

Title: Test Report for SPIRE Post Acoustic Detector Check
@ He1

CI-No: 125200

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Issue	Date	Sheet	Description of Change	Release
1	19.06.08	All	Formal Issue	

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1 Scope

This document reports on the SPIRE Detector check at He1 conditions, performed after the HERSCHEL S/C Acoustic test, to verify that the detectors have survived Acoustic testing.

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

1.1 Objective

The objective of this Detector check 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, in particular the detectors, are not susceptible to the applied Acoustic Noise levels.

Note: The SPIRE Mechanism tests are not part of this test.

1.2 Test Flow

The 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 part of SD-370
5. Disable Mil1553B-bus interface and Power off SPIRE Prime
6. Power on SPIRE Redundant and enable Mil1553B-bus interface
7. Run Redundant part of SD-370
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- IST-COLD-FUNC -SCU-03-P	SCU DC Thermometry check PRIME
2.	SPIRE- IST-COLD-FUNC -SCU-06-P	SCU AC Thermometry check PRIME
3.	SPIRE-IST-COLD-FUNC-DCU-11-PHOT-P	Photometer BDAs Switch ON Check PRIME
4.	SPIRE-IST-COLD-FUNC-DCU-13-PHOT-P	Photometer BDAs Integrity Check PRIME
5.	SPIRE-IST-COLD-FUNC-DCU-14-PHOT-P	Photometer BDAs Noise Check PRIME
6.	SPIRE-IST-COLD-PDET-OFF-P	Photometer BDAs Switch OFF PRIME
7.	SPIRE-IST-COLD-FUNC-DCU-11-SPEC-P	Spectrometer BDAs Switch ON Check PRIME
8.	SPIRE-IST-COLD-FUNC-DCU-13-SPEC-P	Spectrometer BDAs Integrity Check PRIME
9.	SPIRE-IST-COLD-FUNC-DCU-14-SPEC-P	Spectrometer BDAs Noise Check PRIME
10.	SPIRE-IST-COLD-SDET-OFF-P	Spectrometer BDAs switch OFF
11.	SPIRE-IST-COLD-SCU-OFF-P	SCU switch OFF PRIME
12.	SPIRE PRIME DRCU and DPU power off	

Table 1.2-1 SPIRE Prime Functional Procedures

Step #	Procedure Name	Purpose
13.	SPIRE- IST-COLD-FUNC -SCU-03-R	SCU DC Thermometry check REDUNDANT
14.	SPIRE- IST-COLD-FUNC -SCU-06-R	SCU AC Thermometry check REDUNDANT
15.	SPIRE-IST-COLD-FUNC-DCU-11-PHOT-R	Photometer BDAs Switch ON Check REDUNDANT
16.	SPIRE-IST-COLD-FUNC-DCU-13-PHOT-R	Photometer BDAs Integrity Check REDUNDANT
17.	SPIRE-IST-COLD-FUNC-DCU-14-PHOT-R	Photometer BDAs Noise Check REDUNDANT
18.	SPIRE-IST-COLD-PDET-OFF-R	Photometer BDAs Switch OFF REDUNDANT
19.	SPIRE-IST-COLD-FUNC-DCU-11-SPEC-R	Spectrometer BDAs Switch ON Check REDUNDANT
20.	SPIRE-IST-COLD-FUNC-DCU-13-SPEC-R	Spectrometer BDAs Integrity Check REDUNDANT
21.	SPIRE-IST-COLD-FUNC-DCU-14-SPEC-R	Spectrometer BDAs Noise Check REDUNDANT
22.	SPIRE-IST-COLD-SDET-OFF-R	Spectrometer BDAs switch OFF
23.	SPIRE-IST-COLD-SCU-OFF-R	SCU REDUNDANT switch OFF
24.	SPIRE REDUNDANT DRCU and DPU power off	

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 4,3 K.

The cryo L1 temperature was around 4,3 K.

The cryo L2 temperature was around 6,1 K.

The cryo L3 temperature was around 4,5 K.

In parallel to the SPIRE detector checks HERSCHEL top-up filling for vibration testing has been performed. This lead to a colder L3 temperature ($10\text{ K} < L3 < 15\text{ K}$) for detector switch on than expected. After shut down of the filling the L3 temperature increased to 11.5 K at the test end.

The test duration of the SPIRE Detector check at He1 was 4 hours.

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

TRR for SPIRE Detector Test in 17.06.2008, HP-2-ASED-MN-1564
He1 post acoustic

PTR for SPIRE Detector Test in 23.06.2008, HP-2-ASED-MN-1566
He1 post acoustic

Location: ESTEC, Noordwijk, NL

Test Session Name:

2008_06_17_08_34_hercdmu_hpws22_REALTIME_RFT
RANS

OBSW: CDMS 3.4.0.9, ACMS 3.7

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

HPCCS Release: Hpccs_2.0-1219

Any procedure variations are recorded in the Procedure Variation Summary Sheet of the corresponding "as-run" procedure (AD1).

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)
15:24	SPIRE prime Switch ON, step 8 of ACS 370			
	Detector PMW B6 had a negative slope in the previous test, but now following today's test the slope is positive as it should be, PSW D15 is still reversed as expected			
15:40	Top Up filling was interrupted, cryo temperature start to increase			
16:36	Temp increase approx 1K per hour T246 L3 now 7.24K			
16:40	Cryo specialist contacted and advised temp would continue to rise and stabilise after approx 4 hrs, no action possible to stabilise quicker			
16:47	SPIRE prime switch OFF			
16:50	OBCP Evt Hifi off :Spire was switched down by OBCP : recovery action taken run script Z010999MCTV159IST_OBCPS_RECOVERY.tcl	To be checked by RAL, test can continue		NCR-4287
16:59	IEGSE disconnected for reconfiguration to redundant side.			
17:10	SPIRE redundant Switch ON, step 22 of ACS 370			
18:26	SPIRE redundant switch OFF			
18:29	OBCP Evt Hifi off :Spire was switched down by OBCP			NCR-4287
		To be checked by RAL, test can continue		
	Switch Off SC with IST END	TLM Error Bus Voltage reported as 0.34V expected to be less than 0.2V, caused by Real Solar Array connected and generating small voltage due to ambient light		
19:31	S/C off. No tag used at start of test session. New tag generated at end : ACS_0373_END_001			

Table 1: SPIRE Detector Check Summary

2 Documents/Drawings

2.1 Applicable Documents

AD1	SPIRE Detector Test at He1	HP-2-ASED-SD-0370, Issue 1
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2.2 Reference Documents

RD1	SPIRE FM IST Instrument Commissioning CFT Procedure	HP-2-ASED-TP-0217, Issue 1.1
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2.3 Other Documents

None

2.4 Acronyms & Abbreviations

See "as-run" procedure.

3 Main Observations and Problems Identified.

The following NCR has been raised after this run of the SPIRE Detector check at He1:

3.1 OBCP triggered during SPIRE DPU & DRCU Power OFF (NCR-4287)

OBCP triggered during SPIRE DRCU and DPU power off, stating SPIRE non-vital RT sick telemetry. This event was observed both on nominal and redundant side.

The expected TM DRCU Current parameter WM408565 limit of 0,38 to 0,5 was exceeded. The actual value reported was 0.83. This , however, is considered not being the cause for the OBCP triggering.

This anomaly needs to be further investigated.

3.2 Procedure Changes

The only change to the procedure was the agreement during the TRR that both, nominal and redundant side of the SPIRE detectors will be checked.

4 Conclusion

The SPIRE Detector at He1 conditions was successfully performed. Even the unstable L3 temperature conditions did not influence the test results and did not prevent meeting the test objectives.

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

The Non-Conformance Report (listed above) was raised at the end the test, however, is related to the switch off, triggering a OBCP event. Hence, the test objectives were not affected.

NCR 3725 issued on the channel swap can be closed since detector channel PMW B6 slope is working correctly as proven by this test. Channel PSW D15 slope is still reverse, but agreed by SPIRE to use as is.

4.1 Open Issues

none

4.2 Requirements Verified

With the above SPIRE Detector Check, the health 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 proven and the go-ahead for vibration testing has been given by RAL.

