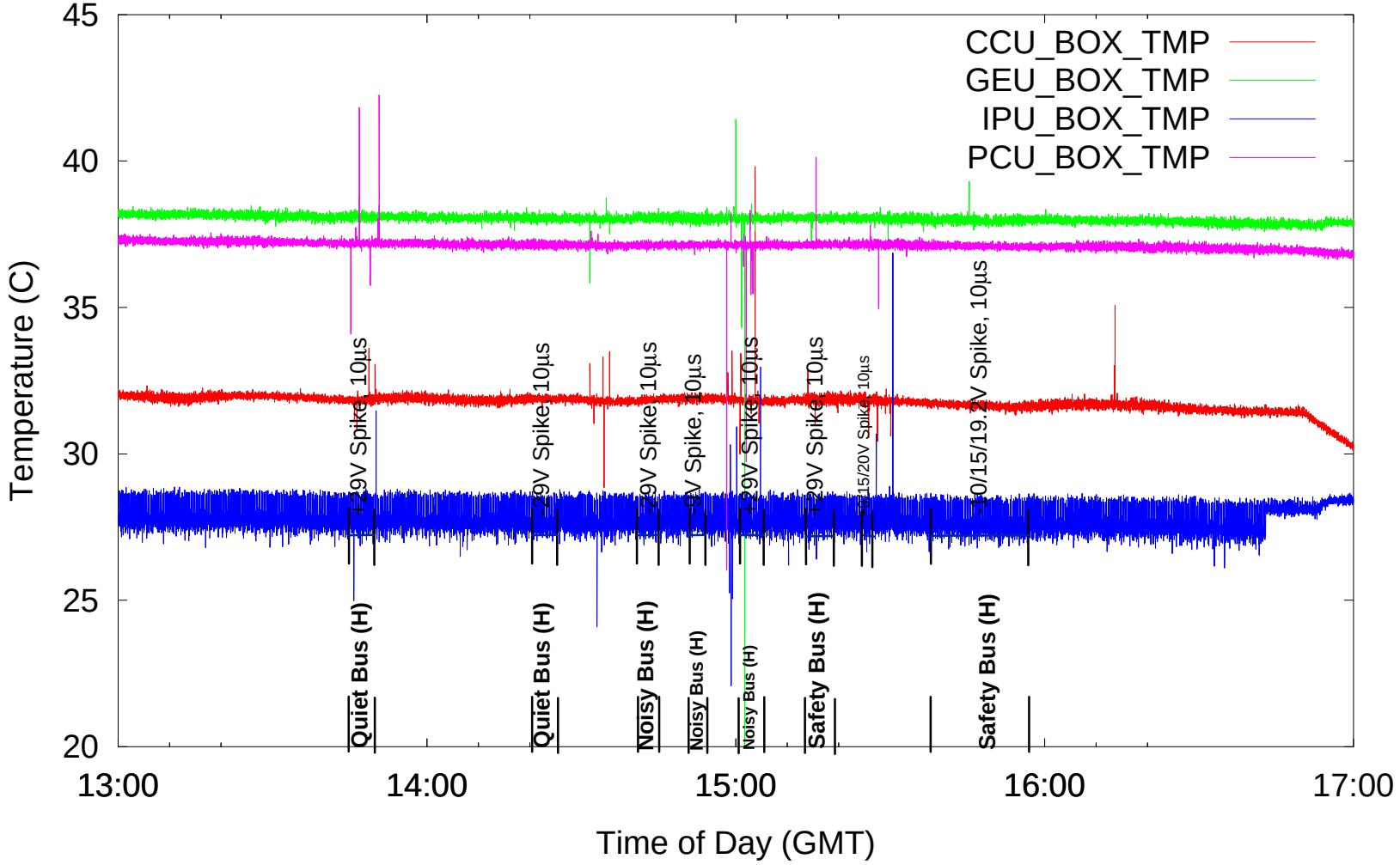
CS06 Day 2002/125 Box Temps Set: 2

Box Temperatures for CS06, Day 2002/ 125



CS06 Day 2002/125 Box Temps Set: 3

Box Temperatures for CS06, Day 2002/ 125



CS06 PSS Converter Outputs 2002/125

Place Holder

LOCKHEED MARTIN

HIRDLS

EMI/EMC TEST – DCMT

06 May 2002

2002/126-02:06 through 2002/126-08:16

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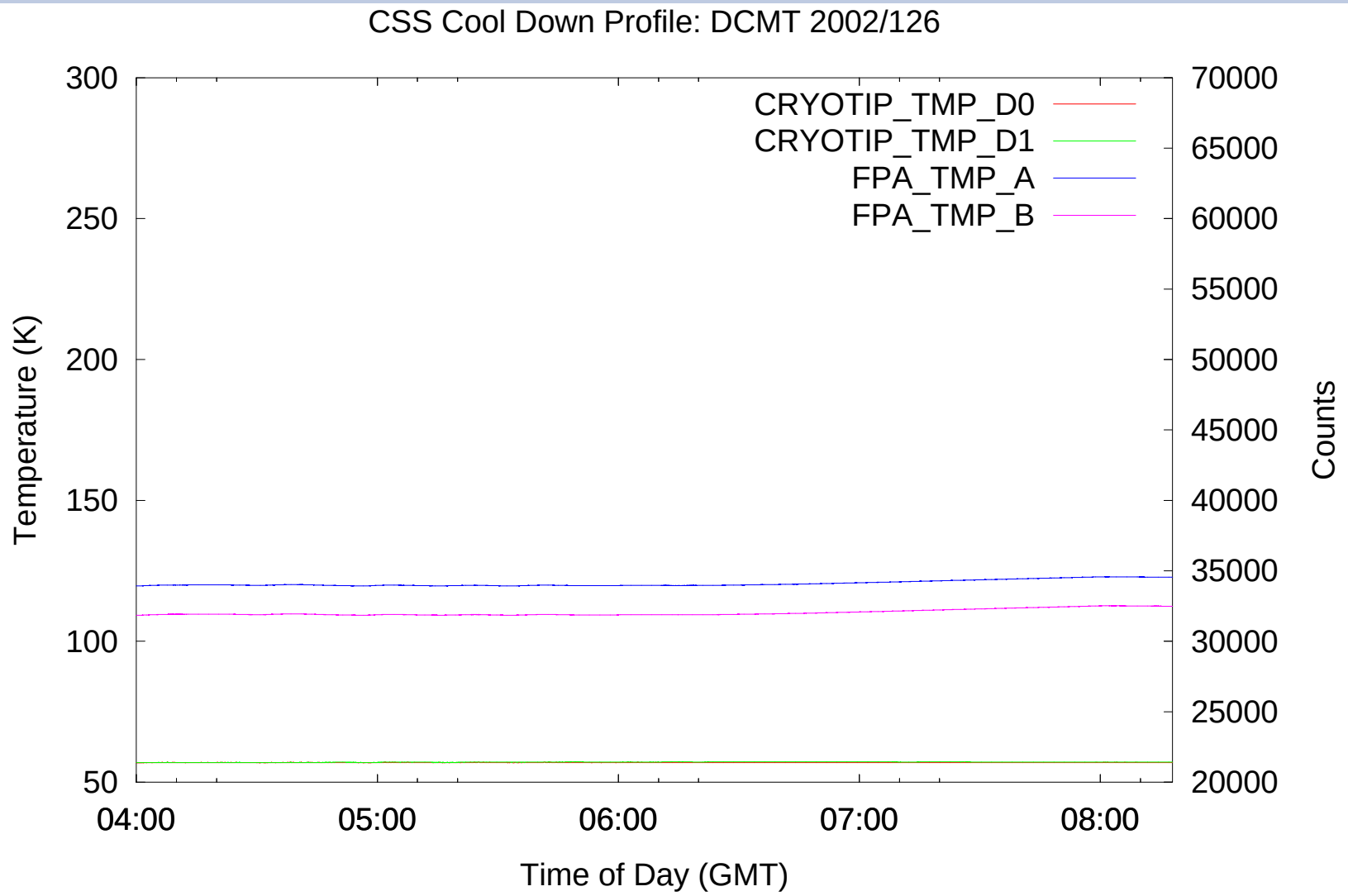
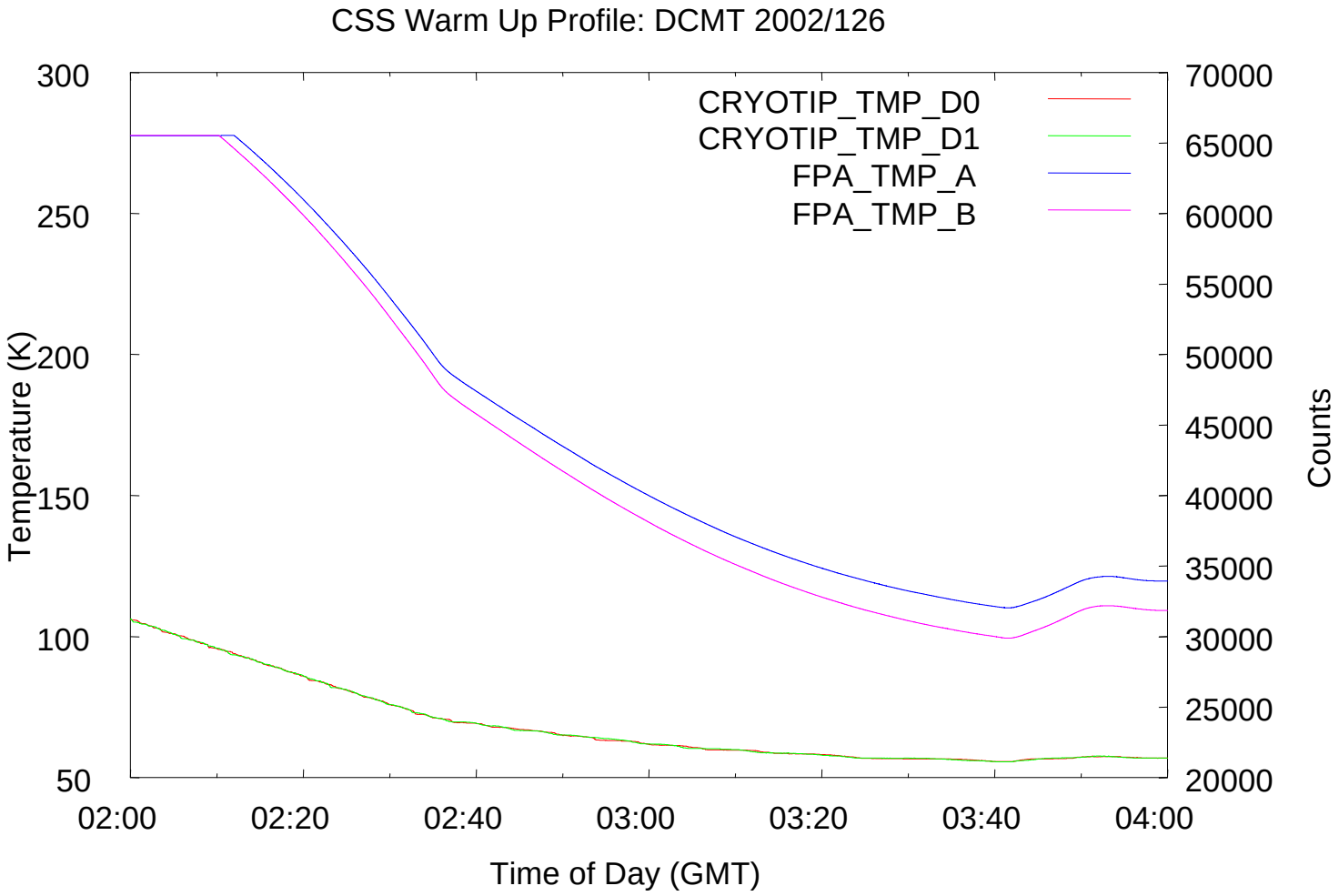
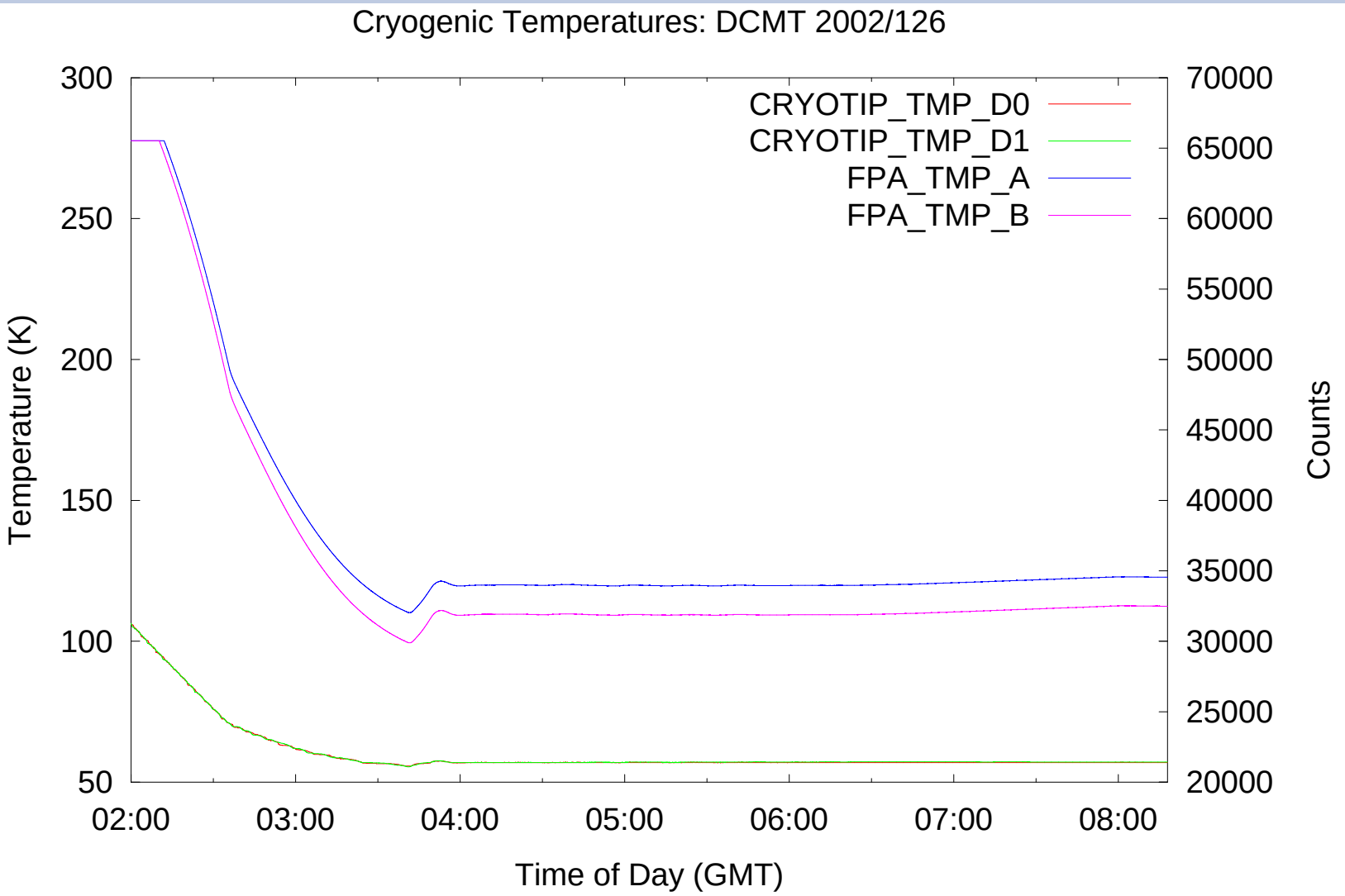
DCMT CSS Cool-Down



