HIRDLS TC-RAL-039

High Resolution Dynamics Limb Sounder

Originator: Ian A J Tosh **Date:**12/11/93

Subject/Title: In-band Optical system Throughput

Description/summary/contents:

This TC describes the in-band transmission of the baseline optical system (TC-RAL-033) derived from the overall system throughput TC-RAL-037.

The in-band range is taken as the 50% points of each channel as described in the ITS (SP-HIR-13H fig 4.2).

The data in Table 1 is taken directly from TC-RAL-037 and simply averaged over the 50% passband range.

This TC does not include the filters transmission figures.

The current baseline has no A/R coatings defined for the refractive components (ie 100% transmission at each interface ussumed)

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Table 1: In-band Optical System Transmission:

Channel	Range cm-1 50% Passband SP-HIR-13H	α Ge	α ZnSe	Rhodium Refl. %	Scan Mirror Refl.	Paraboloid Mirror Refl	PrimeFocus Filter Substrate Trans.	ZnSe Blocker Trans.	Ellipsoid Refl.	Fold Mirror Refl.	Lens Trans.	Dewar Window Trans.	Final Focus Filter Substrate Trans.	Overall Throughput
Channel 1	563-588	1.26E+00	5.52E-01	98.23	0.982	0.982	0.920	0.921	0.982	0.982	0.626	0.779	0.951	0.370
Channel 2	600-615	6.25E-01	4.42E-01	98.19	0.982	0.982	0.959	0.936	0.982	0.982	0.790	0.883	0.975	0.567
Channel 3	610-640	5.09E-01	3.69E-01	98.16	0.982	0.982	0.967	0.946	0.982	0.982	0.825	0.903	0.980	0.620
Channel 4	626-660	4.67E-01	2.59E-01	98.13	0.981	0.981	0.969	0.962	0.981	0.981	0.838	0.911	0.981	0.648
Channel 5	655-680	4.25E-01	1.23E-01	98.09	0.981	0.981	0.972	0.982	0.981	0.981	0.852	0.919	0.983	0.680
Channel 6	821-836	1.97E-01	2.49E-03	97.85	0.979	0.979	0.987	1.000	0.979	0.979	0.928	0.961	0.992	0.801
Channel 7	835-833	1.76E-01	5.00E-04	97.83	0.978	0.978	0.988	1.000	0.978	0.978	0.936	0.965	0.993	0.812
Channel 8	860-905	9.18E-02	5.00E-04	97.77	0.978	0.978	0.994	1.000	0.978	0.978	0.966	0.982	0.996	0.858
Channel 9	915-933	3.34E-02	5.00E-04	97.70	0.977	0.977	0.998	1.000	0.977	0.977	0.987	0.993	0.999	0.891
Channel 10	985-1005	2.13E-02	5.00E-04	97.60	0.976	0.976	0.999	1.000	0.976	0.976	0.992	0.996	0.999	0.894
Channel 11	1020-1070	1.82E-02	5.00E-04	97.53	0.975	0.975	0.999	1.000	0.975	0.975	0.993	0.996	0.999	0.894
Channel 12	1120-1140	1.44E-02	5.00E-04	97.43	0.974	0.974	0.999	1.000	0.974	0.974	0.995	0.997	0.999	0.892
Channel 13	1200-1220	1.21E-02	5.00E-04	97.33	0.973	0.973	0.999	1.000	0.973	0.973	0.995	0.998	1.000	0.890
Channel 14	1229-1260	1.12E-02	5.00E-04	97.29	0.973	0.973	0.999	1.000	0.973	0.973	0.996	0.998	1.000	0.889
Channel 15	1256-1282	1.09E-02	5.00E-04	97.26	0.973	0.973	0.999	1.000	0.973	0.973	0.996	0.998	1.000	0.888
Channel 16	1278-1299	1.08E-02	5.00E-04	97.23	0.972	0.972	0.999	1.000	0.972	0.972	0.996	0.998	1.000	0.887
Channel 17	1324-1369	1.05E-02	5.00E-04	97.17	0.972	0.972	0.999	1.000	0.972	0.972	0.996	0.998	1.000	0.885
Channel 18	1385-1435	1.01E-02	5.00E-04	97.09	0.971	0.971	0.999	1.000	0.971	0.971	0.996	0.998	1.000	0.882
Channel 19	1402-1416	1.01E-02	5.00E-04	97.09	0.971	0.971	0.999	1.000	0.971	0.971	0.996	0.998	1.000	0.882
Channel 20	1422-1542	9.31E-03	5.00E-04	97.01	0.970	0.970	0.999	1.000	0.970	0.970	0.996	0.998	1.000	0.880
Channel 21	1582-1634	7.74E-03	5.00E-04	96.86	0.969	0.969	0.999	1.000	0.969	0.969	0.997	0.998	1.000	0.875