5 Appendix 1: SPIRE FM Short Functional Test

As-Run Procedure

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

AS-RUN PROCEDURE
OF 17.06.2008

FOR SPIRE DETECTOR CHECKS
POST ACOUSTIC TEST

Title: **IST Instrument Commissioning**
SPIRE FM Cold Functional Test

CI-No: 125200

Prepared by:	S. Hamer/TERMA AS	Date:	30.05.2008
Checked by:	for S. Idler		4.06.2008
Product Assurance:	R. Stritter		30.05.08
Configuration Control:	W. Wietbrock		04.06.08
Project Management:	W. Fricke		05/06/2008
TAS-F	D. Montet		

Distribution: See Distribution List (last page)

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Location : ESTEC	Title: SPIRE Detector Test at He1		
Facility : Class 100000	Model: FM	System: S/C	Date: 13/06/2008
CI No 125200	Test Conductor: A. Koppe		NCR Ref:
	Prepared By: V. La Gioia		CIL No:

Scope:

This ACS details the activities to be performed for the SPIRE detector test.

This ACS shall be used in conjunction with the following documents:

- RD1) SPIRE FM IST Inst Comm CFT TP HP-2-ASED-TP-0217 Iss1r1
- RD2) SPIRE-RAL-PRC-002398, Issue 2.4
- RD3) HP-2-ASED-TP-0134, Issue 4

Annexes:

- 1 - Activity Control Sheet: Session Record
- 2 - Actual SCOE cable connection
- 3 - Actual S/C operational sheet

EGSE CCS SW version:

2.0-1219

On-Board S/W:

CDMS ASW: Version 3.4.0.9

ACMS ASW: Version 3.7

SPIRE OBSW: Version DPU 2.2.H Partition 1 ; main and redundant, Version DPU 2.2.H partition 2 ; main and redundant

HPADB:

HPADB:HP-ASP-LI-1441_10 release Note

SPIRE Merged MIB:

SPIRE MIB: 2.2.H1 PR

SPIRE Merged MIB: H-P-ASP-LI-1424_04

Facilities required:	See AD1, § 5.4
Personnel required:	See AD1, § 5.1
Safety and Hazards:	See AD1, § 5.3
NCR / Constraints:	<p>Safety critical NCRs identified: None</p> <p>Blocking NCRs: None</p> <p>Instruments: SPIRE</p> <p>S/C configuration: S/C vertical He1 conditions</p> <p>Constraints: None</p>

No:	Activity	Proc/Drg/Result	Responsible & sign off
1.	Inform TAS Floor Manager of test start SPIRE Detector test Test duration: 2 hours	ok	lo
2.	Fill in the session ID according to the sheet (Appendix 1)	noted on annex 1	lo
3.	Ensure that satellite configuration (SCOE cable connection sheet - Annex 2) is compatible with 5.8.4.5.1 of RD1	ok	lo
4.	Ensure that S/C operational sheet is compatible with 5.8.4.5.1 of RD3.	ok	lo
5.	Execute procedure RD1, §1 to 7. Note: RD1, §5.2 Environmental conditions are redefined for the detector test at He1 conditions: L0 temperature: 4.2 < K < 6.5 L1 temperature: 4.2 < K < 15	4.36 4.36	

Release AIT:	Release SE:	Release PA/Safety:	Sign off (PA/QC/Team Leader)
	<i>A. Koppe</i>	<i>V. La Gioia</i>	<i>[Signature]</i>
Release Floor Manager:			
<i>M. Wiltke</i>	<i>17.06.08</i>		

No:	Activity	Proc/Drg/Result	Responsible & sign off
	L2 temperature: 5 < K < 30 L3 temperature: 5 < K < 50 (Spire J-FET, T246 T247)	<i>see attachment #8</i> 6.11 4.56 K	/
6.	From RD1, execute §7.1 for IEGSE setup	✓	/
	TEST ON SPIRE PRIME & S/C Power ON	-	-
7.	From RD1, execute §7.2.1 for EGSE & Satellite Switch On Note: if S/C already on, SKIP step 4	✓	/
8.	From RD1, execute §7.2.2.1 for SPIRE PRIME DCU and DRCU switch on	✓	/
9.	From RD1, execute §7.2.2.3, SPIRE-IST-COLD-FUNC-SCU-03-P for SCU DC Thermometry check PRIME	✓	/
10.	From RD1, execute §7.2.2.4, SPIRE-IST-COLD-FUNC-SCU-06-P for SCU AC Thermometry check PRIME	✓	/
11.	From RD1, execute §7.2.2.20, SPIRE-IST-COLD-FUNC-DCU-11-PHOT-P for Photometer BDAs Switch ON Check PRIME	✓	/
12.	From RD1, execute §7.2.2.21, SPIRE-IST-COLD-FUNC-DCU-13-PHOT-P for Photometer BDAs Integrity Check PRIME	✓	/
13.	From RD1, execute §7.2.2.22, SPIRE-IST-COLD-FUNC-DCU-14-PHOT-P for Photometer BDAs Noise Check PRIME	✓	/
14.	From RD1, execute §7.2.2.24, SPIRE-IST-COLD-PDET-OFF-P for Photometer BDAs Switch OFF PRIME	✓	/
15.	From RD1, execute §7.2.2.25, SPIRE-IST-COLD-FUNC-DCU-11-SPEC-P for Spectrometer BDAs Switch ON Check PRIME	✓	/
16.	From RD1, execute §7.2.2.26, SPIRE-IST-COLD-FUNC-DCU-13-SPEC-P for Spectrometer BDAs Integrity Check PRIME	✓	/
17.	From RD1, execute §7.2.2.27, SPIRE-IST-COLD-FUNC-DCU-14-SPEC-P for Spectrometer BDAs Noise Check PRIME	✓	/
18.	From RD1, execute §7.2.2.29, SPIRE-IST-COLD-SDET-OFF-P for Spectrometer BDAs switch OFF	✓	/
19.	From RD1, execute §7.2.2.31, SPIRE-IST-COLD-SCU-OFF-P for SCU switch OFF PRIME	✓	/
20.	From RD1, execute §7.2.2.32 for SPIRE PRIME DRCU and DPU power off	✓	/
	TEST ON SPIRE REDUNDANT (if primary not successful)	-	-
21.	From RD1, execute §7.2.1 for EGSE & Satellite Switch On Note: if S/C already on, SKIP step 4	✓	/
22.	From RD1, execute §7.2.3.1 for SPIRE PRIME DCU and DRCU switch on	✓	/
23.	From RD1, execute §7.2.3.3, SPIRE-IST-COLD-FUNC-SCU-03-R for SCU DC Thermometry check PRIME	✓	/
24.	From RD1, execute §7.2.3.4, SPIRE-IST-COLD-FUNC-SCU-06-R for SCU AC Thermometry check PRIME	✓	/
25.	From RD1, execute §7.2.3.20, SPIRE-IST-COLD-FUNC-DCU-11-PHOT-R for Photometer BDAs Switch ON Check PRIME	✓	/
26.	From RD1, execute §7.2.3.21, SPIRE-IST-COLD-FUNC-DCU-13-PHOT-R for Photometer BDAs Integrity Check PRIME	✓	/
27.	From RD1, execute §7.2.3.22, SPIRE-IST-COLD-FUNC-DCU-14-PHOT-R for Photometer BDAs Noise Check PRIME	✓	/
28.	From RD1, execute §7.2.3.24, SPIRE-IST-COLD-PDET-OFF-R for Photometer BDAs Switch OFF PRIME	✓	/

No:	Activity	Proc/Drg/Result	Responsible & sign off
29.	From RD1, execute §7.2.3.25, SPIRE-IST-COLD-FUNC-DCU-11-SPEC-R for Spectrometer BDAs Switch ON Check PRIME RED	✓	[Signature]
30.	From RD1, execute §7.2.3.26, SPIRE-IST-COLD-FUNC-DCU-13-SPEC-R for Spectrometer BDAs Integrity Check PRIME RED	✓	[Signature]
31.	From RD1, execute §7.2.3.27, SPIRE-IST-COLD-FUNC-DCU-14-SPEC-R for Spectrometer BDAs Noise Check PRIME RED	✓	[Signature]
32.	From RD1, execute §7.2.3.29, SPIRE-IST-COLD-SDET-OFF-R for Spectrometer BDAs switch OFF	✓	[Signature]
33.	From RD1, execute §7.2.3.31, SPIRE-IST-COLD-SCU-OFF-R for SCU switch OFF PRIME RED	✓	[Signature]
34.	From RD1, execute §7.2.3.32 for SPIRE Redundant DRCU and DPU power off	✓	[Signature]
	S/C Power OFF		
35.	From RD1, execute §7.2.4 Note: if S/C needs to be left on, SKIP step 6.	✓	[Signature]
36.	Inform TAS-I Floor Manager of test end [Signature]		

