

Title: Test Report for SPIRE Post Acoustic SFT
@ He1

CI-No: 125200

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Issue	Date	Sheet	Description of Change	Release
1	11.06.08	All	Formal Issue	

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1 Scope

This document reports on the SPIRE SFT at He1 conditions, performed after the HERSCHEL S/C Acoustic test, to verify proper instrument operation.

The test was executed with the S/C in vertical position using the Herschel CCS & I-EGSE.

1.1 Objective

The objective of this SFT was:

- To check the correct functional operation of the SPIRE FM under He1 conditions on nominal and redundant side
- To verify that the SPIRE instrument is not susceptible to the applied Acoustic Noise levels

Note: The SPIRE detector checks and Mechanism tests are not part of the SFT.

1.2 Test Flow

The SFT Test flow is as follows:

1. Power on not required since S/C already ON
2. configure SPIRE I-EGSE for test
3. Power on SPIRE Prime and enable Mil1553B-bus interface
4. Run Nominal SFT Procedures as per table 1.2-1
5. Disable Mil1553B-bus interface and Power off SPIRE Prime
6. Power on SPIRE Redundant and enable Mil1553B-bus interface
7. Run Redundant SFT Procedures as per table 1.2-2
8. Disable Mil1553B-bus interface and Power off SPIRE Redundant
9. Disconnect and Switch-Off all SPIRE I-EGSE

Step #	Procedure Name	Purpose
1.	SPIRE-FM-SFT-FUNC-SCU-01-P	SCU Nominal Science Packet Generation Check PRIME
2.	SPIRE-FM-SFT-FUNC-SCU-03-P	SCU DC Thermometry check PRIME
3.	SPIRE-FM-SFT-FUNC-SCU-06-P	SCU AC Thermometry check PRIME
4.	SPIRE-FM-SFT-FUNC-SCU-07-P	Sorption Cooler Heaters Check PRIME
5.	SPIRE-FM-SFT-FUNC-SCU-04-P	Photometer Calibrator Check PRIME
6.	SPIRE-FM-SFT-FUNC-SCU-05-P	Spectrometer Calibrator Check PRIME
7.	SPIRE-FM-SFT-FUNC-MCU-01-P	MCU Boot Check PRIME
8.	SPIRE-FM-SFT-FUNC-MCU-02-P	MCU Nominal Science Packet Generation Check PRIME
9.	SPIRE-FM-SFT-FUNC-BSM-01-P	BSM Chop/Jiggle Sensors check PRIME
10.	SPIRE-FM-SFT-BSM-OFF-P	BSM switch OFF PRIME
11.	SPIRE-FM-SFT-FUNC-SMEC-01-P	SMEC Encoder and LVDT check PRIME
12.	SPIRE-FM-SFT-SMEC-OFF-P	SMEC switch OFF
13.	SPIRE-FM-FUNC-DCU-01-P	DCU Science Packet Generation Check PRIME
14.	SPIRE-FM-SFT-FUNC-DCU-04-PHOT-P	Photometer LIAs Check PRIME
15.	SPIRE-FM-SFT-PLIA-OFF-P	Photometer LIAs Switch OFF PRIME
16.	SPIRE-FM-SFT-FUNC-DCU-04-SPEC-P	Spectrometer LIAs Check PRIME
17.	SPIRE-FM-SFT-SLIA-OFF-P	Spectrometer LIAs Switch OFF PRIME
18.	SPIRE-FM-SFT-FUNC-MCU-OFF-P	MCU switch OFF PRIME
19.	SPIRE-FM-SFT-FUNC-SCU-OFF-P	SCU Switch OFF PRIME
20.	SPIRE-FM-SFT-LPU-01-P	Checkout of LPU PRIME not performed

Table 1.2-1 SPIRE Prime Functional Procedures

Step #	Procedure Name	Purpose
1.	SPIRE-FM-SFT-FUNC-SCU-01-R	SCU Nominal Science Packet Generation Check REDUNDANT
2.	SPIRE-FM-SFT-FUNC-SCU-03-R	SCU DC Thermometry Check REDUNDANT
3.	SPIRE-FM-SFT-FUNC-SCU-06-R	SCU AC Thermometry Check REDUNDANT
4.	SPIRE-FM-SFT-FUNC-SCU-07-R	Sorption Cooler Heaters Check REDUNDANT
5.	SPIRE-FM-SFT-FUNC-SCU-04-R	Photometer Calibrator Check REDUNDANT
6.	SPIRE-FM-SFT-FUNC-SCU-05-R	Spectrometer Calibrator Check REDUNDANT
7.	SPIRE-FM-SFT-FUNC-MCU-01-R	MCU Boot Check REDUNDANT
8.	SPIRE-FM-SFT-FUNC-MCU-02-R	MCU Nominal Science Packet Generation Check REDUNDANT
9.	SPIRE-FM-SFT-FUNC-BSM-01-R	BSM Chop/Jiggle Sensors check REDUNDANT
10.	SPIRE-FM-SFT-BSM-OFF-R	BSM Switch OFF REDUNDANT
11.	SPIRE-FM-SFT-FUNC-SMEC-01-R	SMEC Encoder and LVDT check REDUNDANT
12.	SPIRE-FM-SFT-SMEC-OFF-R	SMEC Switch OFF
13.	SPIRE-FM-FUNC-DCU-01-R	DCU Science Packet Generation Check REDUNDANT
14.	SPIRE-FM-SFT-FUNC-DCU-04-PHOT-R	Photometer LIAs Check REDUNDANT
15.	SPIRE-FM-SFT-PLIA-OFF-R	Photometer LIAs Switch OFF REDUNDANT
16.	SPIRE-FM-SFT-FUNC-DCU-04-SPEC-R	Spectrometer LIAs Check REDUNDANT
17.	SPIRE-FM-SFT-SLIA-OFF-R	Spectrometer LIAs Switch OFF REDUNDANT
18.	SPIRE-FM-SFT-FUNC-MCU-OFF-R	MCU Switch OFF REDUNDANT
19.	SPIRE-FM-SFT-FUNC-SCU-OFF-R	SCU Switch OFF REDUNDANT
20.	SPIRE-FM-SFT-LPU-01-R	Checkout of LPU REDUNDANT not performed

Table 1.2-2: SPIRE Redundant Functional Procedures

1.3 Procedure Execution Summary:

This test has been run with the HERSCHEL S/C in vertical position and on SPIRE nominal and redundant side.

The cryo L0 temperature was around 4,4 K.

The cryo L1 temperature was around 6,8 K.

The test duration of the SPIRE SFT Test was 4 hours.

The following protocols have been written documenting the SPIRE Short Functional Test status:

TRR for SPIRE SFT in He1 05.06.2008, HP-2-ASED-MN-1558

PTR for HERSCHEL Instruments 10.06.2008, HP-2-ASED-MN-1560
SFT He1 post acoustic

Location: ESTEC, Noordwijk, NL

Test Session Name:

2008_06_09_04_16_hercdmu_hpws22_REALTIME_INST
R_SFT

Environment: 2008_06_09_07_52_hercdmu_hpws53_REALTIME_
SFTA

OBSW: CDMS 3.4.0.9, ACMS 3.7

HPSDB: H-P-2-ASP-LI-1424 issue 04

HPPCS Release: Hpccs_2.0-1219

Any procedure variations are recorded in the Procedure Variation Summary in § 7.1 for the corresponding "as-run" procedure.

All non-compliances are recorded in the Observation/NCR Summary below and detailed further in Section 3.

The following observations were made during the test:

Time (UTC)	Test Procedure / Step / Script / Command / Event / Anomaly	Remarks / Cause of anomaly / Corrective action	C/A type (T/P)	NCR ref. (P)
13:25	Start of SPIRE SFT TP-0212			
13:46	Start of SPIRE Power ON (procedure 7.2.2)			
14:00	PVS #2, Bus I/F Check performed OK.			
14:19	SPIRE I-EGSE connection lost			
14:22	SPIRE I-EGSE rebooted successfully			
14:25	PVS #5 issued and run to resume test after I-EGSE crash			
14:47	Step 1 page 40: expected PCALV-V value 0.026, found 0.0206	To be checked by RAL, test can continue		NCR-4288
15:49	Switch OFF SPIRE Prime			
16:14	Power ON SPIRE redundant			
16:24	PVS #2, Bus I/F Check performed OK.			
16:38	Step 1 page 79: expected PCALV-V value 0.026, found 0.0191	To be checked by RAL, test can continue		NCR-4288
17:29	SPIRE redundant witch-off started			
17:34	SPIRE redundant OFF			

Table 1: SPIRE SFT Test Summary

2 Documents/Drawings

2.1 Applicable Documents

AD1	SPIRE FM Short Functional Test (Warm or Cold)	HP-2-ASED-TP-0212, Issue 1.1
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2.2 Reference Documents

None

2.3 Other Documents

None

2.4 Acronyms & Abbreviations

See "as-run" procedure.

3 Main Observations and Problems Identified.

The following NCR's have been raised after this run of the SPIRE SFT at He1:

3.1 SPIRE (NCR-4288)

PCALV-V value found not as expected, both on primary and redundant side in procedure 7.2.7.2, SPIRE-FM-SFT-FUNC-SCU-04-P

Step 1, page 40: expected PCALV-V value 0.026, found 0.0206,
and procedure 7.2.7.5, SPIRE-FM-SFT-FUNC-SCU-04-R

Step 1, page 79: expected PCALV-V value 0.026, found 0.0191

This anomaly needs to be investigated by SPIRE.

3.2 SPIRE (NCR-4289)

SCALTEMP value found not compatible to primary side value in procedure 7.2.7.2, SPIRE-FM-SFT-FUNC-SCU-03-R. The expected value is ~ 11 K the value seen is 32.9 K.

This anomaly needs to be investigated by SPIRE.

3.3 Procedure Changes

Updates and clarifications in the SFT procedure, as required during the test execution, were included by redlining and will result in a procedure update.

4 Conclusion

The SPIRE SFT at He1 conditions was successfully performed.

The detailed evaluation of the test results will be performed by RAL and issued in a separate instrument test report.

None of the Non-Conformance Reports (listed above) was raised during the test; hence, the test objectives were not affected.

4.1 Open Issues

- Procedure update w.r.t. red-markings in chapters 7.2.3.19, 7.2.7.19, 7.2.4 and 7.2.8
- RAL to provide a release note for the updated scripts
SPIRE_FM_SFT_FUNC_DCU_01_P.tcl version 1.2 and
SPIRE_FM_SFT_FUNC_DCU_01_R.tcl version 1.2

4.2 Requirements Verified

With the above SFT the health check of the SPIRE instrument after S/C acoustic test, according to chapter 4.1 of "Test Specification for HERSCHEL Instruments FM tests performed at satellite level", ref. H-P-2-ASP-TS-1083, has been passed.

5 Appendix 1: SPIRE FM Short Functional Test

As-Run Procedure

(ref. HP-2-ASED-TP-0212, issue 1.1)

AS run

09.06.2008

Title: **SPIRE FM Short Functional Test (Warm or Cold)**

CI-No: 125200

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Title: **SPIRE FM Short Functional Test (Warm or Cold)**

CI-No: 125200

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Issue	Date	Sheet	Description of Change	Release
1	30.01.08	All	First Formal Issue	
1.1	03.06.08	11 24 29,68 58 59 65 91 94 95,96 97 30, 43, 53, 60, 70, 82, 96, 98	<p>Typo in AD1, AD2, AD3 references</p> <p>Modification of text in chapter 7.2</p> <p>Mode is "DRCU ON" with raw value x0100</p> <p>Note for type 5/4 event included and typo in script name, step1, removed</p> <p>typo in script name, step1, removed</p> <p>typo in script name, step1, removed</p> <p>typo in negative voltage PLIAM9V (step2)</p> <p>typo in negative voltage SLIAM9V (step2)</p> <p>typo in script name, step1, removed</p> <p>typo in script name, step1, removed</p> <p>Implementation of updated RAL SFT procedures, ref. SPIRE-RAL-PRC-2494, issue2.5</p>	

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1 Scope

This document describes the set of Short Functional Tests (SFTs) to be performed on the fully integrated SPIRE FM Instrument to check correct operation using the Herschel CCS without the need of connection to I-EGSE.

Specifically this procedure is part of the overall Satellite SFT which will be performed after shipment to ESTEC (SFT1) and also at the end of Environment Testing (SFT2). It can be performed in either Warm or Cold (Hel or Hell) conditions (TBC). Both redundancies are tested within this procedure.

Constraints

- Before carrying out the next procedure within the test sequence always ask for the go ahead by the SPIRE staff.
- SMEC (TBD)
- Any text in boldface in the procedural steps generally indicates an action which may have to be performed manually by the CCS staff.

1.1 Objective

1. The objective of the test is to checkout the FM instrument.

1.2 Test Flow

This test flow is structured to reflect nominal operations of the FM SPIRE.

The flow is as follows:

1. Power on and configure SPIRE I-EGSE for test if required
2. Power on and configure SVM for test
3. Power on SPIRE Prime and enable Mil1553B-bus interface
4. Run Nominal SFT Procedures as per table 1.2-1
5. Disable Mil1553B-bus interface and Power off SPIRE Prime
6. Power on SPIRE Redundant and enable Mil1553B-bus interface
7. Run Redundant SFT Procedures as per table 1.2-2
8. Disable Mil1553B-bus interface and Power off SPIRE Redundant
9. Power off SVM
10. Switch off all EGSE

Step #	Procedure Name	Purpose	Duration
1.	SPIRE-FM-SFT-FUNC-SCU-01-P	SCU Nominal Science Packet Generation Check PRIME	3 min
2.	SPIRE-FM-SFT-FUNC-SCU-03-P	SCU DC Thermometry check PRIME	8 min
3.	SPIRE-FM-SFT-FUNC-SCU-06-P	SCU AC Thermometry check PRIME	2 min
4.	SPIRE-FM-SFT-FUNC-SCU-07-P	Sorption Cooler Heaters Check PRIME	5 min
5.	SPIRE-FM-SFT-FUNC-SCU-04-P	Photometer Calibrator Check PRIME	3 min
6.	SPIRE-FM-SFT-FUNC-SCU-05-P	Spectrometer Calibrator Check PRIME	5 min
7.	SPIRE-FM-SFT-FUNC-MCU-01-P	MCU Boot Check PRIME	5 min
8.	SPIRE-FM-SFT-FUNC-MCU-02-P	MCU Nominal Science Packet Generation Check PRIME	5 min
9.	SPIRE-FM-SFT-FUNC-BSM-01-P	BSM Chop/Jiggle Sensors check PRIME	3 min
10.	SPIRE-FM-SFT-BSM-OFF-P	BSM switch OFF PRIME	3 min
11.	SPIRE-FM-SFT-FUNC-SMEC-01-P	SMEC Encoder and LVDT check PRIME	3 min
12.	SPIRE-FM-SFT-SMEC-OFF-P	SMEC switch OFF	3 min
13.	SPIRE-FM-FUNC-DCU-01-P	DCU Science Packet Generation Check PRIME	5 min
14.	SPIRE-FM-SFT-FUNC-DCU-04-PHOT-P	Photometer LIAs Check PRIME	5 min
15.	SPIRE-FM-SFT-PLIA-OFF-P	Photometer LIAs Switch OFF PRIME	2 min
16.	SPIRE-FM-SFT-FUNC-DCU-04-SPEC-P	Spectrometer LIAs Check PRIME	5 min
17.	SPIRE-FM-SFT-SLIA-OFF-P	Spectrometer LIAs Switch OFF PRIME	2 min
18.	SPIRE-FM-SFT-FUNC-MCU-OFF-P	MCU switch OFF PRIME	2 min
19.	SPIRE-FM-SFT-FUNC-SCU-OFF-P	SCU Switch OFF PRIME	2 min
20.	SPIRE-FM-SFT-LPU-01-P	Checkout of LPU PRIME	5 min

Table 1.2-1 SPIRE Prime Functional Procedures

Step #	Procedure Name	Purpose	Duration
1.	SPIRE-FM-SFT-FUNC-SCU-01-R	SCU Nominal Science Packet Generation Check REDUNDANT	3 min
2.	SPIRE-FM-SFT-FUNC-SCU-03-R	SCU DC Thermometry Check REDUNDANT	8 min
3.	SPIRE-FM-SFT-FUNC-SCU-06-R	SCU AC Thermometry Check REDUNDANT	2 min
4.	SPIRE-FM-SFT-FUNC-SCU-07-R	Sorption Cooler Heaters Check REDUNDANT	5 min
5.	SPIRE-FM-SFT-FUNC-SCU-04-R	Photometer Calibrator Check REDUNDANT	3 min
6.	SPIRE-FM-SFT-FUNC-SCU-05-R	Spectrometer Calibrator Check REDUNDANT	5 min
7.	SPIRE-FM-SFT-FUNC-MCU-01-R	MCU Boot Check REDUNDANT	5 min
8.	SPIRE-FM-SFT-FUNC-MCU-02-R	MCU Nominal Science Packet Generation Check REDUNDANT	5 min
9.	SPIRE-FM-SFT-FUNC-BSM-01-R	BSM Chop/Jiggle Sensors check REDUNDANT	3 min
10.	SPIRE-FM-SFT-BSM-OFF-R	BSM Switch OFF REDUNDANT	3 min

11.	SPIRE-FM-SFT-FUNC-SMEC-01-R	SMEC Encoder and LVDT check REDUNDANT	3 min
12.	SPIRE-FM-SFT-SMEC-OFF-R	SMEC Switch OFF	3 min
13.	SPIRE-FM-FUNC-DCU-01-R	DCU Science Packet Generation Check REDUNDANT	5 min
14.	SPIRE-FM-SFT-FUNC-DCU-04-PHOT-R	Photometer LIAs Check REDUNDANT	5 min
15.	SPIRE-FM-SFT-PLIA-OFF-R	Photometer LIAs Switch OFF REDUNDANT	2 min
16.	SPIRE-FM-SFT-FUNC-DCU-04-SPEC-R	Spectrometer LIAs Check REDUNDANT	5 min
17.	SPIRE-FM-SFT-SLIA-OFF-R	Spectrometer LIAs Switch OFF REDUNDANT	2 min
18.	SPIRE-FM-SFT-FUNC-MCU-OFF-R	MCU Switch OFF REDUNDANT	2 min
19.	SPIRE-FM-SFT-FUNC-SCU-OFF-R	SCU Switch OFF REDUNDANT	2 min
20.	SPIRE-FM-SFT-LPU-01-R	Checkout of LPU REDUNDANT	5 min

Table 1.2-2: SPIRE Redundant Functional Procedures

2 Documents/Drawings

2.1 Applicable Documents

AD 1	FM SPIRE PFM Final Electrical Integration Procedure	HP-2-ASED-TP-0166
AD 2	Herschel PCDU & CDMS Nominal Switch On/Off Procedure, Issue 1	HP-2-ASED-PR-0070
AD 3	Herschel SAT Emergency Switch Off Procedure	HP-2-ASED-PR-0071
AD 4	PA Plan	HP-2-ASED-PL-0007
AD 5	I-EGSE Switch ON/OFF Procedure	TBI
AD 6	Test Specification for Herschel Instrument AVM & FM Tests Performed at Satellite Level, Issue 2	H-P-2-ASP-TS-1083
AD 7	H-P GDIR	H-P-1-ASPI-SP-0027
AD 8	SPIRE I-EGSE Set-Up, Issue 2.1	SPIRE-RAL-DOC-002841

