

# HIRDLS

## HIGH RESOLUTION DYNAMICS LIMB SOUNDER



Originator: L. M. Lanham

Date: 26 February 2001

---

Subject / Title: STH to PSS Interface Control Document (ICD)

---

Contents / Description / Summary:

---

Keywords: STH, PSS, interface

---

Purpose (20 characters maximum): Interface definition

---

---

**Oxford University**  
**Atmospheric, Oceanic & Planetary Physics**  
**Parks Road**  
**OXFORD OX1 3PU**  
**United Kingdom**

**Lockheed Martin Missiles & Space**  
**Advanced Technology Center**  
**3251 Hanover Street**  
**Palo Alto, California 94304-1187**  
**United States of America**

**EOS**

[Intentionally Blank]

**SP-HIR-219**  
**STH to PSS Interface Control Document (ICD)**

Approved by: \_\_\_\_\_

/s/ John G. Whitney, HIRDLS Program System Engineer	Date
_____	
/s/ Raymond L. von Savoye, HIRDLS Instrument System Engineer	Date
_____	
/s/ Nigel Morris, UK Program Manager	Date
_____	
/s/ Stan Jaroslawski, PSS Responsible Engineer	Date

## Log of Changes

Rev.	Date	Section	Change Description
	98-06-16		Initial Release
A	99-03-18	FIG1	Changed connector end panel
		FIG2	Changed connector end panel and dimensions relative to LRCF per TCP #032 dated 98-11-04
		FIG2	Interchanged connector designations for “J912P” and “J921P” per TCP #031 dated 98-08-05.
B	00-01-25	Sig. page	Updated to reflect current program responsibilities
		2.1	Added release dates for Applicable Documents
		2.2	Deleted TC-LOC-074, Mass Report from Information Documents
		3.1.4	Deleted mass estimates, referred TBD mass allocation to SP-HIR-013, ITS.
		3.2	Removed text. No requirement statement.
		3.3	Deleted TBD requirements. Referred to SP-HIR-111.
		Fig.1	Deleted TBD for Mass and COM
	00-02-23	2.1	Changed ITS Document ID to GSFC 424-28-21-13
		3.1.5	Removed specification for vent mesh.
		Fig. 1	Changed position of vent from 53.3 mm to 30.0 mm in A3 direction
		Fig. 2	Changed connector designation from “J914S” to J914P”
		Fig. 3 Fig. 4	Added Ground Plane detail
	00-09-14	Fig. 1	Added connector panel detail to RE’s drawing. Updated connector panel grounding pin depiction
		Fig. 2	Deleted Figure. Relevant dimensions and depiction of connector panel included in Figure 1
	01-02-26	Fig. 1	Added callout (1-4) of shorting lines on connector panel depiction

## TABLE OF CONTENTS

<b>1.0 SCOPE</b>	<b>1</b>
<b>2.0 DOCUMENT REFERENCES</b>	<b>1</b>
<b>2.1 Applicable Documents</b>	<b>1</b>
<b>2.2 Information Documents</b>	<b>1</b>
<b>3.0 INTERFACE REQUIREMENTS</b>	<b>2</b>
<b>3.1 Mechanical</b>	<b>2</b>
<b>3.1.1 Drawings</b>	<b>2</b>
<b>3.1.2 Mounting</b>	<b>2</b>
<b>3.1.3 Alignment &amp; Reference Coordinate Frames</b>	<b>2</b>
<b>3.1.4 Mass Properties</b>	<b>2</b>
<b>3.1.5 Venting</b>	<b>2</b>
<b>3.2 Electrical</b>	<b>14</b>
<b>3.2.1 Grounding</b>	<b>14</b>
<b>3.3 Thermal</b>	<b>14</b>

[Intentionally Blank]

## 1.0 Scope

This Interface Control Document (ICD) defines the specific design implementation of the Mechanical, Electrical, and Thermal Conductive interfaces between the Structure/Thermal Subsystem (STH) and the Power Subsystem (PSS). The interfaces between these two subsystems are limited to Mechanical, and Thermal (conductive) between Power Converter Unit (PCU) the STH electronics shelf, and electrical grounding.