APPENDIX 2

Actual SCOE cable connection (to be provided by AIT)

Annex 2

SCOE CABLES CONNECTION to HERSCHEL S/C					
SKIN-01	PWR Panel (PCDU)				
	Connector Function	Skin Connector	S/C unit	SCOE CABLE	Flight Connector
	BS Nom Power	SK01BJ09	PCDU		Flight Plug ✓
	BS Red Power	SK01BJ10	PCDU		Flight Plug ✓
	BDR1 AIT	SK01BJ11	PCDU	LPS SCOE Cable Plugged ✓	
	BDR2 AIT	SK01BJ12	PCDU	LPS SCOE Cable Plugged ✓	
	SA Nom Power	SK01AJ01	PCDU	disconnected	HSS direct ✓
	SA Nom Power	SK01AJ02	PCDU	disconnected	HSS direct ✓
	SA Nom Power	SK01AJ03	PCDU	disconnected	HSS direct ✓
			Battery	EMC Cover	
	SA Red Power	SK01AJ05	PCDU	disconnected	HSS direct ✓
	SA Red Power	SK01AJ06	PCDU	disconnected	HSS direct ✓
SA Red Power	SK01AJ07	PCDU	disconnected	HSS direct ✓	
SKIN-02	PWR Panel (ACC, CDMU, RCS, 1553 & Thruster)				
	Connector Function	Skin Connector	S/C unit	SCOE CABLE	Flight Connector
	SKIN-02 - DMS 1553 Bus_A	J01	CDMU		Flight Plug ✓
	SKIN-02 - DMS 1553 Bus_B	J02	CDMU		Flight Plug ✓
	SKIN-02 - ACMS 1553 Bus_A	J03	ACC		Flight Plug ✓
	SKIN-02 - ACMS 1553 Bus_B	J04	ACC		Flight Plug ✓
	SKIN-02 - LV1/FCV 20N CMD S/A M	J05	ACC/RCS	disconnected	save ✓
	SKIN-02 - LV2/FCV 20N CMD S/A R	J06	ACC/RCS	disconnected	save ✓
	SKIN-02 - RCS Press/Tank Temp/PT Pwr	J07	ACC/PT&TH		Flight Plug ✓
	SKIN-02 - Thruster Temp M/LV1 Sts	J08	ACC/RCS		Flight Plug ✓
	SKIN-02 - CDMU and ACC EEPROM reprogramming input	J09	ACC/CDMU		Flight Plug ✓
	SKIN-02 - CDMU and ACC EEPROM reprogramming input	J10	ACC/CDMU		Flight Plug ✓
	SKIN-02 - Thruster Temp R/LV2 Sts	J11	ACC/RCS	ACMS SCOE Cable Plugged ✓	Flight Plug ✓
	SKIN-02 - Thruster C/B Heaters M	J12	ACC/CBH	disconnected	save ✓
	SKIN-02 - Thruster C/B Heaters R	J13	ACC/CBH	disconnected	save ✓
	SKIN-02 - Str1/2 On/Off Cmd M/Str1 Sts	J14	ACC/STR-1		Flight Plug ✓
	SKIN-02 - Str1/2 On/Off Cmd R/Str2 Sts	J15	ACC/STR-2		Flight Plug ✓
	SKIN-02 - Gyro A On/Off Cmd	J16	ACC/GYRO-E1		Flight Plug ✓
SKIN-02 - Gyro B On/Off Cmd	J17	ACC/GYRO-E2		Flight Plug ✓	
SKIN-03	TTC Panel				
	Connector Function	Skin Connector	S/C unit	SCOE CABLE	Flight Connector
	SKIN-03 - Test point TC + protection jumper EPC1	SK03J01	XPND1/EPC1		Flight Plug ✓
	SKIN-03 - Test point TC + protection jumper EPC2	SK03J02	XPND2/EPC2		Flight Plug ✓
	RF LINK				
Connector Function	Skin Connector	S/C unit	SCOE CABLE	Flight Connector	
RF link for antenna LGA1	N/A	LGA1	RF SCOE LGA1 Plugged	LGA1 Anechoic Cap ✓	

Release SE:	AIT:	PA/Safety:	Floor Manager	Sign off (PA/T Leader)
			 17.06.09	

	RF link for antenna LGA2	N/A	LGA2	RF SCOE LGA2 Plugged	LGA2 Anechoic Cap	✓
	RF link for antenna MGA	N/A	MGA	RF SCOE MGA Plugged	MGA Anechoic Cap	✓
SKIN-04	ACMS Panel (RWE)					
	Connector Function	Skin Connector	S/C unit	SCOE CABLE	Flight Connector	
SKIN-04	RWL1 Sgn	J01	ACC/RWL-1		ACMS Flight Plug SK04P01 Plugged	✓
SKIN-04	RWL2 Sgn	J02	ACC/RWL-2		ACMS Flight Plug SK04P02 Plugged	✓
SKIN-04	RWL3 Sgn	J03	ACC/RWL-3		ACMS Flight Plug SK04P03 Plugged	✓
SKIN-04	RWL4 Sgn	J04	ACC/RWL-4		ACMS Flight Plug SK04P04 Plugged	✓
SKIN-05	GYR/QRS Panel					
	Connector Function	Skin Connector	S/C unit	SCOE CABLE	Flight Connector	
SKIN-05	CRS1 AOCS Sgn	J01	CRS-1/ACC		ACMS Flight Plug	✓
SKIN-05	CRS2 AOCS Sgn	J02	CRS-2/ACC		ACMS Flight Plug	✓
SKIN-05	GYRO RS422 / Test	J03	GYRO	disconnected	<i>missing</i>	
SKIN-05	CRS 1/2 Stimuli	J04	CRS-1,2	disconnected	<i>Flight cap</i>	✓
SKIN-05	AAD Sgn M	J05	AAD/ACC		ACMS Flight Plug	✓
SKIN-05	SAS1/2 Sgn M	J06	SAS/ACC		ACMS Flight Plug	✓
SKIN-05	SAS1/2 Sgn R	J07	SAS/ACC		ACMS Flight Plug	✓
SKIN-05	AAD Sgn R	J08	AAD/ACC		ACMS Flight Plug	✓
SKIN-06	STR Panel					
	Connector Function	Skin Connector	S/C unit	SCOE CABLE	Flight Connector	
SKIN-06	STR1 Stimuli	J01	STR1	disconnected	<i>Flight Cap</i>	✓
SKIN-06	STR2 Stimuli	J02	STR2	disconnected	<i>Flight Cap</i>	✓
	UMBILICAL					
	Connector Function	Connector	S/C unit	SCOE CABLE		
	Power/Data	HUJ01	SYSTEM	SCOEs cable Plugged	✓	
	Power/Data	HUJ02	SYSTEM	SCOEs cable Plugged	✓	

Release SE:	AIT:	PA/Safety:	Floor Manager	Sign off (PA/T Leader)
			<i>[Signature]</i>	