2.2 Reference Documents

RD 1	Herschel Planck Central Checkout System System User Manual	H-P-4-TE-MA-0010
RD 2	SPIRE FM Short Functional Test Procedures	SPIRE-RAL-PRC-2494, iss. <u>2.4</u> <u>2.5</u>
RD 3	Herschel CDMU ASW S/W Interface Control Document	H-P-4-SSF-IC-0001
RD 4	Herschel CDMU BSW S/W Interface Control Document	H-P-4-SES-NT-0076
RD 5	SPIRE IID-B	SCI-PT-IIDB/SPIRE-02124
RD 6	SPIRE Functional Test Specification Iss. 1.4	SPIRE-RAL-DOC-001652
RD 7	SPIRE Instrument User Manual Iss. 1.3	SPIRE-RAL-PRJ-002395
RD 8	H/P OBT-UTC Time Synchronisation Technical Note Iss. 1.3	PT-CMOC-OPS-TN-6604-OPS- OGH

2.3 Other Documents

None

2.4 Acronyms & Abbreviations

1553	MIL-STD-1553B conform communication interface
AAD	Attitude Anomaly Detector
ACC	ACMS Control Computer
ACMS	Attitude Control and Measurement Subsystem
AD	Applicable Document
AIR	ACC In Reconfiguration
AIT	Assembly, Integration and Test
AIV	Assembly, Integration and Verification
APID	Application Process ID
ASW	Application Software
AVM	Avionics Model
BOLC	BOLometer Control unit (PACS)
BSW	Basic Software
CBH	Catalyst Bed Heater
CCS	Central Check-out System
CCSDS	Consultative Committee for Space Data Systems
CDMU	Control and Data Management Unit
CDMS	Control and Data Management Sub-system
CIR	CDMU In Reconfiguration
CLCW	Command Link Control Word
CLTU	Command Link Transmission Unit
CPDU	Command Pulse Distribution Unit
CRS	Coarse Rate Sensor
CTR	Central on board Reference Time
DCU	Detector Control Unit (SPIRE)
DEC	Detectors Electronics Control unit (PACS)
DMC	Detector and Mechanism Control unit (PACS)

DPU	Digital Processing Unit
DRCU	Detector Readout & Control Unit (SPIRE)
EEPROM	Electrically Erasable PROM
EGSE	Electrical Ground Support Equipment
FCL	Fold-back Current Limiter
FCU	FPU Control Unit (Spire)
FCV	Flow Control Valves
FDIR	Failure Detection, Isolation, and Recovery
FPU	Focal Plane Unit
GDIR	General Design and Interface Requirement
GRP	Group Heaters Switch
HBR	High Bit Rate
HL/HLC	High Level command
HP/HPC	High Priority commands
HPLM	Herschel PayLoad Module
HPSDB	Herschel Planck System Data Base
HW	Hardware
<hr/>	
i.a.w.	In accordance with
I/F	InterFace
I/O	Input/Output
ICD	Interface Control Document
IST	Integrated System Test
LCL	Latching Current Limiter
LV	Latching Valves
LBR	Low Bit Rate
MAP	Multiplexed Access Point
MBR	Medium Bit Rate
MCU	Mechanisms Control Unit (SPIRE)
MEC	Mechanisms Electronics Control unit (PACS)
ML 16	Memory Load command (ML 16)
MM	Memory Module
MOIS	Mission Operations Information System

MTL	Mission Timeline
NRZ-L	Non Return to Zero – Litton
OBCP	On-Board Control Procedure
OBDAH	On-Board Data Handling
OBMF	On-Board Monitoring Function
OBRT/OBT	On-Board Reference Time
OIRD	Operation Interface Requirement Document
PACS	Photodetector Array Camera & Spectrometer
P/L	Payload
PCDU/PCS	Power Control Distribution Unit/Power Control Subsystem
PM	Processor Module
PROM	Programmable Read Only Memory
PSK	Phase Shift Keying
RA	Rate Anomaly
RAM	Random Access Memory
RCS	Reaction Control Subsystem
RD	Reference Document
<hr/>	
RF	Radio Frequency
RM	Reconfiguration Module
RT	1553 Remote Terminal
RTU	RT Unit
RTA	RTU
RWL	Reaction Wheel Assembly
SA	1553 Remote Terminal Sub Address
SAS	Sun Acquisition Sensor
SCOE	Special Check-out Equipment
SCU	Subsystems Control Unit (SPIRE)
SIR	S/C In Reconfiguration
SIT	Subsystem Integrated Test
SP	Sun Pointing
SPIRE	Spectral & Photometric Imaging Receiver
SPU	Signal Processing Unit (PACS)

SSMM	Solid State Mass Memory
STR	Star Tracker
SVM	Service Module
SW	Software
TAI	International Atomic Time
TC	TeleCommand
TFG	Transfer Frame Generator
TM	TeleMetry
TTC	Telemetry Tracking & Command subsystem
TTR	Telemetry Telecommand and Reconfiguration
UFT	Unit Functional Test
VC	Virtual Channel
WD	Watchdog

3 Configuration

3.1 Satellite Configuration

The test requires use of the FM SVM powered on in its basic test mode (i.e. quick switch on (PCDU & CDMS) in accordance with AD 2. SPIRE FM units will be powered ON as per this procedure and assumes that FPU has already been successfully integrated to the warm units.

The procedures detailed in this document can be executed in any foreseen orientation.

3.2 EGSE Configuration

This test requires the EGSE to be configured and elements powered on in accordance with AD 2.

I-EGSE can be configured and connected to the HPCCS in accordance with AD 5 & AD 8, however it is not mandatory to have the I-EGSE connected for the SFT.

3.3 Set-up

SPIRE Test Scripts for the test must be loaded on to the HPCCS and checked in prior to start of test.

4 Test Scripts

The following SPIRE test scripts are required for execution on the HPCCS they do NOT reflect the test steps or order in which the steps are executed (the latter is defined in the order of the procedure):

No.	Tcl Script Name	Comment	Confirmed
1.	SPIRE-FM-SFT-DPU-START-P-SP	DPU ON PRIME	
2.	SPIRE-FM-SFT-DRCU-START-P-STEP1	DRCU ON PRIME Step1	
3.	SPIRE-FM-SFT-DRCU-START-P-STEP2	DRCU ON PRIME Step2	
4.	SPIRE-FM-SFT-FUNC-SCU-01-P	SCU science generation check	
5.	SPIRE-FM-SFT-FUNC-SCU-03-P	SCU DC thermometry check	
6.	SPIRE-FM-SFT-FUNC-SCU-06-P	SCU AC thermometry check	
7.	SPIRE-FM-SFT-FUNC-SCU-07-P	Sorption Cooler Heater Check	
8.	SPIRE-FM-SFT-FUNC-SCU-04-P	Photometer Calibration Check	
9.	SPIRE-FM-SFT-FUNC-SCU-05-P	Spectrometer Calibration Check	
10.	SPIRE-FM-SFT-FUNC-MCU-01-P	MCU (Prime) Boot Check	
11.	SPIRE-FM-SFT-FUNC-MCU-02-P	MCU Nominal Frame Generation Check	
12.	SPIRE-FM-SFT-FUNC-BSM-01-P	BSM (Prime) Chop/Jiggle Sensor Check	
13.	SPIRE-FM-SFT-BSM-OFF-P	BSM (Prime) Switch OFF	
14.	SPIRE-FM-SFT-FUNC-DCU-01-P	DCU Nominal Science Packet Generation Check PRIME	
15.	SPIRE-FM-SFT-FUNC-DCU-04-PHOT-P	Photometer LIAs Check PRIME	
16.	SPIRE-FM-SFT-PLIA-OFF-P	Photometer LIAs Switch OFF PRIME	
17.	SPIRE-FM-SFT-FUNC-DCU-04-SPEC-P	Spectrometer LIAs Check PRIME	
18.	SPIRE-FM-SFT-SLIA-OFF-P	Spectrometer LIAs Switch OFF PRIME	
19.	SPIRE-FM-SFT-MCU-OFF-P	MCU Switch OFF PRIME	
20.	SPIRE-FM-SFT-SCU-OFF-P	SCU Switch OFF PRIME	
21.	SPIRE-FM-SFT-DRCU-OFF-P	DRCU Switch OFF PRIME	
22.	SPIRE-FM-SFT-FUNC-SMEC-01-P	SMEC Encoder and LVDT check PRIME	
23.	SPIRE-FM-SFT-SMEC-OFF-P	SMEC Switch OFF PRIME	
	REDUNDANT UNIT SCRIPTS		
24.	SPIRE-FM-SFT-DPU-START-R-PP	DPU ON REDUN	
25.	SPIRE-FM-SFT-DRCU-START-R-STEP1	DRCU ON REDUN Step1	

No.	Tcl Script Name	Comment	Confirmed
26.	SPIRE-FM-SFT-DRCU-START-R-STEP2	DRCU ON REDUN Step2	
27.	SPIRE-FM-SFT-FUNC-SCU-01-R	SCU Nominal Science Packet Generation Check REDUN.	
28.	SPIRE-FM-SFT-FUNC-SCU-03-R	SCU DC Thermometry Check REDUN.	
29.	SPIRE-FM-SFT-FUNC-SCU-06-R	SCU AC Thermometry Check REDUN.	
30.	SPIRE-FM-SFT-FUNC-SCU-07-R	Sorption Cooler Heaters Check REDUN.	
31.	SPIRE-FM-SFT-FUNC-SCU-04-R	Photometer Calibrator Check REDUN.	
32.	SPIRE-FM-SFT-FUNC-SCU-05-R	Spectrometer Calibrator Check REDUN.	
33.	SPIRE-FM-SFT-FUNC-MCU-01-R	MCU Boot Check REDUN.	
34.	SPIRE-FM-SFT-FUNC-MCU-02-R	MCU Nominal Science Packet Generation Check REDUN.	
35.	SPIRE-FM-SFT-FUNC-BSM-01-R	BSM Chop/Jiggle Sensors Check REDUN.	
36.	SPIRE-FM-SFT-BSM-OFF-R	BSM Switch OFF REDUN.	
37.	SPIRE-FM-SFT-FUNC-DCU-01-R	DCU Nominal Science Packet Generation Check REDUN.	
38.	SPIRE-FM-SFT-FUNC-DCU-04-PHOT-R	Photometer LIAs Check REDUN.	
39.	SPIRE-FM-SFT-PLIA-OFF-R	Photometer LIAs Switch OFF REDUN.	
40.	SPIRE-FM-SFT-FUNC-DCU-04-SPEC-R	Spectrometer LIAs Check REDUN.	
41.	SPIRE-FM-SFT-SLIA-OFF-R	Spectrometer LIAs switch OFF REDUN.	
42.	SPIRE-FM-SFT-MCU-OFF-R	MCU Switch OFF REDUN.	
43.	SPIRE-FM-SFT-SCU-OFF-R	SCU Switch OFF REDUN.	
44.	SPIRE-FM-SFT-DRCU-OFF-R	DRCU Switch OFF REDUN	
45.	SPIRE-FM-SFT-FUNC-SMEC-01-R	SMEC Encoder and LVDT Check REDUN.	
46.	SPIRE-FM-SFT-SMEC-OFF-R	SMEC Switch OFF REDUN.	

The HPCSS must also have the following MIB files for SPIRE loaded:

HPCSS Software	Version	Comment	Confirmed Installed
SPIRE MIB version	14-P-ASP-L1-1424_04		

The SPIRE I-EGSE will be running the following software for the test:

I-EGSE Software	Version	Comment
SPIRE MIB version	2-2.H1 PR	
SCOS version	hpccs-2-0-1219	

5 Conditions

5.1 Personnel

Responsibility	Name / Organisation
Test Director	B. Colodim / TAS-F
Test Conductor	A. Koppa / ASED
EGSE Operator	V. La Gidia / Term
Electrical Engineer	N/A
Specialist Engineer	N/A
Element Cognizant	N/A
PA Responsible	D. Hendry / ASED
Instrument Representative	S. Sidher / RAL
Customer Representative	
ESA Representative	

5.2 Environmental

The actual clean room environmental conditions for the test shall be recorded below.

Environmental	Nominal	Actual	P	N
Clean Room Class	class 100000 or better	100 000	✓	
Temperature	22°C ± 3°C	19°C	✓	
Rel. Humidity	40 % - 60 %	54 %	✓	
Pressure	Ambient	ambient	✓	

s/c Orientation vertical
Cryostat Status (He 1)
Lo Temp 4.4 K (T 222)
LA Temp 6.8 K (T 234)
OBA Temp 7.21 K (T 242)

5.3 General Precautions and Safety

Non-test specific precautions and safety considerations are detailed in section 5.3 of AD 2. Specific safety issues and general precautions for the tests to be performed are detailed in the following sections.

5.3.1 General Safety Requirements, Precautions

In the event of unrecoverable anomaly requiring emergency switch off of the satellite, the switch off shall be performed in accordance with AD 3.

5.3.2 ESD constraints

Normal ESD constraints are to be observed during the test.

5.3.3 Special QA Requirements

None.

5.4 GSE

Non-test specific GSE details are provided in section 5.4 of AD 2. Specific GSE needs for the tests to be performed are detailed in the following sections.

5.4.1 MGSE

None.

5.4.2 CVSE

None.

5.4.3 EGSE

The I-EGSE is not mandatory for this test, but if used can be connected to the HPCCS in accordance with AD 5.

5.4.4 OGSE

None.

5.4.5 Special Equipment

None.

6 Verification Requirements and Test Criteria

This is a short functional check of all SPIRE PFM subsystems in warm or cold conditions. No specific requirements are to be verified.

Functional performance and status parameter actual values recorded will be checked during the test and must be the same as the nominal status value indicated.

The test will only be deemed successful once all offline analysis of the results has been performed. Typically, the PTR will be held before completion of this activity and therefore only a preliminary assessment of the test success can be provided to allow disconnection of any specific GSE required for the test and which needs to be removed before further activities can be performed.

Enter Start Date Time:			
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7 Test Procedure

7.1 Initial EGSE and Satellite Configuration for the Test

The Spire FM Final Integration according to the Test Procedure ref. AD 1 must be successfully completed before the execution of this procedure.

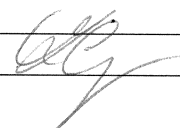
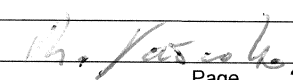
The EGSE and Satellite must be configured according to AD 2 prior to start of test.

In case of anomaly on SPIRE requiring immediate switch off as directed by SPIRE responsible supporting the test section 7.2.11 shall be executed.

In the event of emergency the Satellite SHALL be switched down according to AD 3.

7.2 Step by Step Procedure

Test Location:	ESFEE
Test Session Id(s):	2008-06-09-04-16-heredmu-hpws22-REALTIME IN STR_SFT (@OS)
Environment:	2008-06-09-07-52-heredmu-hpws53-REALTIME-SFTA00U(@SLITE)

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7.2.1 EGSE & Satellite Switch On

Step- No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
Install Test Box and Satellite & EGSE Switch On							
1.1	Confirm I-EGSE physically connected to HPCCS	OK			Steps 1.1, 1.3 to 1.7 are not mandatory for test execution	✓	
1.2	If not already on, switch on HPCCS, SCOE's and Satellite/SVM and configure into Basic Test Mode i.a.w. AD 2 Section 7.1 to 7.5			skip		✓	
1.3	Confirm that EGSE and Satellite are in the correct configuration as per AD 2	OK				✓	
1.4	Switch on & configure SPIRE I-EGSE i.a.w. AD5 & AD 8					✓	
1.5	Confirm SPIRE I-EGSE is in the correct configuration as per AD5 & AD 8	OK				✓	
1.6	From HPCCS Test Conductor console issue command to connect to SPIRE I-EGSE connect HSPIREEGSE					✓	
1.7	Confirm from HPCCS and SPIRE I-EGSE that the connection has been established Y2S29940 Y2S29940	OK		connected		✓	
READY FOR START OF SPIRE SFT							

PVS #1

see pvs#1

Enter Date/Time:	9/6/08	13:45	Sign Off	TC: <i>ko</i>	PA: <i>Ph. Vasallo</i>
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7.2.2 Switch On SPIRE PRIME To REDY (Standby)

During power on of SPIRE a number of soft/hard OOLs are reported due to the sequential switch on of the units. This is expected and will clear when SPIRE is in REDY mode. When in REDY mode one parameter remains OOL (soft) namely SMD2V505 this is also expected.

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
1.	On HPCCS start Packet History displays for the following APIDs:1280,1282	OK			✓	
2.	From the HPCCS test conductor console start the test script to power SPIRE Prime to REDY: S102999SCVT005_ASDFSFTSPIR_PWR_ON_P				✓	
3.	On HPCCS when prompted: "SPIRE Switch ON for SFT related tests in any conditions - Select NO to abort TS if not correct"	YES			✓	

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Enter Start Date|Time: 9/6/08 13:46

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
4.	If in any doubt about the script being executed NO should be selected to abort the script. Before restarting consult the relevant instrument support engineer to confirm the correct script to be used for the test in question.			N/A		
5.	If YES is selected the test script will go on to automatically power on all SPIRE warm units, force boot the DPU ASW and configure the instrument to REDY (Standby mode).			A number of soft/hard OOLs are reported	✓	see 7.22 (Page 44)
6.	On HPCCS when prompted: "Check Telemetry Updating Correctly and OBT is Consistent with CDMU - OK to continue"	OK			✓	
7.	If I-EGSE connected when prompted on HPCCS, perform check requested: "Check IEGSE Time Consistent - OK to continue when RAL confirm"	OK			✓	
8.	On HPCCS when prompted: "Check Telemetry No Longer Updating - OK to continue" Check that parameters:			AND: SA_1_559	✓	

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Enter Start Date Time:	9/6/08	13:56
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Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
		THSK Not refreshing TM2N Not incrementing				
9.	Select OK to continue	OK			✓	
10.	On HPCCS when prompted: "Check Telemetry Updating Correctly - OK to continue" Check that parameters:	THSK Refreshing @ 1Hz TM2N Incrementing by 1 @ 1Hz		AND: SA_1_559	✓	
11.	Select OK to continue	OK			✓	
12.	On HPCCS when all autonomous actions have been completed by the power on script S102999SCVT005_ASDFSFTSPIR_PWR_ON_P it will prompt: "Set Bus Profile Back to Original Setting?" Select NO	NO	No		✓	

Enter Date/Time:	9/6/08	13:57	Sign Off	TC: <i>h</i>	PA: <i>R. Vasquez</i>
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Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
13.	At the prompt: "Bus Profile left unchanged" Select OK to continue	OK			✓	
14.	Verify HK TM packets are being received on APIDs 1280 & 1282				✓	
15.	MODE parameter is set to "REDYDRCU ON" mode (RAW value 0x02000x0100)	SM00M500 = 0x0200-0x0100 (REDYDRCU ON)		AND: SA_1_559	✓	
16.	SPIRE powered and in REDY-DRCU ON mode			004 SIBOK510 294.64 LOW	✓	

PVS #2 → Bus I/F check

↳ S. Stalder confirms that it's not a problem

Enter Date/Time:	9/6/08	13:58	Sign Off	TC: <i>leo</i>	PA: <i>Ph. K. F. ...</i>
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7.2.3 Short Functional Tests - Nominal

7.2.3.1 Procedure SPIRE-FM-SFT-FUNC-SCU-01-P

Version	2.4 2-3
Date	4 th June 2008 28 th August 2007
Purpose	SCU science packet generation check
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced
Final configuration	Unchanged
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • SFT PARAMETERS and DPU & OBS PARAMETERS displays are selected on the CCS
Duration	3 minutes
Pass/Fail Criteria	Specified SCU HK parameters show expected increment.