## 2.0 Document References

### 2.1 Applicable Documents

The documents listed below are a part of this ICD to the extent specified herein. In the case of a conflict between the contents of this ICD and any Applicable Document, this ICD shall take precedence.

GSFC 424-28-21-13	Instrument Technical Specification (ITS)	00-02
SP-HIR-200G	IICD System Section	97-12-01
SP-HIR-111	Thermal Interface Requirements	99-05-08

### 2.2 Information Documents

The documents listed below are for information only and are explicitly not, by reference, part of this ICD.

SP-HIR-031	STH Specification Document	Current Revision
SP-HIR-036	Power Subsystem Specification Document	Current Revision

### 3.0 Interface Requirements

#### 3.1 Mechanical

##### 3.1.1 Drawings

Power Converter Unit drawing	SP-HIR-219-FIG1
Deleted	FIG2
PCU/STH interface drawing	SP-HIR-219-FIG3
PCU/STH detail drawing	SP-HIR-219-FIG4

##### 3.1.2 Mounting

As shown in FIG3 & FIG4.

##### 3.1.3 Alignment & Reference Coordinate Frames

PCU axes A1, A2, A3 shown in FIG1

	LRCF	-> IRCF conversion:
unit vector	A1	-Y
unit vector	A2	+X
unit vector	A3	+Z

Angular alignment tolerance = none (non-critical).

##### 3.1.4 Mass Properties

The mass properties of the subsystems are specified in the ITS, GSFC 424-28-21-13, paragraph 5.1 and the associated Subsystem Specification Documents, SP-HIR-031 and SP-HIR-036.

##### 3.1.5 Venting

PCU venting is provided by a flush mounted vent-patch on the -A2 side of the PCU box such that gas transport is facilitated directly into the EU compartment.

#### 3.2 Electrical

##### 3.2.1 Grounding

PCU grounding will be provided through contact with the mounting feet to a conductive foil on the STH electronics shelf. The PCU mounting feet will be clean and free of coatings.

#### 3.3 Thermal

The thermal interfaces are defined in the Thermal Interfaces Requirements Document, SP-HIR-111.