17.06.08

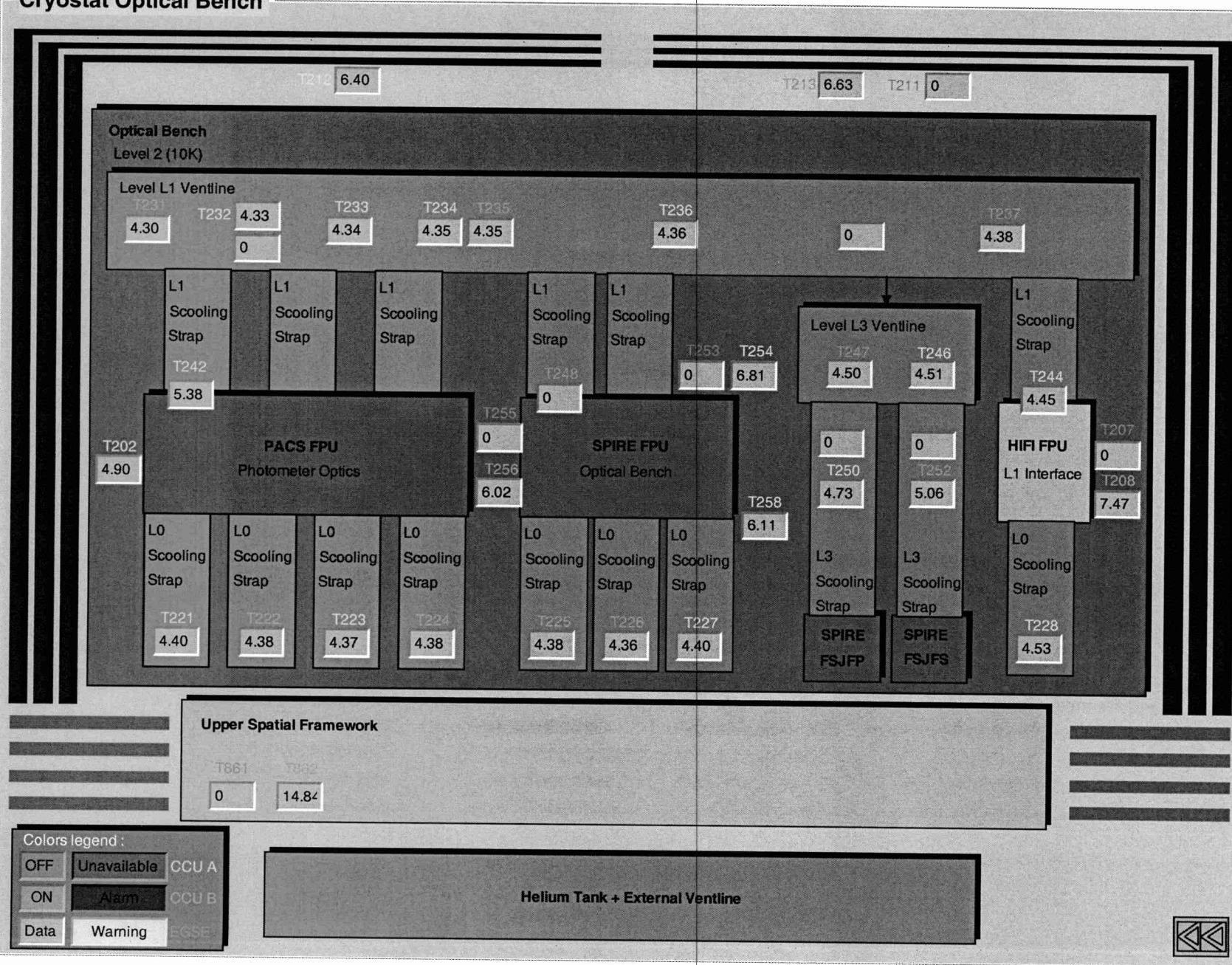
APPENDIX 3

Actual S/C Operational Status Sheet

	Op	Comments	Non Op
CDMS			
CDMU	x		
1553 MIL-BUS A	x		
1553 MIL-BUS B	x		
PCS			
PCDU	x		
BAT	x	<i>BS SCOE connected</i>	x
SolarArray		<i>not connected</i>	x
TCS	x		
TT&C	x		
MGA	y		
LGA1	x		
LGA2	x		
ACMS			
1553 MIL-BUS A	x		
1553 MIL-BUS B	y		
ACC	x		
RWL1,2,3,4	x		
SAS1	y		
SAS2	y		
AAD	y		
GYR	x		
STR1	y		
STR2	x		
CRS1	x		
CRS2	x		
RCS	x		

	Op	Comments	Non Op
CCU	X		
SPIRE	X		
WUs			
FPU			
PACS	X		
WUs			
FPU			
HIFI	X		
WUs			
FPU			
VMC	X		
SREM	X		

Cryostat Optical Bench


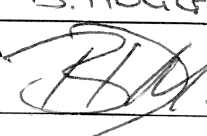


Colors legend :

OFF	Unavailable	CCU A
ON	Alarm	CCU B
Data	Warning	EGSE

a Hallmark 4 of 50-370

Procedure Variation Summary

	Test Change	Curr. No.: # 1	Date 17/06/08
		Page 1 of 1	
Test designation SPIRE SFT.	Test Procedure TP0217	Issue 1.1	Rev.
Test step changed TP0217 STEPS 16.59.	Reason for Change SPIRE OBCP RECOVERY.		
<p>CALL SCRIPT</p> <p>2010999MCTUI59_1ST_OBCPS_recovery.tcl.</p>			
Prepared by: B. HOGG	Resp. Test Leader 	Project Engineer	
PA/QA 	Prime	Customer	

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7.2 Step by Step Procedure

Test Location:	
Test Session Id:	
Test Environment:	

7.2.1 EGSE & Satellite Switch On for CFT

Step- No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
Satellite & EGSE Switch On							
0	Confirm all constraints for the CFT as defined in Section 1 have been fulfilled prior to starting the test	OK				✓	
1	Confirm I-EGSE physically connected to HPCCS	OK				✓	
2	Switch on & configure SPIRE I-EGSE i.a.w. AD5 & AD 8	OK				✓	
3	Confirm SPIRE I-EGSE is in the correct configuration as per AD5 & AD 8 and TIME synchronised with HPCCS	OK				✓	
4	Switch on HPCCS, SCOE's and Satellite/SVM i.a.w. AD 10 sections 7.2.3, 7.2.4 (IST START selecting 5.8.4.5.1 for SPIRE Commissioning)	OK			skipped	✓	

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Step- No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
5	Confirm that EGSE and Satellite are in the correct configuration as per AD 2	OK				✓	
6	If not already on, from HPCCS power ON CCU A & CCU B by executing test script: K102999ECVT001_ASDGENCCU_ABPWRON	OK			CCU already ON in mode 2	✓	
7	If not already enabled, from HPCCS enable Monitoring Mode 1 (512sec cycle) for CCU A & B by executing test script: K102999ECVT001_ASDGENCCU_MnEBOTH1	OK			Better stay on 8sc to have better view	✓	
8	Connect HPCCS to CRYOSCOE and verify CryoSCOE data is being received on the CCS by executing the following script: K102999ECVT035_ASDGEN_SCOE_CCU_LOG	OK			Step skipped due to CryoSCOE not connected (already in use by pumping)		
9	From HPCCS Test Conductor console issue command to connect to SPIRE I-EGSE connect HSPIREEGSE	OK				✓	
10	Confirm from HPCCS and SPIRE I-EGSE that the connection has been established	YZS29940=			AND SYS_PARS	✓	
11	Verify that I-EGSE is receiving CCU Cryo packets	OK				✓	
12	On HPCCS start the following test script: ALL_SubscribeParams	OK				✓	
13	Verify HPCCS-IEGSE connection by sending test command: YC00X066 From the manual command stack (repeater value of "0")	OK				✓	

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Step- No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
14	If required load Synoptics INSTRUMENTS on HPCCS to display SPIRE status overview	OK				✓	
	READY FOR START OF SPIRE CFT						

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7.2.2 Cold Functional Tests - Nominal

7.2.2.1 Switch ON SPIRE PRIME

The following will switch ON and configure SPIRE Prime instrument in REDY (Standby) mode. HKTM packets will be generated on APIDs 1280 and 1282 decimal (these can be observed using TMPH with corresponding filter – note however a limited number of TMPHs should be running at one time).

