

2.0 Summary of Test Data Sets



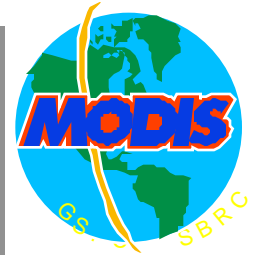
Overview of Thermal Emissive Bands Calibration Data Sets



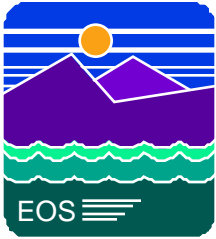
- Radiometric Calibration (RC02)
- Response to OBC Blackbody Warmup/Cooldown cycles (MFI09)
- Relative Spectral Response (RSRs)
 - In-Band RSRs (PC07I)
 - Out-of-Band RSRs (PC07-D)
- PC Bands Crosstalk Evaluation
 - IAC 1/10 pixel wide slit scans
 - ScMA 1 pixel wide Near Field Response LSFs
 - SpMA spectral and spatial scans



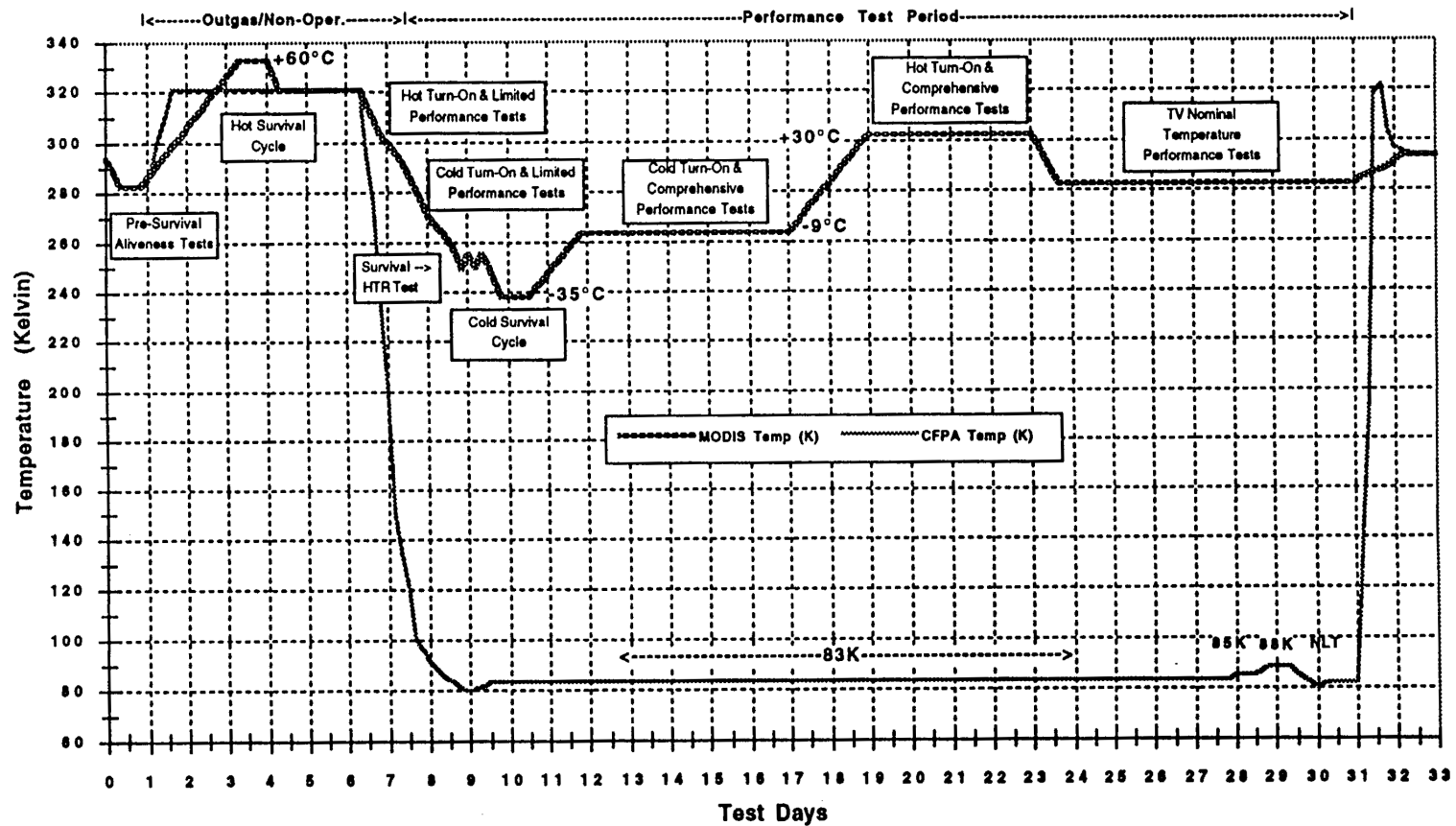
Overview of Thermal Emissive Bands Calibration Data Sets -continued