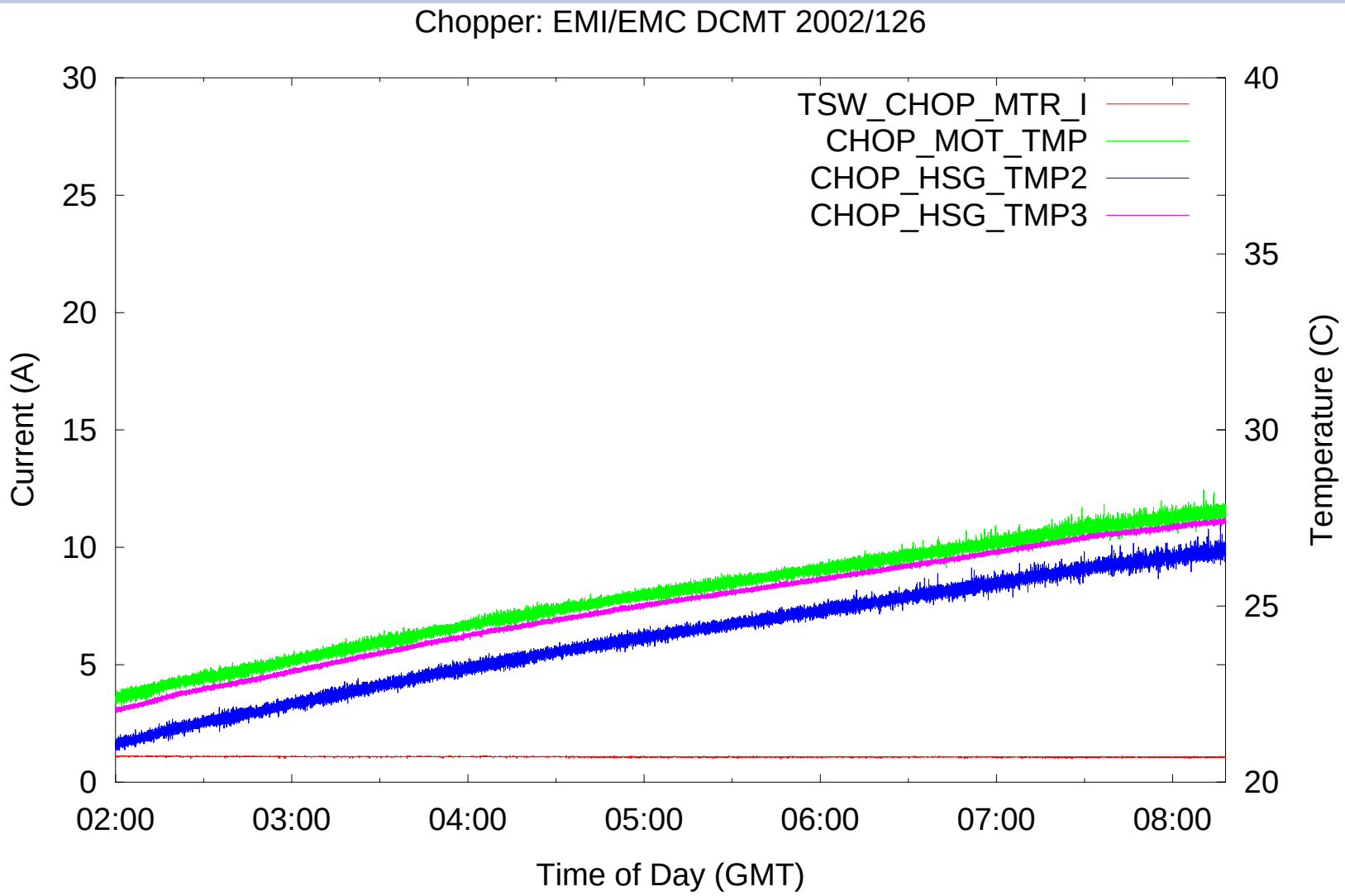
DCMT CSS Warm-Up



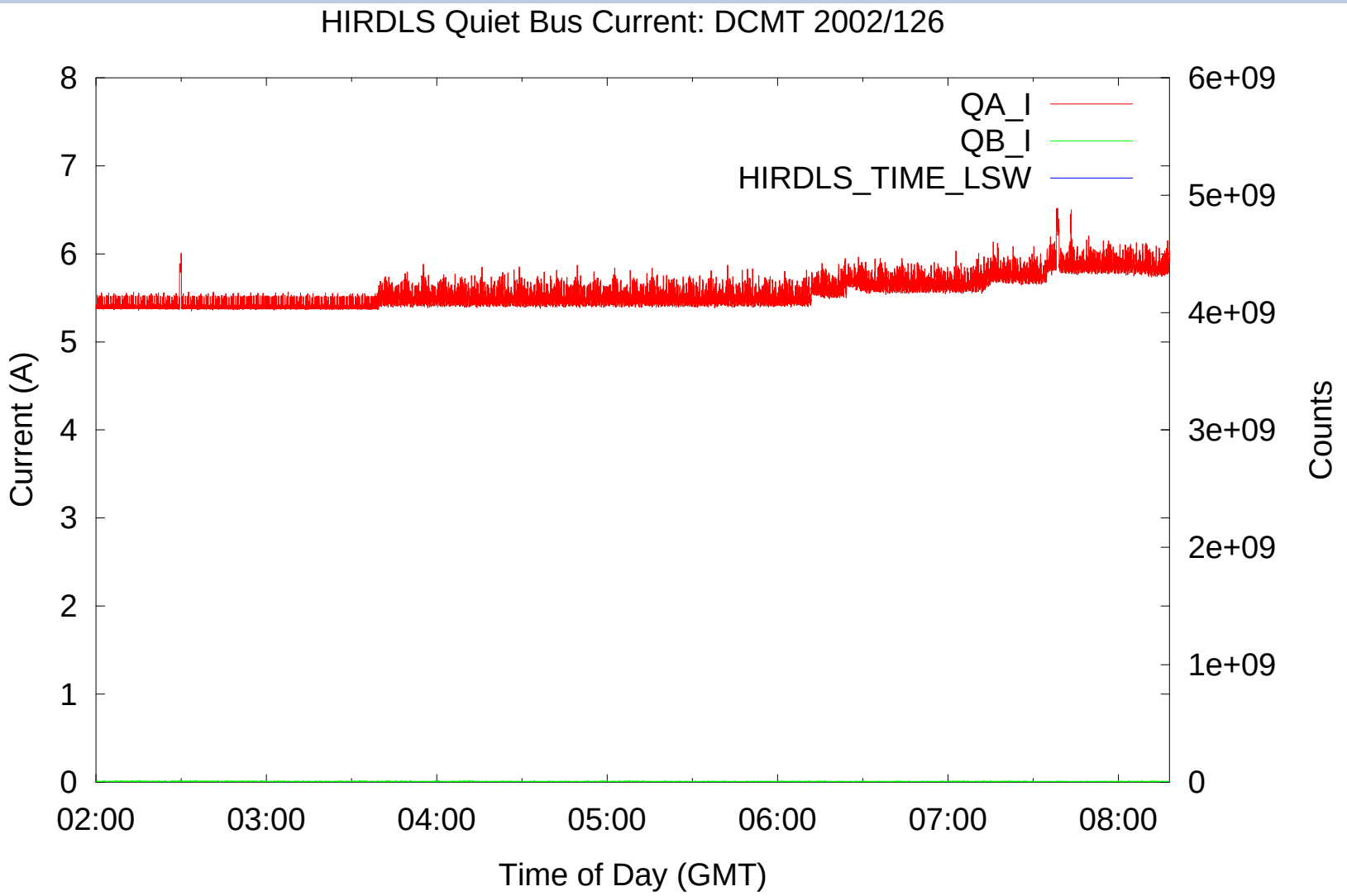
DCMT Cryogenic Temperatures 2002 / 126



Chopper 2002 / 126

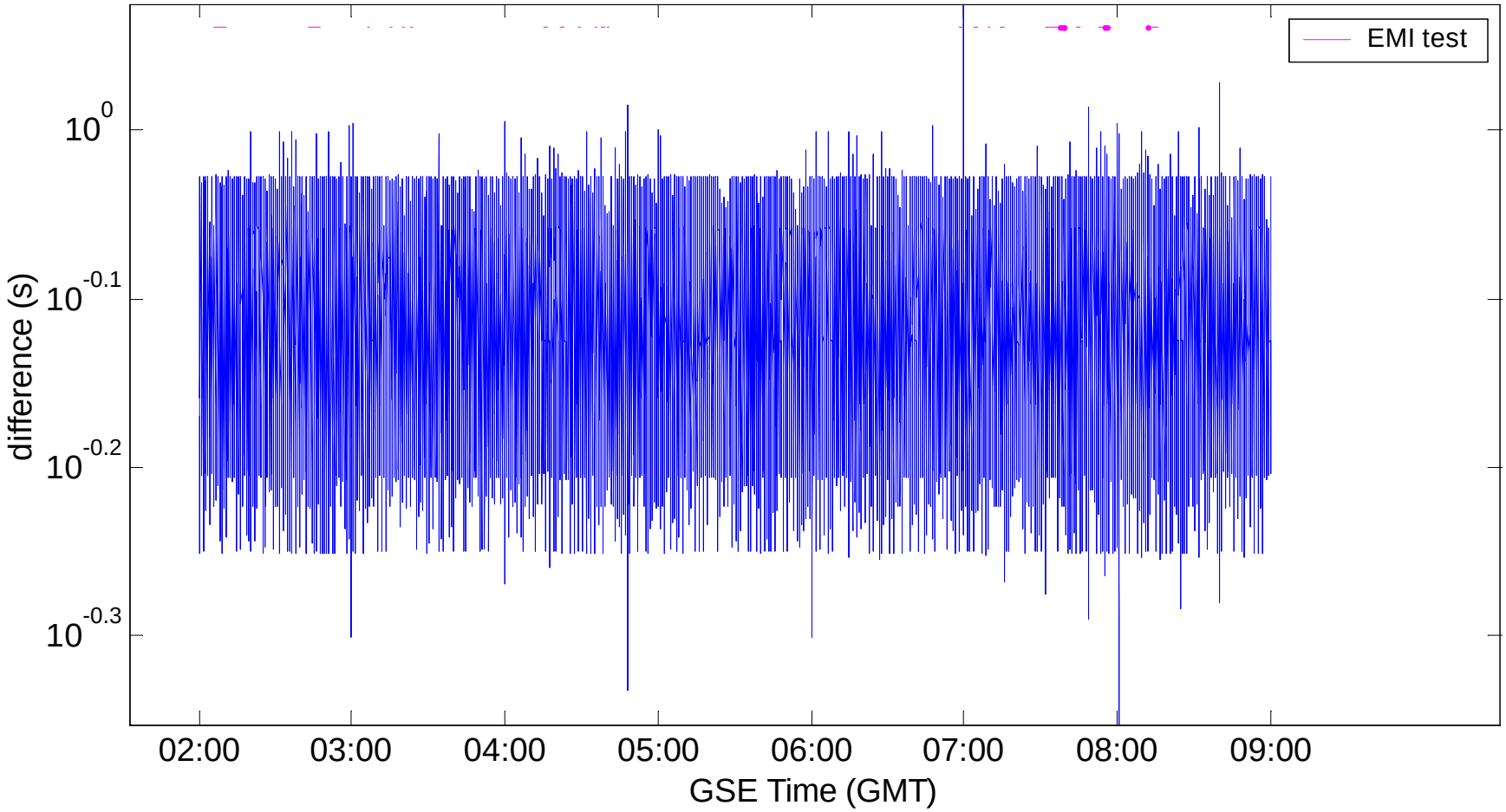


DCMT Archive Integrity & Quiet Bus Current

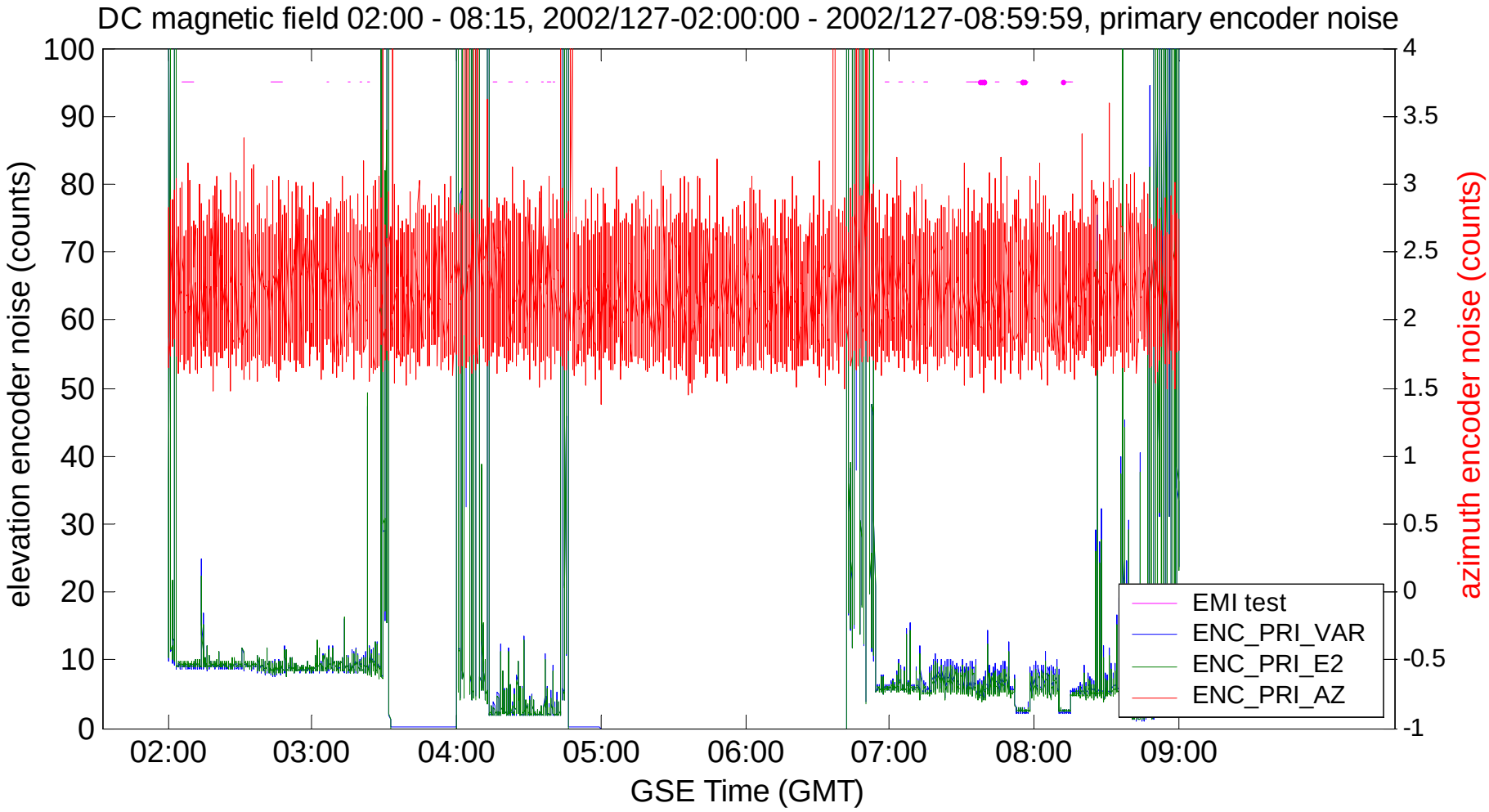


Check Time Sequence

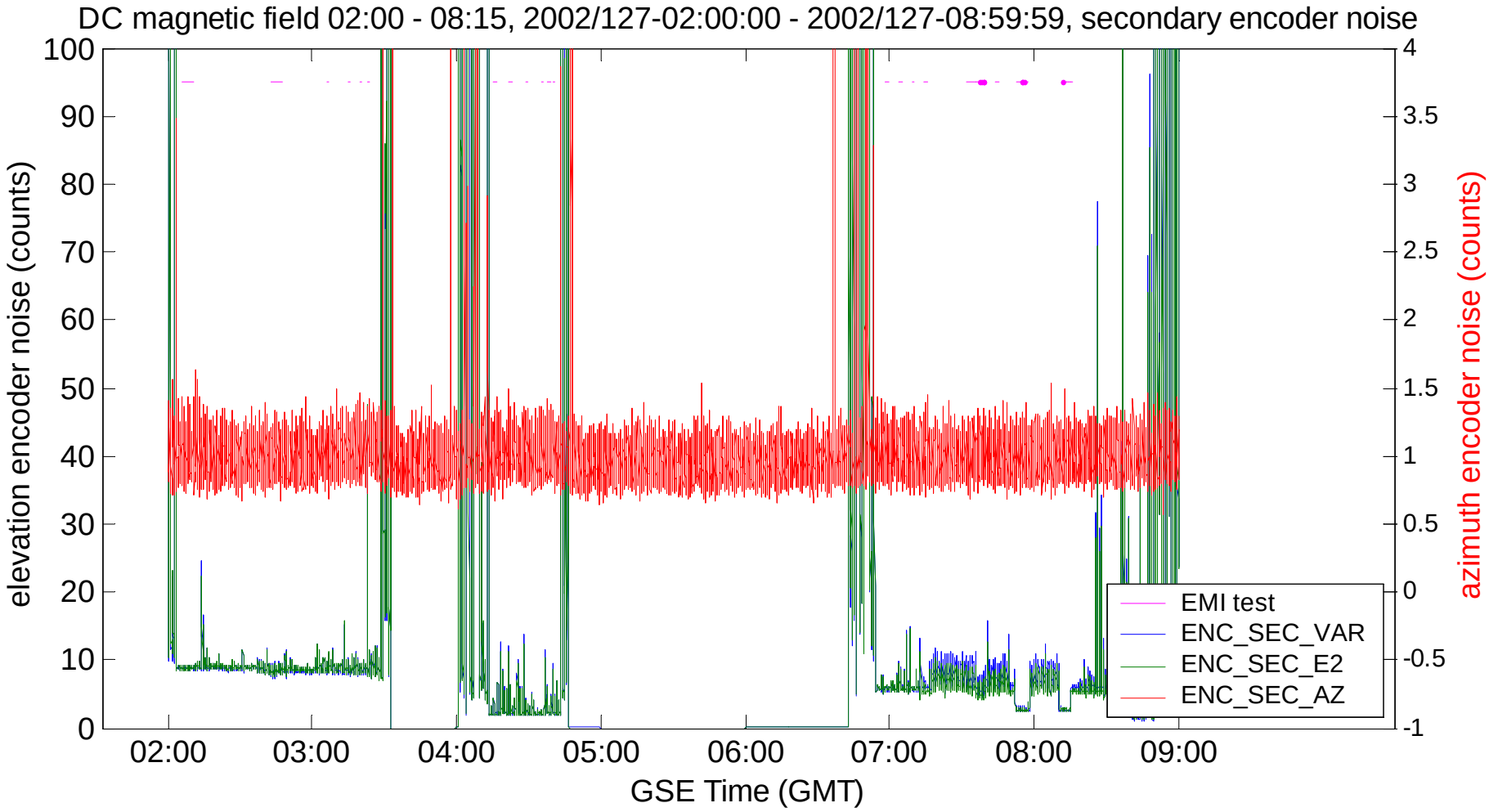
DC magnetic field 02:00 - 08:15, 2002/127-02:00:00 - 2002/127-08:59:59
difference of successive GSE times after decimation to 1 MAF



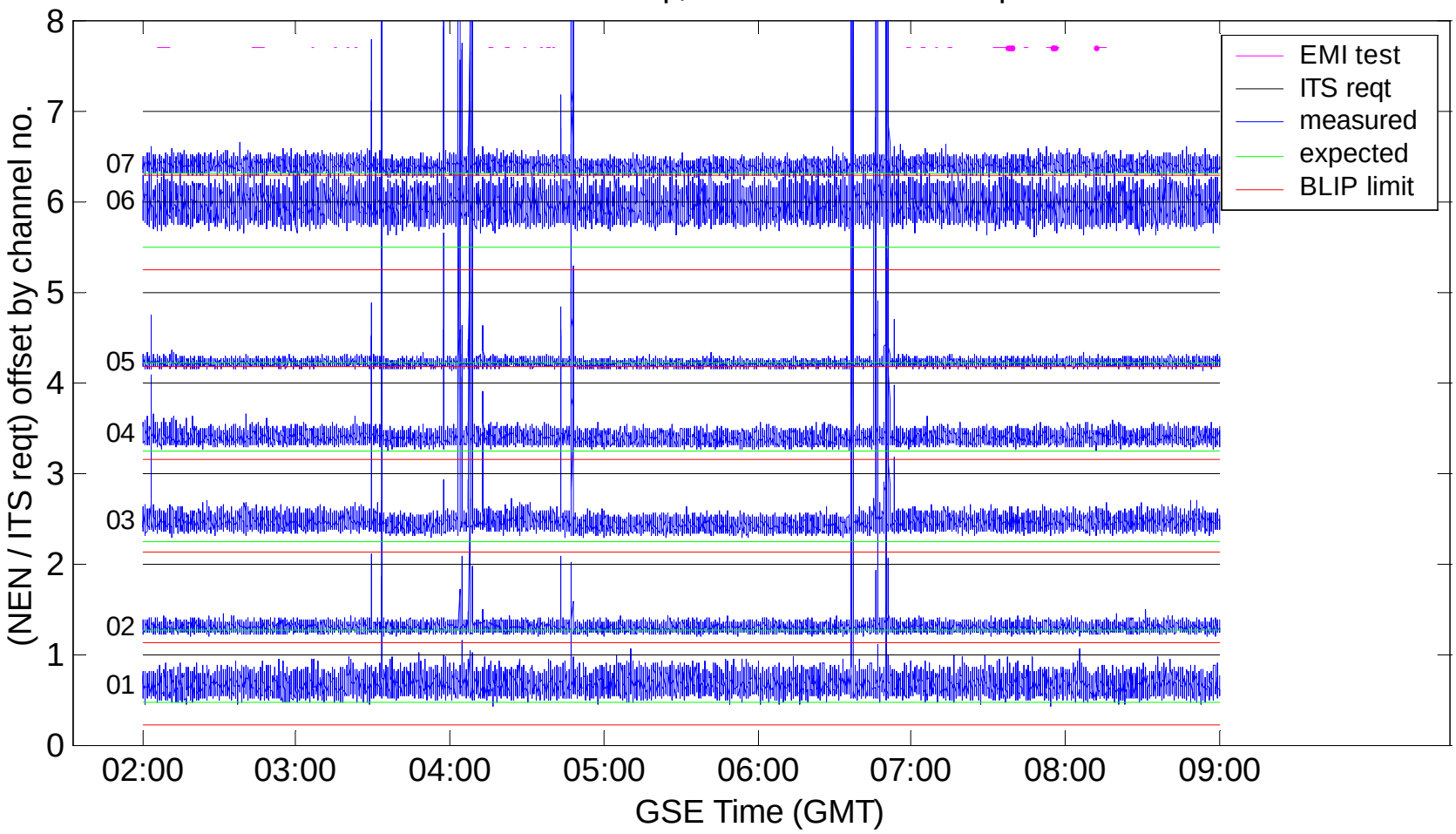
Noise: Primary Encoders



Noise: Secondary Encoders

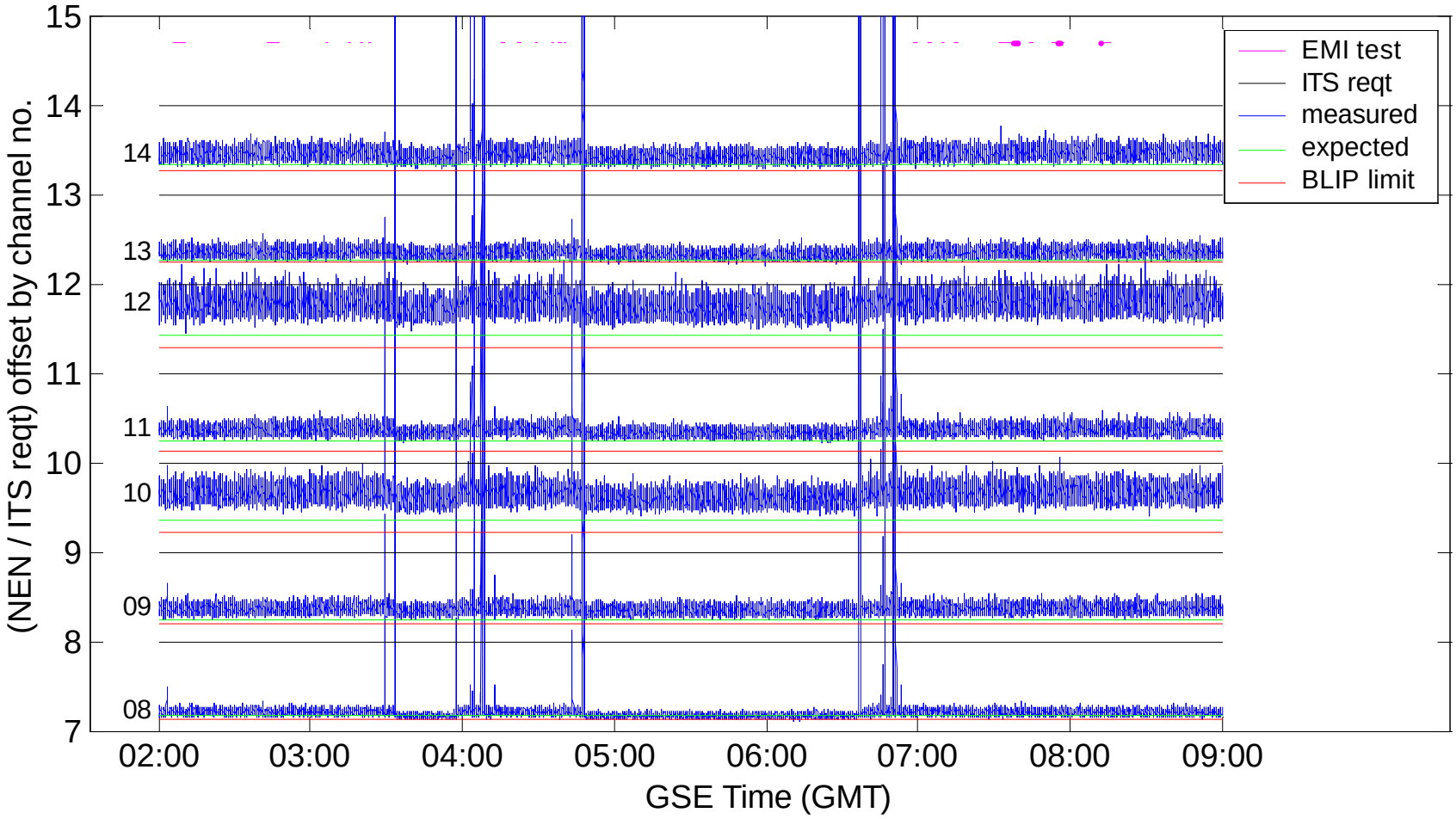


Noise: Radiance Channels 1-7

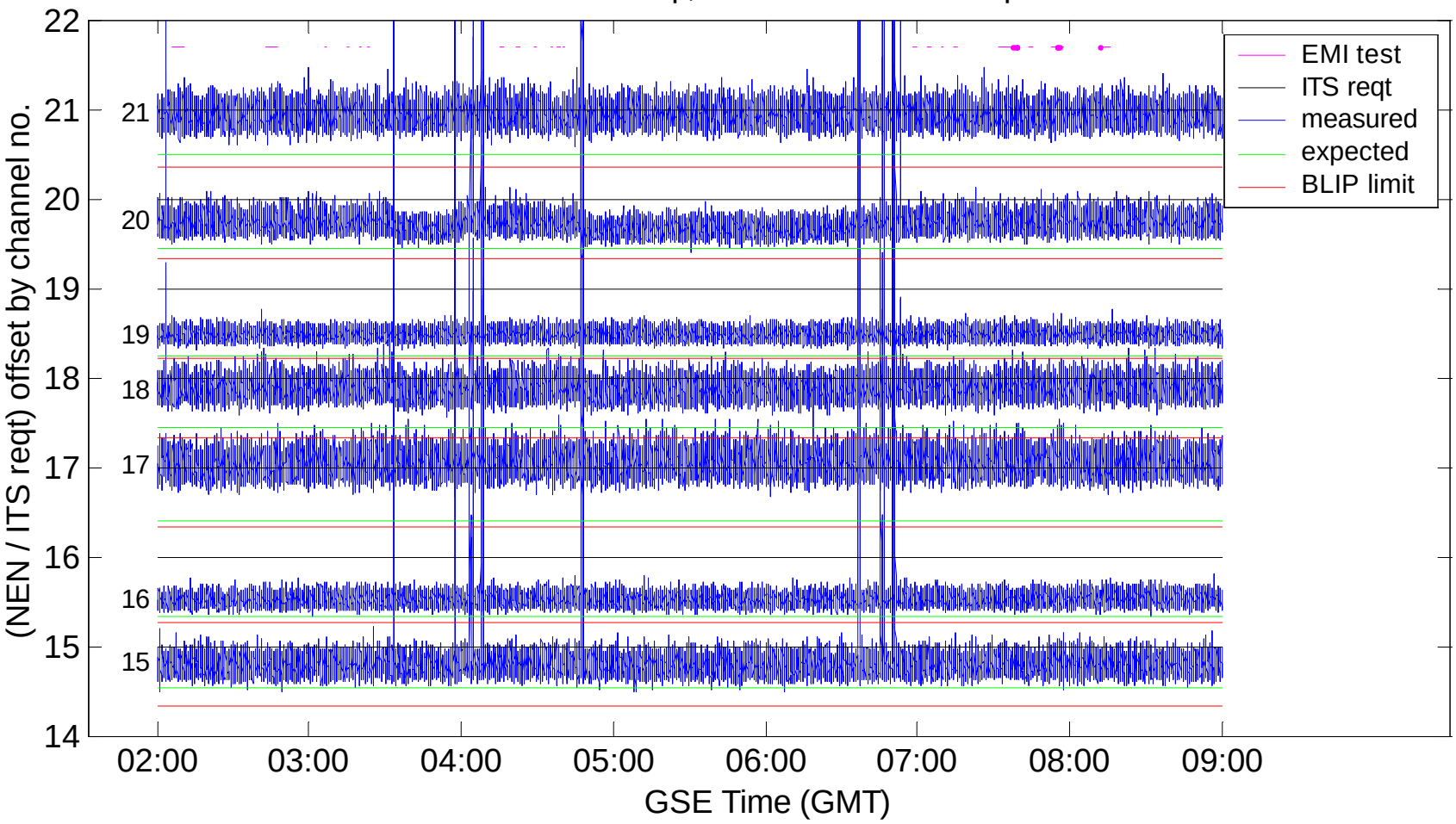


Noise: Radiance Channels 8-14

DC magnetic field 02:00 - 08:15, 2002/127-02:00:00 - 2002/127-08:59:59, radiance noise ch 8-14
Ratio of NEN in 7.66-Hz BW to ITS reqt, with BLIP limit and expected value for cold source



Noise: Radiance Channels 15-21



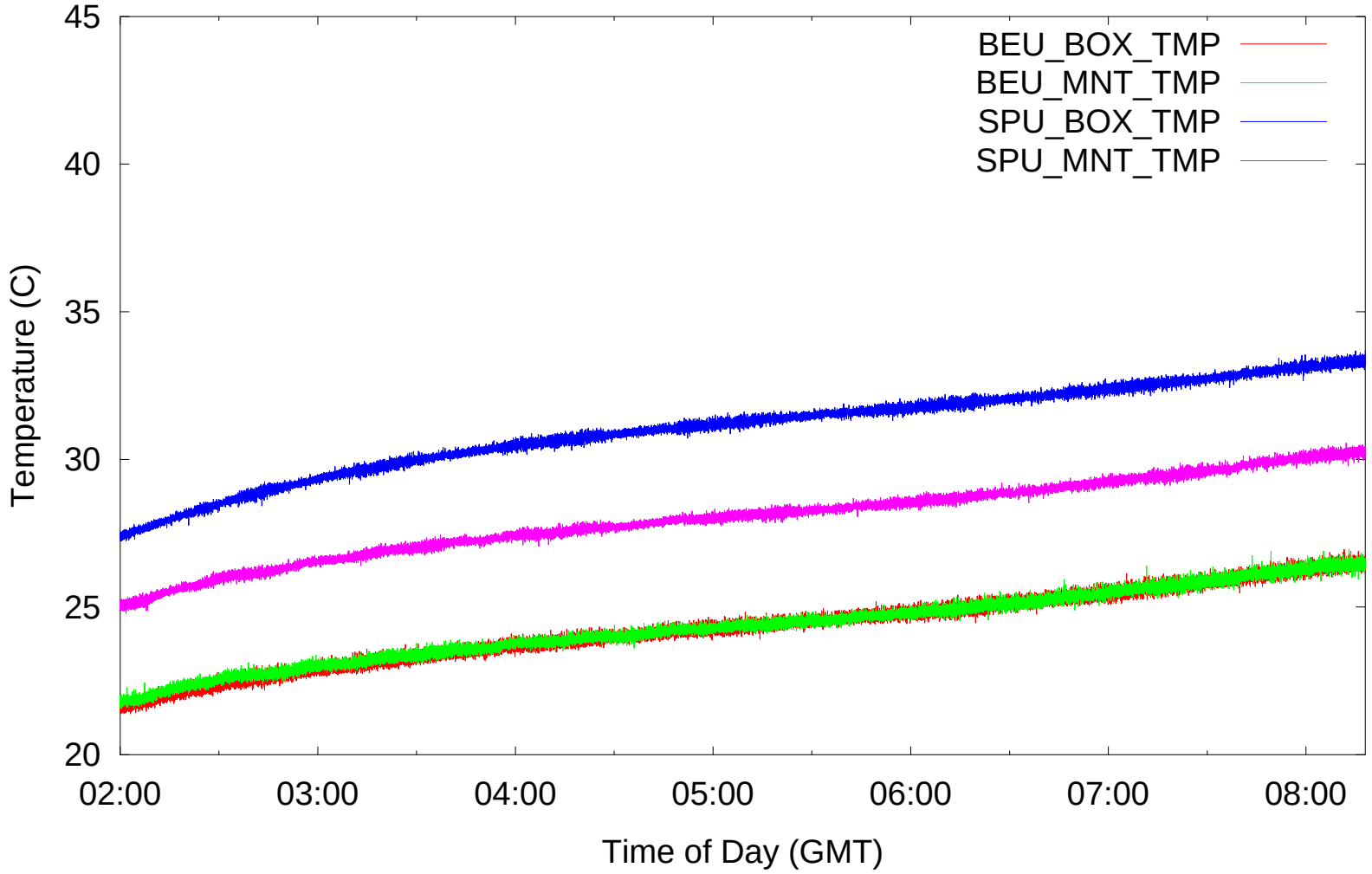
DCMT 28 Reg Oscillation

Place Holder

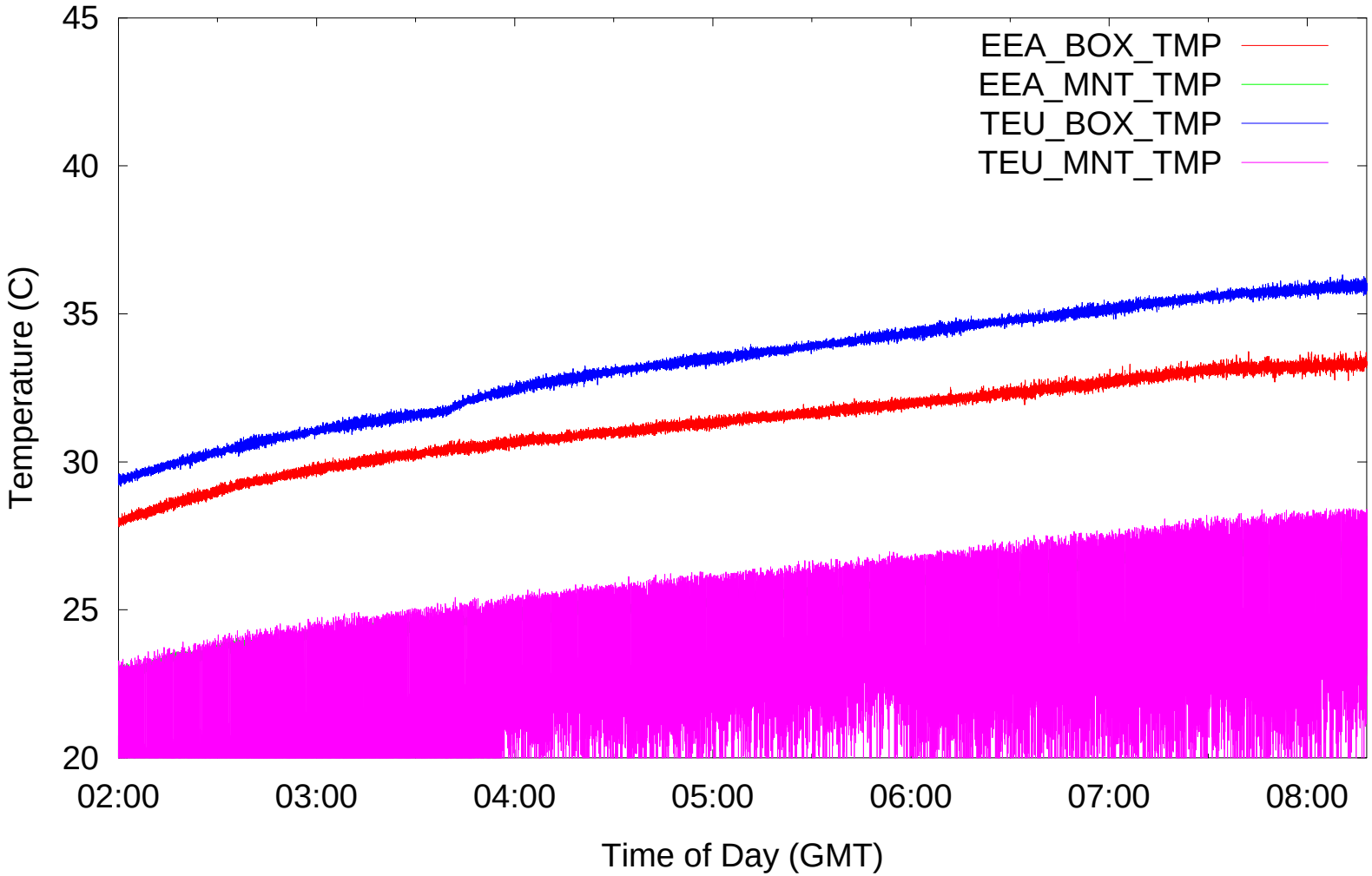
DCMT 28 Reg Oscillation (Expanded Scale)