Procedure Steps:

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-SCU-01-P.tcl	SCUFRAMECNT (On SFT PARAMETERS display) TM5N (On DPU & OBS PARAMETERS display)	0/31 0x3FFF/1	0/31 0x3FFF/1	✓

Test Result (Pass/Fail):

Enter Date/Time:	9/6/08	14:04	Sign Off	TC: <i>bo</i>	PA: <i>R. Vascolle</i>
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7.2.3.2 Procedure SPIRE-FM-SFT-FUNC-SCU-03-P

Version	2.3
Date	28 th August 2007
Purpose	SCU DC thermometry check
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced
Final configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and DC thermometry is ON
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	8 minutes
Pass/Fail Criteria	DC Thermometry channels show temperature readings according to the actual instrument temperature* *: At warm temperatures all channels should show short circuit RAW readings of -32768

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-SCU-03-P.tcl	—	—	—	—
2	Wait for the parameter BBFULLTYPE to get set to SCU_DC_Therm			SCU_DC_Therm	✓

Enter Date/Time:	9/6/08	14:08	Sign Off	TC: <i>AW</i>	PA: <i>R. Vasek</i>
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Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
3	A few seconds later record the value of parameter SCUTEMPSTAT	SCUTEMPSTAT	0/0xFFFF/0xFFFF	0/0xFFFF/0xFFFF	✓
4	If the instrument is at He II temperatures check the values of SCU DC thermometry channels.	PUMPHTRTEMP PUMPHSTEMP EVAPHSTEMP SHUNTTEMP EMCFILTEMP SL0TEMP PL0TEMP OPTTEMP BAFTEMP BSMIFTEMP SCAL2TEMP SCAL4TEMP SCALTEMP SMECIFTEMP SMECTEMP BSMTEMP	(All Values TBC) -/~4.6K -/~3.0K -/~3.0K -/~1.7K -/~4.6K -/~1.7K -/~1.7K -/~4.6K -/~4.6K -/~4.5K -/~4.6K -/~4.6K -/~4.6K -/~4.6K -/~4.6K -/~4.5K	N/A since He I	
5	If the instrument is at He I		(All Values TBC)		

Enter Date/Time: 9/6/08 14:08 Sign Off: [Signature] TC: [Signature] PA: [Signature]

Enter Start Date Time:	9/6/08	14:10
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Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
	temperatures check the values of SCU DC thermometry channels.	PUMPHTRTEMP PUMPHSTEMP EVAPHSTEMP SHUNTTEMP EMCFILTEMP SLOTEMP PLOTEMP OPTTEMP BAFTEMP BSMIFTEMP SCAL2TEMP SCAL4TEMP SCALTEMP SMECIFTEMP SMECTEMP BSMTEMP	~4.2K ~4.4K ~4.3K ~4.2K ~4.8K ~4.2K ~4.2K ~4.8K ~4.8K ~4.8K ~4.7K ~4.8K ~4.8K ~4.8K ~4.7K ~4.7K ~4.8K	~ Actual values are not exactly as per procedure As expected but consistent with current condition.	He 1
6	If the instrument is warm: Configure the SFT PARAMETERS display to show the RAW values of SCU DC	PUMPHTRTEMP PUMPHSTEMP EVAPHSTEMP SHUNTTEMP EMCFILTEMP	— — — — —	see attachment	

Enter Date/Time:	9/6/08	14:13	Sign Off	TC: <i>60</i>	PA: <i>D. Vasolka</i>
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Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
	<p>thermometry channels.</p> <p>Record the RAW values of SCU DC thermometry channels. Nominal values should show a short circuit status (or RAW - 32768).</p> <p>Non Nominal (Open Circuit Criterion): RAW reading in the range [0, -100]</p>	SL0TEMP PL0TEMP OPTTEMP BAFTEMP BSMIFTEMP SCAL2TEMP SCAL4TEMP SCALTEMP SMECIFTEMP SMECTEMP BSMTEMP	— — — — — — — — — —	<i>see attachment for values</i>	
Test Result (Pass/Fail):					

Enter Date/Time:	9/6/08	14:14	Sign Off	TC: <i>60</i>	PA: <i>P. Vasallo</i>
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DS: 65535 ID: SA_6_5 Title: FUNCTIONAL TEST PARAMETERS

Sample Time: 2008.161.14.13.15.357

Workstation: hpws22

NAME	DESCRIPTION	VALUE	UNIT	NAME	DESCRIPTION	VALUE	UNIT
SM10N500	OBSID	B0000000	HEX	SM_1F520	SCUTEMPSTAT	0000FFFF	HEX
SM2LN500	BBFULLTYPE	Null		SM_0X520	PLIABITSTAT	00000000	HEX
SM00M500	MODE	DRCU_ON		SM_1X520	SLIABITSTAT	00000000	HEX
SM00T500	THSK	2008.161.14.13.14.808	HEX	SM_2X520	MCUBITSTAT	00000000	HEX
SMT1N500	TM2N	0000055B	HEX	SMT0A520	EVHSV	0.1087	mV
SMD1N510	DCUFRAMECNT	0		SMH0A520	SPHSV	0.0790	mV
SMD0N515	MCUFRAMECNT	0		SMT1A520	SPHTRV	0.0029	V
SMD0N520	SCUFRAMECNT	31		SMP0V520	PCALV	0.000298	V
SM20F510	PSWJFETSTAT	00000000	HEX	SMP0A520	PCALCURR	0.000928	mA
SM80F510	PMLWJFETSTAT	00000000	HEX	SMS0V520	SCAL2V	0.000336	V
SM20V510	PSWJFET1V	0	V	SMS0A520	SCAL2CURR	0.00028	mA
SM21V510	PSWJFET2V	0	V	SMS1V520	SCAL4V	0.000368	V
SM22V510	PSWJFET3V	0	V	SMS1A520	SCAL4CURR	0.000447	mA
SM23V510	PSWJFET4V	0	V	SMK0F520	SUBKSTAT	00000000	HEX
SM24V510	PSWJFET5V	0	V	SMF0K520	PUMPHTRTEMP	5.35419113	K
SM25V510	PSWJFET6V	0	V	SMF1K520	PUMPHSTEMP	7.38123145	K
SM30V510	PMWJFET1V	0	V	SMF2K520	EVAPHSTEMP	7.00067708	K
SM31V510	PMWJFET2V	0	V	SMF3K520	SHUNTTEMP	4.29505229	K
SM32V510	PMWJFET3V	0	V	SMF4K520	EMCFILTEMP	11.18388950	K
SM33V510	PMWJFET4V	0	V	SMF5K520	SL0TEMP	4.30548507	K
SM50V510	PLWJFET1V	0	V	SMF6K520	PL0TEMP	4.37567003	K
SM51V510	PLWJFET2V	0	V	SMF7K520	OPTTEMP	11.23371395	K
SMT0V510	TCJFETV	0	V	SMF8K520	BAFTEMP	11.82212462	K
SMF0F510	SPECJFETSTAT	00000000	HEX	SMF9K520	BSMIFTEMP	11.32986261	K
SM00V510	SSWJFET1V	0	V	SMS0K520	SCAL2TEMP	11.30452458	K
SM01V510	SSWJFET2V	0	V	SMS1K520	SCAL4TEMP	11.14501410	K
SM10V510	SLWJFET1V	0	V	SMS2K520	SCALTEMP	11.18413502	K
SMS0W515	SMECENCPOWER	0000FFFF	HEX	SMFAK520	SMECIFTEMP	10.99525825	K
SMS1W515	SMECLVDTPWR	0000FFFF	HEX	SMFBK520	SMECTEMP	11.02534935	K
SMS1M515	SMECLOOPMODE	0000FFFF	HEX	SMFCK520	BSMTEMP	11.20094323	K
SMC0W515	CHOPSENSPOWER	0000FFFF	HEX	SMK0K520	SUBKTEMP	605.98700000	K
SMJ0W515	JIGGSENSPOWER	0000FFFF	HEX				

Enter Start Date Time:	9/6/08	14:15	
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7.2.3.3 Procedure SPIRE-FM-SFT-FUNC-SCU-06-P

Version	2.3
Date	28 th August 2007
Purpose	SCU AC thermometry check
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and DC thermometry is ON
Final configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	2 minutes
Pass/Fail Criteria	AC Thermometry channel shows temperature readings according to the actual instrument temperature

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-SCU-06-P.tcl	—	—	—	OK
2	Wait for the parameter BBFULLTYPE to get set to SCU_AC_Therm				OK
3	A few seconds later record the value of parameter	SUBKSTAT	0/1/1	0/1/1	OK

Enter Date/Time:	9/6/08	14:16	Sign Off	TC: <i>60</i>	PA: <i>P. Vesco</i>
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Doc. No: HP-2-ASED-TP-0212

Issue: 1.1

Date: 03.06.08

File: SPIRE FM Short Functional TP HP-2-ASED-TP-0212_iss1_1.doc

Enter Start Date Time:	9/6/08	14:16
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Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
	SUBKSTAT				
4	If the instrument is at He II temperatures check the value of SCU AC thermometry channel.	SUBKTEMP	~1.7K		N/A
5	If the instrument is at He I temperatures check the value of SCU AC thermometry channel.	SUBKTEMP	~4K		4.5
6	<p>If the instrument is warm:</p> <p>Configure the SFT PARAMETERS display to show the RAW value of SCU AC thermometry channel.</p> <p>Only record the RAW value of SCU AC thermometry channel if it indicates an open circuit.</p> <p>Open Circuit Criterion: RAW reading in the range [0, -100]</p>	SUBKTEMP	—	see attachment #2	
Test Result (Pass/Fail):					

Enter Date/Time:	9/6/08	14:17	Sign Off	TC: <i>60</i>	PA: <i>P. J. ...</i>
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DS: 65535 ID: SA_6_5 Title: FUNCTIONAL TEST PARAMETERS

Sample Time: 2008.161.14.16.39.358

Workstation: hpws22

NAME	DESCRIPTION	VALUE	UNIT	NAME	DESCRIPTION	VALUE	UNIT
SM10N500	OBSID	B0000000	HEX	SM_1F520	SCUTEMPSTAT	0000FFFF	HEX
SM2LN500	BBFULLTYPE	Null		SM_0X520	PLIABITSTAT	00000000	HEX
SM00M500	MODE	DRCU_ON		SM_1X520	SLIABITSTAT	00000000	HEX
SM00T500	THSK	2008.161.14.16.38.810	HEX	SM_2X520	MCUBITSTAT	00000000	HEX
SMT1N500	TM2N	00000627	HEX	SMT0A520	EVHSV	0.1087	mV
SMD1N510	DCUFRAMECNT	0		SMH0A520	SPHSV	0.1045	mV
SMD0N515	MCUFRAMECNT	0		SMT1A520	SPHTRV	0.0029	V
SMD0N520	SCUFRAMECNT	31		SMP0V520	PCALV	0.000298	V
SM20F510	PSWJFETSTAT	00000000	HEX	SMP0A520	PCALCURR	0.000928	mA
SM80F510	PMLWJFETSTAT	00000000	HEX	SMS0V520	SCAL2V	0.000236	V
SM20V510	PSWJFET1V	0	V	SMS0A520	SCAL2CURR	0.000102	mA
SM21V510	PSWJFET2V	0	V	SMS1V520	SCAL4V	0.000368	V
SM22V510	PSWJFET3V	0	V	SMS1A520	SCAL4CURR	0.000625	mA
SM23V510	PSWJFET4V	0	V	SMK0F520	SUBKSTAT	00000001	HEX
SM24V510	PSWJFET5V	0	V	SMF0K520	PUMPHTRTEMP	5.35512454	K
SM25V510	PSWJFET6V	0	V	SMF1K520	PUMPHSTEMP	7.38123145	K
SM30V510	PMWJFET1V	0	V	SMF2K520	EVAPHSTEMP	7.00067708	K
SM31V510	PMWJFET2V	0	V	SMF3K520	SHUNTTEMP	4.29549853	K
SM32V510	PMWJFET3V	0	V	SMF4K520	EMCFILTEMP	11.18388950	K
SM33V510	PMWJFET4V	0	V	SMF5K520	SL0TEMP	4.30456673	K
SM50V510	PLWJFET1V	0	V	SMF6K520	PL0TEMP	4.37662106	K
SM51V510	PLWJFET2V	0	V	SMF7K520	OPTTEMP	11.22528119	K
SMT0V510	TCJFETV	0	V	SMF8K520	BAFTEMP	11.82212462	K
SMF0F510	SPECJFETSTAT	00000000	HEX	SMF9K520	BSMIFTEMP	11.32547273	K
SM00V510	SSWJFET1V	0	V	SMS0K520	SCAL2TEMP	11.30737684	K
SM01V510	SSWJFET2V	0	V	SMS1K520	SCAL4TEMP	11.15031697	K
SM10V510	SLWJFET1V	0	V	SMS2K520	SCALTEMP	11.18613873	K
SMS0W515	SMECENCPWR	0000FFFF	HEX	SMFAK520	SMECIFTEMP	10.99525825	K
SMS1W515	SMECLVDTPWR	0000FFFF	HEX	SMFBK520	SMECTEMP	11.02255278	K
SMS1M515	SMECLOOPMODE	0000FFFF	HEX	SMFCK520	BSMTEMP	11.19702471	K
SMC0W515	CHOPSENSPWR	0000FFFF	HEX	SMK0K520	SUBKTEMP	4.40635500	K
SMJ0W515	JIGGSENSPWR	0000FFFF	HEX				

Enter Start Date Time:	8/6/08	14:17	
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7.2.3.4 Procedure SPIRE-FM-SFT-FUNC-SCU-07-P

Version	2.2
Date	2 nd January 2007
Purpose	Sorption Cooler Heater Check
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and DC thermometry is ON
Final configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail Criteria	Sorption cooler heat switches and pump heater show expected voltages

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-SCU-07-P.tcl	—	—	—	— OK
2	Wait for the parameter BBFULLTYPE to get set to Cooler_Htr_Chk	BBFULLTYPE	Cooler_Htr_Chk		✓

Enter Date/Time:	8/6/08	14:18	Sign Off	TC: <i>lo</i>	PA: <i>R. Vercos</i>
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Enter Start Date|Time: 9/6/08

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
3	Record the value of parameter SPHSV – the Sorption Pump Heat Switch Voltage. <i>This voltage stays on for ~20 seconds. Wait for the voltage to go to zero to continue.</i>	SPHSV - mV	0/~323/0	act. 1/3	OK
4	Record the value of parameter EVHSV – the Evaporator Heat Switch Voltage. <i>This voltage stays on for ~20 seconds. Wait for the voltage to go to zero to continue.</i>	EVHSV - mV	0/~323/0	act. 2/3	OK
5	Record the value of parameter SPHTRV – the Sorption Pump Heater Voltage. <i>This voltage stays on for ~20 seconds. Wait for the voltage to go to zero to continue.</i>	SPHTRV - V	0/~8.8/0	act. 3/3	OK

see attachment

Test Result (Pass/Fail):

lost connection to IEG SE: Gateway PS needed rebooting → PVS #5

Enter Date/Time: 9/6/08 14:25 Sign Off TC: PA: P. Vasquez

DS: 65535 ID: SA_6_5 Title: FUNCTIONAL TEST PARAMETERS

Sample Time: 2008.161.14.18.06.359

Workstation: hpws22

NAME	DESCRIPTION	VALUE	UNIT	NAME	DESCRIPTION	VALUE	UNIT
SM10N500	OBSID	B0000162	HEX	SM_1F520	SCUTEMPSTAT	0000FFFF	HEX
SM2LN500	BBFULLTYPE	Cooler_Htr_Che		SM_0X520	PLIABITSTAT	00000000	HEX
SM00M500	MODE	DRCU_ON		SM_1X520	SLIABITSTAT	00000000	HEX
SM00T500	THSK	2008.161.14.18.05.811	HEX	SM_2X520	MCUBITSTAT	00000000	HEX
SMT1N500	TM2N	0000067E	HEX	→ SMT0A520	EVHSV	0.1087	mV
SMD1N510	DCUFRAMECNT	0		→ SMH0A520	SPHSV	324.2610	mV
SMD0N515	MCUFRAMECNT	0		SMT1A520	SPHTRV	0.0029	V
SMD0N520	SCUFRAMECNT	31		SMP0V520	PCALV	0.000298	V
SM20F510	PSWJFETSTAT	00000000	HEX	SMP0A520	PCALCURR	0.000928	mA
SM80F510	PMLWJFETSTAT	00000000	HEX	SMS0V520	SCAL2V	0.000336	V
SM20V510	PSWJFET1V	0	V	SMS0A520	SCAL2CURR	0.000102	mA
SM21V510	PSWJFET2V	0	V	SMS1V520	SCAL4V	0.000268	V
SM22V510	PSWJFET3V	0	V	SMS1A520	SCAL4CURR	0.000447	mA
SM23V510	PSWJFET4V	0	V	SMK0F520	SUBKSTAT	00000001	HEX
SM24V510	PSWJFET5V	0	V	SMF0K520	PUMPHTRTEMP	5.35512454	K
SM25V510	PSWJFET6V	0	V	SMF1K520	PUMPHSTEMP	7.64443670	K
SM30V510	PMWJFET1V	0	V	SMF2K520	EVAPHSTEMP	6.99981675	K
SM31V510	PMWJFET2V	0	V	SMF3K520	SHUNTTEMP	4.29549853	K
SM32V510	PMWJFET3V	0	V	SMF4K520	EMCFILTEMP	11.18388950	K
SM33V510	PMWJFET4V	0	V	SMF5K520	SL0TEMP	4.30456673	K
SM50V510	PLWJFET1V	0	V	SMF6K520	PL0TEMP	4.37614554	K
SM51V510	PLWJFET2V	0	V	SMF7K520	OPTTEMP	11.22528119	K
SMT0V510	TCJFETV	0	V	SMF8K520	BAFTEMP	11.82212462	K
SMF0F510	SPECJFETSTAT	00000000	HEX	SMF9K520	BSMIFTEMP	11.32547273	K
SM00V510	SSWJFET1V	0	V	SMS0K520	SCAL2TEMP	11.31022910	K
SM01V510	SSWJFET2V	0	V	SMS1K520	SCAL4TEMP	11.14501410	K
SM10V510	SLWJFET1V	0	V	SMS2K520	SCALTEMP	11.18012761	K
SMS0W515	SMECENCNPNR	0000FFFF	HEX	SMFAK520	SMECIFTEMP	10.99033010	K
SMS1W515	SMECLVDTPNR	0000FFFF	HEX	SMFBK520	SMECTEMP	11.02068840	K
SMS1M515	SMECLOOPMODE	0000FFFF	HEX	SMFCK520	BSMTEMP	11.19545730	K
SMC0W515	CHOPSENSPNR	0000FFFF	HEX	SMK0K520	SUBKTEMP	4.48962500	K
SMJ0W515	JIGGSENSPNR	0000FFFF	HEX				