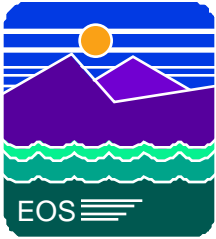


- **Special Tests**
 - Cold FPAs at NLT (~79K, 83K and 85K)
 - Repeatability tests (Nom1 vs Nom2)
 - Primary vs Secondary electronics
 - Vdet 110 mV vs 190 mV
 - ADC 16 bit DAC non-linearity tests at three temperatures
 - ECAL tests
- **Special Test Requests (STRs) at Valley Forge**
 - Response to fixed OBC Blackbody temperature during temperature transitions
 - Response to OBC Blackbody heating and cooling during instrument fixed temperature plateaus
 - Enhanced ECAL tests

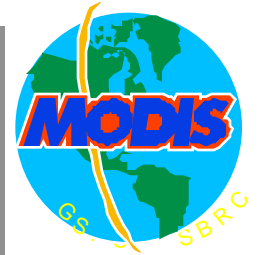


MODIS PFM Thermal Vacuum Timeline





Emissive Bands Thermal Vacuum Calibration Data Sets (RC02)



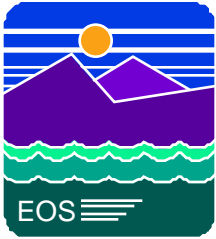
	Instrument Temperature (measured near aft-optics S/MWIR Objective Assembly)		
FPA Temp.	Cold Plateau (256K) (OBC heated to 315K)	Nominal Plateau (273K) (OBC heater off)	Hot Plateau (283K) (OBC heater off)
NLT (~77K)		1644-1654 (210K<T _{bcs} <330K)	
83K	1315-1337 (Side A) 1342-1354 (Side B) (A:170K<T _{bcs} <340K) (B:210K<T _{bcs} <330K)	1506-1526 (Side A) 1595-1618 (Side B)	1402-1426 (Side A) 1428-1439 (Side B)
85K		1665 (BCS=310K; 2 VDETs) 1666 (BCS=310K; 2 VDETs)	



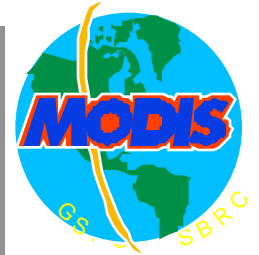
OBC Blackbody Warm Up and Cool Down Data Collects (MFI-09)



Instrument Temperature	Blackbody Warmup	Blackbody Cooldown	Data Limitations
Cold Plateau $T_{instr} = 256K$		UAID 1340 BB temp range 292-273K	No Warmup data.
Nominal Plateau $T_{instr} = 273K$	UAIDs 1524,1543 BB temp range 284.9-305K	UAID 1544 BB temp range 312-282K Heater off	Due to incorrect setting of gains the PV bands are not useable for this dataset. Space view DNs are set to zero for several bands.
Hot Plateau $T_{instr} = 283K$	UAID 1454 BB temp range 287-315K Heater off	UAID 1455 BB temp range 312-290K	



Special Purpose Radiometric Calibration Tests



Cold to Hot Plateau Transition UAIDs Side A Electronics 1375 1385 1398 1401 Side B Electronics 1366 1369 1384 1393 1400	<ul style="list-style-type: none"> •Collect calibration data during instrument temperature transitions •Collected data at 1 BCS level
Hot to Nominal Plateau Transition UAIDs Side A Electronics 1467 1568 1469	<ul style="list-style-type: none"> •Collected data at 1 BCS level
Vdet 190 mV vs Vdet 110 mV UAIDs Vdet=190: 1644-1654/Collect 1 Vdet=110: 1644-1654/Collect 2	<ul style="list-style-type: none"> •Establish relationship between calibration coefficients at two detector bias levels •Collected data at 11 BCS levels •SBRS believes Vdet=110 mV may reduce S/MWIR crosstalk
Heater Control Side UAID 1655: Side A FPA heater UAID 1655: Side B FPA heater	<ul style="list-style-type: none"> •Collected data at 1 BCS level •Confirm that FPA Heater Control Side makes no difference



Spectral Response Measurements and Data Files Summary



MODIS Spectral Tests	Filters	RSR-I PC07-I	OOB-D PC07-D	OOB-ND PC07-N	Comments
PFM Filters	5spot-LWIR 1spot-MWIR	NA	NA	NA	Filter Measurements used to predict System Level Response.
PFM w/EM electronics High Bay	NA	MWIR 20-856 21-858 22-859 23-860 24-861 25-862 LWIR 27-863 28-864 29-865 30-866 31-874 32-868 33-875 34-876 35-877	UAID 888 5400-7600nm UAID 889 7700-10000nm	Bands 20-36 w/Ceramic Source 20-36 UAIDs 823 824 825	Measured in ambient conditions.
PFM w/PFM electronics High Bay	NA	LWIR - PC UAIDs 31-1089 32-1090 33-1092 34-1093 35-1094 36-1095 MWIR 23-1257	NA	NA	Measured in ambient.
PFM in T/V w/ GN2 Purge Tent	NA	MWIR 20-1585 21-1586 22-1587 23-1588 24-1589 25-1590 LWIR 27-1591 28-1592 29-1593 30-1594	MWIR UAID 1313 2.8-5.4 um PV LWIR UAID 1314 5.4.8.0	NA	Final testing in Thermal Vacuum. All except LWIR PC Bands were measured