Place Holder

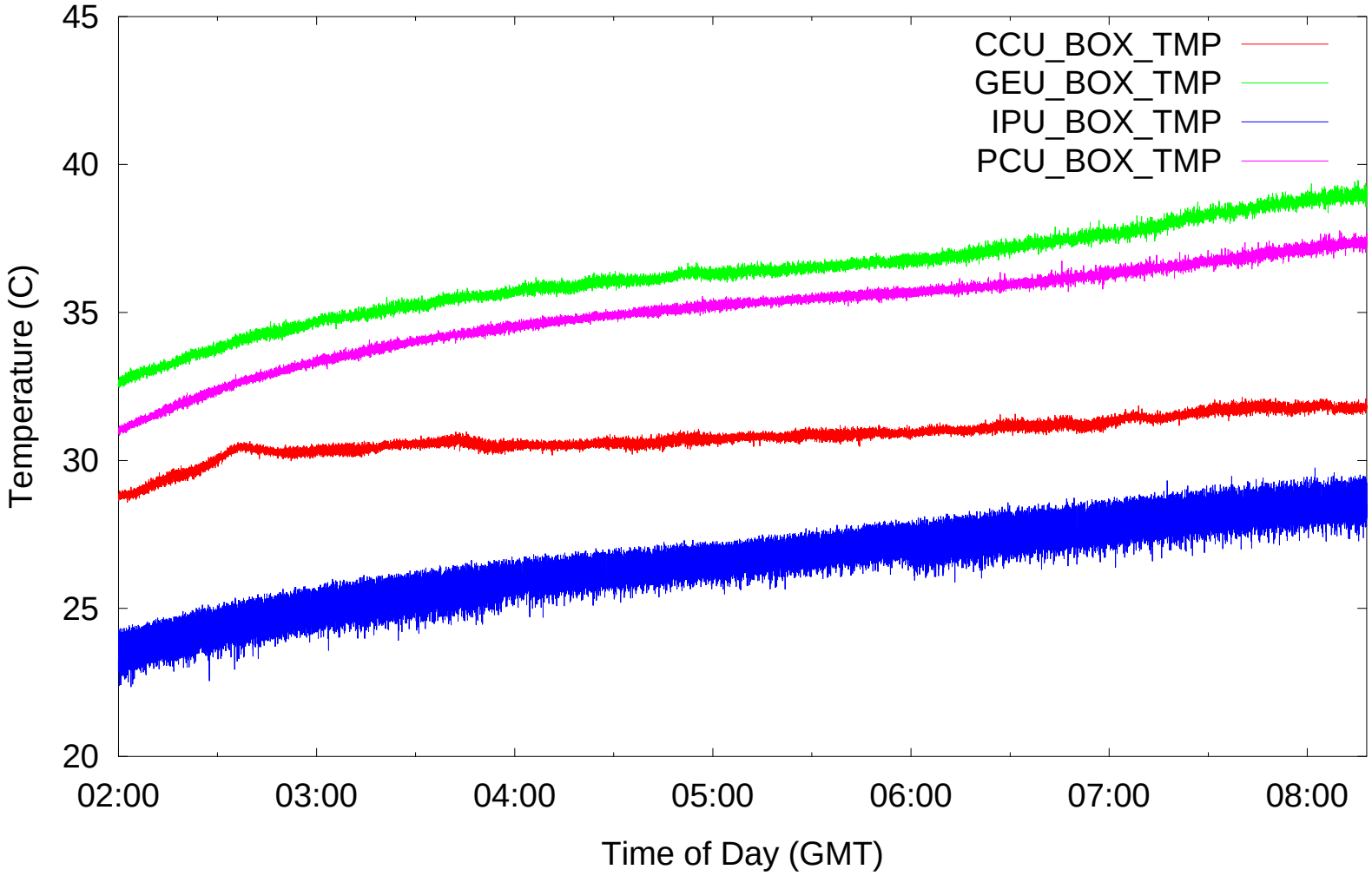
DCMT Box Temps (1 of 3)



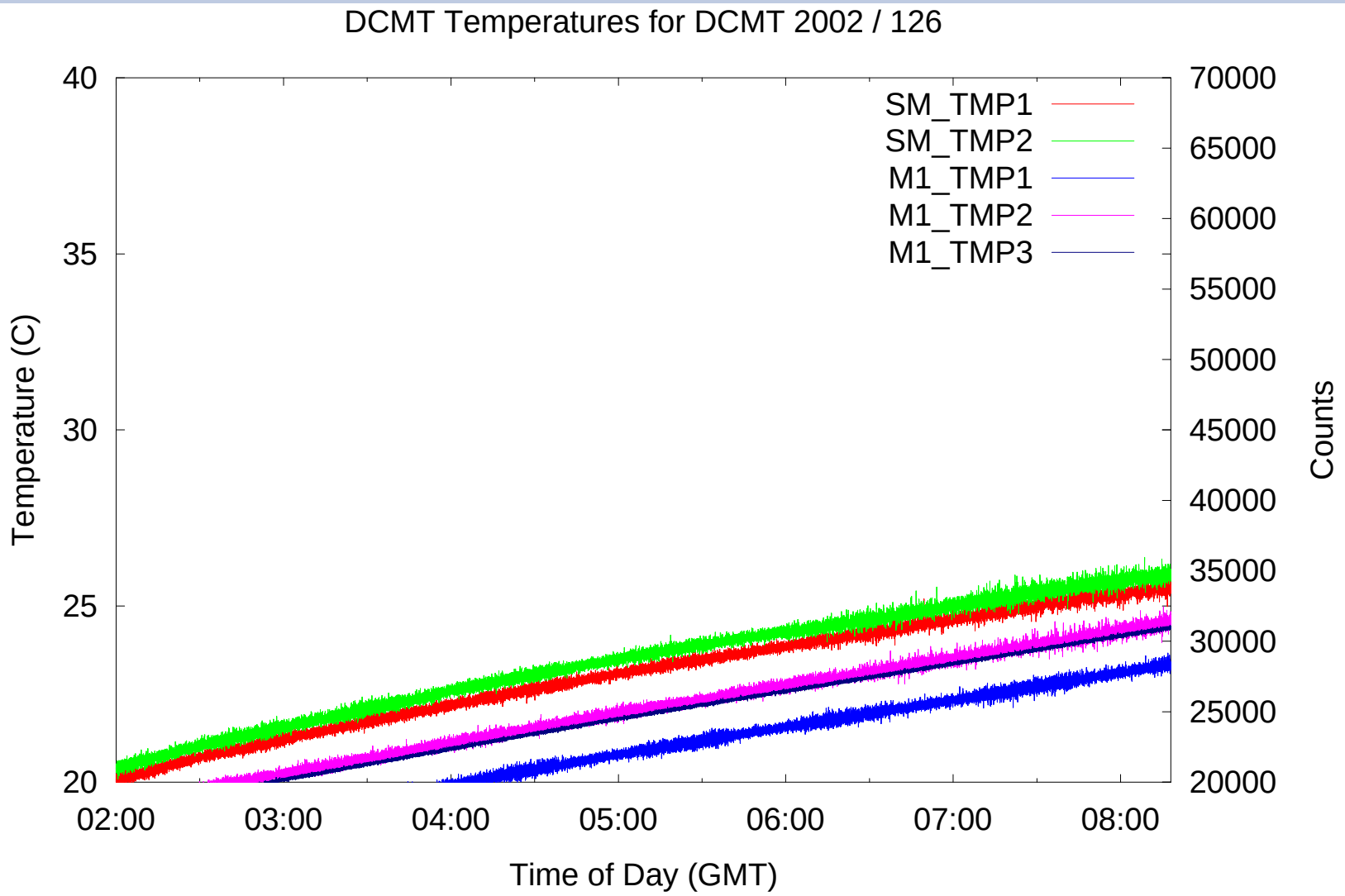
DCMT Box Temps (2 of 3)



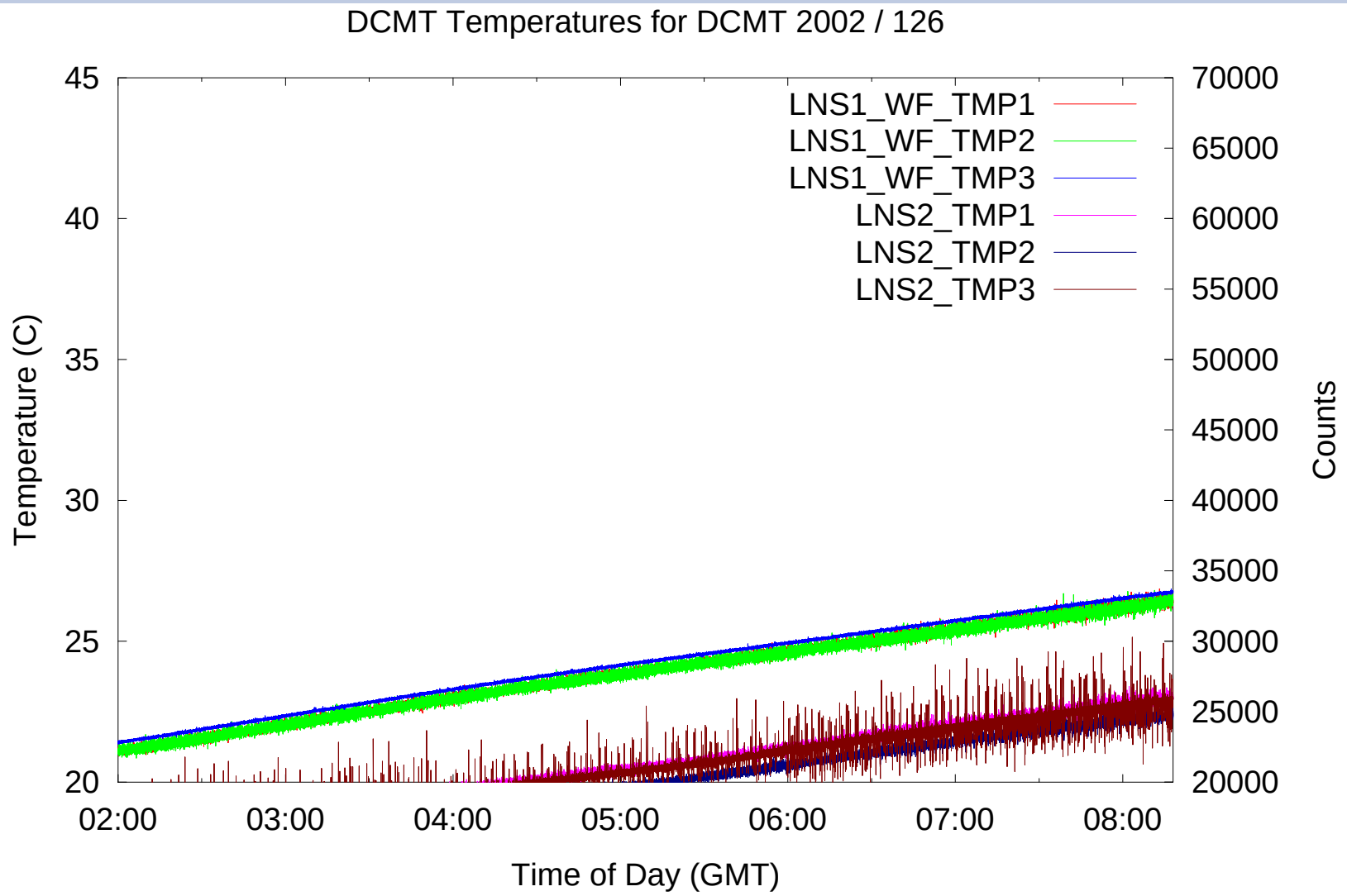
DCMT Box Temps (3 of 3)



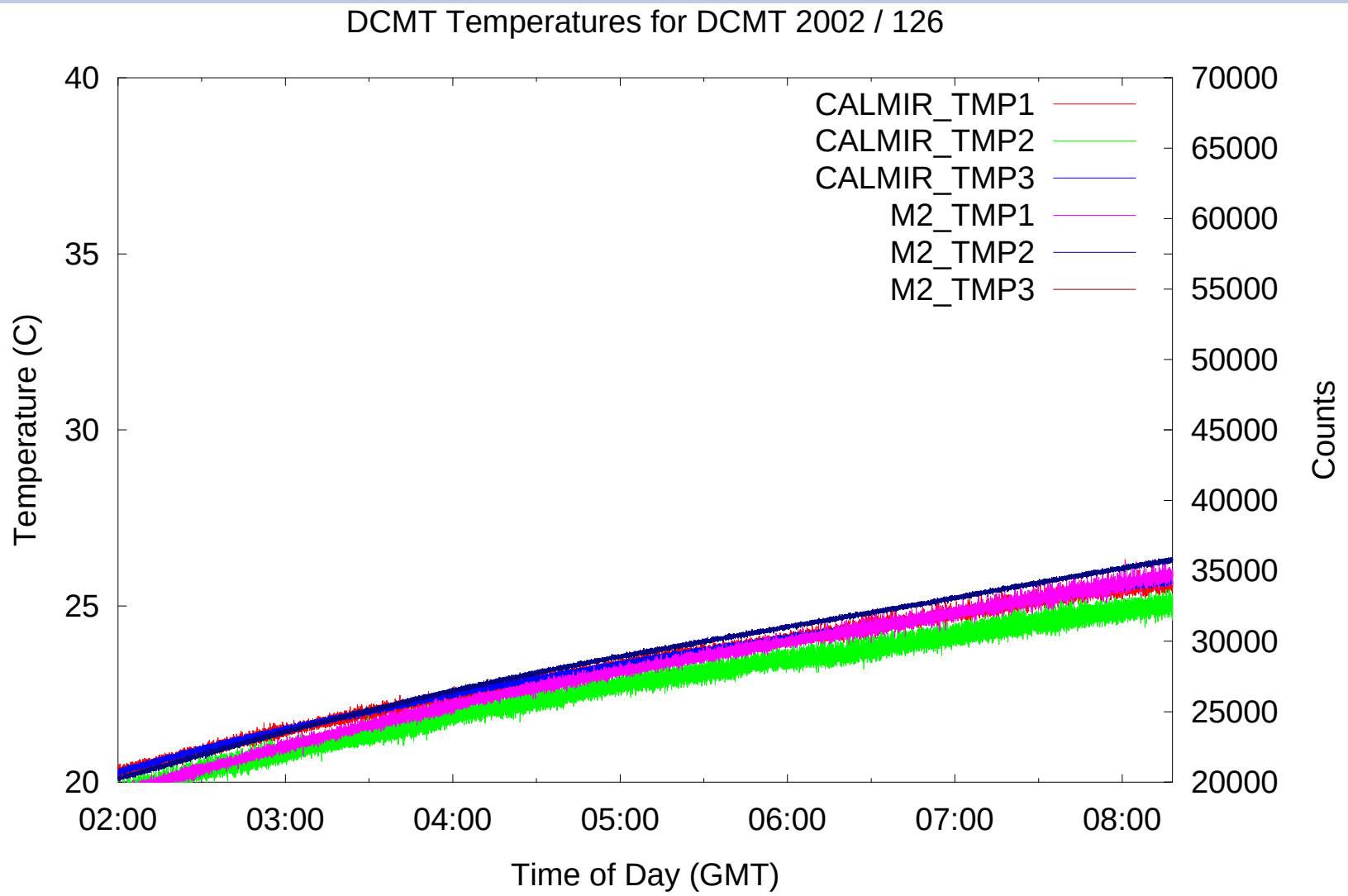
DCMT OBA Temperatures (1 of 4)



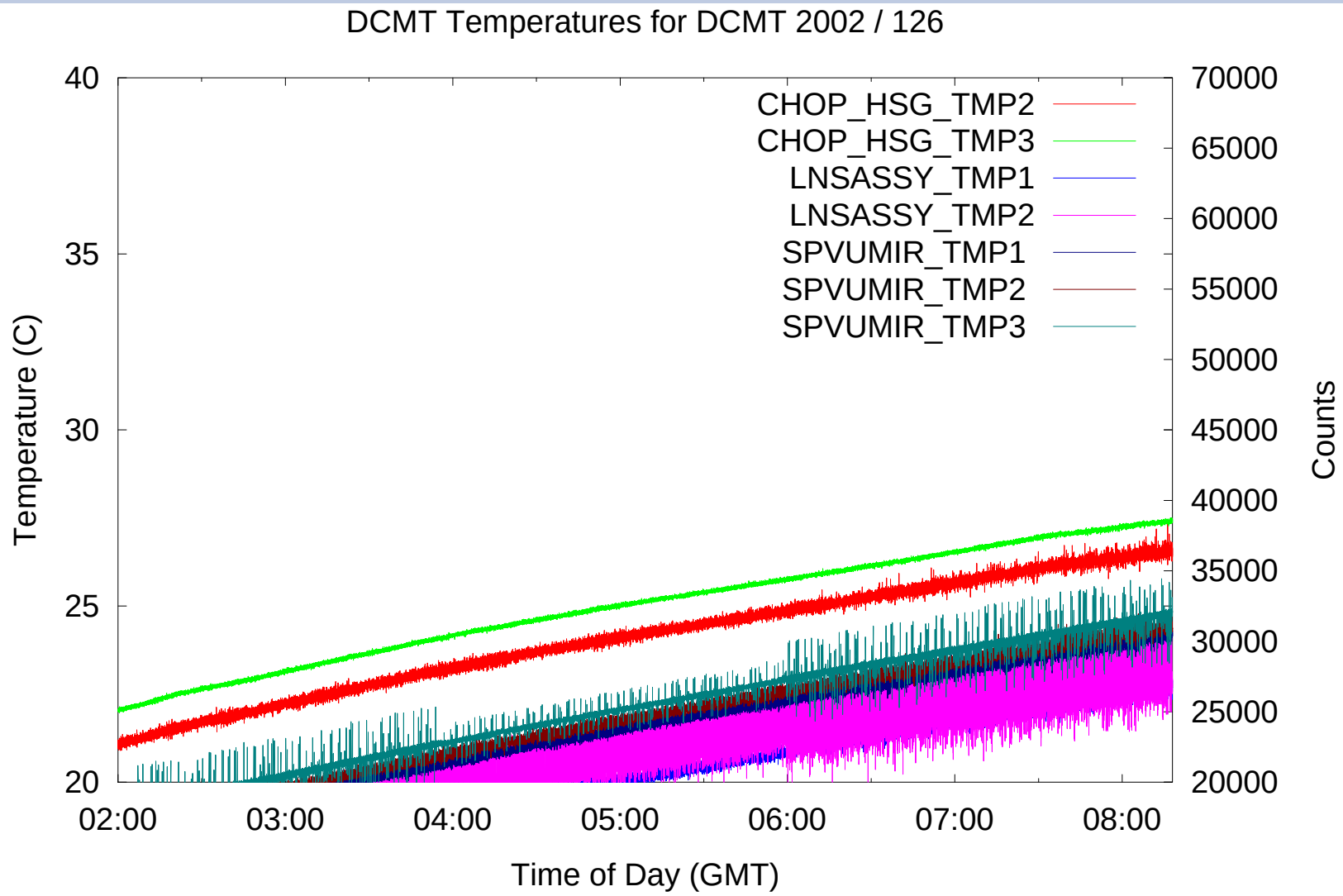
DCMT OBA Temperatures (2 of 4)



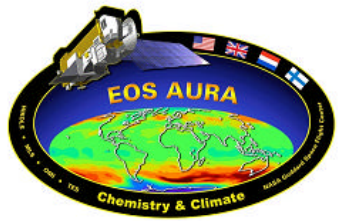
DCMT OBA Temperatures (3 of 4)



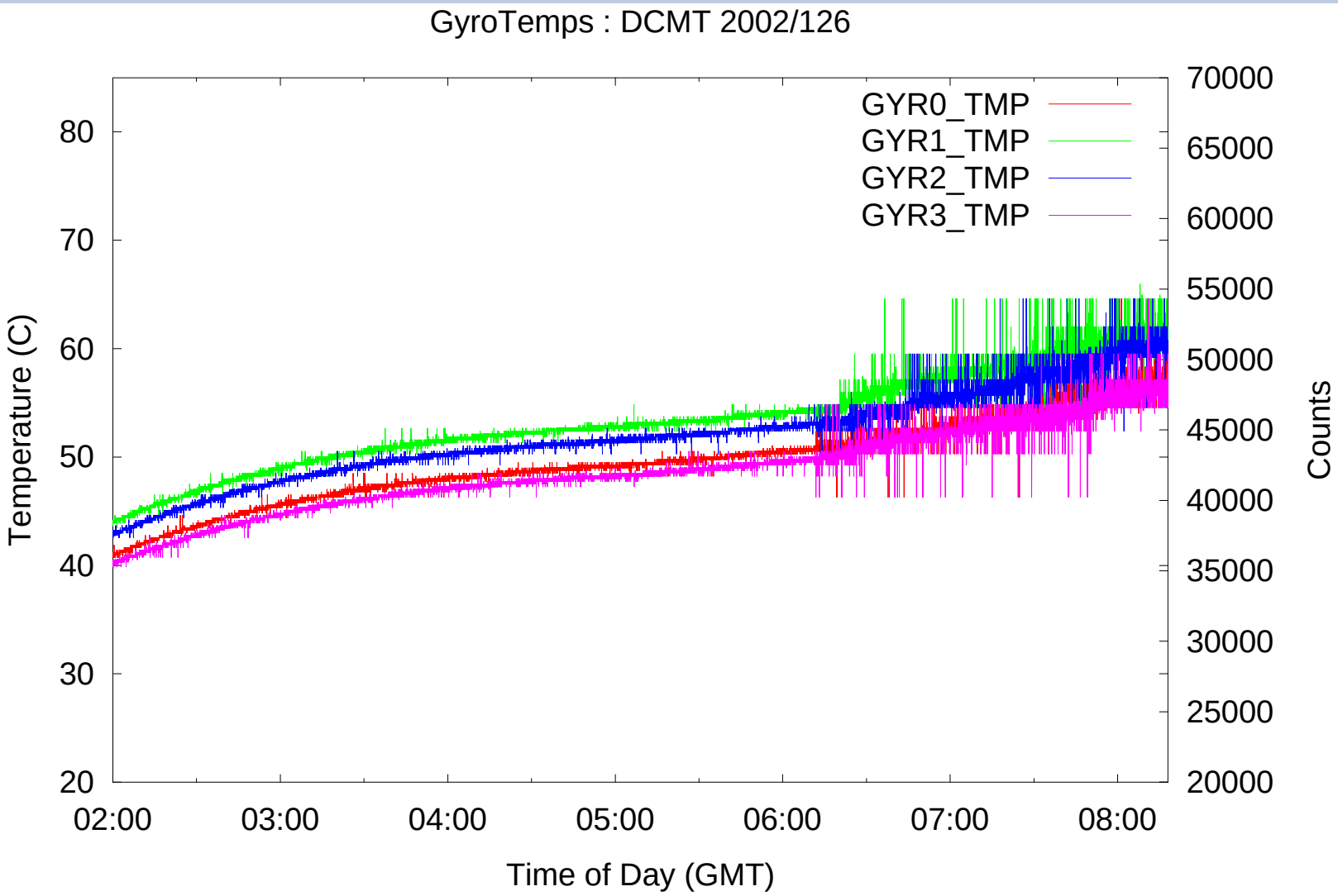
DCMT OBA Temperatures (4 of 4)