DS: 65535 ID: SA_6_5 Title: FUNCTIONAL TEST PARAMETERS

Sample Time: 2008.161.14.18.16.359

Workstation: hpws22

NAME	DESCRIPTION	VALUE	UNIT	NAME	DESCRIPTION	VALUE	UNIT
SM10N500	OBSID	B0000162	HEX	SM_1F520	SCUTEMPSTAT	0000FFFF	HEX
SM2LN500	BBFULLTYPE	Cooler_Htr_Che		SM_0X520	PLIABITSTAT	00000000	HEX
SM00M500	MODE	DRCU_ON		SM_1X520	SLIABITSTAT	00000000	HEX
SM00T500	THSK	2008.161.14.18.15.811	HEX	SM_2X520	MCUBITSTAT	00000000	HEX
SMT1N500	TM2N	00000688	HEX	SMT0A520	EVHSV	324.2000	mV
SMD1N510	DCUFRAMECNT	0		SMH0A520	SPHSV	0.1299	mV
SMD0N515	MCUFRAMECNT	0		SMT1A520	SPHTRV	0.0029	V
SMD0N520	SCUFRAMECNT	31		SMP0V520	PCALV	0.000247	V
SM20F510	PSWJFETSTAT	00000000	HEX	SMP0A520	PCALCURR	0.0012	mA
SM80F510	PMLWJFETSTAT	00000000	HEX	SMS0V520	SCAL2V	0.000436	V
SM20V510	PSWJFET1V	0	V	SMS0A520	SCAL2CURR	0.000102	mA
SM21V510	PSWJFET2V	0	V	SMS1V520	SCAL4V	0.000268	V
SM22V510	PSWJFET3V	0	V	SMS1A520	SCAL4CURR	0.000625	mA
SM23V510	PSWJFET4V	0	V	SMK0F520	SUBKSTAT	00000001	HEX
SM24V510	PSWJFET5V	0	V	SMF0K520	PUMPHTRTEMP	5.35512454	K
SM25V510	PSWJFET6V	0	V	SMF1K520	PUMPHSTEMP	7.81244006	K
SM30V510	PMWJFET1V	0	V	SMF2K520	EVAPHSTEMP	7.00755968	K
SM31V510	PMWJFET2V	0	V	SMF3K520	SHUNTTEMP	4.29505229	K
SM32V510	PMWJFET3V	0	V	SMF4K520	EMCFILTEMP	11.17507801	K
SM33V510	PMWJFET4V	0	V	SMF5K520	SL0TEMP	4.30456673	K
SM50V510	PLWJFET1V	0	V	SMF6K520	PL0TEMP	4.37662106	K
SM51V510	PLWJFET2V	0	V	SMF7K520	OPTTEMP	11.22528119	K
SMT0V510	TCJFETV	0	V	SMF8K520	BAFTEMP	11.81255587	K
SMF0F510	SPECJFETSTAT	00000000	HEX	SMF9K520	BSMIFTEMP	11.32108286	K
SM00V510	SSWJFET1V	0	V	SMS0K520	SCAL2TEMP	11.30737684	K
SM01V510	SSWJFET2V	0	V	SMS1K520	SCAL4TEMP	11.15031697	K
SM10V510	SLWJFET1V	0	V	SMS2K520	SCALTEMP	11.18413502	K
SMS0W515	SMECENCPWR	0000FFFF	HEX	SMFAK520	SMECIFTEMP	10.99279417	K
SMS1W515	SMECLVDPWR	0000FFFF	HEX	SMFBK520	SMECTEMP	11.01975622	K
SMS1M515	SMECLOOPMODE	0000FFFF	HEX	SMFCK520	BSMTEMP	11.19467360	K
SMC0W515	CHOPSENSPWR	0000FFFF	HEX	SMK0K520	SUBKTEMP	4.48962500	K
SMJ0W515	JIGGSENSPWR	0000FFFF	HEX				

DS: 65535 ID: SA_6_5 Title: FUNCTIONAL TEST PARAMETERS

Sample Time: 2008.161.14.18.37.359

Workstation: hpws22

NAME	DESCRIPTION	VALUE	UNIT	NAME	DESCRIPTION	VALUE	UNIT
SM10N500	OBSID	B0000162	HEX	SM_1F520	SCUTEMPSTAT	0000FFFF	HEX
SM2LN500	BBFULLTYPE	Cooler_Htr_Che		SM_0X520	PLIABITSTAT	00000000	HEX
SM00M500	MODE	DRCU_ON		SM_1X520	SLIABITSTAT	00000000	HEX
SM00T500	THSK	2008.161.14.18.36.811	HEX	SM_2X520	MCUBITSTAT	00000000	HEX
SMT1N500	TM2N	0000069D	HEX	SMT0A520	EVHSV	0.1087	mV
SMD1N510	DCUFRAMECNT	0		SMH0A520	SPHSV	0.1045	mV
SMD0N515	MCUFRAMECNT	0		SMT1A520	SPHTRV	8.8546	V
SMD0N520	SCUFRAMECNT	31		SMP0V520	PCALV	0.000196	V
SM20F510	PSWJFETSTAT	00000000	HEX	SMP0A520	PCALCURR	0.000928	mA
SM80F510	PMLWJFETSTAT	00000000	HEX	SMS0V520	SCAL2V	0.000336	V
SM20V510	PSWJFET1V	0	V	SMS0A520	SCAL2CURR	0.00028	mA
SM21V510	PSWJFET2V	0	V	SMS1V520	SCAL4V	0.000468	V
SM22V510	PSWJFET3V	0	V	SMS1A520	SCAL4CURR	0.000447	mA
SM23V510	PSWJFET4V	0	V	SMK0F520	SUBKSTAT	00000001	HEX
SM24V510	PSWJFET5V	0	V	SMF0K520	PUMPHTRTEMP	5.86105308	K
SM25V510	PSWJFET6V	0	V	SMF1K520	PUMPHSTEMP	7.77043922	K
SM30V510	PMWJFET1V	0	V	SMF2K520	EVAPHSTEMP	7.47222317	K
SM31V510	PMWJFET2V	0	V	SMF3K520	SHUNTTEMP	4.29460605	K
SM32V510	PMWJFET3V	0	V	SMF4K520	EMCFILTEMP	11.17507801	K
SM33V510	PMWJFET4V	0	V	SMF5K520	SL0TEMP	4.30502590	K
SM50V510	PLWJFET1V	0	V	SMF6K520	PL0TEMP	4.37614554	K
SM51V510	PLWJFET2V	0	V	SMF7K520	OPTTEMP	11.22528119	K
SMT0V510	TCJFETV	0	V	SMF8K520	BAFTEMP	11.81893504	K
SMF0F510	SPECJFETSTAT	00000000	HEX	SMF9K520	BSMIFTEMP	11.32547273	K
SM00V510	SSWJFET1V	0	V	SMS0K520	SCAL2TEMP	11.30452458	K
SM01V510	SSWJFET2V	0	V	SMS1K520	SCAL4TEMP	11.14766554	K
SM10V510	SLWJFET1V	0	V	SMS2K520	SCALTEMP	11.18413502	K
SMS0W515	SMECENCPOWER	0000FFFF	HEX	SMFAK520	SMECIFTEMP	10.99279417	K
SMS1W515	SMECLVDPWR	0000FFFF	HEX	SMFBK520	SMECTEMP	11.01975622	K
SMS1M515	SMECLOOPMODE	0000FFFF	HEX	SMFCK520	BSMTEMP	11.19388990	K
SMC0W515	CHOPSENSPOWER	0000FFFF	HEX	SMK0K520	SUBKTEMP	4.53126000	K
SMJ0W515	JIGGSENSPOWER	0000FFFF	HEX				

Enter Start Date Time:	9/6/08	14:32
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7.2.3.5 Procedure SPIRE-FM-SFT-FUNC-SCU-04-P

Version	2.3
Date	28 th August 2007
Purpose	Photometer Calibration Check (PRIME)
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON
Final configuration	Unchanged
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	3 minutes
Pass/Fail Criteria	PCAL voltage and current agree with expected values

Enter Date/Time:	9/6/08	14:36	Sign Off	TC: <i>la</i>	PA: <i>A. K...</i>
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Enter Start Date Time:	9/6/08	14:38
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Procedure Steps:

Step	Description	Parameter Name - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-SCU-04-P.tcl The expected values during the test should be monitored when parameter BBFULLTYPE in the SFT PARAMETERS display is set to PCAL_Check This usually happens about 30 seconds from the start of test execution.	PCALCJRR - mA PCALV - V BBFULLTYPE	0.0/0.1/0.0 0.0/0.026/0.0 PCAL_Check	0.1 0.0206	✓ no problem seen by RAL test to continue ✓

Test Result (Pass/Fail):

Enter Date/Time:	9/6/08	14:44	Sign Off	TC:	PA:
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Attached to page 40

DS: 65535 ID: SA_6_5 Title: FUNCTIONAL TEST PARAMETERS

Sample Time: 2008.161.14.43.37.375

Workstation: hpws22

NAME	DESCRIPTION	VALUE	UNIT	NAME	DESCRIPTION	VALUE	UNIT
SM10N500	OBSID	B0000163	HEX	SM_1F520	SCUTEMPSTAT	0000FFFF	HEX
SM2LN500	BBFULLTYPE	PCAL_Check		SM_0X520	PLIABITSTAT	00000000	HEX
SM00M500	MODE	DRCU_ON		SM_1X520	SLIABITSTAT	00000000	HEX
SM00T500	THSK	2008.161.14.43.36.826	HEX	SM_2X520	MCUBITSTAT	00000000	HEX
SMT1N500	TM2N	00000C79	HEX	SMT0A520	EVHSV	0.1087	mV
SMD1N510	DCUFRAMECNT	0		SMH0A520	SPHSV	0.0790	mV
SMD0N515	MCUFRAMECNT	0		SMT1A520	SPHTRV	0.0029	V
SMD0N520	SCUFRAMECNT	31		SMP0V520	PCALV	0.0205	V
SM20F510	PSWJFETSTAT	00000000	HEX	SMP0A520	PCALCURR	0.1010	mA
SM80F510	PMLWJFETSTAT	00000000	HEX	SMS0V520	SCAL2V	0.000236	V
SM20V510	PSWJFET1V	0	V	SMS0A520	SCAL2CURR	0.000102	mA
SM21V510	PSWJFET2V	0	V	SMS1V520	SCAL4V	0.000368	V
SM22V510	PSWJFET3V	0	V	SMS1A520	SCAL4CURR	0.000447	mA
SM23V510	PSWJFET4V	0	V	SMK0F520	SUBKSTAT	00000001	HEX
SM24V510	PSWJFET5V	0	V	SMF0K520	PUMPHTRTEMP	8.61256855	K
SM25V510	PSWJFET6V	0	V	SMF1K520	PUMPHSTEMP	7.51283408	K
SM30V510	PMWJFET1V	0	V	SMF2K520	EVAPHSTEMP	7.22257823	K
SM31V510	PMWJFET2V	0	V	SMF3K520	SHUNTTEMP	4.30665446	K
SM32V510	PMWJFET3V	0	V	SMF4K520	EMCFILTEMP	11.15745504	K
SM33V510	PMWJFET4V	0	V	SMF5K520	SL0TEMP	4.30548507	K
SM50V510	PLWJFET1V	0	V	SMF6K520	PL0TEMP	4.37662106	K
SM51V510	PLWJFET2V	0	V	SMF7K520	OPTTEMP	11.19717200	K
SMT0V510	TCJFETV	0	V	SMF8K520	BAFTEMP	11.79660796	K
SMF0F510	SPECJFETSTAT	00000000	HEX	SMF9K520	BSMIFTEMP	11.29913349	K
SM00V510	SSWJFET1V	0	V	SMS0K520	SCAL2TEMP	11.28455876	K
SM01V510	SSWJFET2V	0	V	SMS1K520	SCAL4TEMP	11.13175692	K
SM10V510	SLWJFET1V	0	V	SMS2K520	SCALTEMP	11.15407940	K
SMS0W515	SMECENCPCR	0000FFFF	HEX	SMFAK520	SMECIFTEMP	10.96568932	K
SMS1W515	SMECLVDPWR	0000FFFF	HEX	SMFBK520	SMECTEMP	10.99551929	K
SMS1M515	SMECLOOPMODE	0000FFFF	HEX	SMFCK520	BSMTEMP	11.17116250	K
SMC0W515	CHOPSENSPCR	0000FFFF	HEX	SMK0K520	SUBKTEMP	4.53126000	K
SMJ0W515	JIGGSENSPCR	0000FFFF	HEX				

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7.2.3.6 Procedure SPIRE-FM-SFT-FUNC-SCU-05-P

Version	2.3
Date	28 th 2007
Purpose	Spectrometer Calibration Check (PRIME)
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON
Final configuration	Unchanged
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	SCAL2 and SCAL4 voltage and currents agree with expected values

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-SCU-05-P.tcl	—	—	—	✓
2	Wait for the parameter BBFULLTYPE to get set to SCAL4_Check	BBFULLTYPE	SCAL4_Check		✓

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Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
3	A few seconds later record the value of parameters SCAL4CURR and SCAL4V <i>These parameters are set back to 0 after ~20 seconds</i>	SCAL4CURR – mA SCAL4V – V	0.0/0.10/0.0 0.0/0.05/0.0	0.1 0.05	✓ ✓ <i>attach. 1/2</i>
4	Wait for the parameter BBFULLTYPE to get set to SCAL2_Check	BBFULLTYPE	SCAL2_Check		✓
5	A few seconds later record the values of parameters SCAL2CURR and SCAL2V <i>These parameters are set back to 0 after ~20 seconds</i>	SCAL2CURR – mA SCAL2V – V	0.0/0.10/0.0 0.0/0.05/0.0	0.1 0.05	✓ ✓ <i>attach. 2/2</i>

Test Result (Pass/Fail):

Enter Date/Time:	9/6/08	14:08	Sign Off	TC: 60	PA: <i>R. Vasquez</i>
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DS: 65535 ID: SA_6_5 Title: FUNCTIONAL TEST PARAMETERS

Sample Time: 2008.161.14.48.26.378

Workstation: hpws22

NAME	DESCRIPTION	VALUE	UNIT	NAME	DESCRIPTION	VALUE	UNIT
SM10N500	OBSID	B0000164	HEX	SM_1F520	SCUTEMPSTAT	0000FFFF	HEX
SM2LN500	BBFULLTYPE	SCAL4_Check		SM_0X520	PLIABITSTAT	00000000	HEX
SM00M500	MODE	DRCU_ON		SM_1X520	SLIABITSTAT	00000000	HEX
SM00T500	THSK	2008.161.14.48.25.830	HEX	SM_2X520	MCUBITSTAT	00000000	HEX
SMT1N500	TM2N	00000D9A	HEX	SMT0A520	EVHSV	0.1342	mV
SMD1N510	DCUFRAMECNT	0		SMH0A520	SPHSV	0.1299	mV
SMD0N515	MCUFRAMECNT	0		SMT1A520	SPHTRV	0.0029	V
SMD0N520	SCUFRAMECNT	31		SMP0V520	PCALV	0.000298	V
SM20F510	PSWJFETSTAT	00000000	HEX	SMP0A520	PCALCURR	0.000928	mA
SM80F510	PMLWJFETSTAT	00000000	HEX	SMS0V520	SCAL2V	0.000236	V
SM20V510	PSWJFET1V	0	V	SMS0A520	SCAL2CURR	0.000102	mA
SM21V510	PSWJFET2V	0	V	SMS1V520	SCAL4V	0.0507	V
SM22V510	PSWJFET3V	0	V	SMS1A520	SCAL4CURR	0.1017	mA
SM23V510	PSWJFET4V	0	V	SMK0F520	SUBKSTAT	00000001	HEX
SM24V510	PSWJFET5V	0	V	SMF0K520	PUMPHTRTEMP	8.54406694	K
SM25V510	PSWJFET6V	0	V	SMF1K520	PUMPHSTEMP	7.44656609	K
SM30V510	PMWJFET1V	0	V	SMF2K520	EVAPHSTEMP	7.16503925	K
SM31V510	PMWJFET2V	0	V	SMF3K520	SHUNTTEMP	4.30620822	K
SM32V510	PMWJFET3V	0	V	SMF4K520	EMCFILTEMP	11.14423782	K
SM33V510	PMWJFET4V	0	V	SMF5K520	SL0TEMP	4.30548507	K
SM50V510	PLWJFET1V	0	V	SMF6K520	PL0TEMP	4.37662106	K
SM51V510	PLWJFET2V	0	V	SMF7K520	OPTTEMP	11.19717200	K
SMT0V510	TCJFETV	0	V	SMF8K520	BAFTEMP	11.79022880	K
SMF0F510	SPECJFETSTAT	00000000	HEX	SMF9K520	BSMIFTEMP	11.29474362	K
SM00V510	SSWJFET1V	0	V	SMS0K520	SCAL2TEMP	11.27600198	K
SM01V510	SSWJFET2V	0	V	SMS1K520	SCAL4TEMP	11.13705979	K
SM10V510	SLWJFET1V	0	V	SMS2K520	SCALTEMP	11.15608311	K
SMS0W515	SMECENCPWR	0000FFFF	HEX	SMFAK520	SMECIFTEMP	10.96322524	K
SMS1W515	SMECLVDPWR	0000FFFF	HEX	SMFBK520	SMECTEMP	10.99551929	K
SMS1M515	SMECLOOPMODE	0000FFFF	HEX	SMFCK520	BSMTEMP	11.16567658	K
SMC0W515	CHOPSENSPWR	0000FFFF	HEX	SMK0K520	SUBKTEMP	4.57289500	K
SMJ0W515	JIGGSENSPWR	0000FFFF	HEX				

DS: 65535 ID: SA_6_5 Title: FUNCTIONAL TEST PARAMETERS

Sample Time: 2008.161.14.48.54.378

Workstation: hpws22

NAME	DESCRIPTION	VALUE	UNIT	NAME	DESCRIPTION	VALUE	UNIT
SM10N500	OBSID	B0000164	HEX	SM_1F520	SCUTEMPSTAT	0000FFFF	HEX
SM2LN500	BBFULLTYPE	SCAL2 Check		SM_0X520	PLIABITSTAT	00000000	HEX
SM00M500	MODE	DRCU_ON		SM_1X520	SLIABITSTAT	00000000	HEX
SM00T500	THSK	2008.161.14.48.53.830	HEX	SM_2X520	MCUBITSTAT	00000000	HEX
SMT1N500	TM2N	00000DB6	HEX	SMT0A520	EVHSV	0.1087	mV
SMD1N510	DCUFRAMECNT	0		SMH0A520	SPHSV	0.1045	mV
SMD0N515	MCUFRAMECNT	0		SMT1A520	SPHTRV	0.0029	V
SMD0N520	SCUFRAMECNT	31		SMP0V520	PCALV	0.000247	V
SM20F510	PSWJFETSTAT	00000000	HEX	SMP0A520	PCALCURR	0.0014	mA
SM80F510	PMLWJFETSTAT	00000000	HEX	SMS0V520	SCAL2V	0.0507	V
SM20V510	PSWJFET1V	0	V	SMS0A520	SCAL2CURR	0.1016	mA
SM21V510	PSWJFET2V	0	V	SMS1V520	SCAL4V	0.000168	V
SM22V510	PSWJFET3V	0	V	SMS1A520	SCAL4CURR	0.000625	mA
SM23V510	PSWJFET4V	0	V	SMK0F520	SUBKSTAT	00000001	HEX
SM24V510	PSWJFET5V	0	V	SMF0K520	PUMPHTRTEMP	8.53772419	K
SM25V510	PSWJFET6V	0	V	SMF1K520	PUMPHSTEMP	7.44096598	K
SM30V510	PMWJFET1V	0	V	SMF2K520	EVAPHSTEMP	7.16132706	K
SM31V510	PMWJFET2V	0	V	SMF3K520	SHUNTTEMP	4.30665446	K
SM32V510	PMWJFET3V	0	V	SMF4K520	EMCFILTEMP	11.14423782	K
SM33V510	PMWJFET4V	0	V	SMF5K520	SL0TEMP	4.30456673	K
SM50V510	PLWJFET1V	0	V	SMF6K520	PL0TEMP	4.37614554	K
SM51V510	PLWJFET2V	0	V	SMF7K520	OPTTEMP	11.19717200	K
SMT0V510	TCJFETV	0	V	SMF8K520	BAFTEMP	11.79022880	K
SMF0F510	SPECJFETSTAT	00000000	HEX	SMF9K520	BSMIFTEMP	11.29254868	K
SM00V510	SSWJFET1V	0	V	SMS0K520	SCAL2TEMP	11.28455876	K
SM01V510	SSWJFET2V	0	V	SMS1K520	SCAL4TEMP	11.16092272	K
SM10V510	SLWJFET1V	0	V	SMS2K520	SCALTEMP	11.15207569	K
SMS0W515	SMECENCPCR	0000FFFF	HEX	SMFAK520	SMECIFTEMP	10.96322524	K
SMS1W515	SMECLVDTPWR	0000FFFF	HEX	SMFBK520	SMECTEMP	10.99365492	K
SMS1M515	SMECLOOPMODE	0000FFFF	HEX	SMFCK520	BSMTEMP	11.16646028	K
SMC0W515	CHOPSENSPWR	0000FFFF	HEX	SMK0K520	SUBKTEMP	4.53126000	K
SMJ0W515	JIGGSENSPWR	0000FFFF	HEX				