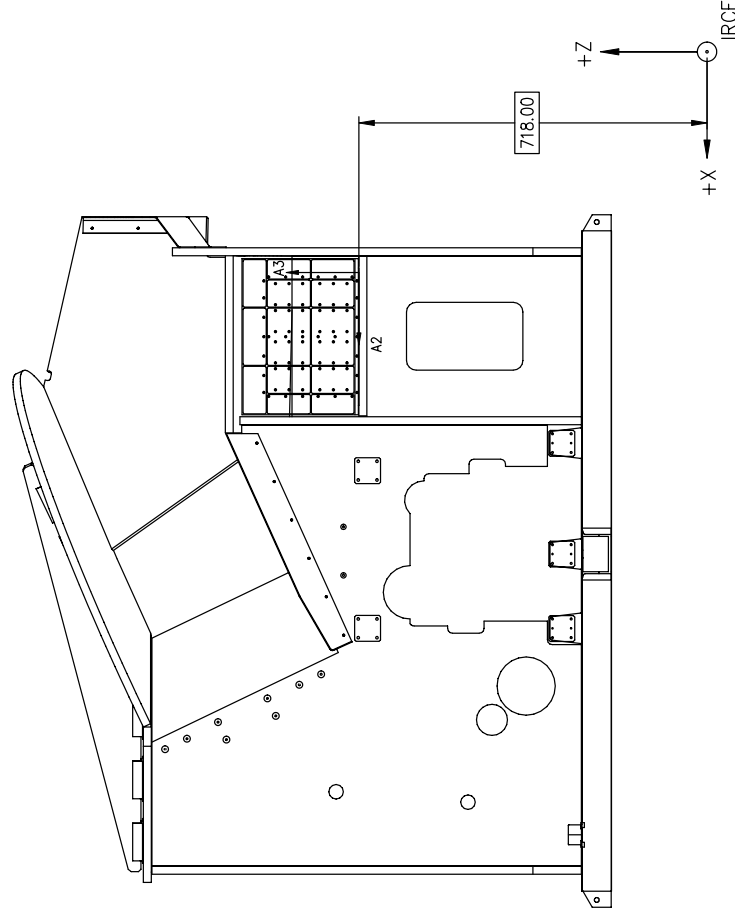
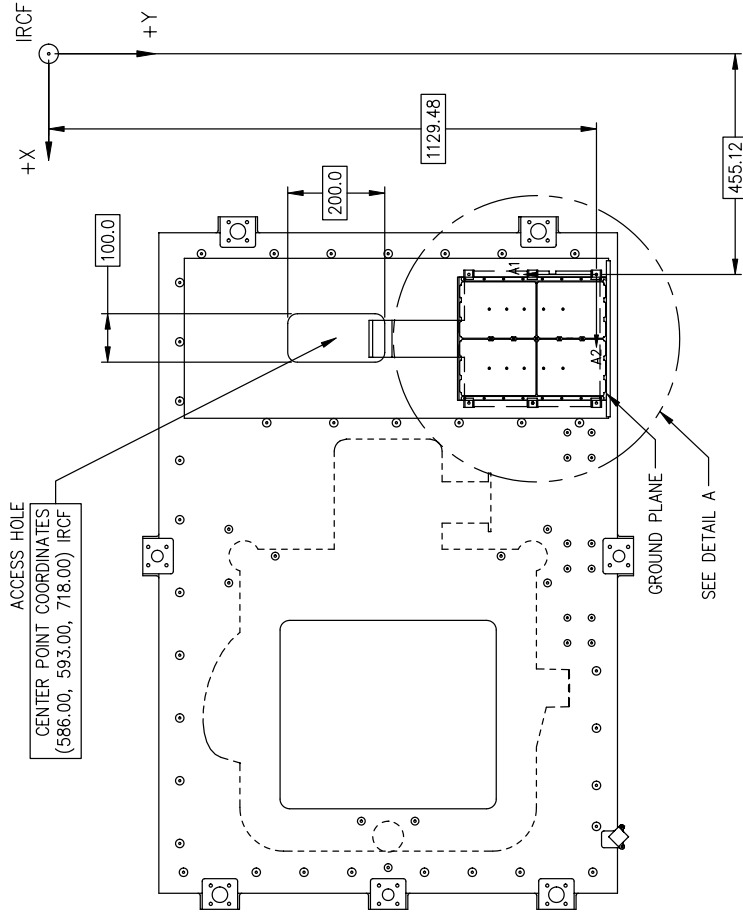


FIGURE 2

[Deleted]