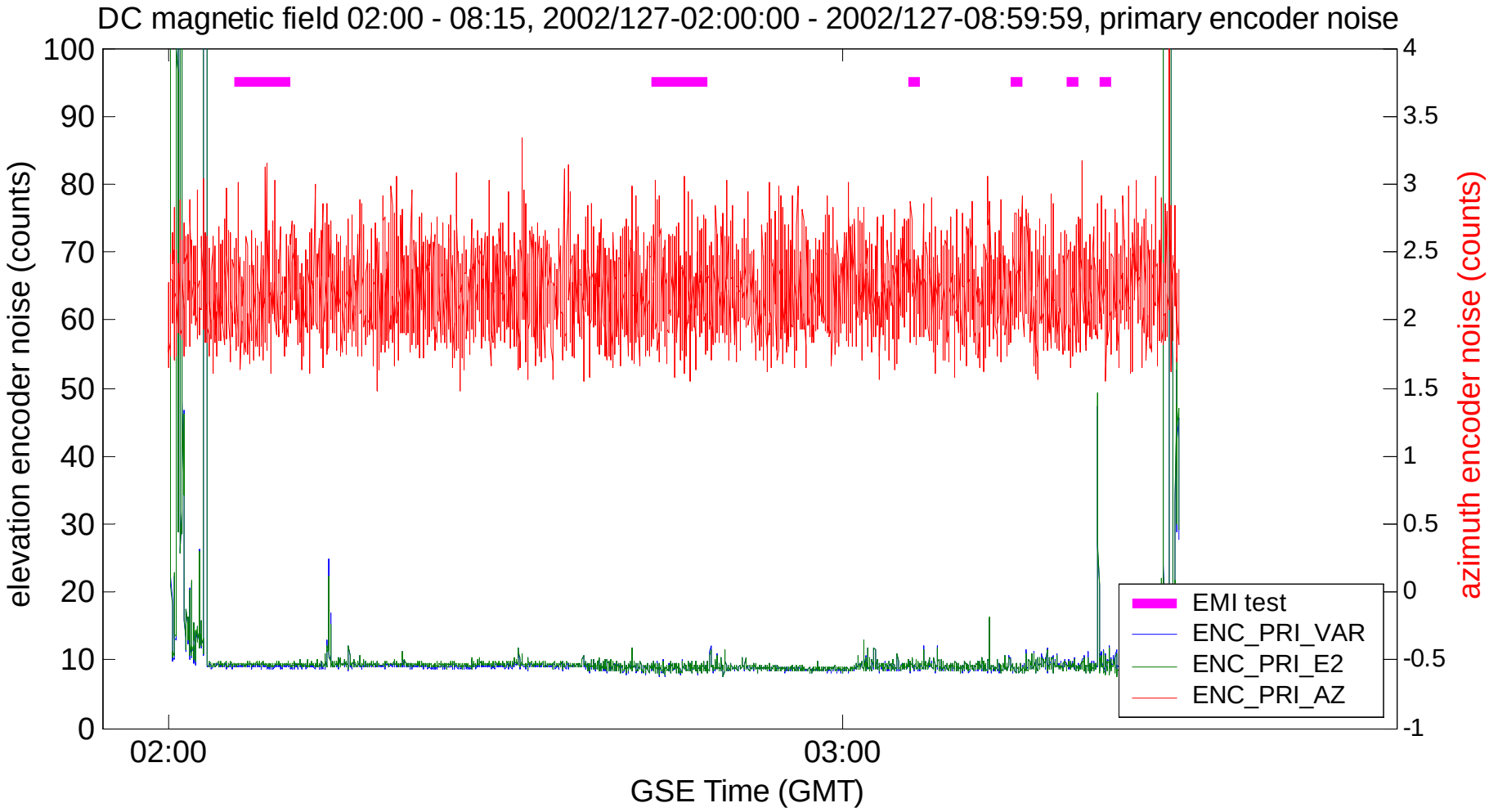
LOCKHEED MARTIN



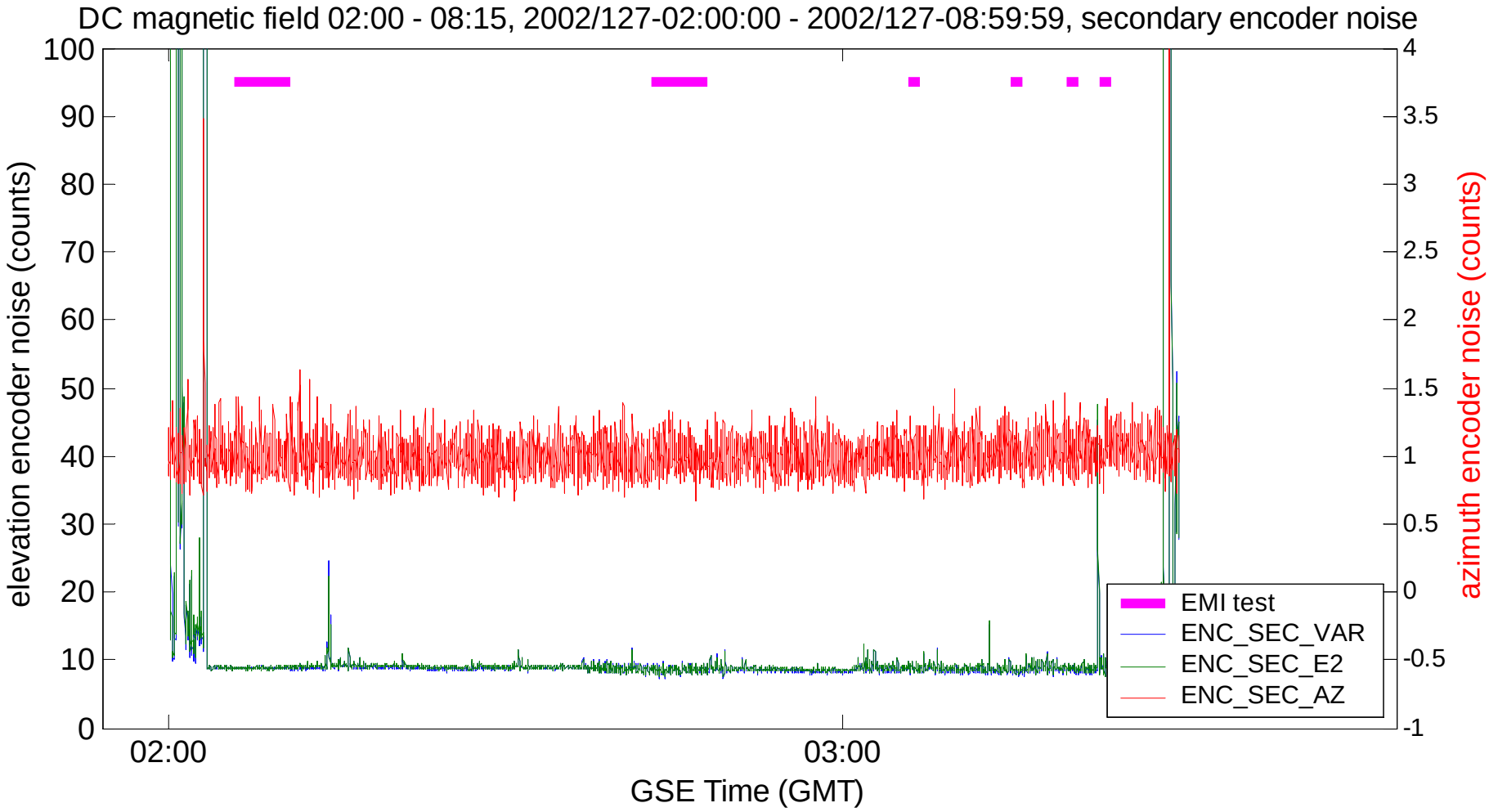
DCMT Gyro Temperatures 2002 / 126



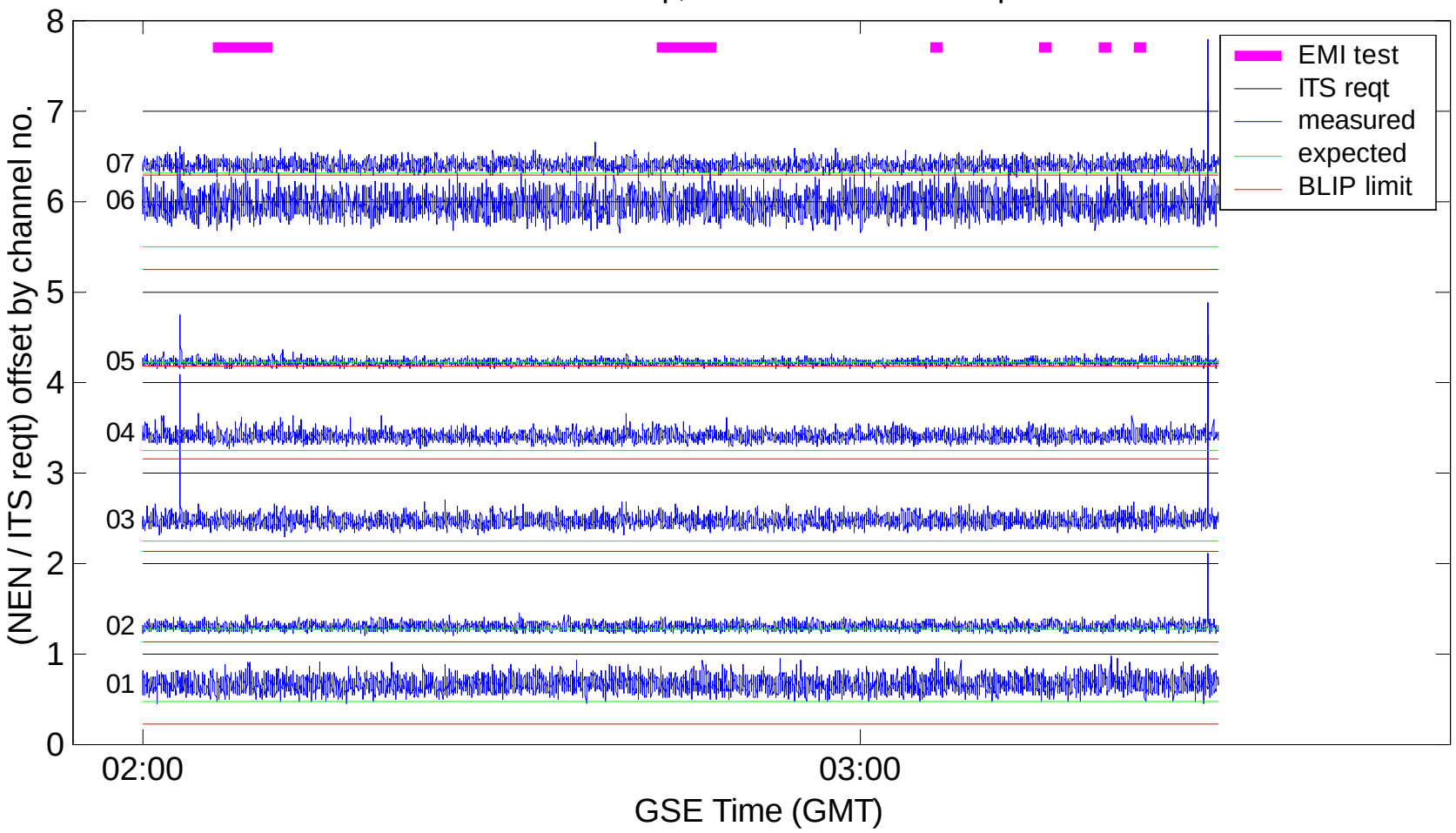
Noise: Primary Encoders (1 of 3)



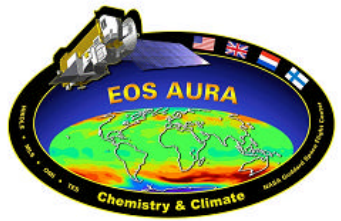
Noise: Secondary Encoders (1 of 3)



Noise: Radiance Channels 1-7 (1 of 3)

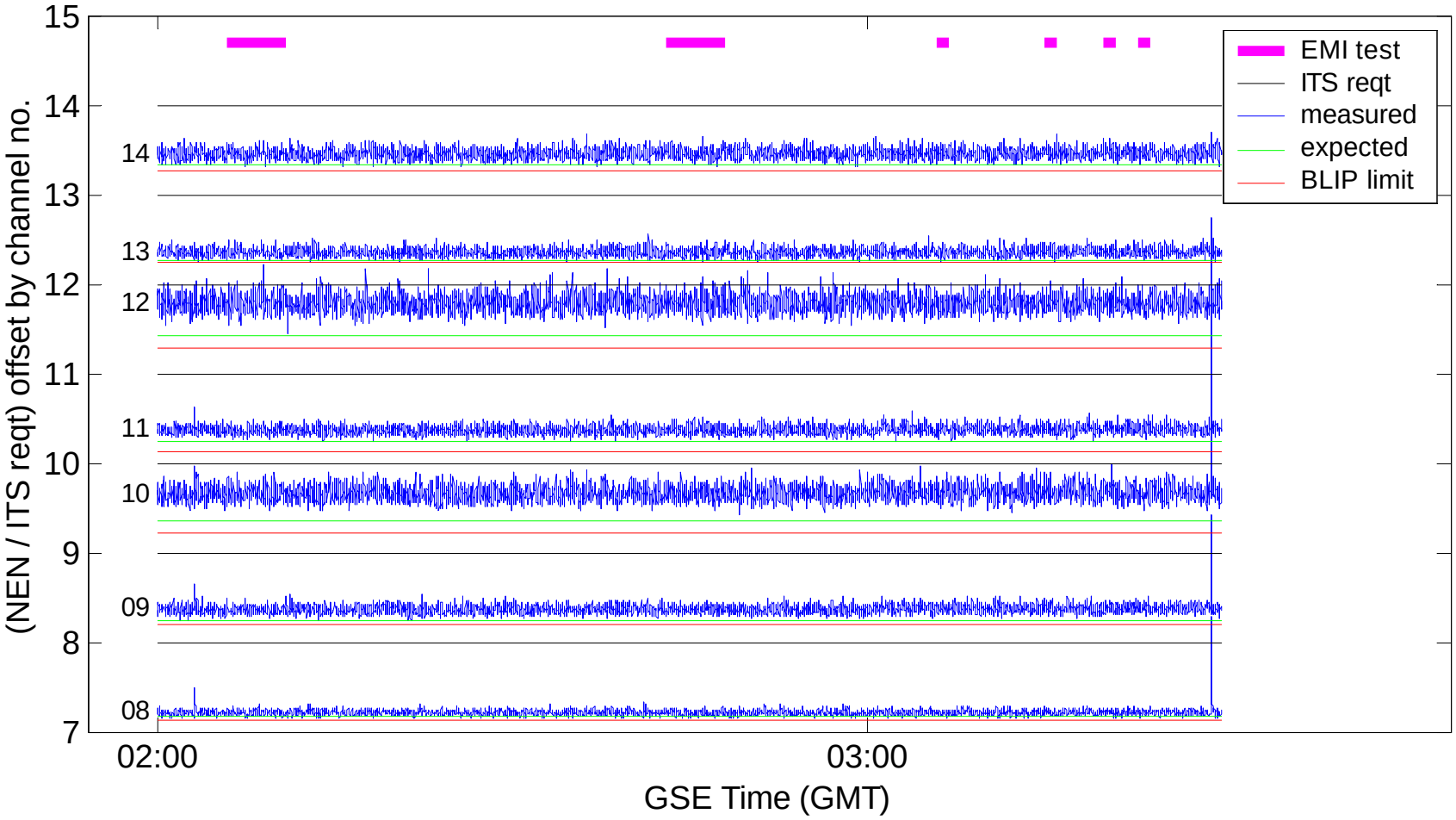


LOCKHEED MARTIN

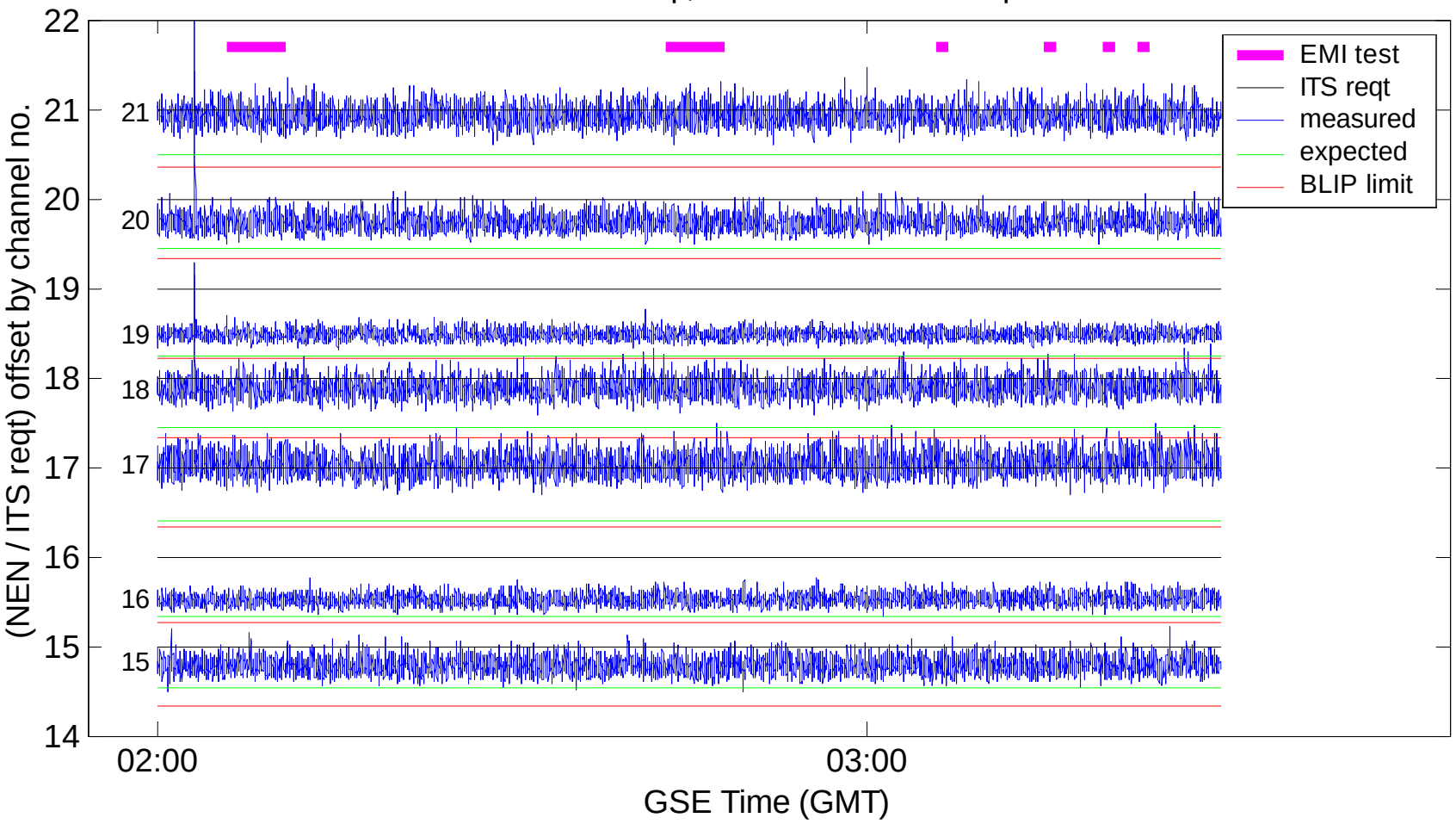


Noise: Radiance Channels 8-14 (1 of 3)

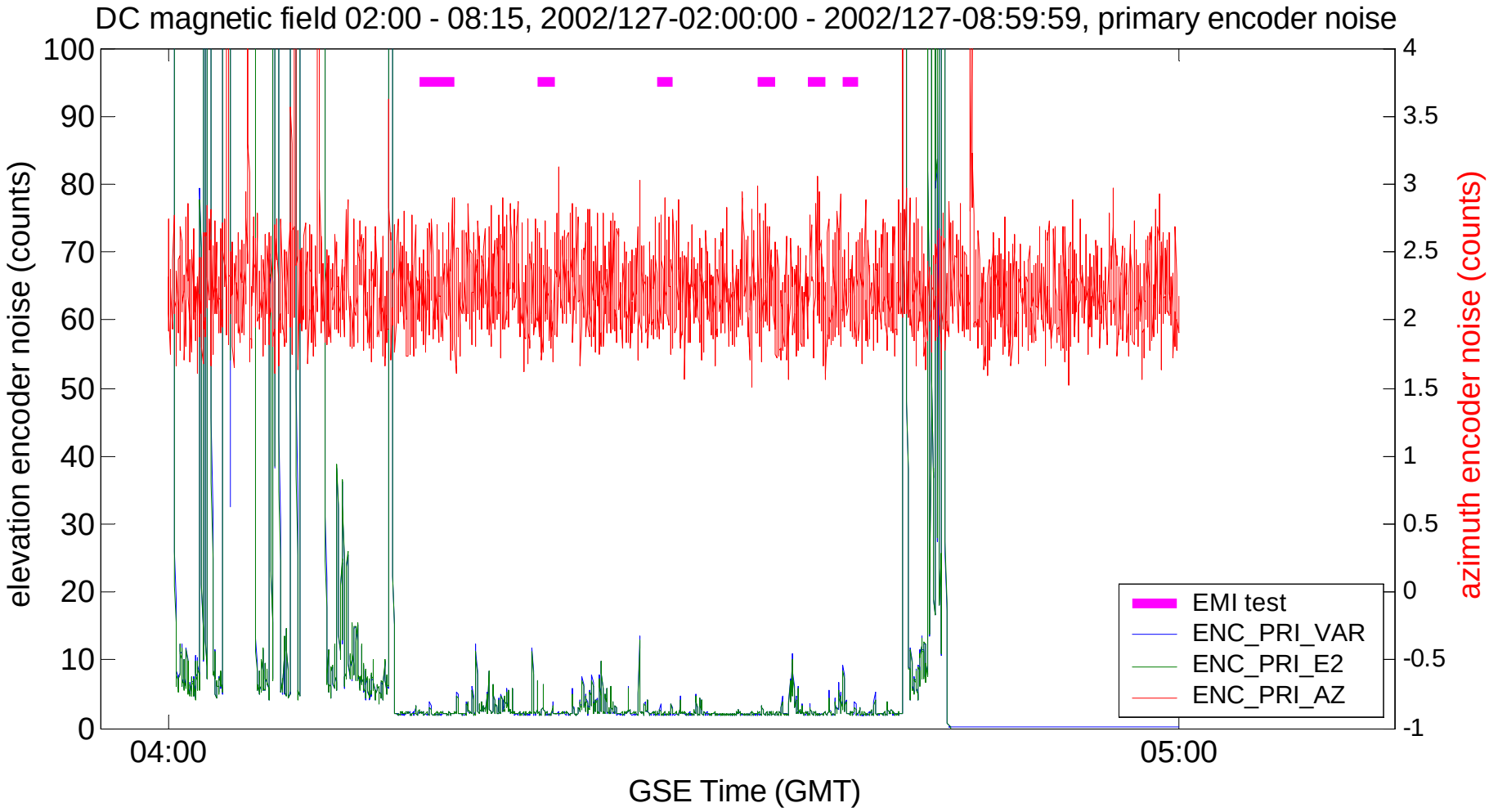
DC magnetic field 02:00 - 08:15, 2002/127-02:00:00 - 2002/127-08:59:59, radiance noise ch 8-14
Ratio of NEN in 7.66-Hz BW to ITS reqt, with BLIP limit and expected value for cold source



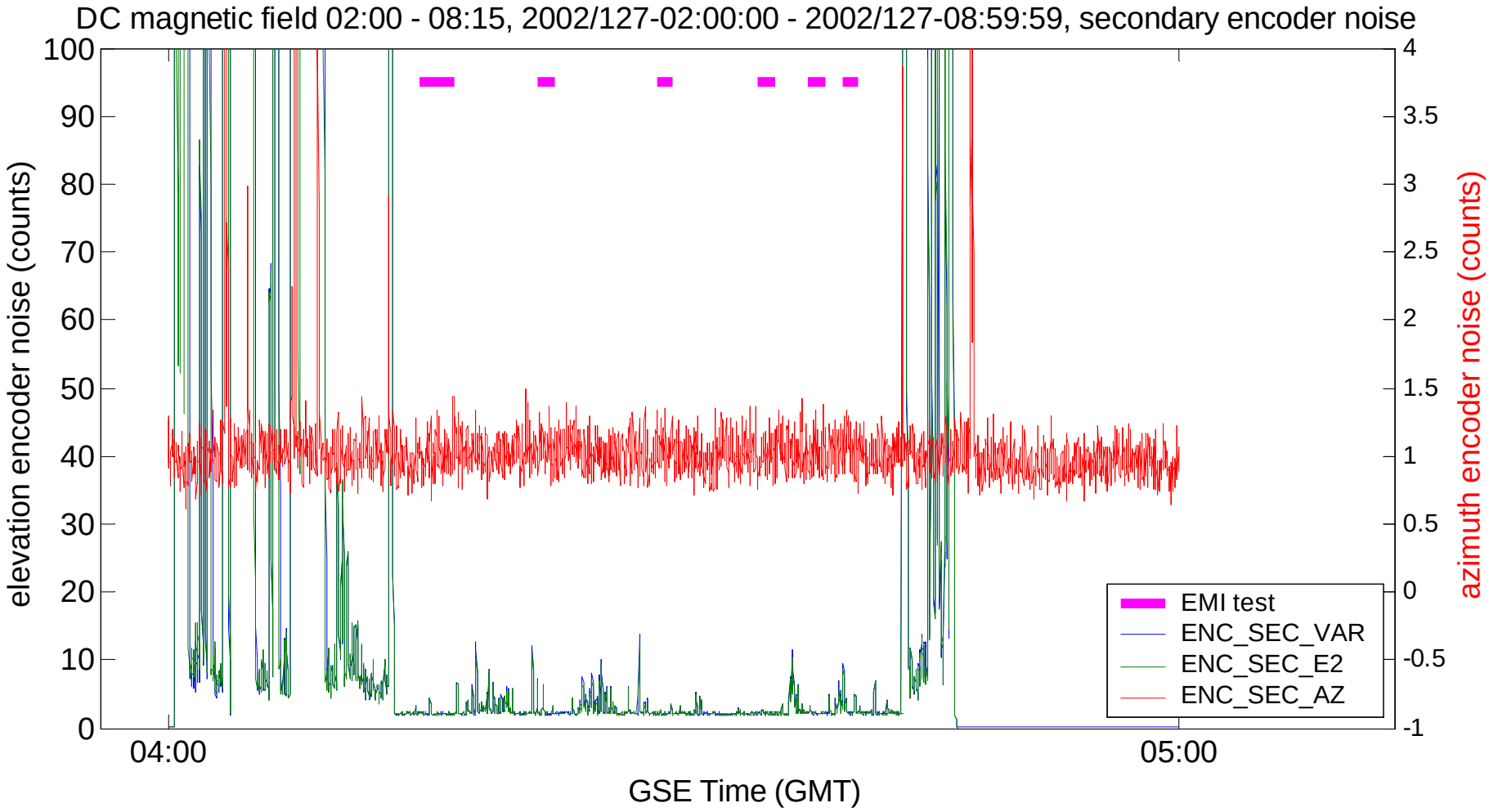
Noise: Radiance Channels 15-21 (1 of 3)



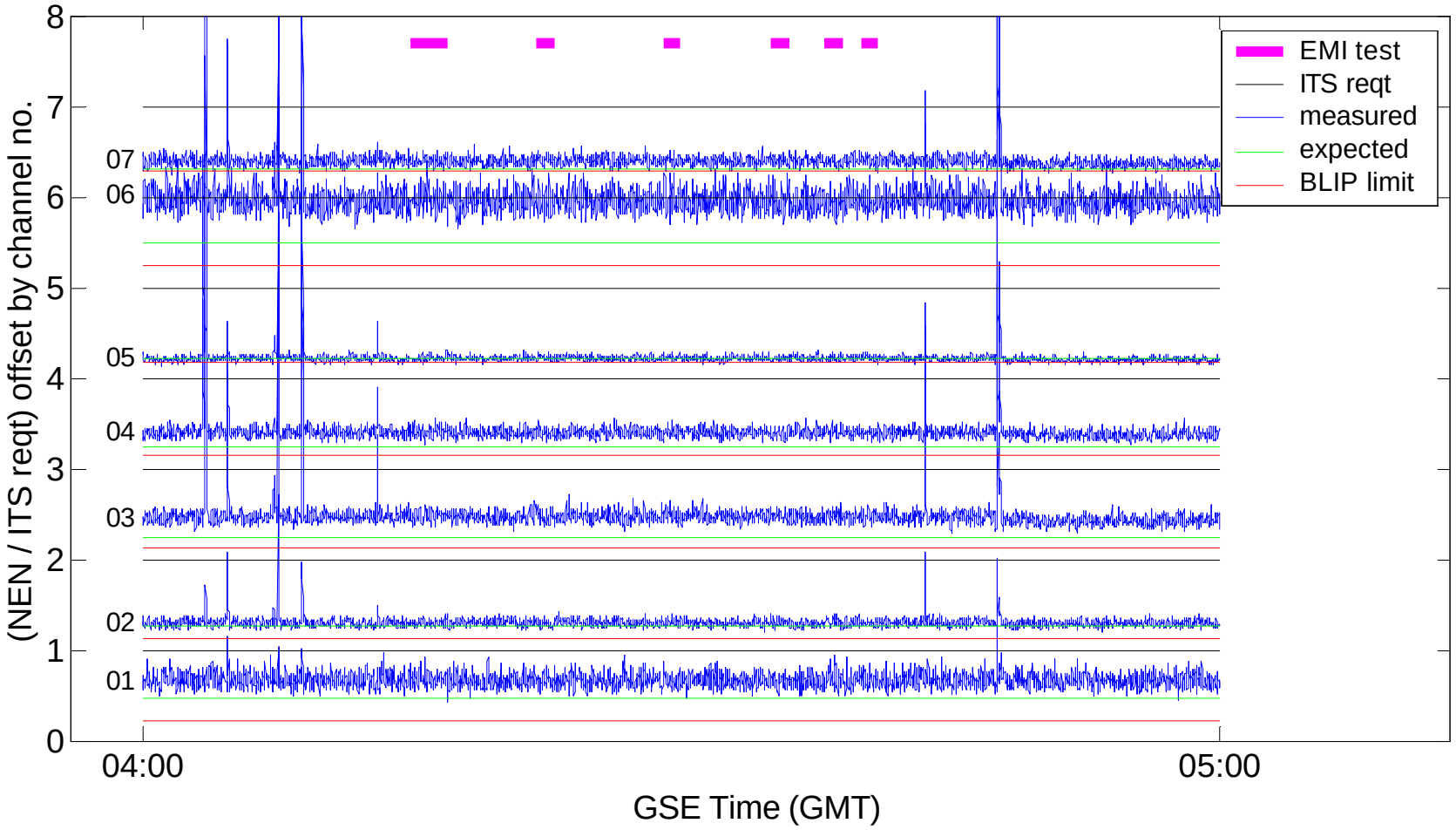
Noise: Primary Encoders (2 of 3)