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7.2.3.7 Procedure SPIRE-FM-SFT-FUNC-MCU-01-P

Version	2.4.2.3
Date	4 th June 2008 28 th August 2007
Purpose	MCU (PRIME) Boot Check
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON
Final configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted.
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	MCU voltages and board temperatures show expected 'ON' values

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-MCU-01-P.tcl	—	—	—	—
2	Check that the MCU is booted up successfully	MCUBITSTAT	0/1/1	0/1/1	

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Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
3	Check MCU HK parameter values and ensure that the values are refreshing	MCUP5V MCUP14V MCUM14V MCUP15V MCUM15V MCUMACTEMP MCUSMECTEMP MCUBSMTEMP	~ 5.0 ± 0.2V ~ 14.0 ± 0.5V ~ -14.0 ± 0.5 0.6V ~ 15.0 ± 0.5 0.6V ~ -15.0 ± 0.7V ~300K ~300K ~300K	} see attachment ✓	

Test Result (Pass/Fail):

Enter Date/Time:	9/6/08	14:54	Sign Off	TC: <i>lo</i>	PA: <i>P. Vascolle</i>
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DS: 65535 ID: SA_7_5 Title: SFT PARAMETERS

Sample Time: 2008.161.14.53.56.381

Workstation: hpws22

NAME	DESCRIPTION	VALUE	UNIT	NAME	DESCRIPTION	VALUE	UNIT
SM10N500	OBSID	B0000000	HEX	SM_1V520	SCUP9V	9.0883	V
SM2LN500	BBFULLTYPE	Null		SM_2V520	SCUM9V	-9.0818	V
SM00M500	MODE	DRCU_ON		SMT0A520	EVHSV	0.1087	mV
SM00T500	THSK	2008.161.14.53.55.833	HEX	SMH0A520	SPHSV	0.1045	mV
SMT1N500	TM2N	00000EE4	HEX	SMT1A520	SPHTRV	0.0023	V
SMD1N510	DCUFRAMECNT	0		SMP0V520	PCALV	0.000298	V
SMD0N515	MCUFRAMECNT	0		SMP0A520	PCALCURR	0.000928	mA
SMD0N520	SCUFRAMECNT	31		SMS0V520	SCAL2V	0.000136	V
SMB6V510	BIASP5V	5.18	V	SMS0A520	SCAL2CURR	0.000102	mA
SMB7V510	BIASP9V	8.99	V	SMS1V520	SCAL4V	0.000268	V
SMB8V510	BIASM9V	-9.05	V	SMS1A520	SCAL4CURR	0.000625	mA
SML0V510	PLIAP5V	0.23	V	SMK0F520	SUBKSTAT	00000001	HEX
SML1V510	PLIAP9V	0.015	V	SMF0K520	PUMPHTRTEMP	8.46922258	K
SML2V510	PLIAM9V	0.016	V	SMF1K520	PUMPHSTEMP	7.40363190	K
SML3V510	SLIAP5V	0.10	V	SMF2K520	EVAPHSTEMP	7.12800513	K
SML4V510	SLIAP9V	0.016	V	SMF3K520	SHUNTTEMP	4.30620822	K
SML5V510	SLIAM9V	0.016	V	SMF4K520	EMCFILTEMP	11.13983207	K
SM_4V515	MCUP5V	5.01	V	SMF5K520	SL0TEMP	4.30548507	K
SM_2V515	MCUP14V	14.15	V	SMF6K520	PL0TEMP	4.37614554	K
SM_3V515	MCUM14V	-14.46	V	SMF7K520	OPTTEMP	11.18920574	K
SM_0V515	MCUP15V	15.54	V	SMF8K520	BAFTEMP	11.78066005	K
SM_1V515	MCUM15V	-15.64	V	SMF9K520	BSMIFTEMP	11.29254868	K
SMM0K515	MCUMACTEMP	292.67	K	SMS0K520	SCAL2TEMP	11.29026328	K
SMF0K515	MCUSMECTEMP	297.66	K	SMS1K520	SCAL4TEMP	11.13440836	K
SMB0K515	MCUBSMTEMP	297.26	K	SMS2K520	SCALTEMP	11.15007199	K
SMS0W515	SMECENCPWR	00000000	HEX	SMFAK520	SMECIFTEMP	10.95583301	K
SMS1W515	SMECLVDPWR	00000000	HEX	SMFBK520	SMECTEMP	10.98712959	K
SMS1M515	SMECLOOPMODE	00000006	HEX	SMFCK520	BSMTEMP	11.16175806	K
SMC0W515	CHOPSENSPWR	00000000	HEX	SMK0K520	SUBKTEMP	4.57289500	K
SMJ0W515	JIGGSENSPWR	00000000	HEX	SM_0X520	PLIABITSTAT	00000000	HEX
SM_1F520	SCUTEMPSTAT	0000FFFF	HEX	SM_1X520	SLIABITSTAT	00000000	HEX
SM_0V520	SCUP5V	5.2386	V	SM_2X520	MCUBITSTAT	00000001	HEX

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7.2.3.8 Procedure: SPIRE-FM-SFT-FUNC-MCU-02-P

Version	2.2
Date	2 nd January 2007
Purpose	MCU Nominal Frame Generation Check
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted.
Final configuration	Unchanged.
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	Specified MCU HK parameters show expected increment

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-MCU-02-P.tcl	MCUFRAMECNT	FM : 0/297	- 0/297	- ✓

Test Result (Pass/Fail):

Enter Date/Time:	9/6/08	14:57	Sign Off	TC: <i>lw</i>	PA: <i>Ph. Vasilek</i>
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Enter Start Date|Time: 3/6/08 14:58

7.2.3.9 Procedure SPIRE-FM-SFT-FUNC-BSM-01-P

Version	2.3
Date	28 th August 2007
Purpose	BSM (PRIME) Chop/Jiggle Sensor Check.
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted.
Final configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted. BSM Chop/Jiggle sensors are ON.
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • SPIRE MCU PRIME is booted. • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	3 minutes
Pass/Fail criteria	HK Parameters CHOPSENSPWR and JIGGSENSPWR show expected ON values.

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/During/ After	Actual Values Before/During/ After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-BSM-01-P.tcl	—	—	—	—
2	Check that the Chop and Jiggle sensors have switched on	CHOPSENSPWR JIGGSENSPWR	0/1/1 0/1/1	0/1/1 0/1/1	✓

Test Result (Pass/Fail):

Enter Date/Time: 3/6/08 14:58 Sign Off TC: PA: *[Signature]*

Enter Start Date|Time: 9/6/08 14:59

7.2.3.10 Procedure SPIRE-FM-SFT-BSM-OFF-P

Version	2.3
Date	28 th August 2007
Purpose	BSM (PRIME) Switch OFF
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted. BSM Chop/Jiggle sensors are ON.
Final configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted. BSM Chop/Jiggle sensors are OFF.
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • SPIRE MCU PRIME is booted. • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	3 minutes
Pass/Fail criteria	HK Parameters CHOPSENSPWR and JIGGSENSPWR show expected OFF values.

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/Failure
1	Execute SPIRE-FM-SFT-BSM-OFF-P.tcl	—	—	—	—
2	Check that the power to the BSM sensors is switched off	CHOPSENSPWR JIGGSENSPWR	1/-/0 1/-/0	1/0 1/0	OK

Test Result (Pass/Fail):

Enter Date/Time: 9/6/08 15:00 Sign Off TC: PA: *[Signature]*

Enter Start Date Time:	09/06/07	15:05	
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7.2.3.11 Procedure SPIRE-FM-SFT-FUNC-SMEC-01-P

Version	2.3
Date	28 th August 2007
Purpose	SMEC (PRIME) Encoder/LVDT Sensor Check.
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted.
Final configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted. SMEC Encoder and LVDT are ON.
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • SPIRE MCU PRIME is booted. • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	3 minutes
Pass/Fail criteria	HK Parameters SMECENCPWR and SMECLVDTPWR show expected ON values.

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-SMEC-01-P.tcl	—	—	—	✓
2	Check that power to the SMEC LED and LVDT sensor is on	SMECENCPWR SMECLVDTPWR	0/-1 0/-1	0/1/1 0/1	✓

Test Result (Pass/Fail):	
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Enter Start Date|Time: 9/6/08 15:08

7.2.3.12 Procedure SPIRE-FM-SFT-SMEC-OFF-P

Version	2.3
Date	28 th August 2007
Purpose	SMEC (PRIME) Switch OFF
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted. SMEC Encoder and LVDT are ON.
Final configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted. SMEC Encoder and LVDT are OFF.
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • SPIRE MCU PRIME is booted. • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	3 minutes
Pass/Fail criteria	HK Parameters SMECENCPWR and SMECLVDTPWR show expected OFF values.

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute SPIRE-FM-SFT-SMEC-OFF-P.tcl	—	—	—	—
2	Check that the power to the SMEC sensors is switched off	SMECENCPWR SMECLVDTPWR	1/-0 1/-0	1/0 1/0	✓

Test Result (Pass/Fail):

Enter Date/Time: 9/6/08 15:09 Sign Off TC: PA: *[Signature]*

Enter Start Date/Time:	8/6/08	15:11	
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7.2.3.13 Procedure SPIRE-FM-SFT-FUNC-DCU-01-P

Version	2.2
Date	2 nd January 2007
Purpose	DCU science packet generation check for all Photometer and Spectrometer packet types (PF, PSW, PMW, PLW, SF, SSW and SLW)
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted.
Final configuration	Unchanged
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	Specified DCU HK parameter shows expected increment

Procedure Steps:

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-DCU-01-P.tcl	DCUFRAMECNT	0/700	0/700	✓

Test Result (Pass/Fail):

Enter Date/Time:	8/6/08	15:14	Sign Off	TC: <i>Go</i>	PA: <i>D. Vascolka</i>
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Enter Start Date|Time: 8/6/08 15:14

7.2.3.14 Procedure SPIRE-FM-SFT-FUNC-DCU-04-PHOT-P

Version	2.4
Date	10 th Sept 2007
Purpose	Photometer LIAs PRIME Check
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted.
Final configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted. Photometer LIAs are ON
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • Photometer LIAs are OFF • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • DCU PARAMETERS & SFT PARAMETERS displays are selected on the CCS
Duration	5 minutes
Pass/Fail criteria	Specified Photometer LIA HK parameters show expected ON values

Procedure Steps:

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-DCU-04-PHOT-P.tcl	PLIABITSTAT	0/1/1	0/1/1	✓

Enter Date/Time: 8/6/08 15:15 Sign Off TC: lo PA: *[Signature]*

Enter Start Date Time:	9/6/08	15:17
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Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
2	Check Photometer LIA HK parameter values and ensure that the values are refreshing	PLIAP5V PLIAP9V PLIAM9V	0.0/-/ 5.2 ± 0.2V 0.0/-/ 11.5 ± 0.5V 0.0/-/ -11.5 ± 0.5V	5.23 11.58 -11.58	✓
3	On the DCU PARAMETERS display check that the LIA temperatures are slowly warming up. At switch-on it is possible that some of the LIA temperatures will be in soft or even hard limits. No action is required.	LIAP1TEMP to LIAP9TEMP	~ 290-300 K	295 295	✓
4	Wait for ~3 minutes before continuing with the SFTs	—	—	—	—

Test Result (Pass/Fail):

Enter Date/Time:	9/6/08	15:18	Sign Off	TC: <i>6</i>	PA: <i>P. Vasco</i>
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Enter Start Date|Time: 09/06/08 15:22

7.2.3.15 Procedure SPIRE-FM-SFT-PLIA-OFF-P

Version	2.4
Date	10 th Sept 2007
Purpose	Photometer LIAs PRIME Switch OFF
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted. Photometer LIAs are ON
Final configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted. Photometer LIAs are OFF
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • Photometer LIAs are ON • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	2 minutes
Pass/Fail criteria	Specified Photometer LIA HK parameters show expected OFF values

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Success/Failure
1	Execute TCL script SPIRE-FM-SFT-PLIA-OFF-P.tcl	PLIABITSTAT	1/-0	1/0	OK
2	Check Photometer LIA HK parameter values	PLIAP5V PLIAP9V PLIAM9V	5.2 ± 0.2V/-0.0 11.5 ± 0.5V/-0.0 - 11.5 ± 0.5V/-0.0	0 0 0	OK

Test Result (Pass/Fail):

Enter Date/Time: 09/06/08 15:22 Sign Off TC: PA: R. / 05.06.08

Enter Start Date Time:	09.06.08	15:24
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7.2.3.16 Procedure SPIRE-FM-SFT-FUNC-DCU-04-SPEC-P

Version	2.4
Date	10 th Sept 2007
Purpose	Spectrometer LIAs PRIME Check
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted.
Final configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted. Spectrometer LIAs are ON
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • Spectrometer LIAs are OFF • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • SFT PARAMETERS & DCU PARAMETERS displays are selected on the CCS
Duration	5 minutes
Pass/Fail criteria	Specified Spectrometer LIA HK parameters show expected ON values

Procedure Steps:

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-DCU-04-SPEC-P.tcl	SLIABITSTAT	0/1/1	0/1/1	

Enter Date/Time:	09.06.08	15:26	Sign Off	TC:	PA:
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Enter Start Date Time:	09/06/08	15:25
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Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
2	Check Spectrometer LIA HK parameter values and ensure that the values are refreshing	SLIAP5V SLIAP9V SLIAM9V	0.0/- 5.2 ± 0.2V 0.0/- 11.5 ± 0.5V 0.0/-11.5 ± 0.5V	5.25 11.59 11.56	
3	On the DCU PARAMETERS display check that the LIA temperatures are slowly warming up. At switch-on it is possible that some of the LIA temperatures will be in soft or even hard limits. No action is required.	LIAS1TEMP to LIAS3TEMP	~ 290-300 K	296.19 295.63	
4	Wait for ~3 minutes before continuing with the SFTs	—	—	—	—

Test Result (Pass/Fail):	pass
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Enter Date/Time:	09/06/08	15:26	Sign Off	TC:	PA:
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Enter Start Date Time:	09/06/08	15:27
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7.2.3.17 Procedure SPIRE-FM-SFT-SLIA-OFF-P

Version	2.4
Date	10 th Sept 2007
Purpose	Spectrometer LIAs PRIME Switch OFF
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted. Spectrometer LIAs are ON
Final configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted. Spectrometer LIAs are OFF
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • Spectrometer LIAs are ON • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	2 minutes
Pass/Fail criteria	Specified Spectrometer LIA HK parameters show expected OFF values

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Success/Failure
1	Execute TCL script SPIRE-FM-SFT-SLIA-OFF-P.tcl	SLIABITSTAT	1/-0	1/0	OK

Enter Date/Time:	09/06/08	15:28	Sign Off	TC: <i>ko</i>	PA: <i>R. J. ...</i>
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Enter Start Date Time:	09/06/08	15:28
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Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Success/Failure
2	Check Photometer LIA HK parameter values	SLIAP5V SLIAP9V SLIAM9V	5.2 ± 0.2V/-0.0 11.5 ± 0.5V/-0.0 -11.5 ± 0.5V/-0.0	0 0 0	OK

Test Result (Pass/Fail):	pass
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Enter Date/Time:	09/06/08	15:28	Sign Off	TC: <i>Go</i>	PA: <i>R. K...</i>
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Enter Start Date Time:	09/06/08		
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7.2.3.18 Procedure SPIRE-FM-SFT-FUNC-MCU-OFF-P

Version	2.4 2-3
Date	4 th June 2008 28 th August 2007
Purpose	MCU PRIME Switch OFF
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is booted.
Final configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU PRIME is OFF.
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • SPIRE MCU PRIME is ON. • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	2 minutes
Pass/Fail criteria	Specified MCU HK Parameter shows expected value.

Note: type 5/4 event: ALARM LSMCU DEAD is expected ✓

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/Failure
1	Execute SPIRE-FM-SFT_FUNC-MCU-OFF-P.tcl	—	—	—	— <i>0/6</i>

VM_COPYTABLE_FAULT

Enter Date/Time:	09/06/08	15:43	Sign Off	TC: <i>lo</i>	PA: <i>P. Vasallo</i>
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Doc. No: HP-2-ASED-TP-0212

Issue: 1.1

Date: 03.06.08

File: SPIRE FM Short Functional TP HP-2-ASED-TP-0212_iss1_1.doc

Enter Start Date|Time: 08/06/07 15:44

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/Failure
2	<p>Check that the MCU is switched off</p> <p>Expected events:</p> <ul style="list-style-type: none"> A TM(5.1) event report with Event ID 0x0521 and SID 0x510F will be received to indicate that the DPU is not receiving a response from the MCU. A TM(5.4) event report with Event ID 0x550D and SID 0x5420 will be received to indicate the MCU disconnection from the DPU. 	MCUBITSTAT	1/-/0	1/0 0/0 ✓ ✓	OK see attachment

Test Result (Pass/Fail): pass

Enter Date/Time: 09/06/07 15:44 Sign Off TC: [Signature] PA: [Signature]

Jun 09, 08 15:43

TMPH_PRNT_2008.161.15.43.19.626

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TM Packet Query Display
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A

TM Packet Details

Mnemonic: SMCURE000500 Description: No_MCU_Response_Error Simulated: N

S/C ID: 486 G/S ID: 0 SLE ID: 0 OCC ID: 0 VCID: 0 HFA D/S: 65535

Data Unit Type: GOOD SP Time Stamp Type: PG Time Quality: G

APID: 1280 SSC: 6180 Type: 5 Subtype: 1 PI1: 1313 PI2: 20751

SPID: 190150500 TPSD: -1 HFA Counter: 1 Filing: E Distribution: E

Time Field: Y Packet Period: 0 [msec] CRC: ? Event Severity: ?

TM Packet Parameter Data

Generation time: 2008.161.15.39.41.006 Reception time: 2008.161.15.39.41.539

TM Packet Raw Data

SCOS-2000 Header:

0000:0000 0000 BD4E 4D48 4619 0000 BD4E 4D48 993B 0800 0100 0000 E601 0000 6400 0000

0020:1138 FFFF 0100 0000 6477 550B 0000 0000 0000 0000 FFFF FFFF 10FF 0005 2418 0501

Packet Raw Data:

0000:0D00 D824 001D 0005 0100 5EDF AD3D 01A8 0521 510F B000 0174 8908 0001 0128 9800

0020:0000 8DE8

Jun 09, 08 15:42

TMPH_PRNT_2008.161.15.42.00.071

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TM Packet Query Display =====

TM Packet Details -----

Mnemonic: SALMCU000500	Description: SPIRE_ALARM_LSMCU_DEAD	Simulated: N
S/C ID: 486	G/S ID: 0	SLE ID: 0
	OCC ID: 0	VCID: 0
		HFA D/S: 65535
Data Unit Type: GOOD SP	Time Stamp Type: PG	Time Quality: G
APID: 1280	SSC: 6181	Type: 5
		Subtype: 4
		PI1: 21773
		PI2: 21536
SPID: 190635500	TPSD: -1	HFA Counter: 0
		Filing: E
		Distribution: E
Time Field: Y	Packet Period: 0 [msec]	CRC: ?
		Event Severity: ?