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 on SPIRE Prime: S102999SCVT031_ASDCFTSPIR_PWR_ON_P	OK		AND: ZAD07999, ZAD14999 MIM: LCL_HERSHEL	✓	

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Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
3.	On HPCCS when prompted: "SPIRE Switch ON for Cold FT related tests in Hel/Hell conditions only - Select NO to abort TS if not correct" Select YES	YES			✓	
	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 Standby mode. Reply to prompts as indicated below.				✓	
4.	On HPCCS when prompted: "Check Telemetry Updating Correctly and OBT is Consistent with CDMU - OK to continue" Select OK	OK		AND: SA_1_559	✓	

Range out of limit occurred 15.27

SRLBKES20
SRLAK510
9
8
7
6
5V
5K
4V
4K
3V
3K
2V
2K
1V
1K
0V
OK
DOK
DOK

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Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
5.	If I-EGSE connected when prompted on HPCCS, perform check requested then select OK : "Check IEGSE Time Consistent - OK to continue when RAL confirm"	OK			✓	
6.	On HPCCS when prompted: "Check Telemetry No Longer Updating - OK to continue" Check that parameters: THSK Not refreshing TM2N Not incrementing Select OK to continue	OK	OK OK	Note: Two TC failures on SCR00500 are expected because HKTM has been stopped	✓	
7.	On HPCCS when prompted: "Check Telemetry Updating Correctly - OK to continue" Check that parameters: THSK Refreshing @ 1Hz TM2N Incrementing by 1 @ 1Hz	OK	OK OK	AND: SA_1_559	✓	

*expected TC rejected
clear HK report
SCR01500*

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Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
	Select OK to continue	OK				
8.	On HPCCS when all autonomous actions have been completed by the power on script S102999SCVT031_ASDCFTSPIR_PWR_ON_P it will prompt: "Set Bus Profile Back to Original Setting?" Select NO	NO			✓	
9.	At the prompt: "Bus Profile left unchanged" Select OK to continue	OK			✓	
10.	Verify HK TM packets are being received on APIDs 1280 & 1282	OK			✓	
	SPIRE DPU & DRCU powered				✓	

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7.2.2.3 Procedure SPIRE-IST-COLD-FUNC-SCU-03-P

Version	2.4
Date	6th December 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	8 minutes
Pass/Fail Criteria	SCU DC thermometry channels show 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-IST-COLD-FUNC-SCU-03-P.tcl	—	—	—	✓
2	Wait for the parameter BBFULLTYPE to get set to SCU_DC_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 SCUTEMPSTAT	SCUTEMPSTAT	0/0xFFFF/0xFFFF		✓
4	If the instrument is at He I 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) ~-4.2K ~-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	<i>see attachment</i>	✓
5	If the instrument is at He II temperatures check the values of	PUMPHTRTEMP	(All Values TBC) -/~4.6K		

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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	2008.169.15.39.18.910	HEX	SM_2X520	MCUBITSTAT	00000000	HEX
SMT1N500	TM2N	00000269	HEX	SMT0A520	EVHSV	0.1087	mV
SMD1N510	DCUFRAMECNT	0		SMH0A520	SPHSV	0.1045	mV
SMD0N515	MCUFRAMECNT	0		SMT1A520	SPHTRV	0.0023	V
SMD0N520	SCUFRAMECNT	0		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	0.000447	mA
SM23V510	PSWJFET4V	0	V	SMK0F520	SUBKSTAT	00000000	HEX
SM24V510	PSWJFET5V	0	V	SMF0K520	PUMPHTRTEMP	4.84968605	K
SM25V510	PSWJFET6V	0	V	SMF1K520	PUMPHSTEMP	4.82123095	K
SM30V510	PMWJFET1V	0	V	SMF2K520	EVAPHSTEMP	4.77297336	K
SM31V510	PMWJFET2V	0	V	SMF3K520	SHUNTTEMP	4.26872429	K
SM32V510	PMWJFET3V	0	V	SMF4K520	EMCFILTEMP	6.14537330	K
SM33V510	PMWJFET4V	0	V	SMF5K520	SL0TEMP	4.26553714	K
SM50V510	PLWJFET1V	0	V	SMF6K520	PL0TEMP	4.32288804	K
SM51V510	PLWJFET2V	0	V	SMF7K520	OPTTEMP	6.20757801	K
SMT0V510	TCJFETV	0	V	SMF8K520	BAFTEMP	6.77315907	K
SMF0F510	SPECJFETSTAT	00000000	HEX	SMF9K520	BSMIFTEMP	6.27011059	K
SM00V510	SSWJFET1V	0	V	SMS0K520	SCAL2TEMP	6.27176846	K
SM01V510	SSWJFET2V	0	V	SMS1K520	SCAL4TEMP	6.17449433	K
SM10V510	SLWJFET1V	0	V	SMS2K520	SCALTEMP	6.13316459	K
SMS0W515	SMECENCPCR	0000FFFF	HEX	SMFAK520	SMECIFTEMP	6.00955802	K
SMS1W515	SMECLVDTPWR	0000FFFF	HEX	SMFBK520	SMECTEMP	6.01261118	K
SMS1M515	SMECLOOPMODE	0000FFFF	HEX	SMFCK520	BSMTEMP	6.19497737	K
SMC0W515	CHOPSENSPCR	0000FFFF	HEX	SMK0K520	SUBKTEMP	566.29900000	K
SMJ0W515	JIGGSENSPCR	0000FFFF	HEX				

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Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
	SCU DC thermometry channels.	PUMPHSTEMP EVAPHSTEMP SHUNTTEMP EMCFILTEMP SL0TEMP PL0TEMP OPTTEMP BAFTEMP BSMIFTEMP SCAL2TEMP SCAL4TEMP SCALTEMP SMECIFTEMP SMECTEMP BSMTEMP	-/~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	
6	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail): pass					

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7.2.2.4 Procedure SPIRE-IST-COLD-FUNC-SCU-06-P

Version	2.4
Date	6th December 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	2 minutes
Pass/Fail Criteria	SCU AC thermometry channel shows temperature readings according to the actual instrument temperature

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Procedure Steps:


Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-FUNC-SCU-06-P.tcl	—	—	—	✓
2	Wait for the parameter BBFULLTYPE to get set to SCU_AC_Therm	—	—	—	✓
3	A few seconds later record the value of parameter SUBKSTAT	SUBKSTAT	0/1/1		✓
4	If the instrument is at He I temperatures check the value of SCU AC thermometry channel.	SUBKTEMP	~4K	4.4 K.	✓
5	If the instrument is at He II temperatures check the value of SCU AC thermometry channel.	SUBKTEMP	~1.7K	N/A	
6	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail):		<i>pass</i>			

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7.2.2.20 Procedure SPIRE-IST-COLD-FUNC-DCU-11-PHOT-P

Version	2.4
Date	6th December 2007
Purpose	Photometer BDAs switch ON 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 and Photometer BDAs are ON.
Preconditions	<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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	7 minutes
Pass/Fail criteria	DCU HK parameters show expected values

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Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-FUNC-DCU-11-PHOT-P.tcl	—	—	—	✓
2	Check that the Photometer detectors and LIAs are switched on	PSWJFETSTAT PMLWJFETSTAT PLIABITSTAT PLIAP5V PLIAP9V PLIAM9V	0/-/0x3F 0/-/0x7F 1 ~0/ ~+5.17 ± 0.1V ~0/ ~+11.53 ± 0.1V ~0/ ~-11.53 ± 0.1V	OK 3F OK 7F 1 5.23 11.58 -11.58	✓
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail): <i>pass</i>					

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7.2.2.21 Procedure SPIRE-IST-COLD-FUNC-DCU-13-PHOT-P

Version	2.4
Date	6th December 2007
Purpose	Photometer BDAs integrity 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 and Photometer BDAs are ON.
Final configuration	Unchanged
Preconditions	<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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	15 minutes
Pass/Fail criteria	DCU HK parameters show expected values

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/Failure
1	Check that Photometer LIAs and detectors are switched on	PLIABITSTAT PSWJFETSTAT PMLWJFETSTAT	1 0x3F 0x7F	1 0x3F 0x7F	✓
2	Execute TCL script SPIRE-IST-COLD-FUNC-DCU-13-PHOT-P.tcl	—	—	—	✓
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail): <i>pass</i>					

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7.2.2.22 Procedure SPIRE-IST-COLD-FUNC-DCU-14-PHOT-P

Version	2.4
Date	6th December 2007
Purpose	Photometer BDAs noise level 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 and Photometer BDAs are ON.
Final configuration	Unchanged
Preconditions	<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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	Photometer BDA signals show no excess noise

Procedure Steps:

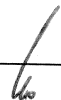
Step	Description	Parameter - Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/Failure
1	Check that Photometer LIAs and detectors are switched on	PLIABITSTAT PSWJFETSTAT PMLWJFETSTAT	1 0x3F 0x7F	1 0x3F 0x7F	✓
2	Execute TCL script SPIRE-IST-COLD-FUNC-DCU-14-PHOT-P.tcl	—	—	—	✓
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail):		<i>pass</i>			

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7.2.2.24 Procedure SPIRE-IST-COLD-PDET-OFF-P

Version	2.4
Date	6th December 2007
Purpose	Photometer BDAs 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 and Photometer BDAs 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 and Photometer BDAs are OFF
Preconditions	<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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	3 minutes
Pass/Fail criteria	DCU HK parameters show expected values

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Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-PDET-OFF-P.tcl	—	—	—	✓
2	Check that the Photometer detectors are switched off	PSWJFETSTAT PMLWJFETSTAT	0x3F/-/0 0x7F/-/0		✓
3	Check that the Photometer LIAs are switched off	PLIABITSTAT	1/-/0		✓
4	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail): <i>pass</i>					

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7.2.2.25 Procedure SPIRE-IST-COLD-FUNC-DCU-11-SPEC-P

Version	2.4
Date	6th December 2007
Purpose	Spectrometer BDAs switch ON 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 and Spectrometer BDAs are ON.
Preconditions	<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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	7 minutes
Pass/Fail criteria	DCU HK parameters show expected values

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Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-FUNC-DCU-11-SPEC-P.tcl	—	—	—	✓
2	Check that the Spectrometer detectors and LIAs are switched on	SPECJFETSTAT SLIABITSTAT SLIAP5V SLIAP9V SLIAM9V	0/-/7 1 ~0/ ~+5.23 ± 0.1 ~0/ ~+11.57 ± 0.1 ~0/ ~-11.54 ± 0.1	7 1 5.25 11.58 -11.56	✓
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	N
Test Result (Pass/Fail): <i>pass</i>					

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7.2.2.26 Procedure SPIRE-IST-COLD-FUNC-DCU-13-SPEC-P

Version	2.4
Date	6th December 2007
Purpose	Spectrometer BDAs integrity 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 and Spectrometer BDAs are ON.
Final configuration	Unchanged
Preconditions	<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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	12 minutes
Pass/Fail criteria	DCU HK parameters show expected values

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Check that the Spectrometer detectors and LIAs are switched on	SPECJFETSTAT SLIABITSTAT	7 1		✓
2	Execute TCL script SPIRE-IST-COLD-FUNC-DCU-13-SPEC-P.tcl	—	—	—	✓
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓

Test Result (Pass/Fail): *pass*

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7.2.2.27 Procedure SPIRE-IST-COLD-FUNC-DCU-14-SPEC-P

Version	2.4
Date	6th December 2007
Purpose	Spectrometer BDAs noise 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 and Spectrometer BDAs are ON.
Final configuration	Unchanged
Preconditions	<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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	Spectrometer BDA signals show no excess noise

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/Failure
1	Check that the Spectrometer detectors and LIAs are switched on	SPECJFETSTAT SLIABITSTAT	7 1		✓
2	Execute TCL script SPIRE-IST-COLD-FUNC-DCU-14-SPEC-P.tcl	—	—	—	✓
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail): <i>pass</i>					


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7.2.2.29 Procedure SPIRE-IST-COLD-SDET-OFF-P

Version	2.4
Date	6th December 2007
Purpose	Spectrometer BDAs 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 and Spectrometer BDAs 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 and Spectrometer BDAs are OFF
Preconditions	<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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	3 minutes
Pass/Fail criteria	DCU HK parameters show expected values

Procedure Steps:

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Step	Description	Parameter - Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/Failure
1	Execute TCL script SPIRE-IST-COLD-SDET-OFF-P.tcl	—	—		✓
2	Check that the Spectrometer detectors are switched off	SPECJFETSTAT	7/-0		✓
3	Check that the Spectrometer LIAs are switched off	SLIABITSTAT	1/-0		✓
4	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail): <i>pass</i>					

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
Cryostat Check Procedure for CFT							
5	Record Temperatures: T246: (KD223302 if connected to CCU) T247: (KD223303 if connected to CCU)	>10K - <15K >10K - <15K		7.97 7.98		✓	
6	Inform Cryo Engineers that Level 3 temperature no longer needs to be maintained between 10K and 15K	OK					
End of Cryostat Check							

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
7.2.2.31 Procedure SPIRE-IST-COLD-SCU-OFF-P

Version	2.4
Date	6th December 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
Preconditions	<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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 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-IST-COLD-SCU-OFF-P.tcl	—	—	—	✓
2	A few seconds later record the value of parameter SCUTEMPSTAT	SCUTEMPSTAT	0xFFFF/-0		✓
3	A few seconds later record the value of parameter SUBKSTAT	SUBKSTAT	1/-0		✓

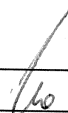
Test Result (Pass/Fail):

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7.2.2.32 Switch OFF SPIRE 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: S102999SCVT032_ASDCFTSPIR_PWR_OFF_P	OK			✓	
2.	On HPCCS when prompted: "SPIRE Switch OFF for CFT related tests in Hel/Hell conditions only - Select NO to abort TS if not correct" Select YES	YES			✓	
	If YES is selected the test script will go on to automatically power off all SPIRE warm units.				✓	

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Doc. No: HP-2-ASED-TP-0217

Issue: 1.1

Date: 30.05.08

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Step- No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
	<p>Note that during Switch OFF of SPIRE the following (5,2) and (5,4) event messages on APID 1280 may be expected and do not indicate a problem:</p> <p>a) EVID 1313 No_MCU_Response_Error b) EVID 21773 ALARM_LSMCU_DEAD</p> <p>However, be aware that if FDIR is enabled for SPIRE in the CDMU then this may trigger an OBCP</p>				✓	
3.	<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>			AND: SA_1_559	✓	
4.	Select OK to continue	OK			✓	

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Doc. No: HP-2-ASED-TP-0217

Issue: 1.1


Date: 30.05.08

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Step- No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
5.	On HPCCS when all autonomous actions have been completed by the power on script S102999SCVT032_ASDCFTSPIR_PWR_OFF_P it will prompt: "Bus profile left as SPIRE PRIME, change manually after if required - OK to continue"					
6.	Select OK to continue	OK				
7.	On HPCCS stop Packet History displays for the following APIDs:1280,1282	OK				
	SPIRE PRIME OFF					

PVS 1
No TTI received for
LCL 51 current
RT set with sick TTI
then OBCP triggered
cid 0x1106 SPIRE_OFF.cn

Switched down by OBCP triggering
(see attachment)

Enter Date/Time: 12-6-08 Sign Off: 

Jun 17, 08 16:54

SpireP_SwitchOff.txt

Page 1/1

On-Board Event History display printout from time: 2008.169.16.47.32.657 to time: 2008.169.16.52.31.919
Current printout time: 2008.169.16.54.20.902 DISPLAY MODE: BRIEF FILTER MODE: INACTIVE
Number of printed lines: 24