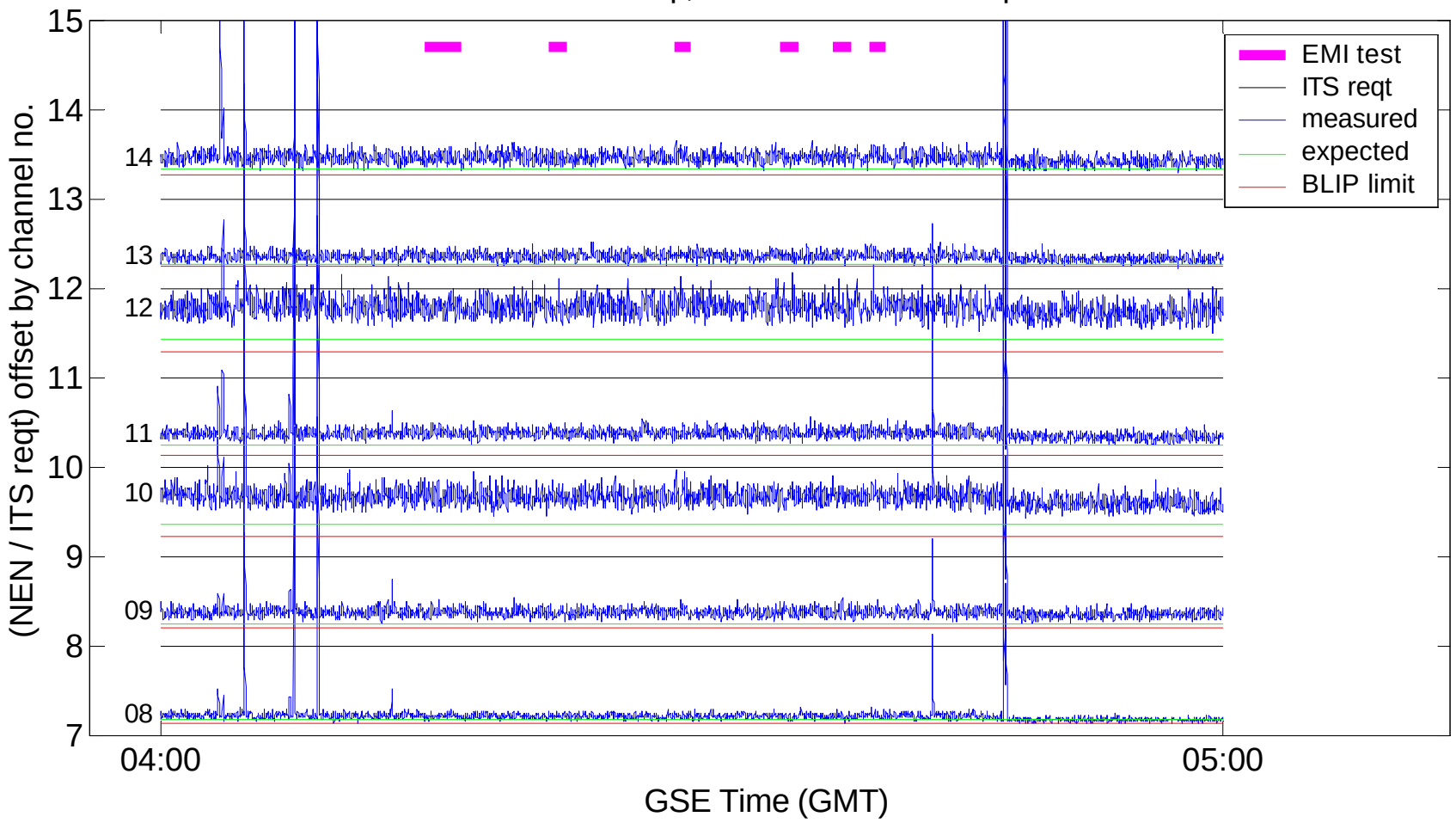
Noise: Secondary Encoders (2 of 3)



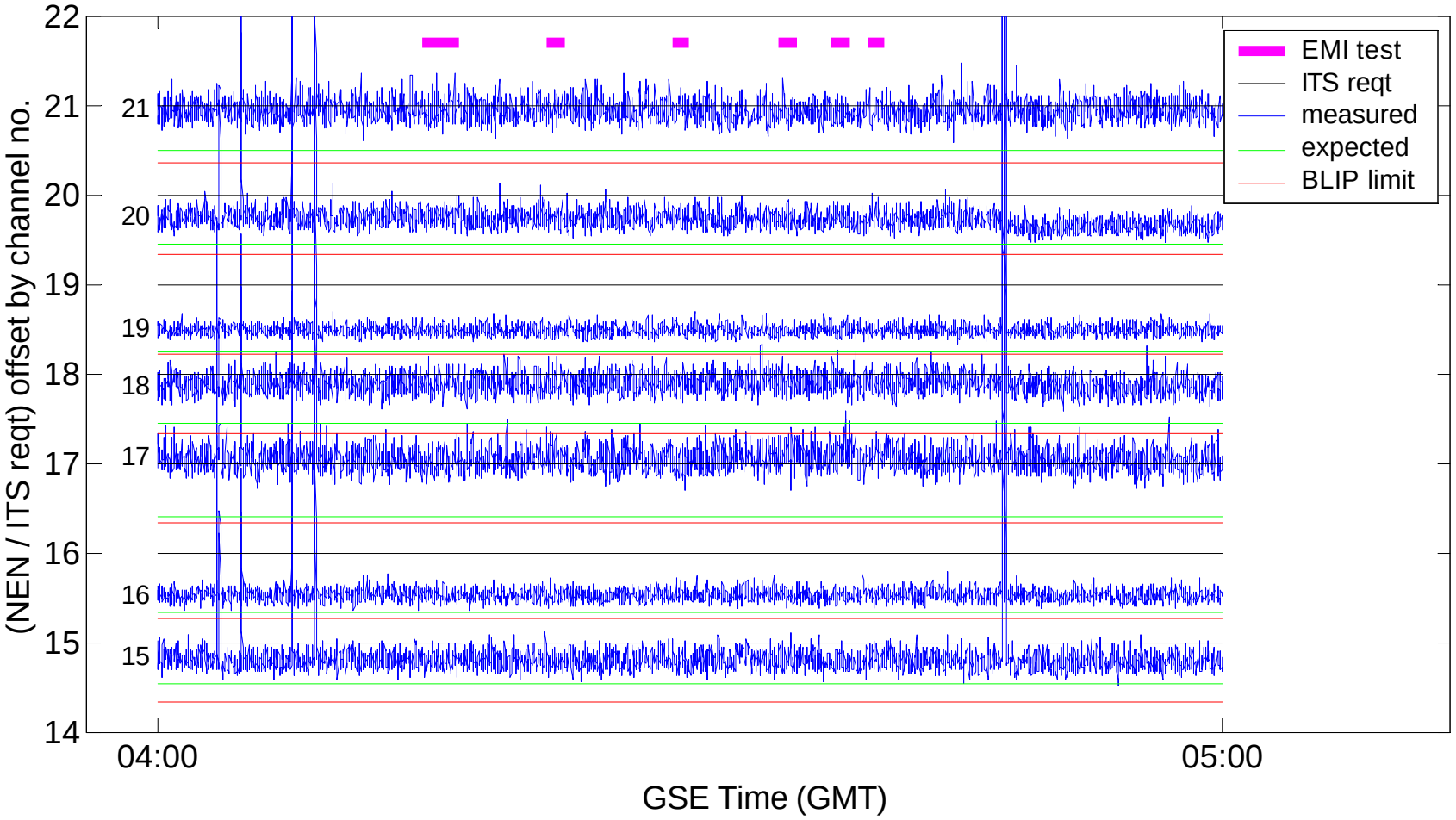
Noise: Radiance Channels 1-7 (1 of 3)



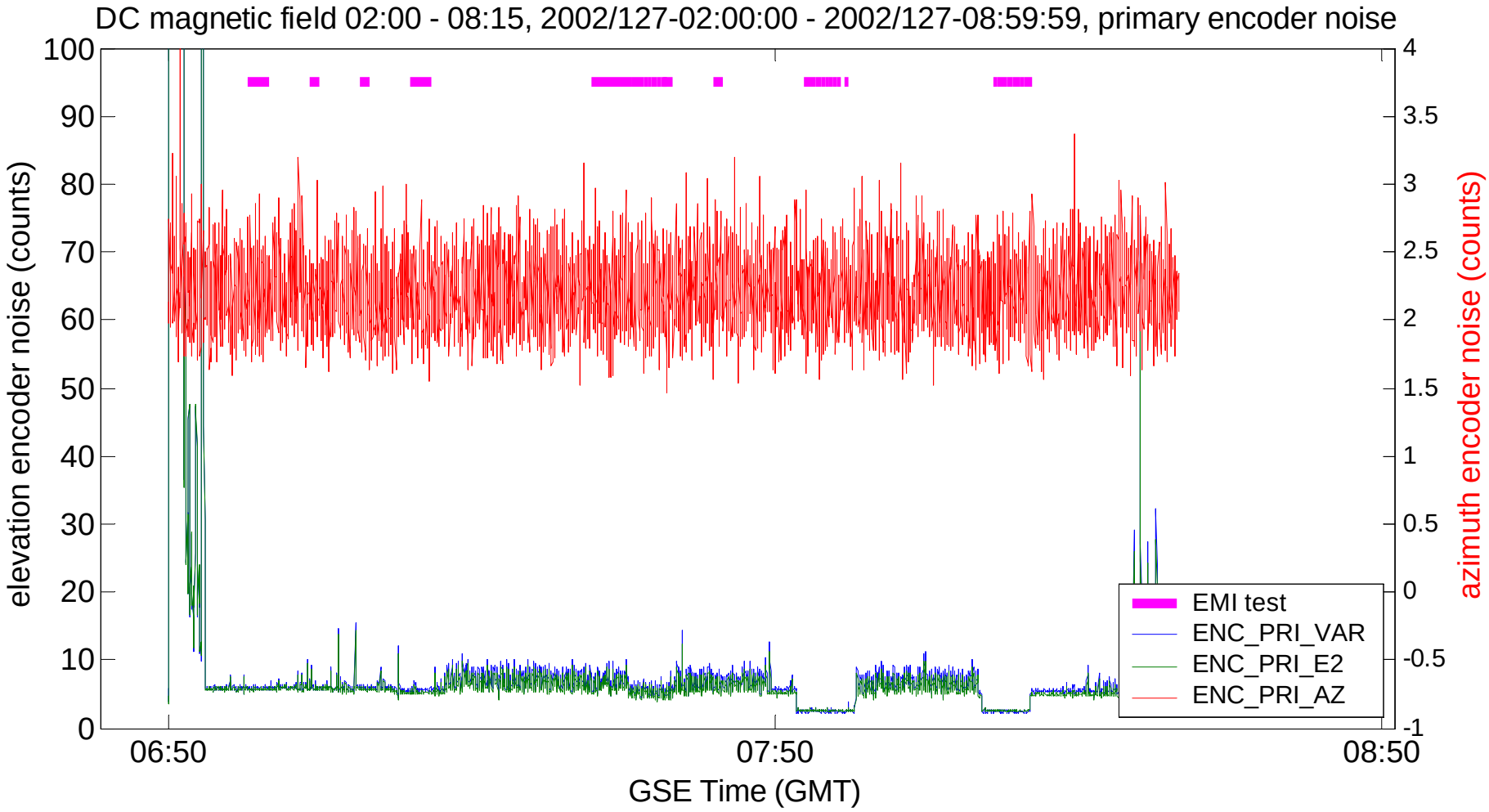
Noise: Radiance Channels 8-14 (1 of 3)



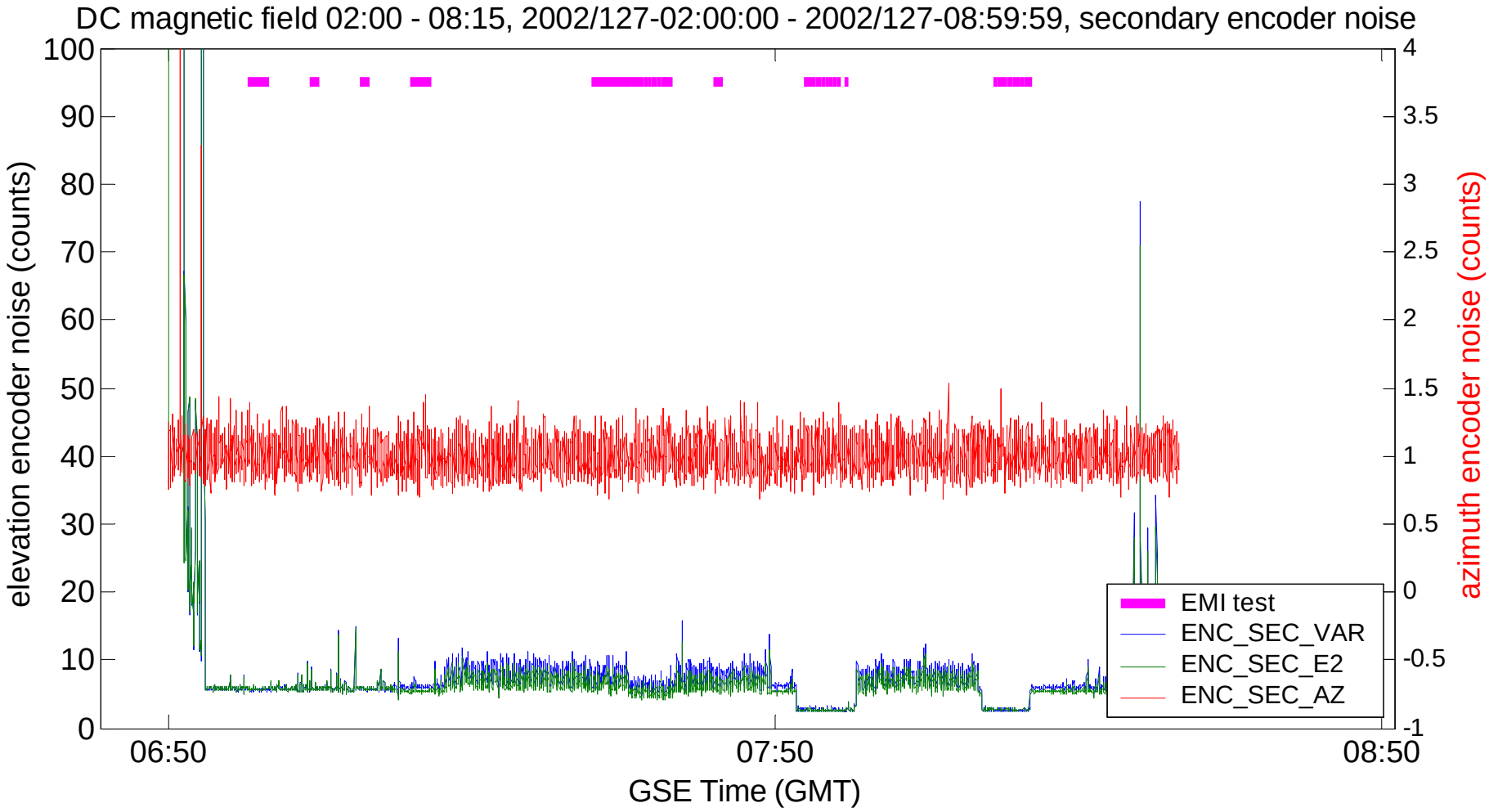
Noise: Radiance Channels 15-21 (1 of 3)



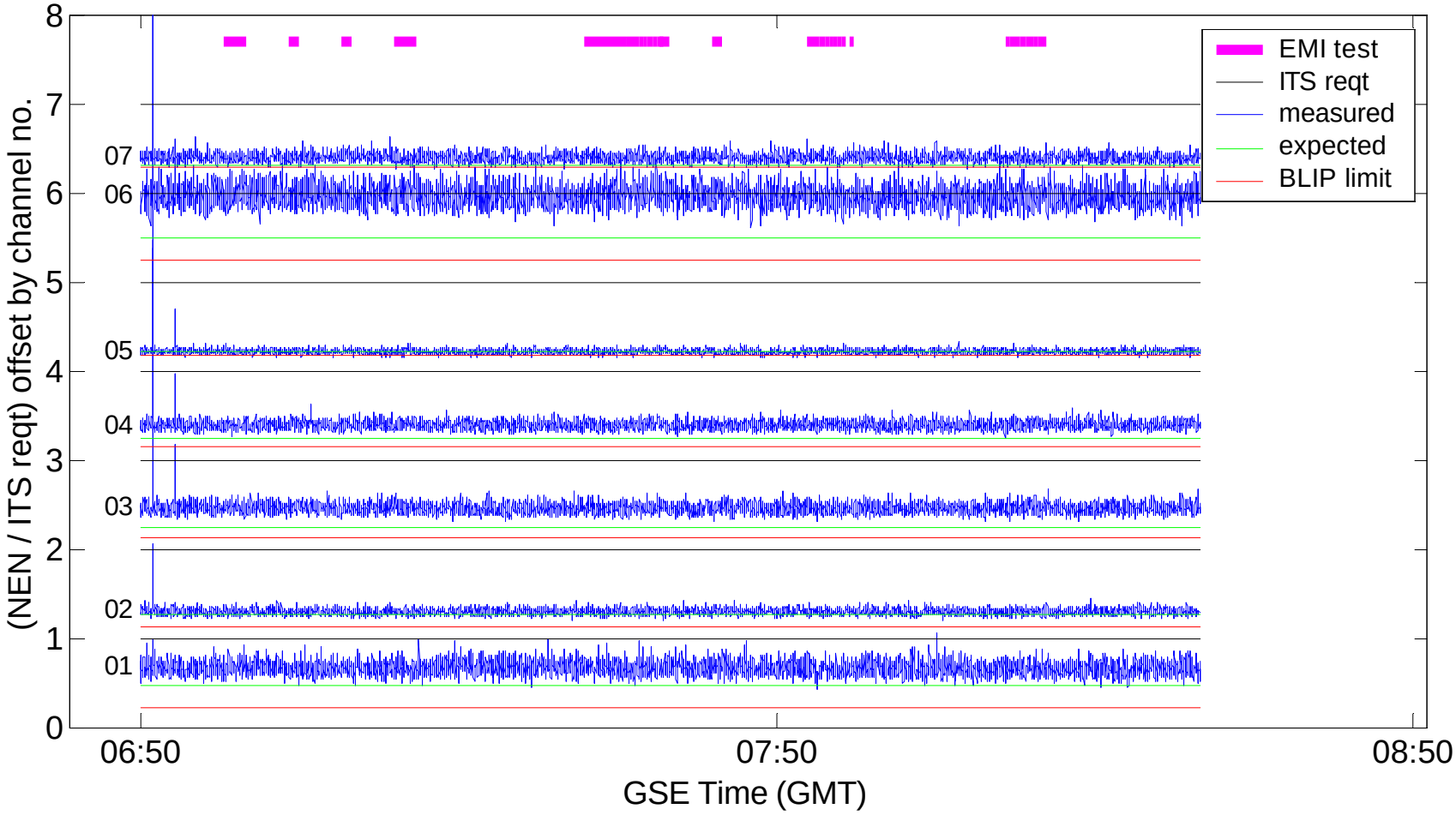
Noise: Primary Encoders (3 of 3)



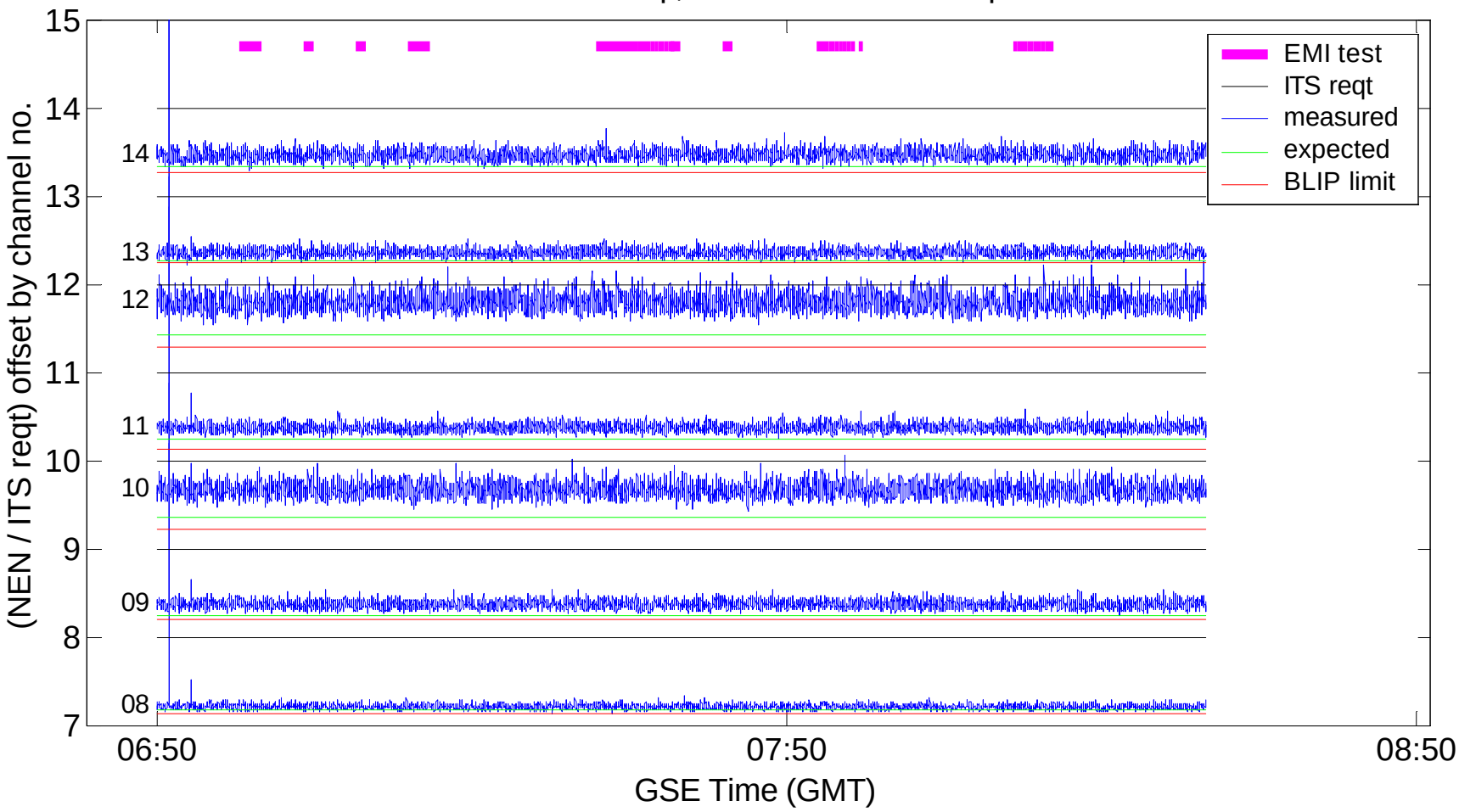
Noise: Secondary Encoders (3 of 3)



Noise: Radiance Channels 1-7 (1 of 3)

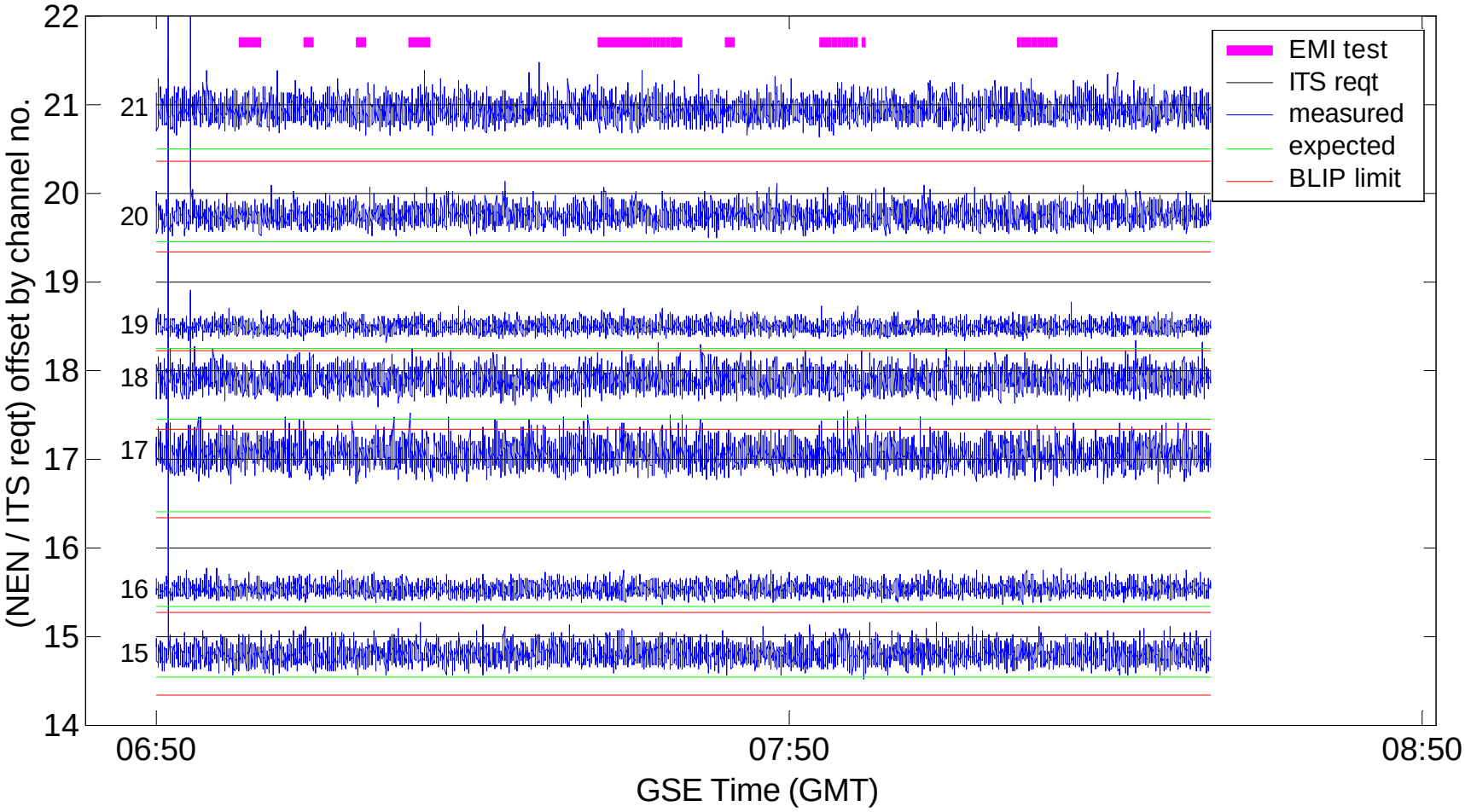


Noise: Radiance Channels 8-14 (1 of 3)



Noise: Radiance Channels 15-21 (1 of 3)

DC magnetic field 02:00 - 08:15, 2002/127-02:00:00 - 2002/127-08:59:59, radiance noise ch 15-21
Ratio of NEN in 7.66-Hz BW to ITS reqt, with BLIP limit and expected value for cold source



Section-I

Common Discrepancy Report

DR Index

INSTRUCTIONS: All DRs related to discrepancy items recorded in this Log Book will be documented below, along with appropriate cross-references.