TM Packet Parameter Data -----

Generation time: 2008.161.15.39.41.015 Reception time: 2008.161.15.39.41.539

TM Packet Raw Data -----

SCOS-2000 Header:

```
0000:0000 0000 BD4E 4D48 093D 0000 BD4E 4D48 EB3B 0800 0100 0000 E601 0000 6800 0000
0020:1138 FFFF 0000 0000 ECDD 5C0B 0000 0000 0000 0000 FFFF FFFF 10FF 0005 2518 0504
```

Packet Raw Data:

```
0000:0D00 D825 0021 0005 0400 5EDF AD3D 0400 550D 5420 B000 0174 8908 0001 0001 9800
0020:0000 0100 FFFF FE6F
```


Jun 09, 08 15:42

TMPH_PRNT_2008.161.15.42.18.044

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TM Packet Query Display
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TM Packet Details

Mnemonic: SVMCPYTBLFLT Description: VM_COPYTABLE_FAULT Simulated: N
S/C ID: 486 G/S ID: 0 SLE ID: 0 OCC ID: 0 VCID: 0 HFA D/S: 65535
Data Unit Type: GOOD SP Time Stamp Type: PG Time Quality: G
APID: 1280 SSC: 6183 Type: 5 Subtype: 1 PI1: 1302 PI2: 20886
SPID: 190760500 TPSD: -1 HFA Counter: 0 Filing: E Distribution: E
Time Field: Y Packet Period: 0 [msec] CRC: ? Event Severity: ?

TM Packet Parameter Data

Generation time: 2008.161.15.39.42.017 Reception time: 2008.161.15.39.44.536

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 BE4E 4D48 B944 0000 C04E 4D48 752E 0800 0100 0000 E601 0000 8001 0000
0020:1138 FFFF 0000 0000 34C6 5E0B 0000 0000 0000 0000 FFFF FFFF 10FF 0005 2718 0501

Packet Raw Data:
0000:0D00 D827 0139 0005 0100 5EDF AD3E 0481 0516 5196 B000 0174 8908 0001 0129 0000
0020:00D4 0005 6106 0401 0000 0000 0000 FFFF FFFF 0000 0000 0300 FFFF 0000 FFFF 0000
0040:0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0060:0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 FFFF
0080:0000 0006 0000 0000 0000 0024 0000 0004 0000 0008 0000 0009 0000 0001 0000 0000
00A0:0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
00C0:0000 0000 0000 0000 0000 0000 0000 0000 0000 0008 0000 0000 0000 0000 0000 0000
00E0:0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0100:0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0120:0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 7753

Enter Start Date Time:	09/06/08	15:46
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7.2.3.19 Procedure SPIRE-FM-SFT-FUNC-MCUCSCU-OFF-P

Version	2.4 2-3
Date	4 th June 2008 28 th August 2007
Purpose	SCU PRIME Switch OFF
Initial configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is ON.
Final configuration	SPIRE DPU and DRCU PRIME are ON and SPIRE HK is being produced and AC/DC thermometry is OFF
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU PRIME is switched ON • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	2 minutes
Pass/Fail criteria	Specified SCU HK Parameters show expected value.

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-SCU-OFF-P.tcl	—	—	—	—
2	A few seconds later record the value of parameter SCUTEMPSTAT	SCUTEMPSTAT	0xFFFF/-0	0xFFFF/0	OK
3	A few seconds later record the value of parameter SUBKSTAT	SUBKSTAT	1/-0	1/0	

Test Result (Pass/Fail): *pass*

Enter Date/Time:	09/06/08	15:48	Sign Off	TC:	<i>[Signature]</i>	PA:	<i>[Signature]</i>
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Enter Start Date|Time: 09/06/08 15:49

7.2.4 Switch Off DRCU & DPU PRIME

Step- No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
1.	From the HPCCS test conductor console start the test script to power OFF SPIRE Prime from REDY: S102999SCVT007_ASDFSFTSPIR_PWR_OFF_P	OK	OK		ug	
2.	On HPCCS when prompted: "SPIRE Switch OFF for SFT related tests in any conditions - Select NO to abort TS if not correct"	YES	YES		ug	
3.	If in any doubt about the script being executed NO should be selected to abort the script. Before restarting consult the relevant instrument support engineer to confirm the correct script to be used for the test in question.			N/A		
4.	If YES is selected the test script will go on to automatically power off all SPIRE warm units.				ug	

Enter Date/Time: 09/06/08 15:51 Sign Off TC: 6 PA: R. Vesco

Enter Start Date|Time: 09/06/08 15:33

Not here, but
7.2.3.19
step 4

Step- No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
5.	<p>During Switch OFF of SPIRE the following (5,1) and (5,4) event messages on APID 1280 are expected and do not indicate a problem:</p> <p>a) EVID 1313 No_MCU_Response_Error b) EVID 21773 ALARM_LSMCU_DEAD</p>				OK	
6.	<p>On HPCCS when prompted: "Check Telemetry No Longer Updating - OK to continue"</p> <p>Check that parameters:</p> <p>THSK Not refreshing TM2N Not incrementing</p>		<p>not refreshing not incrementing</p>	AND: SA_1_559	OK	
7.	Select OK to continue	OK	OK		OK	
8.	<p>On HPCCS when all autonomous actions have been completed by the power on script S102999SCVT007_ASDFSFTSPIR_PWR_OFF_P it will prompt: "Bus profile left as SPIRE PRIME, change manually after if required - OK to continue"</p>				OK	

Enter Date/Time: 09/06/08 15:55 Sign Off TC: PA: [Signature]

Enter Start Date|Time: 09/06/08 15:56

Step- No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
9.	Select OK to continue	OK	OK			
10.	On HPCCS stop Packet History displays for the following APIDs:1280,1282	OK	OK			
11.	SPIRE OFF		OK			

Enter Date/Time: 09/10/08 15:56 Sign Off TC: *66* PA: *[Signature]*

Enter Start Date|Time:

7.2.5 Procedure SPIRE-FM-WFT-LPU-01-P => PVS ~~4~~ step 1

N/A

Version	1.0
Date	Tuesday, 28 August 2007
Purpose	DPU PRIME Switch OFF
Initial configuration	Prime and redundant DPU and DRCU are off
Final configuration	Prime and redundant DPU and DRCU are off
Constraints	<ul style="list-style-type: none"> • Cryostat is vertical to within $\pm 45^\circ$ • Prime and redundant DPU and DRCU are off
Duration	5 minutes
Pass/Fail criteria	The specified current is drawn when the LPU is enabled and is switched off when the LPU is disabled

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Power on Prime LPU LCL (LCL #25)	LCL status	OFF/ /ON		State of LCL #25 switches to ON
2	Send HL command #5 (LPU Enable Prime)	LCL #25 current	0mA/ /130-180mA		Current between 130-180mA

Enter Date/Time: Sign Off TC: PA:

Enter Start Date|Time:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
4	Send HL command #6 (LPU Disable Prime)	LCL #25 current	130-180mA/ /0mA		Current off
5	Un-power Prime LPU LCL (LCL # 25)	LCL status	ON/ / OFF		State of LCL #25 switches to OFF

N/A
(PVS ~~4~~)

Test Result (Pass/Fail):

Enter Date/Time: Sign Off TC: PA:

Enter Start Date Time:	9/6/08	16:14	
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7.2.6 Switch On SPIRE REDUNDANT DPU & DRCU

During power on of SPIRE a number of soft/hard OOLs are reported due to the sequential switch on of the units. This is expected and will clear when SPIRE is in REDY mode. When in REDY mode one parameter remains OOL (soft) namely SMD2V505 this is also expected.

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
1.	On HPCCS start Packet History displays for the following APIDs:1281,1283	OK			✓	
2.	From the HPCCS test conductor console start the test script to power SPIRE Prime to REDY: S102999SCVT006_ASDFSFTSPIR_PWR_ON_R				✓	
3.	On HPCCS when prompted: "SPIRE Switch ON for IST Debug only in warm SFT related test in any conditions - Select NO to abort TS if not correct"	YES			✓	

Enter Date/Time:	9/6/08	16:15	Sign Off	TC: <i>[Signature]</i>	PA: <i>[Signature]</i>
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Enter Start Date Time:	9/6/08	16:16
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Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
4.	If in any doubt about the script being executed NO should be selected to abort the script. Before restarting consult the relevant instrument support engineer to confirm the correct script to be used for the test in question.			N/A		
5.	If YES is selected the test script will go on to automatically power on all SPIRE warm units, force boot the DPU ASW and configure the instrument to REDY (Standby mode).				✓	
6.	On HPCCS when prompted: "Check Telemetry Updating Correctly and OBT is Consistent with CDMU - OK to continue"	OK go			✓	
7.	If I-EGSE connected when prompted on HPCCS, perform check requested: "Check IEGSE Time Consistent - OK to continue when RAL confirm"	OK go			✓	
8.	On HPCCS when prompted: "Check Telemetry No Longer Updating - OK to continue" Check that parameters:	Go		AND: SA_1_559	✓	

Enter Date/Time:	9/6/08	16:21	Sign Off	TC: 60	PA: B. Vasquez
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Enter Start Date Time:	8/6/08	16:21
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Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
		THSK Not refreshing	<i>Not refreshing</i>		✓	
		TM2N Not incrementing	<i>Not incrementing</i>			
9.	Select OK to continue	OK			✓	
10.	On HPCCS when prompted: "Check Telemetry Updating Correctly - OK to continue" Check that parameters:	THSK Refreshing @ 1Hz TM2N Incrementing by 1 @ 1Hz		AND: SA_1_559	✓	
11.	Select OK to continue	OK <i>Go</i>			✓	
12.	On HPCCS when all autonomous actions have been completed by the power on script S102999SCVT006_ASDFSFTSPIR_PWR_ON_R it will prompt: "Set Bus Profile Back to Original Setting?" Select NO	NO	<i>NO</i>		✓	

Enter Date/Time:	8/6/08	16:22	Sign Off	TC: <i>60</i>	PA: <i>[Signature]</i>
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Enter Start Date|Time: 9/6/08 16:23

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
13.	At the prompt: "Bus Profile left unchanged" Select OK to continue	OK	ok		✓	
14.	Verify HK TM packets are being received on APIDs 1281 & 1283				✓	
15.	MODE parameter is set to "REDYDRCU ON" mode (RAW value 0x02000x0100)	SM00M500 = 0x0200-0x0100 (REDYDRCU ON)	ok	AND: SA_1_559	✓	
16.	SPIRE powered and in REDY-DRCU ON mode				✓	

P15 #2

Bus I/F Check performed, ok

Enter Date/Time: 9/6/08 16:24 Sign Off TC: PA: [Signature]

Enter Start Date Time:	9/6/08	16:25
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7.2.7 Short Functional Tests - Redundant

7.2.7.1 Procedure SPIRE-FM-SFT-FUNC-SCU-01-R

Version	2.4 2-3
Date	4 th June 2008 28 th August 2007
Purpose	SCU science packet generation check
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced
Final configuration	Unchanged
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	3 minutes
Pass/Fail Criteria	Specified SCU HK parameters show expected increment.

Procedure Steps:

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-SCU-01-R.tcl	SCUFRAMECNT (On SFT PARAMETERS display)	0/31	0/31	✓
		TM5N (On DPU & OBS PARAMETERS display)	0x3FFF/1	0x3FFF/1	

Test Result (Pass/Fail):

Enter Date/Time:	9/6/08	16:26	Sign Off	TC: <i>ho</i>	PA: <i>P. Vorell</i>
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Enter Start Date Time:	9/6/08	16:26
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7.2.7.2 Procedure SPIRE-FM-SFT-FUNC-SCU-03-R

Version	2.3
Date	28 th August 2007
Purpose	SCU DC thermometry check
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced
Final configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and DC thermometry is ON
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	8 minutes
Pass/Fail Criteria	DC Thermometry channels show temperature readings according to the actual instrument temperature* *: At warm temperatures all channels should show short circuit RAW readings of -32768

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-SCU-03-R.tcl	—	—	—	—

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Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
2	Wait for the parameter BBFULLTYPE to get set to SCU_DC_Therm			SCU_DC_Therm	✓
3	A few seconds later record the value of parameter SCUTEMPSTAT	SCUTEMPSTAT	0/0xFFFF/0xFFFF	0/0xFFFF/0xFFFF	✓
4	If the instrument is at He II temperatures check the values of SCU DC thermometry channels.	PUMPHTRTEMP PUMPHSTEMP EVAPHSTEMP SHUNTTEMP EMCFILTEMP SLOTEMP PLOTEMP OPTTEMP BAFTEMP BSMIFTEMP SCAL2TEMP SCAL4TEMP SCALTEMP SMECIFTEMP SMECTEMP	(All Values TBC) -/~4.6K -/~3.0K -/~3.0K -/~1.7K -/~4.6K -/~1.7K -/~1.7K -/~4.6K -/~4.6K -/~4.5K -/~4.6K -/~4.6K -/~4.6K -/~4.6K -/~4.6K	N/A	

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Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
		BSMTEMP	-/~4.5K	N/A	✓
5	If the instrument is at He I temperatures check the values of SCU DC thermometry channels.	PUMPHTRTEMP PUMPHSTEMP EVAPHSTEMP SHUNTTEMP EMCFILTEMP SLOTEMP PLOTEMP OPTTEMP BAFTEMP BSMIFTEMP SCAL2TEMP SCAL4TEMP SCALTEMP SMECIFTEMP SMECTEMP BSMTEMP	(All Values TBC) ~4.2K ~4.4K ~4.3K ~4.2K ~4.8K ~4.2K ~4.2K ~4.8K ~4.8K ~4.8K ~4.8K ~4.8K ~4.7K ~4.8K ~4.8K ~4.7K ~4.7K ~4.8K	See attached printout	✓
6	If the instrument is warm:	PUMPHTRTEMP PUMPHSTEMP	— —		

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DS: 65535 ID: SA_7_5 Title: SFT PARAMETERS

Sample Time: 2008.161.16.27.18.352

Workstation: hpws22

NAME	DESCRIPTION	VALUE	UNIT	NAME	DESCRIPTION	VALUE	UNIT
SM10N500	OBSID	B000017C	HEX	SM_1V520	SCUP9V	9.0896	V
SM2LN500	BBFULLTYPE	SCU_DC_Therm		SM_2V520	SCUM9V	-9.1052	V
SM00M500	MODE	DRCU_ON		SMT0A520	EVHSV	-0.0444	mV
SM00T500	THSK	2008.161.16.27.17.804	HEX	SMH0A520	SPHSV	0.0025	mV
SMT1N500	TM2N	00000229	HEX	SMT1A520	SPHTRV	0.0017	V
SMD1N510	DCUFRAMECNT	0		SMP0V520	PCALV	0.000451	V
SMD0N515	MCUFRAMECNT	0		SMP0A520	PCALCURR	0.000679	mA
SMD0N520	SCUFRAMECNT	31		SMS0V520	SCAL2V	3.6e-05	V
SMB6V510	BIASP5V	5.17	V	SMS0A520	SCAL2CURR	-7.6e-05	mA
SMB7V510	BIASP9V	9.01	V	SMS1V520	SCAL4V	0.000268	V
SMB8V510	BIASM9V	-9.07	V	SMS1A520	SCAL4CURR	0.000625	mA
SML0V510	PLIAP5V	0.012	V	SMK0F520	SUBKSTAT	00000000	HEX
SML1V510	PLIAP9V	0.0096	V	SMF0K520	PUMPHTRTEMP	7.42949667	K
SML2V510	PLIAM9V	0.01	V	SMF1K520	PUMPHSTEMP	7.31333827	K
SML3V510	SLIAP5V	0.01	V	SMF2K520	EVAPHSTEMP	7.04682149	K
SML4V510	SLIAP9V	0.01	V	SMF3K520	SHUNTTEMP	4.31346478	K
SML5V510	SLIAM9V	0.01	V	SMF4K520	EMCFILTEMP	11.06314810	K
SM_4V515	MCUP5V	20.00	V	SMF5K520	SL0TEMP	4.36208814	K
SM_2V515	MCUP14V	75.36	V	SMF6K520	PL0TEMP	4.38106368	K
SM_3V515	MCUM14V	75.36	V	SMF7K520	OPTTEMP	11.18172561	K
SM_0V515	MCUP15V	75.36	V	SMF8K520	BAFTEMP	11.73380615	K
SM_1V515	MCUM15V	75.36	V	SMF9K520	BSMIFTEMP	11.16087586	K
SMM0K515	MCUMACTEMP	1651.51	K	SMS0K520	SCAL2TEMP	10.94080342	K
SMF0K515	MCUSMECTEMP	1651.51	K	SMS1K520	SCAL4TEMP	10.95251731	K
SMB0K515	MCUBSMTEMP	1651.51	K	SMS2K520	SCALTEMP	32.90806292	K
SMS0W515	SMECENCPOWER	0000FFFF	HEX	SMFAK520	SMECIFTEMP	10.86392453	K
SMS1W515	SMECLVDTPWR	0000FFFF	HEX	SMFBK520	SMECTEMP	10.80603243	K
SMS1M515	SMECLOOPMODE	0000FFFF	HEX	SMFCK520	BSMTEMP	11.10811944	K
SMC0W515	CHOPSENSPOWER	0000FFFF	HEX	SMK0K520	SUBKTEMP	55.15210000	K
SMJ0W515	JIGGSENSPOWER	0000FFFF	HEX	SM_0X520	PLIABITSTAT	00000000	HEX
SM_1F520	SCUTEMPSTAT	0000FFFF	HEX	SM_1X520	SLIABITSTAT	00000000	HEX
SM_0V520	SCUP5V	5.2281	V	SM_2X520	MCUBITSTAT	00000000	HEX

Enter Start Date|Time: 9/6/08 16:30

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
	<p>Configure the SFT PARAMETERS display to show the RAW values of SCU DC thermometry channels.</p> <p>Record the RAW values of SCU DC thermometry channels. Nominal values should show a short circuit status (or RAW - 32768).</p> <p>Non Nominal (Open Circuit Criterion): RAW reading in the range [0, -100]</p>	EVAPHSTEMP SHUNTTEMP EMCFILTEMP SLOTEMP PLOTEMP OPTTEMP BAFTEMP BSMIFTEMP SCAL2TEMP SCAL4TEMP SCALTEMP SMECIFTEMP SMECTEMP BSMTEMP	— — — — — — — — — — — — — —	<p>See Attached prints to page 73</p>	
Test Result (Pass/Fail):					

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7.2.7.3 Procedure SPIRE-FM-SFT-FUNC-SCU-06-R

Version	2.3
Date	28 th August 2007
Purpose	SCU AC thermometry check
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and DC thermometry is ON
Final configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	2 minutes
Pass/Fail Criteria	AC Thermometry channel shows temperature readings according to the actual instrument temperature

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-SCU-06-R.tcl	—	—	—	— ✓
2	Wait for the parameter BBFULLTYPE to get set to SCU_AC_Therm			SCU_AC_Therm	✓

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Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
3	A few seconds later record the value of parameter SUBKSTAT	SUBKSTAT	0/1/1	0/1/1	✓
4	If the instrument is at He II temperatures check the value of SCU AC thermometry channel.	SUBKTEMP	~1.7K	N/A	
5	If the instrument is at He I temperatures check the value of SCU AC thermometry channel.	SUBKTEMP	~4K	4.5	✓
6	<p>If the instrument is warm:</p> <p>Configure the SFT PARAMETERS display to show the RAW value of SCU AC thermometry channel.</p> <p>Only record the RAW value of SCU AC thermometry channel if it indicates an open circuit.</p> <p>Open Circuit Criterion: RAW reading in the range [0, -100]</p>	SUBKTEMP	—	N/A	✓

Test Result (Pass/Fail): pass

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7.2.7.4 Procedure SPIRE-FM-SFT-FUNC-SCU-07-R

Version	2.2
Date	2 nd January 2007
Purpose	Sorption Cooler Heater Check
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and DC thermometry is ON
Final configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail Criteria	Sorption cooler heat switches and pump heater show expected voltages

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure

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Enter Start Date|Time: 9/6/08 16:35