# REVISIONS

ZONE	REV	DESCRIPTION	DATE	APVD
	C	ADDED GND PLANE TO DETAIL A & UPDATED TO LUMS TITLEBK 01-29-00		



## INTERFACE CONTROL DRAWING

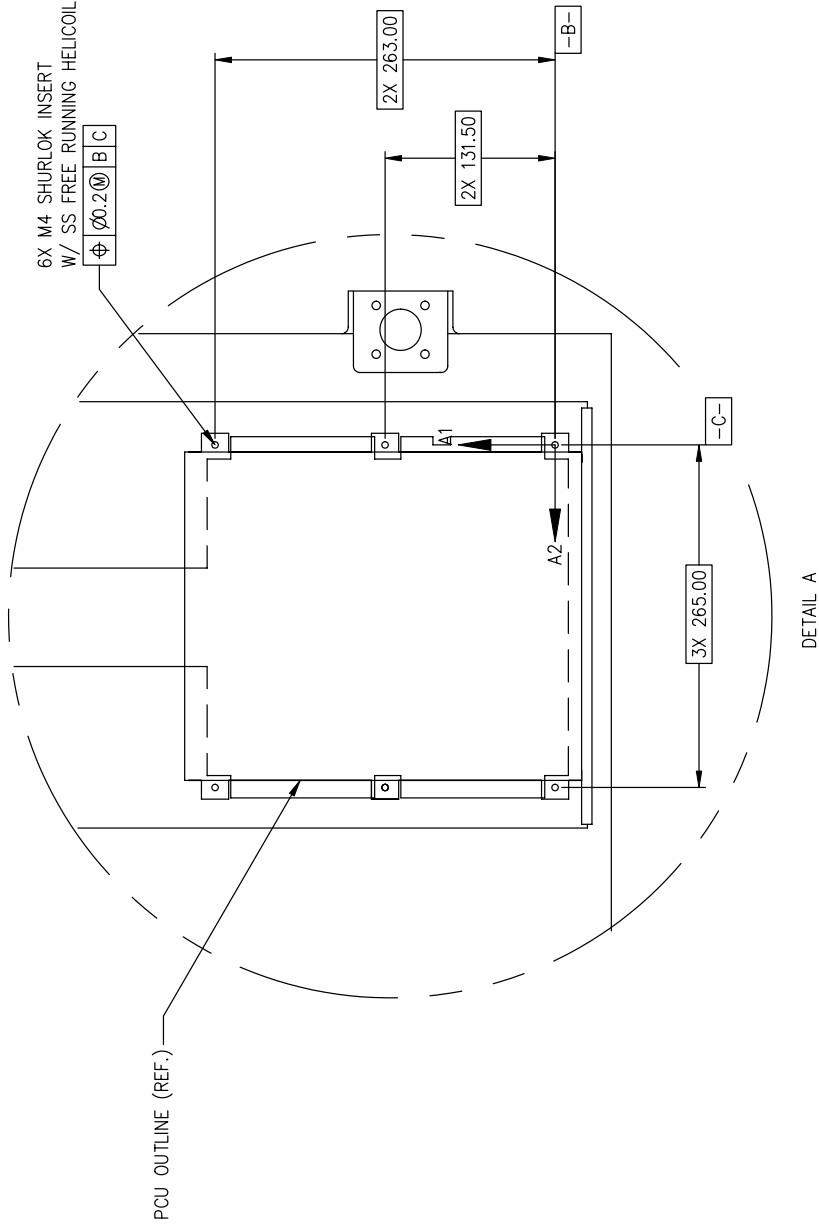
<b>LOCKHEED MARTIN</b> Advanced Technology Center Palo Alto, CA		<b>TITLE</b> STH/PSS INTERFACE PCU/STH	
<b>SIZE</b> B	<b>FIG NO.</b> SP-HIR-219-FIG3	<b>REV.</b> C	<b>SCALE</b> NONE
99-08-09		PAGE 3 OF 4	

### NOTES:

- DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED
- TOLERANCES ARE  $\pm 0.5$  UNLESS STATED

# REVISIONS

ZONE	REV	DESCRIPTION	DATE	APVD
	C	ADDED PCU END PLANE TO DETAIL A & UPDATED TO LIMS TITLEBLK	01-29-00	



INTERFACE CONTROL DRAWING

<b>LOCKHEED MARTIN</b> Advanced Technology Center Palo Alto, CA		TITLE	
		STH/PSS INTERFACE PCU/STH DETAIL	
SIZE	FIG NO.	REV.	
B	SP-HIR-219-FIG4	C	
SCALE	NONE	PAGE	4 OF 4

NOTES:

1. DIMENSIONS ARE IN mm UNLESS OTHERWISE STATED
2. TOLERANCES ARE ±0.1 UNLESS STATED