#1 of 2

ITEM NO.	DR NUMBER	PART NUMBER	OPER. NO.	INSPECTION (POSTING) STAMP	INSPECTION (POSTING) DATE	✔ INDICATES COPY 2 IS IN BOOK	REMARKS	INSPECTION (COMPLETION)
1	AD6416	1A27800	3.9.7	D 686894	MAY 05 2002		TP-LOC-971-DP. ORDER FIXED BAGGING MATERIAL ON SUN SHIELD	
2	AD6417	"	6.3 THERENVR	D 686894	MAY 05 2002		O/O & TP-LOC-971 CCU-BOX-TEMP OVER 35°C	
3	AD6418	"	STEP 3.21.2	D 686894	MAY 05 2002		O/O & TP-LOC 971 CONVERTER TELEMETRY OSCILLATING	
4	AD6419	"	13.4	D 686894	MAY 05 2002		TP-LOC-820 NOISY BUS A FAILED CE01	
5	AD6426	"	13.4.9	D 686894	MAY 05 2002		TP-LOC-820 NOISY BUS A&B UNEXPECTED LOSS IN TELEMETRY CE01	
6	AD6433	"	13.4	D 686894	MAY 05 2002		TP-LOC-820 NOISY BUS POWER & RETURN FAILED CE03	
7	AD6442	HIRDLS IEGSE	VAR	D 686894	MAY 05 2002		TP-LOC-820 WITH & WITHOUT HIRDLS INSTRUMENT AMBIENT EMI DATA NBA CE03 O/L	
8	AD6464	1A27800	13.10	D 686894	MAY 05 2002		TP-LOC-820 DATA PACKET DROP OUTS RS03	
9	AD6471	"	13.8.5	D 686894	MAY 05 2002		TP-LOC-820 FOCAL PLANE TEMP. DRUP RS01 30Hz-50Hz	
10	AD6487	"	13.11	D 686894	MAY 05 2002		TP-LOC-820 CS01 CCU LOSS OF POWER	
11	AD6490	"	13.11	D 686894	MAY 05 2002		TP-LOC-820 CS02 IPU RESET 39.7mHz	
12	AD6491	"	13.11	D 686894	MAY 05 2002		GYRO HEATERS NOT (TO 55°C) HEAT GYRO'S	
13	AD6494	"	13.11	D 686894	MAY 05 2002		TP-LOC-820 CS01 AD590 SHOWING SUSCEPTABILITY	
14	AD6495	"	13.11	D 686894	MAY 05 2002		CS02 " " "	
15	AD6496	"	13.12	D 686894	MAY 05 2002		CS06 " " "	
16	AD6497	1A27800	13.12	D 686894	MAY 05 2002		19.1V SURVIVAL BUS IEGSE SHUTOFF	

BOOK TITLE | UNIT SERIAL NO. | O.K. TO FILE | STAMP | DATE | PAGE | OF

FORM LMMS 1257AA-5

LOCKHEED MARTIN MISSILES & SPACE

DR Index

INSTRUCTIONS: All DRs related to discrepancy items recorded in this Log Book will be documented below, along with appropriate cross-references.

#2 of 2

ITEM NO.	DR NUMBER	PART NUMBER	OPER. NO.	INSPECTION (POSTING) STAMP	INSPECTION (POSTING) DATE	✓ INDICATES COPY 2 IS IN BOOK	REMARKS	INSPECTION (COMPLETION)
17	AD6510	HIRDLSIEGSE	13,5,7	D 686894	MAY 06 2002		ALL LIMITS BACKGROUND EMISSIONS REQ'E NB EXCEEDS	
18	AD6511	IA 27800	13,5	D 686894	MAY 06 2002		POWER ON REQ'E EXCEEDS LIMITS	
19	AD6516	IA27800	R/L	D 686894	MAY 07 2002		COMPRESSOR STROKE @ 20 S/B 80% AFTER FINAL EMI 90K TEST REDLINE	

BOOK TITLE | UNIT SERIAL NO. | O.K. TO FILE | STAMP | DATE | PAGE | OF

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6416**	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A00781A	LOCKHEED MARTIN CORPORATION	EN	152	L911	1	1	1		X

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	3-9-7	Lucy LANHAM	636975	L150	27-APR-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT
Bagging material is resting on fixed sun shield and contacting sunshield door as it opens.

31 SHOULD BE TEXT
Sunshield door should not make contact with bagging material.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-971	A	3.9.6	1	1	PROCESS	ME - INADEQUATE	P5A	L941	PA	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
LUN99	ELECTRONICS TEST/BOX TEST//EMISSION/MISCELLANEOUS	Verified				0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	REWORK						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 27-APR-2002 RECORDED BY NAME Lucy LANHAM

After commanding SSH door to open 10 deg, (TP-LOC-971, strp 3.9.7.1) observers noted that internal bag was draped over outer corner of fixed sunshield and SSH door posing a snag hazzard. Test Conductor notified notified and attempted to abort remainder of STOL proc. Abort failed and door continued to open to 60 deg (Step 3.9.9). Bag remained intact but rests on movable SSH door.

DATE 27-APR-2002 RECORDED BY NAME Armando CORTEZ

interim #1
Attempt to asses anomaly was made by Randy Kay & Don Wilson & Armano Cortez and could not confidently determine if anything anomalous had occured to the SSH Door through the bagging material. Contamination control was notified of the condition and will make modifications, as neccessary, to the inner bag for appropriate clearance prior to any additional SSU Door command movements. Additional assessment of Door and mechanism will be made at that time. As interim action, OK to proceed with other sections of CPT2.
concurrence: Eric Johnson, Randy Kay, Ray Von Savoye, Armando Cortez
via telecon: Dale Phelps, Althea Macfield

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6416**	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

29 DEFECT NUMBER 1 OF 1

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 07-MAY-2002 RECORDED BY NAME Ray L VON SAVOYE

The inner and outer bags were pulled up by using cleanroom tape and plastic tubing to create a fixture that allowed the bagging to be lifted off the SSH door. Slightly lifting the bagging off the SSH door was accomplished using a rope attached to tape/tubing on the outside of the outer bag and slinging it to the facility ceiling. Work was performed by Syndie Meyer (CCE) and Ray L. von Savoye (APM-Technical).

50 CAUSE TEXT

DATE 27-APR-2002 RECORDED BY NAME Althea MCFIELD

Internal bag was draped over outer corner of fixed sunshield and SSH door posing a snag hazard/obstruction.

51 C/A TEXT

DATE 07-MAY-2002 RECORDED BY NAME Ray L VON SAVOYE

Lift the bagging off the SSH door and station an observer at the door who can adjust the position of the bagging material each time it is moves. In the future if the instrument is to be operated in a contamination control package the packaging is to be made such that there is no interference.

DATE 08-MAY-2002 RECORDED BY NAME Althea MCFIELD

The Contaminations Engineer will modify the design of an instrument bag to ensure adequate room exists for adjustment of position. Present bag will be discarded at conclusion of this test. The bag is "temporarty" and used only when the instrument is transferred to an area that is not certified to Class 100 level or better. This was the case at the EMI facility.

52 FINAL DISPOSITION TEXT

DATE 07-MAY-2002 RECORDED BY NAME Ray L VON SAVOYE

Lift the bagging off the SSH door and station an observer at the door who can adjust the position of the bagging material each time it is moves.

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6416**	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		-

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	REWORK						

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
1		MINOR		0	closed, NFA	08-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE
		Althea MCFIELD	08-MAY-2002

62 POST CLOSURE TEXT — DATE 08-MAY-2002 — RECORDED BY Althea MCFIELD

The bagging was pulled up and away from the SSH door "path" using a rope. The rope was attached to the ceiling to induce tension on the bag. Tasks were performed by Ray von Savoye (APM-Technical) and Syndie Meyer (CCE). Witnessed by Armando Cortez (QE)

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE
Althea MCFIELD	J18575	Q225	08-MAY-2002	MRB Quality Engineer
Ray L VON SAVOYE	634023	L911	07-MAY-2002	MRB Resp Engineer

64 ATTACHMENTS

This DR has no Attachments

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6417**	1	6

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	3-3-3	Lucy LANHAM	636975	L150	27-APR-2002

29 DEFECT NUMBER 1 OF 2

30 IS TEXT
CCU box temperature (CCU_BOX_TMP) exceeded 35 deg C at GMT 2002/117-1840 (1140 PST 27 April 2002) The temperature reached 45 deg C within 2 hours.

31 SHOULD BE TEXT
The maximum operational temperature of the CCU box is specified to be 35 deg C.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	SP-HIR-034	F	6.3 Thermal Environment	1	1	VOID/NO ITEM	VOID/NO ITEM	V1	L941	PA	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR CODE
XGA85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/TEMPERATURE/OVER	Verified			0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	NO ITEM						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 27-APR-2002 RECORDED BY NAME Lucy LANHAM

At 1840 GMT, approximately 1 hour after instrument power-on, the CCU box temperature exceeded its specified maximum operational temperature of 35 deg C. The box temperature continued to rise to 45 deg C when the CMU stroke was reduced. Additional venting was provided and the box temperature held steady at 44 deg C.

DATE 27-APR-2002 RECORDED BY NAME Armando CORTEZ

Additional venting provided marginal improvement. CCU temp returned to upper spec limit (35 deg C) when cryo-cooler compressor was commanded off.
Total duration of temp overlimit approx. 8 hours (11:40am to approx. 7:30pm).
OK to proceed with CPT2. Anomaly to be re-addressed prior to EMI/EMC.
Concurrence: Randy Kay, Armando Cortez, Ray Von Savoye
via tele: Dale Phelps.

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6417**	2	6

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

29 DEFECT NUMBER 1 OF 2

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 30-APR-2002 RECORDED BY NAME Althea MCFIELD

Armando CORTEZ 04/27/2002 08:30:45 PM
The inner bag was pulled away from the CCU and (GEU) and around the instrument baseplate to allow for the flow of nitrogen. However this was only marginally successful in lowering the box temperature. MRB authorization to remove the outer bag from the CCU, exposing it to a non-cleanroom environment, is required.

50 CAUSE TEXT

DATE 27-APR-2002 RECORDED BY NAME Althea MCFIELD

Inadequate venting due to double bagging of instrument required to ensure contamination control.

DATE 06-MAY-2002 RECORDED BY NAME Althea MCFIELD

In addition to the inadequate venting caused by the bagging material, the EMI facility did not have adequate air conditioning in the test area. The room temperature exceeded specified temperature requirement.

51 C/A TEXT

DATE 01-MAY-2002 RECORDED BY NAME Althea MCFIELD

C/A will be submitted by Contamination Control Engineer.

DATE 02-MAY-2002 RECORDED BY NAME Althea MCFIELD

C/A must include re-design of instrument bagging and cooling system that ensures CCU and all other subsytems are maintained at proper operational temperature during testing.

52 FINAL DISPOSITION TEXT

DATE 01-MAY-2002 RECORDED BY NAME Althea MCFIELD

In order to maintain the CCU at specified operational temperature, the MRB authorizes:

Cut instrument bag (interior and exterior) in the area of the CCU, exposing the box to ambient air.
Tape the periphery of the cutout area to maintain cleanliness of the rest of the instrument.
Apply external cooling to the CCU, as necessary to maintain proper operational temperature.
Continue with testing operations.

Additional Disposition

CCU and adjacent area must be re-cleaned at re-certified for cleanliness (see Defect #2).
Perform analysis to determine the effect of temperature excursion on the CCU. (Note: Temperature data is electronically attached to this DR)

Concurrence: Ray von Savoye (APM-Technical), Armando Cortez (QE), Althea McField (QE), Syndie Meyer (CCE), Lucy Lanham (SE)

DATE 06-MAY-2002 RECORDED BY NAME Althea MCFIELD

Additional Final Disposition:

1. Notified the building Facility Engineering of temperature conditions. Air condition system was determined to be non-functional and was repaired by Facility Engineer. An ambient room temperature level of 65 +/- 2 Degrees F was achieved and maintained throughout the test.

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6417**	3	6

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

29 DEFECT NUMBER 1 OF 2

52 FINAL DISPOSITION TEXT

DATE 06-MAY-2002 RECORDED BY NAME Althea MCFIELD

2. The CCE added a HEPA filter fan directly in front of the CCU to reduce contamination level in the test area.

DATE 28-MAY-2002 RECORDED BY NAME Althea MCFIELD

The MRB is awaiting input from Ball Aerospace (Bob Stack) to determine if any components/circuitry may have been over-stressed during the temperature excursion to 45 deg C.

DATE 10-JUN-2002 RECORDED BY NAME Althea MCFIELD

NO ITEM:

Input from Bob Stack, Ball Aerospace (CCU manufacturer) REE:

During Emi testing the CCU, reach an external temperature of +45oC. The Cooler was operating at 80% stroke and a 57K cold tip temperature. The CMA was external cool using a heater chiller to maintain a 20oC compressor bracket temperature. The CCU current draw at max temperature was 2.5 amps or approximately 70 watts.

Disposition
After reviewing the HIRDLS Cryocooler electronic (CCU) and PWB thermal analysis no over stress condition was reached.

All PWB analysis were design using 45oC environment and power dissipation numbers for 90% stroke and 35oC compressor bracket temperature which is equivalent to 90 watts of input power. Component analysis showed a design margin with derating of 20oC junction temperature for this condition.

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)
Technical Input: Wayne Rudolf (Chief Scientist), Bob Stack (Ball Aerospace)

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6417**	4	6

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

29 DEFECT NUMBER 2 **OF** 2

30 IS TEXT The Cooler Electronics Units was removed from Contaminations-controlled (Class 100) environment during EMI/EMC Testing (see Defect #1)

31 SHOULD BE TEXT The Cooler Electronics Unit maintained in a Class 100 environment

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
PR	PA-LOC-006	B	-	1	1	PROCESS	EM - INCAPABLE	P3D	L911	PA	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
TTJ49	TEST EQUIP/TEMP CHAMBER/FACILITY/LIQ NITRO/CONTAMINATION	Verified				0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	REWORK						

49 INTERIM TECHNICAL INVESTIGATION TEXT DATE 01-MAY-2002 RECORDED BY NAME Althea MCFIELD

The MRB authorized the removal of the outer and inner bag to ensure adequate cooling of the CCU (see Defect #1). The CCU will require cleaning and re-certification prior to returning the HIRDLS instrument to the Class 100 Clean Room.

50 CAUSE TEXT DATE 01-MAY-2002 RECORDED BY NAME Althea MCFIELD

See Defect #1

51 C/A TEXT DATE 08-MAY-2002 RECORDED BY NAME Althea MCFIELD

To preclude exposure of the CCU to contamination, for future testing that require the use of the instrument bag:

Prior to transfer of instrument to test facility, ensure that the facility cooling system is fully operational and capable of maintaining instrument temperature and humidity environment per PAC-HIR-006B para. 3.1.2.
Re-design instrument bagging/cooling system to ensure that box temperature of the CCU and other subsystem can be maintained at operational level.
(Action: Syndie Meyer, Contaminations Control Engineer)

52 FINAL DISPOSITION TEXT DATE 08-MAY-2002 RECORDED BY NAME Althea MCFIELD

Precision clean and re-certify CCU to meet cleanliness level requirement.
Provide verification certificate to the MRB prior to the start of CPT.

Concurrence: Ray von Savoye (APM-Technical), Armando Cortez (QE), Syndie Meyer (CCE)

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6417**	5	6

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

29 DEFECT NUMBER 2 OF 2

52 FINAL DISPOSITION TEXT

DATE 08-MAY-2002 RECORDED BY NAME Althea MCFIELD

Note: The Contaminations Control Engineer (Syndie Meyer) will clean the HIRDLS Instrument after the EMI test is completed and the instrument is returned to the Bldg. 202 Cleanroom.

DATE 16-JUN-2002 RECORDED BY NAME Ray L VON SAVOYE

The re-clean and certification of the CCU was completed on 9 May 02 (OO-LOC-1086 Clean and verify CCU, and OO-LOC-1088: Clean and Verify Instrument Exterior surfaces) . External surfaces of the CCU and other instrument surfaces were cleaned of particles, adhesive tape residue, and other contaminants by IPA solvent-wiping and vacuum cleaning. Surfaces were verified to be visibly clean to JSC-SN-C 0005 VC2 + UV.

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6417**	6	6

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-971		

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	NO ITEM		1	REWORK			

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
2		MINOR		0	MRB Eng approved	16-JUN-2002

60 PQC - NAME	DATE	61 PA NAME	DATE
		Althea MCFIELD	08-MAY-2002

62 POST CLOSURE TEXT

DATE 08-MAY-2002 RECORDED BY Althea MCFIELD

The facility air conditioning system was repaired to provide for safe operational temperature during testing. In addition the bagging material was completely removed from the CCU and a HEPA filtered fan was stationed in front of the CCU to provided cool air. (Note: The CCU is farthest away from the instrument cold plate, effective cooling is minimal)

DATE 17-JUN-2002 Althea MCFIELD

The re-clean and certification of the CCU was completed on 9 May 02 (OO-LOC-1086 Clean and verify CCU, and OO-LOC-1088: Clean and Verify Instrument Exterior surfaces) . External surfaces of the CCU and other Item 2
The instrument surfaces were cleaned of particles, adhesive tape residue, and other contaminants by IPA solvent-wiping and vacuum cleaning. Surfaces were verified to be visibly clean to JSC-SN-C 0005 VC2 + UV.

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE
Ray L VON SAVOYE	634023	L911	16-JUN-2002	MRB Resp Engineer

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6418**	1	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC971		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	3-21	Lucy LANHAM	636975	L150	27-APR-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT: PSS_REG_28VA converter telemetry began oscillating between 29.2 and 31.1 Volts beginning at GMT 2002/118-02:21

31 SHOULD BE TEXT: PSS_REG_28VA converter telemetry should be stable at approximately 30.1V.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
OP	TP-LOC-971		Procedure step 3.21.2	1	1	VOID/NO ITEM	VOID/NO ITEM	V1		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFC99	FINAL ASY & TST/SYSTEM TST/TELEMETRY/MISCELLANEOUS	N/A				0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 27-APR-2002 RECORDED BY NAME Lucy LANHAM

PSS_REG_28VA began oscillating between 29.2 and 31.1 Volts beginning at GMT 2002/118-02:21:59. The start of the oscillation was coincident with the power down of the A-side of the instrument. The ocsillations continued until 28Reg was shut off at 22:23:59. This condition has been observed before and recorded on DR#: AB9576.

DATE 02-MAY-2002 RECORDED BY NAME Althea MCFIELD

Althea MCFIELD 04/27/2002 10:21:10 PM

MRB INTERIM TECHNICAL

Proceed with EMI/EMC testing. The MRB will investigate this defect and will assign CAUSE, C/A and FINAL DISPOSITION prior to the start of CPT1.

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6418**	2	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC971		

29 DEFECT NUMBER 1 OF 1

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 02-MAY-2002 RECORDED BY NAME Althea MCFIELD

Concurrence: Ray von Savoye (APM-Technical), Lucy Lanham (SE), Althea McField (QE), Armando Cortez (QE)

Note: The condition noted in this DR was observed previously and repairs were made in the IPU that were expected to eliminate the oscillations. A 1.0 K ohm load resistor was added to to the 28VREG input in the IPU Power Distribution Board.

DATE 08-MAY-2002 RECORDED BY NAME Althea MCFIELD

A review of the test data files will be performed by Lucy Lanham (SE) to determine the relay status of the IPU 28 V Reg at time that oscillation was observed. MRB will recommend troubleshooting operations based on this data results.

MRB authorizes "OK to proceed" to post-EMI/EMC CPT-2.
DR resolution required PRIOR to next Acceptance Level Test.

Concurrence: Russ Lindgren (IPS RPE), Ray von Savoye (APM-Technical), Lucy Lanham (SE), Wally Opyd (Chopper RPE), Dale Phelps (NASA-GSFC Customer)
Technical Input: Wayne Rudolf (Instrument Chief Engineer), Paul Guy (NASA-GSFC)

DATE 11-MAY-2002 RECORDED BY NAME Ray L VON SAVOYE

Investigation concluded that the oscillation was normal when the relay sending 28REG to the IPU was opened the load on the DC/DC converter was removed. The tendency to oscillate was documented on DR# AB9576 and corrected by adding a load resistor in the IPU. This load is disconnected when the relay is opened during the power down sequence.

DATE 31-MAY-2002 RECORDED BY NAME Ray L VON SAVOYE

After reviewing all the test data it was observed that the 28REG line is oscillating at other times usually about 30 minutes after the system has been running when the operational heaters are at 10%.

DATE 10-JUN-2002 RECORDED BY NAME Althea MCFIELD

Customer, Glenn Jackson, Instrument Manager, has advised the program (06/10/02, 8:58 AM) to continue with instrument build pending resolution of this anomaly. (see attached email)

DATE 10-JUN-2002 RECORDED BY NAME Althea MCFIELD

Technical Direction from NASA-GSFC:

Eric:

This e-mail constitutes technical direction to proceed with Instrument Build, specifically PCU installation, without technical disposition of the most recent 28 V power oscillations (ref. AD6418) between the PCU and the IPU.

Goddard is determining the level of technical risk involved with using the PCU as-is while evaluating that risk against the schedule and budget impact

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6418**	3	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC971		

29 DEFECT NUMBER 1 OF 1

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 10-JUN-2002 RECORDED BY NAME Althea MCFIELD

of modifying PCU hardware.

Should you have any questions, please don't hesitate to contact me.

Thanks,

Glenn Jackson
HIRDLS Instrument Manager

Glenn Jackson
HIRDLS Instrument Manager
EOS Aura Project
NASA Goddard Space Flight Center
N36-16W, Mailstop 424
Greenbelt, Maryland 20771

office: 301.286.9872
cellphone: 301.233.1418
fax: 301.286.1742
pager: 888.798.1352
e-mail text msg: 8887981352@archwireless.net

50 CAUSE TEXT

DATE 11-MAY-2002 RECORDED BY NAME Ray L VON SAVOYE

Investigation concluded that the oscillation was normal when the relay sending 28REG to the IPU was opened the load on the DC/DC converter was removed. The tendency to oscillate was documented on DR# AB9576 and corrected by adding a loaf resistor in the IPU. This load is disconnected when the relay is opened during the power down sequence.

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	27-APR-2002	HARDWARE	**AD6418**	4	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC971		-

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB accepted	11-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	**AD6419**	1	9

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A00781A	LOCKHEED MARTIN CORPORATION	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.4	Lucy LANHAM	636975	L150	28-APR-2002

29 DEFECT NUMBER 1 OF 4

30 IS TEXT

Noisy Bus A 28V power and return failed CE01. Measured emissions are up to 20dB over specified limits.

31 SHOULD BE TEXT

CE01 should be less than speficied limits per HIRDLS GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	USE AS IS						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 28-APR-2002 RECORDED BY NAME Lucy LANHAM

Both A and B sides failed CE01 NB testing. In both cases the emission curves closely resembled the results of the CSS subsystem testing.

DATE 29-APR-2002 RECORDED BY NAME Lucy LANHAM

Subsuquent testing (called "ambient" tests) with a) no power to instrument but with IEGSE and GSE operating and with b) all test instrument and test equipment power off showed no emissions from test equipment. All exceedances are attributable to HIRDLS instrument.

DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review CCU Subsytem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	**AD6419**	2	9

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 1 **OF** 4

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 29-APR-2002 **RECORDED BY NAME** Althea MCFIELD

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)
Technical Input: Paul Guy (NASA-GSFC), Ed Bielecki (NASA-GSFC)

DATE 08-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Direction

Analyze measured CE01 emissions that exceed specified limit. Compare/subtract out the ambient emissions data and determine if specified limits were exceeded.
Report findings to the MRB.
The MRB authorizes "OK to proceed" to post-EMI/EMC CPT-2.
DR resolution required PRIOR to the start of the next Acceptance Level Test.

Concurrence: Russ Lindgren (IPS RPE), Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE), Dale Phelps (NASA-GSFC Customer)
Technical Input: Wayne Rudolf (Instrument Chief Engineer), Paul Guy (NASA GSFC EMI Specialist), Tim Crews (CSE)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	**AD6419**	3	9

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 2 **OF** 4

30 IS TEXT Niosy Bus B 28V power and return failed CE01. Measured emissions up to 20 dB over specified limits.

31 SHOULD BE TEXT Emissions measured by CE01 tests should be less than specified limits per GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF84	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/UNDER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	USE AS IS						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 29-APR-2002 **RECORDED BY NAME** Lucy LANHAM

Subsuquent testing (called "ambient" tests) with a) no power to instrument but with IEGSE and GSE operating and with b) all test instrument and test equipment power off showed no emissions from test equipment. All exceedances are attributable to HIRDLS instrument.

DATE 29-APR-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review CCU Subsytem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)

DATE 08-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Direction

Analyze measured CE01 emissions that exceed specified limit. Compare/subtract out the ambient emissions data and determine if specified limits were exceeded.
Report findings to the MRB.
The MRB authorizes "OK to proceed" to post-EMI/EMC CPT-2.
DR resolution required PRIOR to the start of the next Acceptance Level Test.

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	**AD6419**	4	9

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		-

29 DEFECT NUMBER 2 **OF** 4

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 08-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

Concurrence: Russ Lindgren (IPS RPE), Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE), Dale Phelps (NASA-GSFC Customer)
Technical Input: Wayne Rudolf (Instrument Chief Engineer), Paul Guy (NASA GSFC EMI Specialist), Tim Crews (CSE)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	**AD6419**	5	9

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 3 **OF** 4

30 IS TEXT Quiet Bus A 28V power and return failed CE01 testing. Measured emissions are up to 10 dB above specified limits from 3.5 to 10 KHz.