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-SCU-07-R.tcl	—	—	—	✓
2	Wait for the parameter BBFULLTYPE to get set to Cooler_Htr_Chk	BBFULLTYPE	Cooler_Htr_Chk		✓
3	Record the value of parameter SPHSV – the Sorption Pump Heat Switch Voltage. <i>This voltage stays on for ~20 seconds. Wait for the voltage to go to zero to continue.</i>	SPHSV - mV	0/~323/0	0/~323/0	✓
4	Record the value of parameter EVHSV – the Evaporator Heat Switch Voltage. <i>This voltage stays on for ~20 seconds. Wait for the voltage to go to zero to continue.</i>	EVHSV - mV	0/~323/0	0/~324.9/0	✓
5	Record the value of parameter SPHTRV – the Sorption Pump Heater Voltage. <i>This voltage stays on for ~20 seconds. Wait for the voltage to go to zero to continue.</i>	SPHTRV - V	0/~8.8/0	0/~8.8/0	✓
Test Result (Pass/Fail): pass					

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7.2.7.5 Procedure SPIRE-FM-SFT-FUNC-SCU-04-R

Version	2.3
Date	28 th August 2007
Purpose	Photometer Calibration Check (REDUNDANT)
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON
Final configuration	Unchanged
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	3 minutes
Pass/Fail Criteria	PCAL voltage and current agree with expected values

Procedure Steps:

Step	Description	Parameter Name - Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-SCU-04-R.tcl	PCALCURR - mA PCALV - V	0.0/0.1/0.0 0.0/0.026/0.0	0.0/0.1/0.0 0.0/0.019/0.0	✓ value to be checked
	The expected values during the test should be monitored when parameter BBFULLTYPE in the SFT PARAMETERS display is set to PCAL_Check This usually happens about 30 seconds from the start of test execution.	BBFULLTYPE	PCAL_Check		✓

Test Result (Pass/Fail):	pass
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7.2.7.6 Procedure SPIRE-FM-SFT-FUNC-SCU-05-R

Version	2.2
Date	2 nd January 2007
Purpose	Spectrometer Calibration Check (REDUNDANT)
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON
Final configuration	Unchanged
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	SCAL2 and SCAL4 voltage and currents agree with expected values

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-SCU-05-R.tcl	—	—	—	✓
2	Wait for the parameter BBFULLTYPE to get set to SCAL4_Check	BBFULLTYPE	SCAL4_Check		✓

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Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
3	A few seconds later record the value of parameters SCAL4CURR and SCAL4V <i>These parameters are set back to 0 after ~30 seconds</i>	SCAL4CURR – mA	0.0/0.10/0.0	0.0/0.1/0.0	✓
		SCAL4V – V	0.0/0.05/0.0	0.0/0.05/0.0	✓
4	Wait for the parameter BBFULLTYPE to get set to SCAL2_Check	BBFULLTYPE	SCAL2_Check		✓
5	A few seconds later record the values of parameters SCAL2CURR and SCAL2V <i>These parameters are set back to 0 after ~30 seconds</i>	SCAL2CURR – mA	0.0/0.10/0.0	0.0/0.10/0.0	✓
		SCAL2V – V	0.0/0.05/0.0	0.0/0.05/0.0	✓

Test Result (Pass/Fail): *pass*

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7.2.7.7 Procedure SPIRE-FM-SFT-FUNC-MCU-01-R

Version	2.3
Date	28 th August 2007
Purpose	MCU (REDUNDANT) Boot Check
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON
Final configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted.
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	MCU voltages and board temperatures show expected 'ON' values

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-MCU-01-R.tcl	—	—	—	— ✓
2	Check that the MCU is booted up successfully	MCUBITSTAT	0/1/1	0/1/1	✓

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Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
3	Check MCU HK parameter values and ensure that the values are refreshing	MCUP5V MCUP14V MCUM14V MCUP15V MCUM15V MCUMACTEMP MCUSMECTEMP MCUBSMTEMP	~ 5.0 ± 0.2V ~ 14.0 ± 0.5V ~ -14.0 ± 0.5 0.6V ~ 15.0 ± 0.5 0.6V ~ -15.0 ± 0.7V ~300K ~300K ~300K	5.0 14.13 -14.49 15.50 -15.61 294.1 298.4 298.0	✓

Test Result (Pass/Fail): pass

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7.2.7.8 Procedure: SPIRE-FM-SFT-FUNC-MCU-02-R

Version	2.2
Date	2 nd January 2007
Purpose	MCU Nominal Frame Generation Check
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted.
Final configuration	Unchanged.
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	Specified MCU HK parameters show expected increment

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-MCU-02-R.tcl	MCUFRAMECNT	FM : 0/297	- 0/297	- ✓

Test Result (Pass/Fail):	<i>pass</i>
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7.2.7.9 Procedure SPIRE-FM-SFT-FUNC-BSM-01-R

Version	2.3
Date	28 th August 2007
Purpose	BSM (REDUNDANT) Chop/Jiggle Sensor Check.
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted.
Final configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted. BSM Chop/Jiggle sensors are ON.
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • SPIRE MCU REDUNDANT is booted. • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	3 minutes
Pass/Fail criteria	HK Parameters CHOPSENSPWR and JIGGSENSPWR show expected ON values.

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-BSM-01-R.tcl	—	—	—	✓
2	Check that the Chop and Jiggle sensors have switched on	CHOPSENSPWR JIGGSENSPWR	0/1/1 0/1/1	0/1/1 0/1/1	✓

Test Result (Pass/Fail):

pass

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7.2.7.10 Procedure SPIRE-FM-SFT-BSM-OFF-R

Version	2.3
Date	28 th August 2007
Purpose	BSM (REDUNDANT) Switch OFF
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted. BSM Chop/Jiggle sensors are ON.
Final configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted. BSM Chop/Jiggle sensors are OFF.
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • SPIRE MCU REDUNDANT is booted. • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	3 minutes
Pass/Fail criteria	HK Parameters CHOPSENSPWR and JIGGSENSPWR show expected OFF values.

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute SPIRE-FM-SFT-BSM-OFF-R.tcl	—	—	—	— ✓
2	Check that the power to the BSM sensors is switched off	CHOPSENSPWR JIGGSENSPWR	1/-/0 1/-/0	1/0 1/0	✓

Test Result (Pass/Fail):	pass
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7.2.7.11 Procedure SPIRE-FM-SFT-FUNC-SMEC-01-R

Version	2.3
Date	28 th August 2007
Purpose	SMEC (REDUNDANT) Encoder/LVDT Sensor Check.
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted.
Final configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted. SMEC Encoder and LVDT are ON.
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • SPIRE MCU REDUNDANT is booted. • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	3 minutes
Pass/Fail criteria	HK Parameters SMECENCPWR and SMECLVDTPWR show expected ON values.

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-SMEC-01-R.tcl	—	—	—	✓
2	Check that power to the SMEC LED and LVDT sensor is on	SMECENCPWR	0/-1	0/1	✓
		SMECLVDTPWR	0/-1	0/1	

Test Result (Pass/Fail): *pass*

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7.2.7.12 Procedure SPIRE-FM-SFT-SMEC-OFF-R

Version	2.3
Date	28 th August 2007
Purpose	SMEC (REDUNDANT) Switch OFF
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted. SMEC Encoder and LVDT are ON.
Final configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted. SMEC Encoder and LVDT are OFF.
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • SPIRE MCU REDUNDANT is booted. • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	3 minutes
Pass/Fail criteria	HK Parameters SMECENCPWR and SMECLVDTPWR show expected OFF values.

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute SPIRE-FM-SFT-SMEC-OFF-R.tcl	—	—	—	— ✓
2	Check that the power to the SMEC sensors is switched off	SMECENCPWR	1/-0	1/0	✓
		SMECLVDTPWR	1/-0	1/0	

Test Result (Pass/Fail): *pass*

Enter Date/Time: 9/6/08 16:59 Sign Off TC: *lo* PA: *P. Vasconcelos*

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7.2.7.13 Procedure SPIRE-FM-SFT-FUNC-DCU-01-R

Version	2.2
Date	2 nd January 2007
Purpose	DCU science packet generation check for all Photometer and Spectrometer packet types (PF, PSW, PMW, PLW, SF, SSW and SLW)
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted.
Final configuration	Unchanged
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	Specified DCU HK parameter shows expected increment

Procedure Steps:

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-DCU-01-R.tcl	DCUFRAMECNT	0/700	0/700	✓

Test Result (Pass/Fail):	pass
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Enter Date/Time:	9/6/08	17:06	Sign Off	TC: <i>[Signature]</i>	PA: <i>[Signature]</i>
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Enter Start Date Time:	9/6/08	17:08
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7.2.7.14 Procedure SPIRE-FM-SFT-FUNC-DCU-04-PHOT-R

Version	2.4
Date	10 th Sept 2007
Purpose	Photometer LIAs REDUNDANT Check
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted.
Final configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted. Photometer LIAs are ON
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • Photometer LIAs are OFF • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS & DCU PARAMETERS displays are selected on the CCS
Duration	5 minutes
Pass/Fail criteria	Specified Photometer LIA HK parameters show expected ON values

Procedure Steps:

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-DCU-04-PHOT-R.tcl	PLIABITSTAT	0/1/1	0/1/1	✓

Enter Date/Time:	9/6/08	17:08	Sign Off	TC: <i>lo</i>	PA: <i>R. J. Ascoli</i>
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Enter Start Date|Time: 9/6/08 17:08

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
2	Check Photometer LIA HK parameter values and ensure that the values are refreshing	PLIAP5V PLIAP9V PLIAM9V	0.0/- 5.2 ± 0.2V 0.0/-/ 11.5 ± 0.5V 0.0/-/-11.5 ± 0.5V	5.24 11.6 -11.58	✓
3	On the DCU PARAMETERS display check that the LIA temperatures are slowly warming up. At switch-on it is possible that some of the LIA temperatures will be in soft or even hard limits. No action is required.	LIAP1TEMP to LIAP9TEMP	~ 290-300 K	295 295	✓
4	Wait for ~3 minutes before continuing with the SFTs	—	—	—	—

Test Result (Pass/Fail): *pass*

Enter Date/Time: 9/6/08 17:10 Sign Off TC: *6* PA: *P. Vasulkar*

Enter Start Date|Time: 9/6/08 17:11

7.2.7.15 Procedure SPIRE-FM-SFT-PLIA-OFF-R

Version	2.4
Date	10 th Sept 2007
Purpose	Photometer LIAs REDUNDANT Switch OFF
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted. Photometer LIAs are ON
Final configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted. Photometer LIAs are OFF
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • Photometer LIAs are ON • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	2 minutes
Pass/Fail criteria	Specified Photometer LIA HK parameters show expected OFF values

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Success/Failure
1	Execute TCL script SPIRE-FM-SFT-PLIA-OFF-R.tcl	PLIABITSTAT	1/-0	1/0	✓
2	Check Photometer LIA HK parameter values	PLIAP5V PLIAP9V PLIAM9V	5.2 ± 0.2V/-0.0 11.5 ± 0.5V/-0.0 -11.5 ± 0.5V/-0.0	0.0 0.0 0.0	✓

Test Result (Pass/Fail): *pass*

Enter Date/Time: 9/6/08 17:12 Sign Off TC: PA: *P. Vascolt*

Enter Start Date Time:	9/6/08	17:15
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7.2.7.16 Procedure SPIRE-FM-SFT-FUNC-DCU-04-SPEC-R

Version	2.4
Date	10 th Sept 2007
Purpose	Spectrometer LIAs REDUNDANT Check
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted.
Final configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted. Spectrometer LIAs are ON
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • Spectrometer LIAs are OFF • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS & DCU PARAMETERS displays are selected on the CCS
Duration	5 minutes
Pass/Fail criteria	Specified Spectrometer LIA HK parameters show expected ON values

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Success/Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-DCU-04-SPEC-R.tcl	SLIABITSTAT	0/1/1	0/1/1	✓

Enter Date/Time:	9/6/08	17:16	Sign Off	TC: <i>6</i>	PA: <i>A. Vasco</i>
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Enter Start Date Time:	9/6/08	17:17
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Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Success/Failure
2	Check Spectrometer LIA HK parameter values and ensure that the values are refreshing	SLIAP5V SLIAP9V SLIAM9V	0.0/- 5.2 ± 0.2V 0.0/- 11.5 ± 0.5V 0.0/-11.5 ± 0.5V	5.25 11.59 -11.57	Soft limit ✓ ✓
3	On the DCU PARAMETERS display check that the LIA temperatures are slowly warming up. At switch-on it is possible that some of the LIA temperatures will be in soft or even hard limits. No action is required.	LIAS1TEMP to LIAS3TEMP	~ 290-300 K	295 297	✓ ✓
4	Wait for ~3 minutes before continuing with the SFTs	—	—	—	—

OGAs observed in last run

Test Result (Pass/Fail):	pass
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Enter Date/Time:	9/6/08	17:17	Sign Off	TC: <i>6</i>	PA: <i>P. J. Ascolto</i>
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Enter Start Date|Time: 9/6/08 17:19

7.2.7.17 Procedure SPIRE-FM-SFT-SLIA-OFF-R

Version	2.4
Date	10 th Sept 2007
Purpose	Spectrometer LIAs REDUNDANT Switch OFF
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted. Spectrometer LIAs are ON
Final configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted. Spectrometer LIAs are OFF
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • Spectrometer LIAs are ON • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	2 minutes
Pass/Fail criteria	Specified Spectrometer LIA HK parameters show expected OFF values

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Success/Failure
1	Execute TCL script SPIRE-FM-SFT-SLIA-OFF-R.tcl	SLIABITSTAT	1/-0	1/0	✓
2	Check Photometer LIA HK parameter values	SLIAP5V SLIAP9V SLIAM9V	5.2 ± 0.2V/-0.0 11.5 ± 0.5V/-0.0 -11.5 ± 0.5V/-0.0	→ 0.0 → 0.0 → 0.0	✓

Test Result (Pass/Fail): *pass*

Enter Date/Time: 9/6/08 17:20 Sign Off TC: PA: *[Signature]*

Enter Start Date|Time: 9/6/08 17:21

7.2.7.18 Procedure SPIRE-FM-SFT-FUNC-MCU-OFF-R

Version	2.4.2-3
Date	4 th June 2008 28 th August 2007
Purpose	MCU REDUNDANT Switch OFF
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is booted.
Final configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON and MCU REDUNDANT is OFF.
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • SPIRE MCU REDUNDANT is ON. • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	2 minutes
Pass/Fail criteria	Specified MCU HK Parameter shows expected value.

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/Failure
1	Execute SPIRE-FM-SFT-FUNC-MCU-OFF-R.tcl	—	—	—	— ✓

Enter Date/Time: 9/6/08 17:22 Sign Off TC: PA: *[Signature]*

Enter Start Date|Time: 9/6/08 17:22

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute SPIRE-FM-SFT_FUNC-MCU-OFF-R.tcl	—	—	—	—
2	<p>Check that the MCU is switched off</p> <p>Expected events:</p> <ul style="list-style-type: none"> A TM(5,1) event report with Event ID 0x0521 and SID 0x510F will be received to indicate that the DPU is not receiving a response from the MCU. A TM(5,4) event report with Event ID 0x550D and SID 0x5420 will be received to indicate the MCU disconnection from the DPU. 	MCUBITSTAT	1/-/0	1/0	✓ see attached

Test Result (Pass/Fail):

Enter Date/Time: 9/6/08 17:23 Sign Off TC: PA: *[Signature]*

TM Packet Query Display
=====

TM Packet Details

Simulated: N

Mnemonic: SMCURE000500 Description: R_No_MCU_Response_Error

S/C ID: 486 G/S ID: 0 SLE ID: 0 OCC ID: 0 VCID: 0 HFA D/S: 65535

Data Unit Type: GOOD SP Time Stamp Type: PG Time Quality: G

APID: 1281 SSC: 4718 Type: 5 Subtype: 1 PI1: 1313 PI2: 20751

SPID: 190150500 TPSD: -1 HFA Counter: 3 Filing: E Distribution: E

Time Field: Y Packet Period: 0 [msec] CRC: ? Event Severity: ?

TM Packet Parameter Data

Generation time: 2008.161.17.22.02.597 Reception time: 2008.161.17.22.03.520

TM Packet Raw Data

SCOS-2000 Header:

0000:0000 0000 BA66 4D48 361C 0900 BB66 4D48 77F1 0700 0100 0000 E601 0000 6400 0000

0020:1138 FFFF 0300 0000 6477 550B 0000 0000 0000 0000 FFFF FFFF 10FF 0105 6E12 0501

Packet Raw Data:

0000:0D01 D26E 001D 0005 0100 5EDF C53A 98D8 0521 510F B000 0190 8908 0001 011C 9800

0020:0000 B87B

Jun 09, 08 17:23

TMPH_PRNT_2008.161.17.23.27.250

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TM Packet Query Display
=====

TM Packet Details

Simulated: N

Mnemonic: SALMCU000500 Description: SPIRE_R_ALARM_LSMCU_DEAD

S/C ID: 486 G/S ID: 0 SLE ID: 0 OCC ID: 0 VCID: 0 HFA D/S: 65535

Data Unit Type: GOOD SP Time Stamp Type: PG Time Quality: G

APID: 1281 SSC: 4719 Type: 5 Subtype: 4 PI1: 21773 PI2: 21536

SPID: 190635500 TPSD: -1 HFA Counter: 1 Filing: E Distribution: E

Time Field: Y Packet Period: 0 [msec] CRC: ? Event Severity: ?

TM Packet Parameter Data

Generation time: 2008.161.17.22.02.605 Reception time: 2008.161.17.22.03.520

TM Packet Raw Data

SCOS-2000 Header:

0000:0000 0000 BA66 4D48 243F 0900 BB66 4D48 02F2 0700 0100 0000 E601 0000 6800 0000

0020:1138 FFFF 0100 0000 ECDD 5C0B 0000 0000 0000 0000 FFFF FFFF 10FF 0105 6F12 0504

Packet Raw Data:

0000:0D01 D26F 0021 0005 0400 5EDF C53A 9B22 550D 5420 B000 0190 8908 0001 0001 9800

0020:0000 0100 FFFF AEF5

Jun 09, 08 17:23

TMPH_PRNT_2008.161.17.23.31.960

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TM Packet Query Display
=====

TM Packet Details

Simulated: N

Mnemonic: SVMCPYTBFLT Description: R_VM_COPYTABLE_FAULT

S/C ID: 486 G/S ID: 0 SLE ID: 0 OCC ID: 0 VCID: 0 HFA D/S: 65535

Data Unit Type: GOOD SP Time Stamp Type: PG Time Quality: G

APID: 1281 SSC: 4721 Type: 5 Subtype: 1 PI1: 1302 PI2: 20886

SPID: 190760500 TPSD: -1 HFA Counter: 1 Filing: E Distribution: E

Time Field: Y Packet Period: 0 [msec] CRC: ? Event Severity: ?

TM Packet Parameter Data

Generation time: 2008.161.17.22.03.607 Reception time: 2008.161.17.22.03.521

TM Packet Raw Data

SCOS-2000 Header:

0000:0000 0000 BB66 4D48 C546 0900 BB66 4D48 F5F4 0700 0100 0000 E601 0000 8001 0000
0020:1138 FFFF 0100 0000 34C6 5E0B 0000 0000 0000 0000 FFFF FFFF 10FF 0105 7112 0501

Packet Raw Data:

0000:0D01 D271 0139 0005 0100 5EDF C53B 9BA2 0516 5196 B000 0190 8908 0001 011D 0000
0020:00D4 0005 6106 0401 0000 0000 0000 FFFF FFFF 0000 0000 0300 FFFF 0000 FFFF 0000
0040:0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0060:0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 FFFF
0080:0000 0006 0000 0000 0000 0024 0000 0004 0000 0008 0000 0009 0000 0001 0000 0000
00A0:0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
00C0:0000 0000 0000 0000 0000 0000 0000 0000 0000 0008 0000 0000 0000 0000 0000 0000
00E0:0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0100:0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000
0120:0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 0000 FDA4

Enter Start Date|Time: 9/6/08 17:27

7.2.7.19 Procedure SPIRE-FM-SFT-FUNC-SCU-OFF-R

Version	2.4.2.3
Date	4 th June 2008 28 th August 2007
Purpose	SCU REDUNDANT Switch OFF
Initial configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is ON.
Final configuration	SPIRE DPU and DRCU REDUNDANT are ON and SPIRE HK is being produced and AC/DC thermometry is OFF
Constraints	<ul style="list-style-type: none"> • SPIRE DRCU REDUNDANT is switched ON • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • SFT PARAMETERS display is selected on the CCS
Duration	2 minutes
Pass/Fail criteria	Specified SCU HK Parameters show expected value.