Generation Time	Reception Time	VC	APID	SSC	EvID	Severity	TmT	TmQ	F	D	Message Text
2008.169.16.52.31.919	2008.169.16.52.32.194	0	2020	7119	238	NORM	PG	G	E	E	TMTCDFE EvPkt 5-1 00EE - VCFC Time datation for VC0-V
CFCmod0x40											
2008.169.16.50.39.353	2008.169.16.50.44.531	0	16	8157	27399	NORM	PG	G	E	E	Event 5-1 OBCP Ended
2008.169.16.50.35.350	2008.169.16.50.36.033	0	16	8152	12288	ALARM	PG	G	E	E	<u>OBCP_Evt Hifi Off</u>
2008.169.16.50.02.349	2008.169.16.50.03.981	0	16	8114	27402	NORM	PG	G	E	E	Event 5-1 OBCP Started <i>Id:1104 SPIRE-OFF-CTRL</i>
2008.169.16.50.01.391	2008.169.16.50.03.980	0	16	8110	185	WARN	PG	G	E	E	Event Report - SDB SPIRE non-vital RT Sick TM
2008.169.16.50.01.390	2008.169.16.50.03.980	0	16	8109	178	NORM	PG	G	E	E	Event Report - SDB SPIRE Failed TM
2008.169.16.49.41.685	2008.169.16.49.41.947	0	2020	7101	164	NORM	PG	G	E	E	TMTCDFE EvPkt 5-1 00A4 - New archive segment created
2008.169.16.47.48.657	2008.169.16.47.52.292	0	1280	7594	1281	NORM	PG	G	E	E	New_Step_Report
2008.169.16.47.47.657	2008.169.16.47.52.289	0	1280	7587	1281	NORM	PG	G	E	E	New_Step_Report
2008.169.16.47.46.872	2008.169.16.47.47.129	0	2020	7088	0	NORM	PG	G	E	E	TC Report Packet
2008.169.16.47.46.731	2008.169.16.47.46.989	0	2020	7086	0	NORM	PG	G	E	E	TC Report Packet
2008.169.16.47.45.841	2008.169.16.47.46.098	0	2020	7084	0	NORM	PG	G	E	E	TC Report Packet
2008.169.16.47.45.700	2008.169.16.47.45.957	0	2020	7082	0	NORM	PG	G	E	E	TC Report Packet
2008.169.16.47.45.657	2008.169.16.47.52.288	0	1280	7580	1281	NORM	PG	G	E	E	New_Step_Report
2008.169.16.47.43.872	2008.169.16.47.44.129	0	2020	7079	0	NORM	PG	G	E	E	TC Report Packet
2008.169.16.47.43.731	2008.169.16.47.43.989	0	2020	7077	0	NORM	PG	G	E	E	TC Report Packet
2008.169.16.47.42.716	2008.169.16.47.42.972	0	2020	7075	0	NORM	PG	G	E	E	TC Report Packet
2008.169.16.47.41.700	2008.169.16.47.41.957	0	2020	7073	0	NORM	PG	G	E	E	TC Report Packet
2008.169.16.47.40.747	2008.169.16.47.41.004	0	2020	7071	0	NORM	PG	G	E	E	TC Report Packet
2008.169.16.47.38.657	2008.169.16.47.40.267	0	1280	7565	1281	NORM	PG	G	E	E	New_Step_Report
2008.169.16.47.36.685	2008.169.16.47.36.941	0	2020	7070	0	NORM	PG	G	E	E	TC Report Packet
2008.169.16.47.36.657	2008.169.16.47.40.266	0	1280	7560	1281	NORM	PG	G	E	E	New_Step_Report
2008.169.16.47.34.731	2008.169.16.47.34.989	0	2020	7067	0	NORM	PG	G	E	E	TC Report Packet
2008.169.16.47.32.657	2008.169.16.47.36.263	0	1280	7548	1281	NORM	PG	G	E	E	New_Step_Report

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7.2.3 Cold Functional Tests – Redundant

7.2.3.1 Switch ON SPIRE REDUNDANT

The following will switch ON and configure SPIRE Redundant instrument in REDY (Standby) mode. HKTM packets will be generated on APIDs 1281 dec and 1283 decimal (these can be observed using TMPH with corresponding filter – note however a limited number of TMPHs should be running at one time).

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 on SPIRE Redundant: S102999SCVT033_ASDCFTSPIR_PWR_ON_R	OK		AND: ZAD07999, ZAD14999 MIM: LCL_HERSCHEL	✓	

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Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
3.	<p>On HPCCS when prompted:</p> <p>"SPIRE Switch ON for Cold FT related tests in Hel/Hell conditions only - Select NO to abort TS if not correct"</p> <p>Select YES</p>	YES			✓	
	<p>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 Standby mode. Reply to prompts as indicated below.</p>					
4.	<p>On HPCCS when prompted:</p> <p>"Check Telemetry Updating Correctly and OBT is Consistent with CDMU - OK to continue"</p> <p>Select OK</p>	OK		AND: SA_1_559	✓	
5.	<p>If I-EGSE connected when prompted on HPCCS, perform check requested then select OK:</p> <p>"Check IEGSE Time Consistent - OK to continue when RAL confirm"</p>	OK			✓	

Some Out of limit as Nominal SPIRE ON.

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Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
6.	On HPCCS when prompted: "Check Telemetry No Longer Updating - OK to continue" Check that parameters: <div style="text-align:right; margin-right: 50px;"> THSK Not refreshing TM2N Not incrementing </div> Select OK to continue		ok ok	Note: Two TC failures on SCRO0500 are expected because HKTM has been stopped <i>observed</i>	✓	
7.	On HPCCS when prompted: "Check Telemetry Updating Correctly - OK to continue" Check that parameters: <div style="text-align:right; margin-right: 50px;"> THSK Refreshing @ 1Hz TM2N Incrementing by 1 @ 1Hz </div> Select OK to continue		ok ok	AND: SA_1_559	✓	

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Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
8.	On HPCCS when all autonomous actions have been completed by the power on script S102999SCVT033_ASDCFTSPIR_PWR_ON_R it will prompt: "Set Bus Profile Back to Original Setting?" Select NO	NO	NO		✓	
9.	At the prompt: "Bus Profile left unchanged" Select OK to continue	OK			✓	
10.	Verify HK TM packets are being received on APIDs 1281 & 1283	OK			✓	
	SPIRE DPU & DRCU Redundant powered				✓	

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7.2.3.3 Procedure SPIRE-IST-COLD-FUNC-SCU-03-R

Version	2.4
Date	6th December 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	8 minutes
Pass/Fail Criteria	SCU DC thermometry channels show 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-IST-COLD-FUNC-SCU-03-R.tcl	—	—	—	✓
2	Wait for the parameter BBFULLTYPE to get set to SCU_DC_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 SCUTEMPSTAT	SCUTEMPSTAT	0/0xFFFF/0xFFFF	<i>0x FFFF</i>	✓
4	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 ~4.7K ~4.8K ~4.8K ~4.8K ~4.7K ~4.7K ~4.8K	<i>see attachment</i>	
5	If the instrument is at He II temperatures check the values of	PUMPHTRTEMP	(All Values TBC) -/~4.6K		

Enter Date/Time:	<i>17.23</i>	<i>O. Martin</i>	Sign Off:	<i>Leo</i>
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NAME	DESCRIPTION	VALUE	UNIT	NAME	DESCRIPTION	VALUE	UNIT
SM10N500	OBSID	B0000000	HEX	SM_1F520	SCUTEMPSTAT	65535	DEC
SM2LN500	BBFULLTYPE	Null		SM_0X520	PLIABITSTAT	00000000	HEX
SM00M500	MODE	DRCU_ON		SM_1X520	SLIABITSTAT	00000000	HEX
SM00T500	THSK	2008.169.17.23.22.911	HEX	SM_2X520	MCUBITSTAT	00000000	HEX
SMT1N500	TM2N	000001DD	HEX	SMT0A520	EVHSV	-0.0189	mV
SMD1N510	DCUFRAMECNT	0		SMH0A520	SPHSV	-0.0484	mV
SMD0N515	MCUFRAMECNT	0		SMT1A520	SPHTRV	0.0011	V
SMD0N520	SCUFRAMECNT	0		SMP0V520	PCALV	0.000298	V
SM20F510	PSWJFETSTAT	00000000	HEX	SMP0A520	PCALCURR	0.000679	mA
SM80F510	PMLWJFETSTAT	00000000	HEX	SMS0V520	SCAL2V	0.000136	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	0.000269	mA
SM23V510	PSWJFET4V	0	V	SMK0F520	SUBKSTAT	00000000	HEX
SM24V510	PSWJFET5V	0	V	SMF0K520	PUMPHTRTEMP	4.74996204	K
SM25V510	PSWJFET6V	0	V	SMF1K520	PUMPHSTEMP	6.33649576	K
SM30V510	PMWJFET1V	0	V	SMF2K520	EVAPHSTEMP	5.98103140	K
SM31V510	PMWJFET2V	0	V	SMF3K520	SHUNTTEMP	4.22290847	K
SM32V510	PMWJFET3V	0	V	SMF4K520	EMCFILTEMP	9.65182843	K
SM33V510	PMWJFET4V	0	V	SMF5K520	SL0TEMP	4.27443917	K
SM50V510	PLWJFET1V	0	V	SMF6K520	PL0TEMP	4.28644061	K
SM51V510	PLWJFET2V	0	V	SMF7K520	OPTTEMP	9.73680768	K
SMT0V510	TCJFETV	0	V	SMF8K520	BAFTEMP	10.06275757	K
SMF0F510	SPECJFETSTAT	00000000	HEX	SMF9K520	BSMIFTEMP	9.73348665	K
SM00V510	SSWJFET1V	0	V	SMS0K520	SCAL2TEMP	9.41376568	K
SM01V510	SSWJFET2V	0	V	SMS1K520	SCAL4TEMP	9.32279996	K
SM10V510	SLWJFET1V	0	V	SMS2K520	SCALTEMP	29.68302353	K
SMS0W515	SMECENCNPPWR	0000FFFF	HEX	SMFAK520	SMECIFTEMP	9.56044538	K
SMS1W515	SMECLVDTPWR	0000FFFF	HEX	SMFBK520	SMECTEMP	9.57667315	K
SMS1M515	SMECLOOPMODE	0000FFFF	HEX	SMFCK520	BSMTEMP	9.68376155	K
SMC0W515	CHOPSENSPWR	0000FFFF	HEX	SMK0K520	SUBKTEMP	55.15210000	K
SMJ0W515	JIGGSENSPWR	0000FFFF	HEX				