31 SHOULD BE TEXT CE01 emissions should be less than specified limits per GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-112-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	USE AS IS						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 29-APR-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review IPU Subsytem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)

DATE 08-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Direction

Analyze measured CE01 emissions that exceed specified limit. Compare/subtract out the ambient emissions data and determine if specified limits were exceeded.
Report findings to the MRB.
The MRB authorizes "OK to proceed" to post-EMI/EMC CPT-2.
DR resolution required PRIOR to the start of the next Acceptance Level Test.

Concurrence: Russ Lindgren (IPS RPE), Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE), Dale Phelps (NASA-GSFC Customer)
Technical Input: Wayne Rudolf (Instrument Chief Engineer), Paul Guy (NASA GSFC EMI Specialist), Tim Crews (CSE)

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	**AD6419**	6	9

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 3 **OF** 4

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	**AD6419**	7	9

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 4 **OF** 4

30 IS TEXT Quiet Bus B 28V power and return failed CE01 testing. Signature is similar to Quiet Bus A test results.

31 SHOULD BE TEXT Emissions should be less than specified in GIRD for CE01 tests.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	USE AS IS						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 29-APR-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review IPU Subsytem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)

DATE 08-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Direction

Analyze measured CE01 emissions that exceed specified limit. Compare/subtract out the ambient emissions data and determine if specified limits were exceeded.
Report findings to the MRB.
The MRB authorizes "OK to proceed" to post-EMI/EMC CPT-2.
DR resolution required PRIOR to the start of the next Acceptance Level Test.

Concurrence: Russ Lindgren (IPS RPE), Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE), Dale Phelps (NASA-GSFC Customer)
Technical Input: Wayne Rudolf (Instrument Chief Engineer), Paul Guy (NASA GSFC EMI Specialist), Tim Crews (CSE)

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	**AD6419**	8	9

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 4 **OF** 4

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	28-APR-2002	HARDWARE	**AD6419**	9	9

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		-

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB accepted	29-APR-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6426**	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	A		OPERATION ORDER	OOLOC-1023		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	PA	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	5.1.6	Althea MCFIELD	J18575	Q225	29-APR-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT
Unexpected loss in telemetry during Noisy Bus B (NBB) EMI CE01 Narrowband test case

31 SHOULD BE TEXT
No loss of telemetry during EMI testing while instrument is powered on

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-820	NC	13.4.9	1	1	PROCESS	EM - BROKEN	P3C	L310	PA	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF99	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/MISCELLANEOUS	Verified				0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	REWORK						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

The DASH 8 data recorder indicated that the current was very noisy. The Test Conductor had difficulty powering on Quiet Bus A. An MRB was convened to review the anomaly.

DATE 29-APR-2002 RECORDED BY NAME Althea MCFIELD

Interim Technical Investigation:

MRB Instructions:

1. Turn off the Quiet (QB), Noisy (NB) and Survival Buses (SB) at the SPC
2. Inspect capacitor connections at instrument interface: PI-NBA, PR-NBA, PI-QBA, PR-QBA, PR-NBB, and PI-NBB.
3. Report findings to the MRB.

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6426**	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	A		OPERATION ORDER	OOLOC-1023		

29 DEFECT NUMBER 1 **OF** 1

50 CAUSE TEXT

DATE 29-APR-2002 **RECORDED BY NAME** Althea MCFIELD

Test Equipment damaged---Supply side of the Quiet Bus A (QBA) shunt capacitor banana jack lug broken.

51 C/A TEXT

DATE 29-APR-2002 **RECORDED BY NAME** Althea MCFIELD

HIRDLS QA personnel will verify test equipment components and connections AFTER test facility EMI Technician and EMI Inspector.

52 FINAL DISPOSITION TEXT

DATE 29-APR-2002 **RECORDED BY NAME** Althea MCFIELD

1. Remove the damaged capacitor, PR-QBA (QA witness required). Red tag "DO NOT USE" and remove from the test area.
2. QA shall verify that spare capacitor is free of defects
3. Replace damaged capacitor with spare. (QA witness required)
4. Power on the instrument and continue testing.

MRB Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE)
Technical Input: Tim Crews (CSE), Rick Brown (I & T Engineer), Ron Baraze (Software Developer), Gary Heyman (Software Developer)

DATE 29-APR-2002 **RECORDED BY NAME** Althea MCFIELD

REWORK Test set-up.

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6426**	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	A		OPERATION ORDER	OOLOC-1023		-

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	REWORK						

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
1		MINOR		0	closed, NFA	10-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE
		Althea MCFIELD	29-APR-2002

62 POST CLOSURE TEXT — DATE 29-APR-2002 — RECORDED BY Althea MCFIELD

Mike Bartolomei (Badge No. 616723), EMI Technician, removed and replaced defective capacitor.
Craig Bogle (Badge No. 616071), HIRDLS QA Inspector witnessed removal and replacement of capacitor. Defective capacitor was red-tagged capacitor and removed it from test area.

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE
Althea MCFIELD	J18575	Q225	10-MAY-2002	MRB Quality Engineer
Ray L VON SAVOYE	634023	L911	10-MAY-2002	MRB Resp Engineer

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6433**	1	10

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.4	Lucy LANHAM	636975	L150	29-APR-2002

29 DEFECT NUMBER: 1 OF 6

30 IS TEXT: Noisy Bus A 28V power and return failed CE03.

31 SHOULD BE TEXT: Emissions measured during CE03 testing should be less than the limits specified in the GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	USE AS IS						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE: 29-APR-2002 RECORDED BY NAME: Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review CCU Subsystem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)
Technical Input: Paul Guy (NASA-GSFC), Ed Bielecki (NASA-GSFC)

DATE: 30-APR-2002 RECORDED BY NAME: Althea MCFIELD

Reference DR AD6442--Ambient (HIRDLS instrument off) Noisy Bus A CE03 emissions exceeded specified limits.

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6433**	2	10

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 1 OF 6

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 09-MAY-2002 RECORDED BY NAME Althea MCFIELD

MRB Direction:

Analyze measured emissions that exceed CE03 specified limit. Compare/subtract out the ambient emissions data and determine if specified limits were exceeded.
Report findings to the MRB.
The MRB authorizes "OK to proceed" to post-EMI/EMC CPT-2.
DR resolution required PRIOR to the start of the next Acceptance Level Test.

Concurrence: Russ Lindgren (IPS RPE), Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE), Dale Phelps (NASA-GSFC Customer)
Technical Input: Wayne Rudolf (Instrument Chief Engineer), Paul Guy (NASA GSFC EMI Specialist), Tim Crews (CSE)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6433**	3	10

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 2 **OF** 6

30 IS TEXT Quiet Bus A 28 V power and return failed CE03

31 SHOULD BE TEXT Emissions measured during CE03 testing should be less that GIRD-specified limits

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	GSFC42-11-12-01	B	10.11.1	1	2	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 30-APR-2002 **RECORDED BY NAME** Althea MCFIELD

Reference DR AD6442--Ambient (HIRDLS instrument off) Quiet Bus A CE03 emissions exceeded specified limits.

DATE 30-APR-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review IPU Subsystem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)
Technical Input: Paul Guy (NASA-GSFC), Ed Bielecki (NASA-GSFC)

DATE 09-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Direction:

Analyze measured emissions that exceed CE03 specified limit. Compare/subtract out the ambient emissions data and determine if specified limits were exceeded.
Report findings to the MRB.
The MRB authorizes "OK to proceed" to post-EMI/EMC CPT-2.
DR resolution required PRIOR to the start of the next Acceptance Level Test.

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6433**	4	10

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 2 **OF** 6

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 09-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

Concurrence: Russ Lindgren (IPS RPE), Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE), Dale Phelps (NASA-GSFC Customer)
Technical Input: Wayne Rudolf (Instrument Chief Engineer), Paul Guy (NASA GSFC EMI Specialist), Tim Crews (CSE)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6433**	5	10

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 3 **OF** 6

30 IS TEXT Noisy Bus B 28V power and return failed CE03.

31 SHOULD BE TEXT Emissions measured during CE03 tests should be less than limits per HIRDLS GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 30-APR-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Recommedation:

USE AS IS--Continue EMI Testing
Review CCU Subsystem level EMI Test data and compare with Instrument level data.
Report findings to the MRB for Final Disposition

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE)
Technical Input: Paul Guy (NASA-GSFC), Ed Bielecki (NASA-GSFC)

DATE 30-APR-2002 **RECORDED BY NAME** Althea MCFIELD

Reference DR AD6442--Ambient (HIRDLS instrument off) Noisy Bus B CE03 emissions exceeded specified limits.

DATE 09-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Direction:

Analyze measured emissions that exceed CE03 specified limit. Compare/subtract out the ambient emissions data and determine if specified limits were exceeded.
Report findings to the MRB.
The MRB authorizes "OK to proceed" to post-EMI/EMC CPT-2.
DR resolution required PRIOR to the start of the next Acceptance Level Test.

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6433**	6	10

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 3 **OF** 6

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 09-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

Concurrence: Russ Lindgren (IPS RPE), Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE), Dale Phelps (NASA-GSFC Customer)
Technical Input: Wayne Rudolf (Instrument Chief Engineer), Paul Guy (NASA GSFC EMI Specialist), Tim Crews (CSE)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6433**	7	10

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 4 **OF** 6

30 IS TEXT
Quiet Bus B 28 V power and return failed CE03.

31 SHOULD BE TEXT
Emissions measured during CE03 testing should be less than the limits specified in the HIRDLS GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	433-11-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT **DATE** 09-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Direction:

Analyze measured emissions that exceed CE03 specified limit. Compare/subtract out the ambient emissions data and determine if specified limits were exceeded.
Report findings to the MRB.
The MRB authorizes "OK to proceed" to post-EMI/EMC CPT-2.
DR resolution required PRIOR to the start of the next Acceptance Level Test.

Concurrence: Russ Lindgren (IPS RPE), Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE), Dale Phelps (NASA-GSFC Customer)
Technical Input: Wayne Rudolf (Instrument Chief Engineer), Paul Guy (NASA GSFC EMI Specialist), Tim Crews (CSE)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6433**	8	10

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 5 **OF** 6

30 IS TEXT Survival Bus A failed 28 Volt Power and RTN failed CE03

31 SHOULD BE TEXT Emissions measured during CE03 testing should be less than the limits specified in the GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	GSFC42211-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT **DATE** 09-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Direction:

Analyze measured emissions that exceed CE03 specified limit. Compare/subtract out the ambient emissions data and determine if specified limits were exceeded.
Report findings to the MRB.
The MRB authorizes "OK to proceed" to post-EMI/EMC CPT-2.
DR resolution required PRIOR to the start of the next Acceptance Level Test.

Concurrence: Russ Lindgren (IPS RPE), Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE), Dale Phelps (NASA-GSFC Customer)
Technical Input: Wayne Rudolf (Instrument Chief Engineer), Paul Guy (NASA GSFC EMI Specialist), Tim Crews (CSE)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6433**	9	10

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 6 **OF** 6

30 IS TEXT Survival Bus B 28 Volt Power and RTN failed CE03

31 SHOULD BE TEXT Emissions measured during CE03 testing should be less than the limits specified in the GIRD.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	GSFC42211-12-01	B	10.11.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT **DATE** 09-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

MRB Direction:

Analyze measured emissions that exceed CE03 specified limit. Compare/subtract out the ambient emissions data and determine if specified limits were exceeded.
Report findings to the MRB.
The MRB authorizes "OK to proceed" to post-EMI/EMC CPT-2.
DR resolution required PRIOR to the start of the next Acceptance Level Test.

Concurrence: Russ Lindgren (IPS RPE), Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE), Dale Phelps (NASA-GSFC Customer)
Technical Input: Wayne Rudolf (Instrument Chief Engineer), Paul Guy (NASA GSFC EMI Specialist), Tim Crews (CSE)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	29-APR-2002	HARDWARE	**AD6433**	10	10

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		-

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB accepted	29-APR-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	30-APR-2002	HARDWARE	**AD6442**	1	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			OPERATION ORDER	TP-LOC-820		-

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS IEGSE	N/A	NON-END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	Var	Lucy LANHAM	636975	L150	30-APR-2002

29 DEFECT NUMBER 1 **OF** 2

30 IS TEXT
Ambient EMI data (without HIRDLS instrument) exceeds specified limits for CE03 Noisy Bus A (NBA)

31 SHOULD BE TEXT
Ambient EMI data, (without the HIRDLS instrument) be within specified limits

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-820	NC	-	1	1	VOID/NO ITEM	VOID/NO ITEM	V1		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
TDD85	TEST EQUIP/SYSTEMS MAGE/SUPPORTS/OVER	Verified				0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	NO ITEM						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 03-MAY-2002 RECORDED BY NAME Althea MCFIELD

INTERIM TECHNICAL DISPOSITION
Ambient EMI data showed out of specification condition that was unexpected. This background data will have to be evaluated against the UUT and subtracted out during analysis. Ref. DR AD6419 and AD6433.

Continue with EMI testing pending completion of test data analysis.

DATE 09-MAY-2002 RECORDED BY NAME Althea MCFIELD

DR is against GSE/Non-Flight item.

50 CAUSE TEXT

DATE 04-JUN-2002 RECORDED BY NAME Althea MCFIELD

Likely cause is coupling in IEGSE Cables

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	30-APR-2002	HARDWARE	**AD6442**	2	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 1 OF 2

51 C/A TEXT

DATE 04-JUN-2002 RECORDED BY NAME Althea MCFIELD

None required--IEGSE is Ground Support equipment. DR was initiated to document EMI exceedances without instrument to aid in closure of Instrument EMI anomalies.

52 FINAL DISPOSITION TEXT

DATE 04-JUN-2002 RECORDED BY NAME Althea MCFIELD

NO ITEM--GSE hardware
DR was initiated to document EMI exceedances without instrument to aid in closure of Instrument EMI anomalies.

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	30-APR-2002	HARDWARE	**AD6442**	3	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 2 **OF** 2

30 IS TEXT Ambient EMI data (without HIRDLS instrument) exceeds specified limits for CE03 Noisy Bus B (NBB)

31 SHOULD BE TEXT Ambient EMI data (without HIRDLS instrument) within specified limits

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-820	NC	-	1	1	VOID/NO ITEM	VOID/NO ITEM	V1		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
TDD85	TEST EQUIP/SYSTEMS MAGE/SUPPORTS/OVER	Verified				0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	NO ITEM						

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 03-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

INTERIM TECHNICAL DISPOSITION
Ambient EMI data showed out of specification condition that was unexpected. This background data will have to be evaluated against the UUT and subtracted out during analysis. Ref. DR AD6419 and AD6433.

Continue with EMI testing pending completion of test data analysis.

DATE 09-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

DR is against GSE/Non-Flight item.

50 CAUSE TEXT

51 C/A TEXT

DATE 05-JUN-2002 **RECORDED BY NAME** Althea MCFIELD

None required
DR was initiated to document EMI exceedances without instrument to aid in closure of Instrument EMI anomalies

52 FINAL DISPOSITION TEXT

DATE 05-JUN-2002 **RECORDED BY NAME** Althea MCFIELD

NO ITEM--GSE hardware
DR was initiated to document EMI exceedances without instrument to aid in closure of Instrument EMI anomalies

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	30-APR-2002	HARDWARE	**AD6442**	4	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			OPERATION ORDER	TP-LOC-820		-

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	NO ITEM						

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
1		MINOR		0	no defect/void	05-JUN-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE
Althea MCFIELD	J18575	Q225	05-JUN-2002	MRB Quality Engineer
Lucy LANHAM	636975	L150	05-JUN-2002	MRB Resp Engineer

64 ATTACHMENTS

This DR has no Attachments

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	01-MAY-2002	HARDWARE	**AD6464**	1	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L941	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.10	Althea MCFIELD	J18575	Q225	02-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT: Observed Minor Frame (MiF) data packet drop outs during EMI RS03 testing

31 SHOULD BE TEXT: No MiF data packet losses

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
PR	SW-LOC-113	NC	4.4.5	1	1	VOID/NO ITEM	VOID/NO ITEM	V1	L911	PR	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR CODE
XFC34	FINAL ASY & TST/SYSTEM TST/TELEMETRY/MISSING/OMITTED	Verified			0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	NO ITEM						

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE: 02-MAY-2002 — RECORDED BY NAME: Althea MCFIELD

During the RS03 test case five (5) MiF packet drop outs were noted. Times of occurrences are: Day 121 at 13:32, 14:29, 22:01, 22:08 and Day 122 at 13:30. The Day 121, 14:29 occurrence indicated no sequence gap.
The frequency sweep was repeated after the Day 121, 22:01 and 22:08, and on Day 122 at 13:30 occurrences. During this second sweep no MiF drop outs occurred.
In the instance Day 122 13:30 the number of packet dropped was 26.

Initial MRB Disposition:

Continue EMI testing. In the event of other MiF data packet drop outs, repeat frequency sweep at the level where the dropout occurred. Report findings to the MRB.

Cause and Corrective Action MUST be established post-EMI testing and prior to the start of CPT-2. A formal MRB must be convened to assign a Final

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	01-MAY-2002	HARDWARE	**AD6464**	2	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER 1 OF 1

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 02-MAY-2002 RECORDED BY NAME Althea MCFIELD

Disposition of this defect.

Concurreence: Ray von Savoye (APM-Technical), Althea McField (QE), Talin Kaloustian (I &T Manager), Wally Opyd (Chopper REE)

DATE 03-MAY-2002 RECORDED BY NAME James MCGILL

Sofware engineer Ron Baraze has examined the relevant data from days 121 and 122. In examining the data from day 121, he has found no evidence data dropouts, packet losses, or exceptions. He is suggesting that the tool used to determine the reported MiF drops be investigated for bugs. In examining the data from day 122, he has identified a data gap in the IEGSE file present at 13:30. After checking relevant indicators and counters, he has concluded that the data gap was caused by the IEGSE being overloaded with tasks and dropping a number of packets.

DATE 06-MAY-2002 RECORDED BY NAME Althea MCFIELD

Interim Technical Disposition

Software Developer recommendation:

Send @GSE_LOG_RTNERR_ON command at each time the HIRDLS instrument is powered ON
Send @GSE_LOG_RTNERR_OFF command at each time the instrument is power OFF

Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Jim McGill (SQE)
Technical Input: Gary Heyman (Software Engineer), Ron Baraze (Software Engineer)

DATE 06-MAY-2002 RECORDED BY NAME Althea MCFIELD

On Day 126 at 16:07:20 GMT between RE04 testing (Note: Test was repeated), another MiF packet drop out occurred. The Test Conductor reported that 30 Science packets were dropped/lost.

An "Update DB" command was sent at the same time that the dropout was observed. In addition, a data "push" was in a session.

Investigation into this anomaly is on going.

DATE 09-MAY-2002 RECORDED BY NAME Althea MCFIELD

Software analysis of data required. Report findings to the MRB.
The MRB authorizes "OK to proceed" to post-EMI/EMC CPT-2. Monitor test data for missing data packets.
DR resolution required PRIOR to the start of the next Acceptance Level Test.

Concurrence: Russ Lindgren (IPS RPE), Ray von Savoye (APM-Technical), Althea McField (QE), Lucy Lanham (SE), Dale Phelps (NASA-GSFC Customer)
Technical Input: Wayne Rudolf (Instrument Chief Engineer), Paul Guy (NASA GSFC EMI Specialist), Tim Crews (CSE)

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	01-MAY-2002	HARDWARE	**AD6464**	3	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER 1 OF 1

50 CAUSE TEXT

DATE 29-MAY-2002 RECORDED BY NAME James MCGILL

The software engineers have not been able to find evidence of the cited drop-outs during analysis of the test data. This may indicate that the cause lies with the IEGSE display program and the load on the IEGSE at certain times.

DATE 06-JUN-2002 RECORDED BY NAME Althea MCFIELD

Observed packet drop outs were related to the FLIGHT SOFTWARE. Cause has been isolated to the IEGSE and is related to overloading during testing.

51 C/A TEXT

DATE 29-MAY-2002 RECORDED BY NAME James MCGILL

Complete a thorough review of the test data to ensure that no packet drops are indicated.

DATE 05-JUN-2002 RECORDED BY NAME James MCGILL

Based on the review completed by Software Engineer Ron Baraze, the software teram has concluded that the observed packet drops are not linked to the flight software. It is believed that the problem lies with an overloading of the IEGSE causing it to drop an occasional packet. The program has determined that this will not be a problem and that the IEGSE will continue be used as is.

DATE 06-JUN-2002 RECORDED BY NAME Althea MCFIELD

GSE-related anomaly. Continue to monitor data for MiF data pocket drop outs. Analysis of drop out type is required. During future testing, any drop out that is flight software related must be documented on a DR and resolved in the MRB.

52 FINAL DISPOSITION TEXT

DATE 05-JUN-2002 RECORDED BY NAME James MCGILL

Based on the software engineering review and the coinclusion that the problem is not with the flight software, the ATC SQE recommends closure of this DR.

DATE 06-JUN-2002 RECORDED BY NAME Althea MCFIELD

NO ITEM

Not related to FLIGHT HARDWARE

GSE-related anomaly.

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	01-MAY-2002	HARDWARE	**AD6464**	4	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		-

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	NO ITEM						

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
1		MINOR		0	no defect/void	17-JUN-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE
Althea MCFIELD	J18575	Q225	17-JUN-2002	MRB Quality Engineer
Ray L VON SAVOYE	634023	L911	12-JUN-2002	MRB Resp Engineer

64 ATTACHMENTS

This DR has no Attachments

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	**AD6471**	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L941	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.8	Althea MCFIELD	J18575	Q225	03-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT: Focal Plane temperature dropped by 0.5 Degrees and Compressor stroke reached it maximum during RS01 30 Hz - 520 Hz frequency sweep of the CCU

31 SHOULD BE TEXT: Focal Plane temperature stable and Compressor stroke must not exceed 80%

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-820	NC	13.8.5 (CCU)	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFJ85	FINAL ASY & TST/SYSTEM TST/OUTPUT SIGNAL/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE: 03-MAY-2002 — RECORDED BY NAME: Althea MCFIELD

At 05:56 GMT--During performance of the RS01 frequency sweep of the CCU using the magnetic coil, a clear drop on focal plane temperature was observed in telemetry. The temperature drop was 0.5 Deg C and the Compressor stroke reached it maximum pre-set level at 80% (start point was 78 %).

At 09:00 GMT--Confirmation of anomaly was performed. The magnetic coil was once again moved to the CCU and the drop in temperature was once again observed. It should be noted that there is a cooling fan in front of the CCU (Ref. DR AD6417) and the magnetic coil was place just in front of it during this testing.

At 09:20 GMT-- The magnetic coil was placed in front of the CCU and the focal point dropped 0.1 Deg C in 5 minutes
At 09:26 GMT--The magnetic coil was removed and the focal point temperature increased. There was no power on the amplifier at this point in time.

Preliminary analysis indicates that while this anomaly is not related to the EMI test, it does demonstrate a thermal anomalous condition that requires further evaluation and analysis.

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	**AD6471**	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER 1 **OF** 1

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 03-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

The MRB authorizes continuing with the EMI test. Resolution of this anomaly must be completed prior to the start of CPT1.

Concurrence: Ray von Savoye (APM Technical), Dave Seidl (QE), Althea McField (QE), Wally Oyd (Chopper RPE)

DATE 10-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

Futher investigation and data review are required to determine cause for the drop in Focal Point temperature. It is known that increased stroke will cause temperature to decrease. At the time of the occurrence, resolution in the Cold Tip temperature was inadequate. Systems Engineer (Lucy Lanham) will review the test data and determine Cold Tip temperature data at the time of the anomaly occurred and report findings to the MRB.

Ball Aerospace will be contacted to provide input to the MRB.

The MRB authorizes "OK to proceed" to post-EMI/EMC CPT2. Stop point fo resolution of this anomaly is PRIOR to the start of the next Acceptance Test.

Concurrence: Ray von Savoye (APM-Technical), Lucy Lanham (SE), Russ Lindgren (IPS RPE), Wally Opyd (Chopper RPE), Althea McField (QE), Dale Phelps (NASA-GSFC Customer)
Techncial Input: Wayne Rudolf (Instrument Chief Engineer), Tim Crews (CSE)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	**AD6471**	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		-

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB investigation	03-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	**AD6487**	1	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L320	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.11	Althea MCFIELD	J18575	Q225	03-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT: Unexpected loss of power on Quiet Bus A accompanied by rattling sound eminating from CCU during CS01 testing.

31 SHOULD BE TEXT: No loss of power during testing

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-820	NC	13.11	1	1	PROCESS	ME - INADEQUATE	P5A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XEG71	FINAL ASY & TST/ELEC SYS TST/CURRENT/FAILED	Verified				0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	REWORK						

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE: 03-MAY-2002 — RECORDED BY NAME: Althea MCFIELD

This anomaly occurred during the CS01 portion of the EMI testing, at 3.92 KHz, 3 V p-p (4 A max). The current in the chamber DID NOT exceed 1 A p-p on QBA, however the DASH-8 data recorder monitoring QBA recorded 9-10 A p-p. During the anomaly QB-A current loss occurred without a report of an over-voltage or an over-current condition. The Noisy Bus and Survival Bus were still operational. These buses were powered off manually at the IEGSE SPC switch.

An MRB was convened to review the anomaly and outline troubleshooting.

Troubleshooting operations are recorded in the test log and will be scanned into the DR electronically as an attachment.

MRB Concurrence: Ray von Savoye (APM-Technical), Althea McField (QE), Dale Phelps --NASA GSFC Customer (per telecon)
Technical Input: Ed Bielecki (NASA GSFC), Don Lew (EMI RPE), Talin Kaloustian (I & T Manager)

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	**AD6487**	2	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		-

29 DEFECT NUMBER 1 OF 1

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 04-MAY-2002 RECORDED BY NAME Ray L VON SAVOYE

Anomaly:
1) Instrument quiet bus shut-down in CS01 at 3992Hz (3Vp-p).
2) CSS oscillating after quiet bus shut-down in CS01 at 3992Hz.

Investigation:
1) After determining that there was no fault in the test equipment and that the instrument input impedance was normal. We found that the oscilloscope being used to sense the current was not functioning in AC coupling mode, this prevented the test engineer from seeing the actual injected current. We reviewed the test setup including the design of the IEGSE and determined that that the current oscillation was not detected at the injection transformer but was at the IEGSE power supply. In remote sense mode the power supply will try to compensate for the injected voltage ripple at the end of the 50 ft. test cable. It is very likely that this setup a local oscillation until the power supply protection shut it down.
2) The CSS runs on a separate power bus (noisy bus) than the one under test (quiet bus) at the time. CSS motor oscillation began after the quiet bus was shut-down. Communication from the IPU went down sending spurious commands & clocks to the CSS. This phenomena has been previously reported. An email has been sent to Ball to start investigation into why the limit checking did not stop the oscillation.