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/Failure
1	Execute TCL script SPIRE-FM-SFT-FUNC-SCU-OFF-R.tcl	—	—	—	✓
2	A few seconds later record the value of parameter SCUTEMPSTAT	SCUTEMPSTAT	0xFFFF/-0	0xFFFF/0	✓
3	A few seconds later record the value of parameter SUBKSTAT	SUBKSTAT	1/-0	1/0	✓

Test Result (Pass/Fail): *pass*

Enter Date/Time: 9/6/08 17:27 Sign Off TC: 6 PA: *[Signature]*

Enter Start Date|Time: 9/6/08 17:28

7.2.8 Switch Off DRCU & DPU REDUNDANT

Step-No	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
1.	From the HPCCS test conductor console start the test script to power OFF SPIRE Prime from REDY: S102999SCVT008_ASDFSFTSPIR_PWR_OFF_R	OK			✓	
2.	On HPCCS when prompted: "SPIRE Switch OFF for SFT related tests in any conditions - Select NO to abort TS if not correct"	YES	Yes		✓	
3.	If in any doubt about the script being executed NO should be selected to abort the script. Before restarting consult the relevant instrument support engineer to confirm the correct script to be used for the test in question.			N/A		
4.	If YES is selected the test script will go on to automatically power off all SPIRE warm units.				✓	

Enter Date/Time: 9/6/08 17:28 Sign Off TC: *bo* PA: *P. Vasco*

Enter Start Date|Time: 9/6/08 17:29

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
5.	During Switch OFF of SPIRE the following (5,1) and (5,4) event messages on APID 1280 are expected and do not indicate a problem: <i>not here, to be moved to § 7.2.7.19 step 2</i> <ul style="list-style-type: none"> c) EVID 1313 No_MCU_Response_Error d) EVID 21773 ALARM_LSMCU_DEAD 					
6.	On HPCCS when prompted: "Check Telemetry No Longer Updating - OK to continue" Check that parameters: THSK Not refreshing ✓ TM2N Not incrementing ✓			AND: SA_1_559	✓	
7.	Select OK to continue	OK Go			✓	
8.	On HPCCS when all autonomous actions have been completed by the power on script S102999SCVT008_ASDFSFTSPIR_PWR_OFF_R it will prompt: "Bus profile left as SPIRE PRIME, change manually after if required - OK to continue"				✓	

Enter Date/Time: 9/6/08 17:31 Sign Off TC: 6 PA: *[Signature]*

Enter Start Date Time:	9/6/08	17:33
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Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
9.	Select OK to continue	OK Go			✓	
10.	On HPCCS stop Packet History displays for the following APIDs:1281,1283	OK			✓	
11.	SPIRE OFF				✓	

Enter Date/Time:	9/6/08	17:33	Sign Off	TC: <i>leo</i>	PA: <i>P. Vasulko</i>
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Enter Start Date|Time:

7.2.9 Procedure SPIRE-FM-SFT-LPU-01-R

⇒ PVS ~~4~~ step 2

N/A

Version	1.0
Date	Tuesday, 28 August 2007
Purpose	DPU PRIME Switch OFF
Initial configuration	Prime and redundant DPU and DRCU are off
Final configuration	Prime and redundant DPU and DRCU are off
Constraints	<ul style="list-style-type: none"> • Cryostat is vertical to within $\pm 45^\circ$ • Prime and redundant DPU and DRCU are off
Duration	5 minutes
Pass/Fail criteria	The specified current is drawn when the LPU is enabled and is switched off when the LPU is disabled

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Power on Redundant LPU LCL (LCL #26)	LCL status	OFF/ /ON		State of LCL #26 switches to ON
3	Send HL command #21 (LPU Enable Redundant)	LCL #26 current	0mA/ /130-180mA		Current between 130-180mA
4	Send HL command #22 (LPU Disable Redundant)	LCL #26 current	130-180mA/ /0mA		Current off
5	Un-power Prime LPU LCL (LCL # 25)	LCL status	ON/ / OFF		State of LCL #26 switches to OFF

Test Result (Pass/Fail):

Enter Date/Time: Sign Off TC: *6* PA: *[Signature]*

Enter Start Date|Time: 9/6/08 17:40

7.2.10 Satellite & EGSE Switch Off

Step- No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remark	P	N
Satellite & EGSE Switch Off							
Initial Conditions: Nominal & Redundant SPIRE warm units OFF							
1	From HPCCS Test Conductor console issue command to disconnect from SPIRE I-EGSE disconnect HSPIREEGSE	OK			Steps 10.1-10.3 are only necessary if Steps 1.1, 1.3 to 1.7 were executed	✓	
2	Confirm from HPCSS and SPIRE I-EGSE that the disconnection was successful	OK		disconnected		✓	
3	If required Switch OFF I-EGSE i.a.w. AD 5				N/A		
4	Switch OFF Satellite/SVM, HPCCS and SCOE's i.a.w. procedure AD 2 Sections 7.7 to 7.11	OK		Skip		✓	
5	Confirm both Satellite and EGSE powered down	OK			N/A	✓	
End Conditions: Satellite and EGSE OFF							
END OF TEST							

P/S # 3

Enter Date/Time: 9/6/08 17:41 Sign Off TC: *bo* PA: *B. Vasquez*

Enter Start Date Time:			
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7.2.11 SPIRE SAFE Switch Off

The following procedure describes the necessary steps to safely switch off SPIRE when directed by RAL personnel if an anomaly should occur.

Version	2.3
Date	10 th Sept. 2007
Purpose	To switch OFF the SPIRE instrument if an anomaly should occur
Initial configuration	SPIRE can be in ANY configuration - Prime or Redundant - as specified in the procedure steps
Final configuration	SPIRE is OFF
Preconditions	<ul style="list-style-type: none"> • SPIRE FM DPU is electrically integrated with the Herschel Satellite • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	~5-8 minutes
Pass/Fail Criteria	SPIRE is OFF. All instrument subsystems are completely powered OFF.

Note:

All HK parameters relevant to this procedure can be located on the FUNCTIONAL TEST PARAMETERS CCS display. The exact name of the script to be executed at each step depends on whether the Prime or Redundant instrument is switched on.

Enter Date/Time:			Sign Off	TC:	PA:
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Enter Start Date Time:			
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Procedure Steps:

Step	Description	Parameter - Unit	Value	Actual value before/ after
1	<p>Check to see if the Photometer LIAs are on</p> <p>If PLIABITSTAT=1 then execute SPIRE-FM-SFT-PLIA-OFF-<P/R>.tcl</p>	PLIABITSTAT	0 or 1	
2	<p>Check to see if the Spectrometer LIAs are on</p> <p>If SLIABITSTAT=1 then execute SPIRE-FM-SFT-SLIA-OFF-<P/R>.tcl</p>	SLIABITSTAT	0 or 1	
3	<p>Check to see if the BSM is on</p> <p>If CHOPSENSPWR=1 or JIGGSENSPWR=1, then execute SPIRE-FM-SFT-BSM-OFF-<P/R>.tcl</p>	CHOPSENSPWR JIGGSENSPWR	0 or 1 0 or 1	
4	<p>Check to see if the SMEC is on</p> <p>If SMECENCPWR=1 or SMECLVDTPWR=1, then execute SPIRE-FM-SFT-SMEC-OFF-<P/R>.tcl</p>	SMECENCPWR SMECLVDTPWR	0 or 1 0 or 1	
5	<p>Check to see if the MCU is on</p> <p>If MCUBITSTAT=1 then execute SPIRE-FM-SFT-MCU-OFF-<P/R>.tcl</p>	MCUBITSTAT	0 or 1	

Enter Date/Time:			Sign Off	TC:	PA:
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Enter Start Date Time:			
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Step	Description	Parameter - Unit	Value	Actual value before/ after
6	<p>Check to see if the SCU DC/AC thermometry is on</p> <p>If SUBKSTAT=1 or SCUTEMPSTAT#0, then execute SPIRE-FM-SFT-SCU-OFF-<P/R>.tcl</p>	<p>SUBKSTAT</p> <p>SCUTEMPSTAT</p>	<p>0 or 1</p> <p>≠ 0</p>	
7	If SPIRE PRIME powered execute Section 7.2.4	OK		
8	If SPIRE REDUNDANT powered execute Section 7.2.8	OK		

Enter Date/Time:			Sign Off	TC:	PA:
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8 Summary Sheets

8.1 Procedure Variation Summary

		Test Change	Curr. No.: 1 1
			Date
			Page 1 of 1
Test designation	Test Procedure	Issue	Rev.
PIRE Cold Start Hel-After Acoustic	TP212	1	1
Test step changed	Reason for Change		
§ 7.2.1 step 1.2	SR already on		
SKIP step 1.2 § 7.2.1			
Prepared by:	Resp. Test Leader	Project Engineer	
PA/QA	Prime	Customer	

Table 8.1-1: Procedure Variation Sheet

8.1 Procedure Variation Summary

		Test Change	Curr. No.: #2
			Date 09/20/08
			Page 1 of 1
Test designation	Test Procedure	Issue	Rev.
SPIRE Cold SFT Hel After Acoustic	TP-212	1	1
Test step changed After	Reason for Change		
7.2.2 step 16 (NOTINAL)	Check of both instruments Bus 1 / F		
7.2.6 step 16 (REDUNDANT)	REDY (DRUON)		
Once instrument is in STDBY mode:			
1) from manual command stack, load stack			
"Set Bus B, hpws21" and send the TC			
2) Check that DEFJ1160 (Active-Bus-A-B) = Bus_B			
3) check that telemetry is still coming down for at least 1 minute			
4) from manual command stack, load stack			
"Set Bus A, hpws21" and send the TC.			
5) Check that DEFJ1160 (Active-Bus-A-B) = Bus_A			
6) Check that HK Telemetry is still coming down			
7) continue from master procedure.			
Prepared by:	Resp. Test Leader	Project Engineer	
PA/QA	Prime	Customer	

Table 8-1: Procedure Variation Sheet

8.1 Procedure Variation Summary



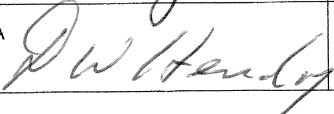
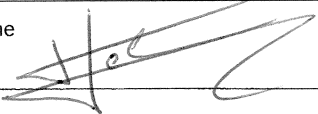
	Test Change	Curr. No.: 3 3	
		Date	
		Page 1	of 1
Test designation SPIRE FM SFT He1-After Acoustic	Test Procedure TP 212	Issue 1	Rev. 1
Test step changed § 7.2.10 step 4	Reason for Change SK on for HIPI SFT		
1 SKIP step 4 § 7.2.10			
Prepared by: 	Resp. Test Leader 	Project Engineer	
PA/QA 	Prime 	Customer	

Table 8.1-1: Procedure Variation Sheet

8.1 Procedure Variation Summary

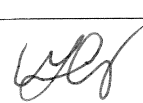

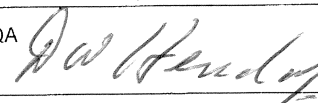
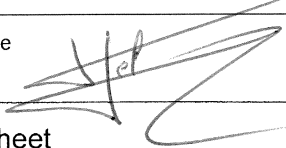
		Test Change	Curr. No.: 3 4
			Date
			Page of
Test designation SPIRE Cold Start Hel	Test Procedure TP 212	Issue 1	Rev. 1
Test step changed Replace § 7.2.5 and § 7.2.9	Reason for Change no LPU + CM *		
<p>1) SKIP § 7.2.5 LPU ADDITIONAL PRIMARY</p> <p>2) SKIP § 7.2.9 LPU REDUNDANT</p>			
<p>* See HP-2-ASED-MN-1558 (TRR ITEM)</p>			
Prepared by: 	Resp. Test Leader 	Project Engineer	
PA/QA 	Prime 	Customer	

Table 8.1-1: Procedure Variation Sheet

8.1 Procedure Variation Summary

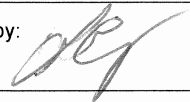

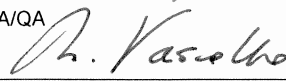
	Test Change	Curr. No.: 4 5	Date
		Page	of
Test designation SPIRE SFT Core Hel1-APR2Acou	Test Procedure TP 212	Issue 1	Rev. 1
Test step changed 5 7.2 , 3.4	Reason for Change SPIRE IEGSE Gateway crash		
<p>1) verify values for steps 3, 4, 5 from from ees</p> <p>2) reboot SPIRE IEGSE GATEWAY PC</p> <p>3) from Tseq Console : connect HSPIRE IEGSE</p> <p>4) Repeat step 7.2.3.4.1</p>			
Prepared by: 	Resp. Test Leader 	Project Engineer	
PA/QA 	Prime	Customer	

Table 8.1-1: Procedure Variation Sheet

8.2 Non Conformance Report (NCR) Summary

NCR - No.	NCR - Title	Date	Open Closed	PA sig.

Table 8.2-1: Non-Conformance Record Sheet

8.3 Sign-off Sheet

	Date	Signature
Test Manager	9.06.08	A. Lopez
Operator	9/6/2008	Ding chen (D)
PA Responsible	9/6/2008	P. Vasullo
ESA Representative	9/6/2008	M. Cera

END OF DOCUMENT

	Name	Dep./Comp.		Name	Dep./Comp.
X	Alberti von Mathias Dr.	ASG22		Schweickert Gunn	ASG22
	Baldock Richard	FAE12	X	Sonn Nico	ASG51
	Barlage Bernhard	AED13		Steininger Eric	AED32
	Bayer Thomas	ASA42	X	Stritter Rene	AED11
	Brune Holger	ASA45		Suess Rudi	OTN/ASA44
	Edelhoff Dirk	AED2		Wagner Klaus	ASG22
	Fehringer Alexander	ASG13	X	Wietbrock Walter	AET12
X	Fricke Wolfgang Dr.	AED 65		Wöhler Hans	ASG22
	Geiger Hermann	ASA42		Wössner Ulrich	ASE252
	Grasl Andreas	OTN/ASA44	X	Theunissen Martijn/Dutch Space	ASA43
	Grasshoff Brigitte	AET12	X	Martin Olivier	ASA43
X	Hamer Simon	Terma			
X	Hendry David	Terma			
	Hengstler Reinhold	ASA42			
	Hinger Jürgen	ASG22			
X	Hohn Rüdiger	AED65			
	Hölzle Edgar Dr.	AED32			
	Huber Johann	ASA42			
	Hund Walter	ASE252			
	Idler Siegmund	AED312			
	Ivány von András	FAE12			
	Jahn Gerd Dr.	ASG22			
	Kalde Clemens	ASM2			
	Kameter Rudolf	OTN/ASA42			
	Kettner Bernhard	AET42			
	Knoblauch August	AET32	X	Alcatel Alenia Space Cannes	AAS-F
X	Koelle Markus	ASA43		Alcatel Alenia Space Torino	AAS-I
X	Koppe Axel	AED312	X	ESA/ESTEC	ESA
X	Kroeker Jürgen	AED65			
X	La Gioia Valentina	Terma		Instruments:	
	Lang Jürgen	ASE252		MPE (PACS)	MPE
	Langenstein Rolf	AED15	X	RAL (SPIRE)	RAL
	Langfermann Michael	ASA41		SRON (HIFI)	SRON
X	Maukisch Jan	ASA43			
X	Much Christoph	ASA43			
	Müller Jörg	ASA42		Subcontractors:	
X	Müller Martin	ASA43		Alcatel Alenia Space Antwerp	ABSP
	Peltz Heinz-Willi	ASG13		Austrian Aerospace	AAE
	Pietroboni Karin	AED65		Austrian Aerospace	AAEM
	Platzer Wilhelm	AED2		BOC Edwards	BOCE
	Reichle Konrad	ASA42		Dutch Space Solar Arrays	DSSA
	Runge Axel	OTN/ASA44		EADS Astrium Sub-Subsyst. & Equipment	ASSE
	Schink Dietmar	AED32		EADS CASA Espacio	CASA
	Schlosser Christian	OTN/ASA44		EADS CASA Espacio	ECAS
	Schmidt Rudolf	FAE12		European Test Services	ETS
	Schmidt Thomas	ASA42		Patria New Technologies Oy	PANT
	Schuler Günter	ASA42		SENER Ingenieria SA	SEN

END OF DOCUMENT

	Name	Dep./Comp.		Name	Dep./Comp.
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	Baldock Richard	FAE12	X	Sonn Nico	ASG51
	Barlage Bernhard	AED13		Steininger Eric	AED32
	Bayer Thomas	ASA42	X	Stritter Rene	AED11
	Brune Holger	ASA45		Suess Rudi	OTN/ASA44
	Edelhoff Dirk	AED2		Wagner Klaus	ASG22
	Fehringer Alexander	ASG13	X	Wietbrock Walter	AET12
X	Fricke Wolfgang Dr.	AED 65		Wöhler Hans	ASG22
	Geiger Hermann	ASA42		Wössner Ulrich	ASE252
	Grasl Andreas	OTN/ASA44		Martin Olivier	ASA43
	Grasshoff Brigitte	AET12		Theunissen Martijn	DutchSpace
X	Hamer Simon	Terma			
X	Hendry David	Terma			
	Hengstler Reinhold	ASA42			
	Hinger Jürgen	ASG22			
X	Hohn Rüdiger	AED65			
	Hölzle Edgar Dr.	AED32			
	Huber Johann	ASA42			
	Hund Walter	ASE252			
	Idler Siegmund	AED312			
	Ivány von András	FAE12			
	Jahn Gerd Dr.	ASG22			
	Kalde Clemens	ASM2			
	Kameter Rudolf	OTN/ASA42			
	Kettner Bernhard	AET42			
	Knoblauch August	AET32	X	Alcatel Alenia Space Cannes	AAS-F
X	Koelle Markus	ASA43		Alcatel Alenia Space Torino	AAS-I
X	Koppe Axel	AED312	X	ESA/ESTEC	ESA
X	Kroeker Jürgen	AED65			
	La Gioia Valentina	Terma		Instruments:	
	Lang Jürgen	ASE252		MPE (PACS)	MPE
	Langenstein Rolf	AED15	X	RAL (SPIRE)	RAL
	Langfermann Michael	ASA41		SRON (HIFI)	SRON
	Maukisch Jan	ASA43			
X	Much Christoph	ASA43			
	Müller Jörg	ASA42		Subcontractors:	
X	Müller Martin	ASA43		Alcatel Alenia Space Antwerp	ABSP
	Peltz Heinz-Willi	ASG13		Austrian Aerospace	AAE
	Pietroboni Karin	AED65		Austrian Aerospace	AAEM
	Platzer Wilhelm	AED2		BOC Edwards	BOCE
	Reichle Konrad	ASA42		Dutch Space Solar Arrays	DSSA
	Runge Axel	OTN/ASA44		EADS Astrium Sub-Subsyst. & Equipment	ASSE
	Schink Dietmar	AED32		EADS CASA Espacio	CASA
	Schlosser Christian	OTN/ASA44		EADS CASA Espacio	ECAS
	Schmidt Rudolf	FAE12		European Test Services	ETS
	Schmidt Thomas	ASA42		Patria New Technologies Oy	PANT
	Schuler Günter	ASA42		SENER Ingenieria SA	SEN