FRB Direction:
OK to proceed with test.
Concurrence Althea McField (QE), Dave Seidl (QE), Ray L. von Savoye (APM-Technical)
DATE 10-MAY-2002 RECORDED BY NAME Althea MCFIELD

MRB Directive

Further investigation is required to determine why the CCU overstroke protection was not effective. (Action: Ray von Savoye will contact Bob Stack at Ball Aerospace to review the anomaly).
The MRB will determine if Noisy Bus power on constraints may be required to prevent another incident.

MRB authorizes an OK to proceed with post EMI/EMC CPT2. Anomaly MUST be resolved PRIOR to the start of the next Acceptance Level Test.

Concurrence: Ray von Savoye (APM-Technical), Russ Lindgren (IPS RPE), Althea McField (QE), Wally Opyd (Chopper RPE), Lucy Lanham (SE), Dale Phelps (NASA-GSFC Customer)

Technical Input: Wayne Rudolf (Instrument Chief Engineer), Paul Guy (NASA-GSFC EMI Specialist), Tim Crew (CSE)
DATE 13-JUN-2002 RECORDED BY NAME Ray L VON SAVOYE

Bob Stack (Ball) and Ray L von Savoye believe that the over stroke condition may have been caused by having the over-stroke enable bit in the disable state. This may be due to errors or conflicts in the documentation (C&TH, and TC-BLL-041). To make a clear determination of the function and sense of this control bit we will perform a test in the following configuration -
Mode: Manual
Stroke: 95%
Phase: 65

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	**AD6487**	3	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER 1 OF 1

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 13-JUN-2002 RECORDED BY NAME Ray L VON SAVOYE

Overstroke bit: 0 Then test for 15 minutes. Then switch to Overstroke bit: 1 And run for 15 minutes.
It is expected that the CSS will not run for more than a couple of minutes at 95% amplitude with over-stroke enabled.

DATE 13-JUN-2002 RECORDED BY NAME Ray L VON SAVOYE

A test was run on OO-LOC-1103 to test the over-stroke bit logic. The results were that the default command in STOL did not allow the CSS to automatically switch to electronics only mode in response to an over-stroke condition. The two sets of commands sent were as follows.
Commands sent that did not allow automatic switch to electronics only mode:
@HIR_CSS_FREQ 390, 650
@HIR_CSS_SETTING 3, 570, 950, 950

Commands sent that did allow automatic switch to electronics only mode:
@HIR_CSS_FREQ 390, 650
@HIR_CSS_SETTING 131, 570, 950, 950

This clearly explains that the apparent failure of the CSS over-stroke protection was actually a failure to properly enable the over-stroke protection in STOL. This must be fixed prior to CPT. Additionally the defaults in the IPU software should be changed for consistency but this can be at a convenient point (i.e software is changing for another reason) as this does not need to drive a flight software change.

50 CAUSE TEXT

DATE 10-MAY-2002 RECORDED BY NAME Ray L VON SAVOYE

1) The IEGSE power supply when in remote sense mode will try to compensate for the injected voltage ripple at the end of the 50 ft. test cable. The local oscillation is due the voltage control system in the power supply not being able to track with the added phase lag (cable capacitance & inductive load) when sensing at the end of the cable.
2) CSS motor oscillation began after the quiet bus was shut-down. Communication from the IPU went down sending spurious commands & clocks to the CSS.

DATE 10-JUN-2002 RECORDED BY NAME Althea MCFIELD

Technical input required from the CCU manufacturer (Ball Aerospace) to determine the CAUSE of the CCU over-stroke.

51 C/A TEXT

DATE 10-MAY-2002 RECORDED BY NAME Ray L VON SAVOYE

Switch all three power supplies to local sense mode.

52 FINAL DISPOSITION TEXT

DATE 10-MAY-2002 RECORDED BY NAME Ray L VON SAVOYE

Rework:
Switch all three power supplies to local sense mode.

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	03-MAY-2002	HARDWARE	**AD6487**	4	4

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		-

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	REWORK						

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
1		MINOR		0	MRB Eng approved	10-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE
Ray L VON SAVOYE	634023	L911	10-MAY-2002	MRB Resp Engineer

64 ATTACHMENTS

This DR has no Attachments

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	**AD6490**	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.
				CE03/QB-A	

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.11	Lucy LANHAM	636975	L150	04-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT
During instrument level CS02 testing the IPU reset at 39.7 MHz (2002/124 1540).

31 SHOULD BE TEXT
The IPU should not reset during susceptibility testing.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.3	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFC97	FINAL ASY & TST/SYSTEM TST/TELEMETRY/UNEXPECTED SHUTDOWN	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 04-MAY-2002 RECORDED BY NAME Lucy LANHAM

At 2002/124 1540 during CS03 testing QB-A power-return lines (3V P-P) at 39.7 MHz (injected signal) the IPU reset. All telemetry halted. The Dash-8 strip recorded showed only a slight change. There were no perceptible indicators of any other abnormal performance. The test was immediatly powered down and the instrument power-down sequence was initiated. A check of the data logs showed minor excursions in PCU temps beginning at 20 MHz and an encoder spike at 25.86MHz.

DATE 04-MAY-2002 RECORDED BY NAME Armando CORTEZ

Interim #1
Power up (reboot) per TP and continue CS02 to 100MHz.
Repstart CS02, sweep starting at 20MHz. thru to approx 45MHz at 2.5 V P-P.
If anomaly reoccurs, repeat above steps at reduced voltage to determine anomaly voltage threshold.
Document/attach result for final disposition.

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	**AD6490**	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		-

29 DEFECT NUMBER 1 OF 1

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 04-MAY-2002 RECORDED BY NAME Armando CORTEZ

Concurrence: Ray vonSavoye, Althea McField, Lucy Lanham, Mike Spier

DATE 04-MAY-2002 RECORDED BY NAME Lucy LANHAM

Failures reoccured during CE02 test rerun. See test logbook for records.
Restarted at 50 MHz, starting at 0V, stopping at 0.5V, then reducied amplitude to 0V.
Moved freq to 55MHz, 1.0V then gradually increased amplitude to 2.0V. No susceptibility was observed.
Stepped freq to 60 MHz, 1.0V, increased amplitude to 3.0V. No susceptibility observed.
Continued sweep to 100MHz.

Note that Gyro heaters could not bring Gyros up to operational temperatures for this test. (See separate DR.)

DATE 10-MAY-2002 RECORDED BY NAME Althea MCFIELD

MRB recommendation is to identify the type of reset that was observed during testing. Definition of reset is to be determined through the analysis of the test data. (Action: Lucy Lanham-SE). Determine if reset is similar to occurrences reported in DR AD5529. Report findings to the MRB.

MRB authorizes an OK to proceed with post EMI/EMC CPT2. Anomaly MUST be resolved PRIOR to the start of the next Acceptance Level Test.

Concurrence: Ray von Savoye (APM-Technical), Russ Lindgren (IPS RPE), Althea McField (QE), Wally Opyd (Chopper RPE), Lucy Lanham (SE), Dale Phelps (NASA-GSFC Customer)

Technical Input: Wayne Rudolf (Instrument Chief Engineer), Paul Guy (NASA-GSFC EMI Specialist), Tim Crew (CSE)

DATE 05-JUN-2002 RECORDED BY NAME Lucy LANHAM

Additional data analysis indicates that the IPU reset or "froze" (operator log input) three times during CS02 testing QB-A high side to return injecting 3Vpp over the nominal currnt sweeping at 1 Khz sec. The events occurred at 39.7 MHZ and 48 MHz. An additional test at 48 MHz with slowly increasing levels showed the IPU reset occured as low as 1.4Vpp. The reset or freeze resulted in loss of telemetry from the instrument and required a power-down/power-up sequence to re-establish the instrument configuration required for the CS02 testing.

At the direction of the MRB, a waiver request has been prepared (CR293/W081). This request has been reviewed by Pre-CCB and forwarded to CCB for final review prior to sending it to GSFC.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	**AD6490**	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		-

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB Eng approved	05-JUN-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE
Lucy LANHAM	636975	L150	05-JUN-2002	MRB Resp Engineer

64 ATTACHMENTS

This DR has no Attachments

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	**AD6491**	1	5

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.11	Lucy LANHAM	636975	L150	04-MAY-2002

29 DEFECT NUMBER 1 OF 2

30 IS TEXT
Gyro heaters could not heat the Gyros to the minimum operational temperature.

31 SHOULD BE TEXT
Gyro heaters should be able to heat the gyros to 55deg C (spin motor start temperature).

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	SP-HIR-366		GSS Ops constraints	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGA85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/TEMPERATURE/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 04-MAY-2002 RECORDED BY NAME Lucy LANHAM

At the start of CS01 testing the Gyro temperatures increased more rapidly than normal during the warm-up phase. Then the temperature increase peaked well below the mimimum required to turn on the spin motors and stayed below that temperature for the remainder of the test in spite of extended warm-up times. Examination of the data indicates that the heaters were operational throughout the test with the exception of periods when they were affected by Conducted Susceptibility tests. While there is a correlation of temperature drops to heater turn-off, there is no explanation of the inability of the heaters to reach the spinup temps. Nor can an explanation can be found for the halt in temperature increase at 2002/124 0350. Surrounding box temperatures did not show similar temperature profiles.

DATE 10-MAY-2002 RECORDED BY NAME Althea MCFIELD

Further investigation into this anomaly is required. Ray von Savoye will contact Soji Oduleye at Oxford University for input and resolution. STOL logs and IEGSE archived instrument data from the test will be forwarded to Soji for review.

MRB authorizes an "OK to proceed" with post EMI/EMC CPT2. Anomaly MUST be resolved PRIOR to the start of the next Acceptance Level Test.

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	**AD6491**	2	5

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 1 OF 2

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 10-MAY-2002 RECORDED BY NAME Althea MCFIELD

Concurrence: Ray von Savoye (APM-Technical), Russ Lindgren (IPS RPE), Althea McField (QE), Wally Opyd (Chopper RPE), Lucy Lanham (SE), Dale Phelps (NASA-GSFC Customer)

Technical Input: Wayne Rudolf (Instrument Chief Engineer), Paul Guy (NASA-GSFC EMI Specialist), Tim Crew (CSE)

DATE 29-MAY-2002 RECORDED BY NAME Lucy LANHAM

Recommend that this item be closed to "NO ITEM" or "USE AS IS". Examination of data collected during the test indicates that the gyro heaters remained on but that the GMU temperatures reached a plateau well below the motor turn-on temperature. All indications are that this is the result of increased heat loss (a cooler environment). Soji Oduleye directed our attention to the assertion, made on delivery, that the gyros would not be able to reach operational temps in air and suggested that our earlier success in doing so was fortunate, but that we should not always expect to be able to repeat it. Regarding the apparent rapid heating. Soji Oduleye reported that the normal maximum heating rate of the gyros is about 18 degrees/hr. This is approximatley the rate observed on 4 May.

DATE 11-JUN-2002 RECORDED BY NAME Althea MCFIELD

Input from Dr. O. O. Oduleye (GSS REE, Oxford University):

The changes in GSS warm up rates observed on day 124 are due to changes in QB power.
On switching to local sensing of IEGSE QB output there was a simultaneous drop in QB voltage of 3V and an increase in QB current of 0.5 A. This caused a decrease in GSS power of 25% (approx.). This decrease in power is sufficient to arrest GSS warm up.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	**AD6491**	3	5

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		-

29 DEFECT NUMBER 2 **OF** 2

30 IS TEXT Gyro3 heater would not operate during CS06 QB testing.

31 SHOULD BE TEXT All four gyro heaters should operate on command.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
PR	OO-LOC-1063	B	3.6	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XAE94	FINAL ASY & TST/MAJ SYS & ASY/THERM CNTRL/HEATER/INOPERATIVE	N/A				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 05-MAY-2002 **RECORDED BY NAME** Lucy LANHAM

2002/125 12:57. Gyro heater 3 turned off during CS06 reconfiguration. Attempted to restart heater, but it immediatly switched off when the test inductors were connected in series with the power lines. Initial assessment is that the instantaneous demand for current by the heater produces a voltage spike from the inductor which trips the protection circuit in the gyro heater and switches it off.

Direction was given to continue with only three gyro heaters on. Gyro 3 heater will be restarted after the QB inductors are removed.

DATE 10-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

Further investigation into this anomaly is required. Ray von Savoye will contact Soji Oduleye at Oxford University for input and resolution. STOL logs and IEGSE archived instrument data from the test will be forwarded to Soji for review.

MRB authorizes an "OK to proceed" with post EMI/EMC CPT2. Anomaly MUST be resolved PRIOR to the start of the next Acceptance Level Test.

Concurrence: Ray von Savoye (APM-Technical), Russ Lindgren (IPS RPE), Althea McField (QE), Wally Opyd (Chopper RPE), Lucy Lanham (SE), Dale Phelps (NASA-GSFC Customer)

Technical Input: Wayne Rudolf (Instrument Chief Engineer), Paul Guy (NASA-GSFC EMI Specialist), Tim Crew (CSE)

DATE 29-MAY-2002 **RECORDED BY NAME** Lucy LANHAM

Telecon notes from 23 May 2002. Soji Oduleye has stated that the gyro heater circuit protection design would cause it to drop out in the event of an increase in the power supply noise. Examination of the PCU converter outputs and correlation with Gyro3 heater power is required.

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	**AD6491**	4	5

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

29 DEFECT NUMBER 2 OF 2

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 11-JUN-2002 RECORDED BY NAME Althea MCFIELD

Input from Dr. O. Oduleye (GSS REE, Oxford University):
Owing to these changes in power the voltage at the PCU/U22 interface was approximately 25.7 V. There was a further voltage drop along the U22 cable. This drop is yet to be quantified. 25.7 V minus the voltage drop along the U22 cable took the GSS heater circuits close to their 28V-under-voltage trips of ~23 V (on CHs 1& 3) and increased the sensitivities of the circuits to the perturbations seen during CS06 testing.
Recommended Actions:
1. It was recommended that a test be carried out to determine GSS heater dropout voltages at instrument level.
2. LMMS to supply measured U22 resistances.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	04-MAY-2002	HARDWARE	**AD6491**	5	5

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		-

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB accepted	17-JUN-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	**AD6494**	1	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.11	Lucy LANHAM	636975	L150	05-MAY-2002

29 DEFECT NUMBER 1 **OF** 1

30 IS TEXT

During CS01 tests, several AD590 temperature sensors showed susceptibility during QB, NB and SB tests.

31 SHOULD BE TEXT

There should be no noticible susceptibility.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.3	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFH47	FINAL ASY & TST/SYSTEM TST/OUTPUT DATA/CORRUPTED	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT **DATE** 05-MAY-2002 **RECORDED BY NAME** Lucy LANHAM

Several AD590s showed susceptibilities at multiple frequencies during QB testing. These susceptibilities were also observed during NB and SB tests at the same frequencies. Retesting confirmed the susceptibilities.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	**AD6494**	2	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		-

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB investigation	10-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	**AD6495**	1	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.11	Lucy LANHAM	636975	L150	05-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT

During CS02 tests, several AD590s showed susceptibilities at multiple frequencies.

31 SHOULD BE TEXT

There should be no observed susceptibilities during CS02 tests.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.3	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XEE73	FINAL ASY & TST/ELEC SYS TST/TELEMETRY/UNSTABLE/DRIFTS	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE 05-MAY-2002 — RECORDED BY NAME Lucy LANHAM

Temperature sensors on the OBA and on electronics boxes showed susceptibility to CS02 QB, NB, SB tests.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	**AD6495**	2	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		-

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0				0	MRB investigation	28-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	**AD6496**	1	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.12	Lucy LANHAM	636975	L150	05-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT
Several AD590 and PRT temperature sensors showed susceptibilities during CS06 testing.

31 SHOULD BE TEXT
No susceptibilities should be observed.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	422-11-12-01	B	10.11.4	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFC99	FINAL ASY & TST/SYSTEM TST/TELEMETRY/MISCELLANEOUS	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE 05-MAY-2002 — RECORDED BY NAME Lucy LANHAM

During the 5 minute test spans for each bus, AD590 and PRT temp sensors showed anomalous behavior. Temperature spikes of 2-20 degrees C were observed with the larger spikes occuring toward the end of each dwell. This was observed on both QB and NB tests.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	**AD6496**	2	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		-

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0				0	MRB investigation	10-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	**AD6497**	1	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L911	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.12	Lucy LANHAM	636975	L150	05-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT
During CS06 testing of the survival bus the IEGSE survival power shut off at an amplitude of 19.1V on both positive and negative polarities.

31 SHOULD BE TEXT
The IEGSE power should be available throughout CS06 tests.

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
N/	N/A			1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
TNJ99	TEST EQUIP/VENDOR TEST CNSL/POWER SUPPLY/MISCELLANEOUS	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE 05-MAY-2002 — RECORDED BY NAME Lucy LANHAM

During the first run of the survival bus test (positive polarity) the IEGSE survival power switched off during the power-up stage of the test. Retesting localised the failure to slightly under 20V. The same failure occured during reversed polarity tests and was identifoed to occur at 19.1V. The IEGSE survival temp bus was restarted each time with no difficulty.

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	05-MAY-2002	HARDWARE	**AD6497**	2	2

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		OPERATION ORDER	TP-LOC-820		-

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0				0	Initiate DR	05-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	06-MAY-2002	HARDWARE	**AD6510**	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			TEST PROCEDURE	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS IEGSE	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L320	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.5	Althea MCFIELD	J18575	Q225	06-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT: Background (IEGSE on and HIRDLS instrument OFF) measured emissions exceed specified limits for RE02 EMI Narrowband test

31 SHOULD BE TEXT: Background emissions measurements within specified limits for RE02 EMI Narrowband test

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
TE	TP-LOC-820	NC	13.5.7	1	1	VOID/NO ITEM	VOID/NO ITEM	V1		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				0000

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	NO ITEM						

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE: 06-MAY-2002 — RECORDED BY NAME: Althea MCFIELD

The background emissions check (14 KHz to 18 GHz) for baseline with the IEGSE ON and the HIRDLS instrument OFF failed each test case, i.e. instrument +/ - Y side, antenna horizontal/vertical with HEPA filter OFF. (see DR Attachment)

With the HEPA filter blower turned off, other likely sources of the anomaly will have to be identified to close this DR.

The MRB authorizes continuation to EMI RE02 Narrowband Instrument testing.

Concurrence: Ray von Savoye (APM-Technical), Dave Seidl (QE), Althea McField (QE)

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	06-MAY-2002	HARDWARE	**AD6510**	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER 1 OF 1

50 CAUSE TEXT

DATE 04-JUN-2002 RECORDED BY NAME Althea MCFIELD

Likely coupling in IEGSE cables.

51 C/A TEXT

DATE 04-JUN-2002 RECORDED BY NAME Althea MCFIELD

None required--IEGSE is Ground Support equipment. DR was initiated to document EMI exceedances without instrument to aid in closure of Instrument EMI anomalies.

52 FINAL DISPOSITION TEXT

DATE 04-JUN-2002 RECORDED BY NAME Althea MCFIELD

NO ITEM

DR was initiated to document EMI exceedances without instrument to aid in closure of Instrument EMI anomalies.

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	06-MAY-2002	HARDWARE	**AD6510**	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
HIRDLSIEGSE			TEST PROCEDURE	TP-LOC-820		-

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION
	1	NO ITEM						

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
1		MINOR		0	no defect/void	05-JUN-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE
Althea MCFIELD	J18575	Q225	05-JUN-2002	MRB Quality Engineer
Lucy LANHAM	636975	L150	05-JUN-2002	MRB Resp Engineer

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	06-MAY-2002	HARDWARE	**AD6511**	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-ENVIRONMENTAL	AMBIENT	EI

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L320	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	13.5	Althea MCFIELD	J18575	Q225	06-MAY-2002

29 DEFECT NUMBER: 1 OF 1

30 IS TEXT: Measured emissions with the HIRDLS Instrument powered ON exceeded specified limits for RE02 EMI Narrowband testing

31 SHOULD BE TEXT: Emissions levels within the GIRD specified limits

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
CU	GSFC422-11-12-1	B	10.1.6	1	4	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XGF85	FINAL ASY & TST/ENVIRN/ACCEPT/PROTOQ TST/EMISSION/OVER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT — DATE: 06-MAY-2002 — RECORDED BY NAME: Althea MCFIELD

1st Interim Technical

Each test case (Instrument +/- Y side, horizontal and vertical antenna for position) RE02 Narrowband testing exceeded GIRD-specified electric field emissions limit. The ambient baseline test, without the HIRDLS Instrument powered ON produced out of specification emissions level. (Ref. DR AD6410)

The MRB authorizes continuation of EMI testing. Cause, C/A and Final Disposition for this DR is required prior to the start of Instrument CPT.

Concurrence: Ray von Savoye (APM-Technical), Dave Seidl (QE), Althea McField (QE)

DATE: 10-MAY-2002 — RECORDED BY NAME: Althea MCFIELD

Systems Engineering (Lucy Lanham) will review EMI results for the instrument and the ambient environment and determine if the instrument out of limit conditions are valid.

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	06-MAY-2002	HARDWARE	**AD6511**	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER 1 **OF** 1

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 10-MAY-2002 **RECORDED BY NAME** Althea MCFIELD

MRB authorizes an "OK to proceed" with post EMI/EMC CPT2. Anomaly MUST be resolved PRIOR to the start of the next Acceptance Level Test.

Concurrence: Ray von Savoye (APM-Technical), Russ Lindgren (IPS RPE), Althea McField (QE), Wally Opyd (Chopper RPE), Lucy Lanham (SE), Dale Phelps (NASA-GSFC Customer)

Technical Input: Wayne Rudolf (Instrument Chief Engineer), Paul Guy (NASA-GSFC EMI Specialist), Tim Crew (CSE)

50 CAUSE TEXT

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	06-MAY-2002	HARDWARE	**AD6511**	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		-

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB investigation	06-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

See Attachment System for stored information concerning this DR

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	07-MAY-2002	HARDWARE	**AD6516**	1	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

13 PART NAME	14 LOT NUMBER	15 HDW USE	16 FUNCTIONAL/NON-FUNCTIONAL	17 DISCOVERED DURING CODE DESCRIPTION	CODE
HIRDLS Instrument	N/A	END ITEM	FUNCT-I&T	AMB QUAL TEST	IV

18 MANUFACTURER - NO	NAME	19 AREA FOUND AREA	BLDG	ORGN	20 QUANTITY RECD	INSP	REJD	21 ELSE OK	NOT INSPD
A04425A	LOCKHEED MARTIN MISSILES & SPACE	EN	152	L320	1	1	1	X	

22 SUPPLIER - NO	NAME	23 TEST - RUN NO.	SOFTWARE ID	EQUIPMENT NO.	SERIAL NO.

24 PROJ ID	25 PROJECT TITLE	26 PROGRAM TITLE	27 LAST OP	28 ORIGINATOR - NAME	NUMBER	ORGN	DATE
KB0	HIRDLS	HIRDLS	R/L	Althea MCFIELD	J18575	Q225	07-MAY-2002

29 DEFECT NUMBER 1 OF 1

30 IS TEXT CCU compressor stroke stayed at 20% during testing in Electonics Only mode during "90 K test"

31 SHOULD BE TEXT CCU Compressor demanded stroke of 80%

32 REJECTED PER TYPE	NUMBER	REV	SHEET/ZONE/NOTE/PARA	33 TOT QTY PER DEFECT	34 DEFECT OCCUR QTY	35 CAUSE - MAJOR	MINOR	CODE	36 DEFECT RESP SUPPLR/ORGN	AREA	37 O/R
PR	SP-HIR-034	NC	3.4.2.1	1	1	PLEASE SELECT	N/A	N/A		PL	0

38 DEFECT CODE	39 DEFECT CODE DESCRIPTION	40 FAIL VERIF	41 DEFECT RESP EMPLOYEE NUMBER	CERT CODE	42 MACHINE OPERATOR	CODE
XFJ84	FINAL ASY & TST/SYSTEM TST/OUTPUT SIGNAL/UNDER	Verified				

43 DEFERRED C/A DOC - TYPE	NUMBER	ITEM	44 ASSIGNED TO EMPLOYEE - NAME	NUMBER	ORGN	45 ECD	46 CLOSURE DATE	47 CLOSED BY NAME
N/A								

48 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

49 INTERIM TECHNICAL INVESTIGATION TEXT DATE 07-MAY-2002 RECORDED BY NAME Althea MCFIELD

This test was redlined into the test procedure after the completion of the final EMI test (Magnetic Dipole).

The following CSTOL procedures were ran:

start_hir_css_elect
@hir_css_pidcoeff 75, 5, 0
@hir_css_freq 390, 650
@hir_css_setting 5, 900, 800, 800

At this point the compressor stroke stayed at 20% and allowed an overshoot in temperature to 96 K (set point was 90 K)

The commands were repeated per MRB direction, and this time the STOL procedures were successful

Common Discrepancy Report

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	07-MAY-2002	HARDWARE	**AD6516**	2	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		

29 DEFECT NUMBER 1 OF 1

49 INTERIM TECHNICAL INVESTIGATION TEXT

DATE 10-MAY-2002 RECORDED BY NAME Althea MCFIELD

Further investigation is required to determine CAUSE of this anomaly. Ray von Savoye will contact Bob Stack at Ball Aerospace to review an resolve anomaly.

MRB authorizes an "OK to proceed" with post EMI/EMC CPT2. Anomaly MUST be resolved PRIOR to the start of the next Acceptance Level Test.

Concurrence: Ray von Savoye (APM-Technical), Russ Lindgren (IPS RPE), Althea McField (QE), Wally Opyd (Chopper RPE), Lucy Lanham (SE), Dale Phelps (NASA-GSFC Customer)

Technical Input: Wayne Rudolf (Instrument Chief Engineer), Paul Guy (NASA-GSFC EMI Specialist), Tim Crew (CSE)

50 CAUSE TEXT

DATE 07-MAY-2002 RECORDED BY NAME Althea MCFIELD

Identification of CAUSE is required prior to the start of CPT.

51 C/A TEXT

52 FINAL DISPOSITION TEXT

Common DR Summary

1 PRODUCT CENTER	2 CUST SUP PROD	3 FAILURE DATE	4 DR TYPE	5 DR NUMBER	6 PAGE	OF
ATC IN PALO ALTO	N/A	07-MAY-2002	HARDWARE	**AD6516**	3	3

7 PART NUMBER	8 REV	9 FAMILY	10 AUTHORITY DOCUMENT - TYPE	NUMBER	11 REFERENCE NUMBER	12 PARENT DR
1A27800	C		TEST PROCEDURE	TP-LOC-820		-

53 SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION	SERIAL NUMBER	QUANTITY	DISPOSITION

54 TOTAL QUANTITY DISPOSITIONED	55 P R E M I S	56 DEFECT CATGORGY	57 DEV/WAIVER	58 TOTAL SCRAP	59 DR STATUS	DATE
0		MINOR		0	MRB investigation	07-MAY-2002

60 PQC - NAME	DATE	61 PA NAME	DATE

62 POST CLOSURE TEXT

RECORDED BY

63 APPROVAL

NAME	NUMBER	ORGN	DATE	ROLE

64 ATTACHMENTS

This DR has no Attachments