Enter Start Date Time:			
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Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
	SCU DC thermometry channels.	PUMPHSTEMP EVAPHSTEMP SHUNTTEMP EMCFILTEMP SLOTEMP PLOTEMP OPTTEMP BAFTEMP BSMIFTEMP SCAL2TEMP SCAL4TEMP SCALTEMP SMECIFTEMP SMECTEMP BSMTEMP	-/~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	
6	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	
Test Result (Pass/Fail): <i>pass</i>					

Enter Date/Time:	<i>17.23</i>	<i>2. Norton</i>	Sign Off:	<i>60</i>
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Enter Start Date Time:			
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7.2.3.4 Procedure SPIRE-IST-COLD-FUNC-SCU-06-R

Version	2.4
Date	6th December 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	2 minutes
Pass/Fail Criteria	SCU AC thermometry channel shows temperature readings according to the actual instrument temperature

Enter Date/Time:	17:24	<i>a. Norton</i>	Sign Off:	<i>Go</i>
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Doc. No: HP-2-ASED-TP-0217

Issue: 1.1

Date: 30.05.08

Enter Start Date Time:			
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Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-FUNC-SCU-06-R.tcl	—	—	—	✓
2	Wait for the parameter BBFULLTYPE to get set to SCU_AC_Therm	—	—	—	✓
3	A few seconds later record the value of parameter SUBKSTAT	SUBKSTAT	0/1/1		✓
4	If the instrument is at He I temperatures check the value of SCU AC thermometry channel.	SUBKTEMP	~4K	4.53	✓
5	If the instrument is at He II temperatures check the value of SCU AC thermometry channel.	SUBKTEMP	~1.7K	N/A	
6	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓

Test Result (Pass/Fail):

Enter Date/Time:	17:26		Sign Off:	
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Enter Start Date Time:			
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7.2.3.20 Procedure SPIRE-IST-COLD-FUNC-DCU-11-PHOT-R

Version	2.4
Date	6th December 2007
Purpose	Photometer BDAs switch ON 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 and Photometer BDAs are ON.
Preconditions	<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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	7 minutes
Pass/Fail criteria	DCU HK parameters show expected values

Enter Date/Time:	17:29	<i>C. Martin</i>	Sign Off:	<i>Go</i>
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Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-FUNC-DCU-11-PHOT-R.tcl	—	—	—	✓
2	Check that the Photometer detectors and LIAs are switched on	PSWJFETSTAT PMLWJFETSTAT PLIABITSTAT PLIAP5V PLIAP9V PLIAM9V	0/-/0x3F 0/-/0x7F 1 ~0/ ~+5.19 ± 0.1V ~0/ ~+11.54 ± 0.1V ~0/ ~-11.53 ± 0.1V	 5.24 11.60 -11.58	✓
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail):		<i>pass</i>			

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7.2.3.21 Procedure SPIRE-IST-COLD-FUNC-DCU-13-PHOT-R

Version	2.4
Date	6th December 2007
Purpose	Photometer BDAs integrity 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 and Photometer BDAs are ON.
Final configuration	Unchanged
Preconditions	<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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	15 minutes
Pass/Fail criteria	DCU HK parameters show expected values

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/Failure
1	Check that Photometer LIAs and detectors are switched on	PLIABITSTAT PSWJFETSTAT PMLWJFETSTAT	1 0x3F 0x7F	1 3F 7F	✓
2	Execute TCL script SPIRE-IST-COLD-FUNC-DCU-13-PHOT-R.tcl	—	—	—	✓
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail): <i>pass</i>					

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7.2.3.22 Procedure SPIRE-IST-COLD-FUNC-DCU-14-PHOT-R

Version	2.4
Date	6th December 2007
Purpose	Photometer BDAs noise level 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 and Photometer BDAs are ON.
Final configuration	Unchanged
Preconditions	<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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	Photometer BDA signals show no excess noise

Procedure Steps:


Step	Description	Parameter - Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/Failure
1	Check that Photometer LIAs and detectors are switched on	PLIABITSTAT PSWJFETSTAT PMLWJFETSTAT	1 0x3F 0x7F		✓
2	Execute TCL script SPIRE-IST-COLD-FUNC-DCU-14-PHOT-R.tcl	—	—	—	✓
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	
Test Result (Pass/Fail): <i>pass</i>					

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7.2.3.24 Procedure SPIRE-IST-COLD-PDET-OFF-R

Version	2.4
Date	6th December 2007
Purpose	Photometer BDAs 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 and Photometer BDAs 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 and Photometer BDAs are OFF
Preconditions	<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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	3 minutes
Pass/Fail criteria	DCU HK parameters show expected values

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Doc. No: HP-2-ASED-TP-0217

Issue: 1.1

Date: 30.05.08

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Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-PDET-OFF-R.tcl	—	—	—	✓
2	Check that the Photometer detectors are switched off	PSWJFETSTAT PMLWJFETSTAT	0x3F/-/0 0x7F/-/0		✓
3	Check that the Photometer LIAs are switched off	PLIABITSTAT	1/-/0		✓
4	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail):					
<i>pass</i>					

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7.2.3.25 Procedure SPIRE-IST-COLD-FUNC-DCU-11-SPEC-R

Version	2.4
Date	6th December 2007
Purpose	Spectrometer BDAs switch ON 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 and Spectrometer BDAs are ON.
Preconditions	<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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	7 minutes
Pass/Fail criteria	DCU HK parameters show expected values

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Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-FUNC-DCU-11-SPEC-R.tcl	—	—	—	✓
2	Check that the Spectrometer detectors and LIAs are switched on	SPECJFETSTAT SLIABITSTAT SLIAP5V SLIAP9V SLIAM9V	0/-7 1 ~0/ ~+5.23 ± 0.1 ~0/ ~+11.57 ± 0.1 ~0/ ~-11.54 ± 0.1	7 1 5.25 11.58 -11.57	✓
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	
Test Result (Pass/Fail): <i>pass</i>					

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7.2.3.26 Procedure SPIRE-IST-COLD-FUNC-DCU-13-SPEC-R

Version	2.4
Date	6th December 2007
Purpose	Spectrometer BDAs integrity 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 and Spectrometer BDAs are ON.
Final configuration	Unchanged
Preconditions	<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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	12 minutes
Pass/Fail criteria	DCU HK parameters show expected values

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/Failure
1	Check that the Spectrometer detectors and LIAs are switched on	SPECJFETSTAT SLIABITSTAT	7 1		✓
2	Execute TCL script SPIRE-IST-COLD-FUNC-DCU-13-SPEC-R.tcl	—	—	—	✓
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail): <i>pass</i>					

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7.2.3.27 Procedure SPIRE-IST-COLD-FUNC-DCU-14-SPEC-R

Version	2.4
Date	6th December 2007
Purpose	Spectrometer BDAs noise 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 and Spectrometer BDAs are ON.
Final configuration	Unchanged
Preconditions	<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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	Spectrometer BDA signals show no excess noise

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Check that the Spectrometer detectors and LIAs are switched on	SPECJFETSTAT SLIABITSTAT	7 1		✓
2	Execute TCL script SPIRE-IST-COLD-FUNC-DCU-14-SPEC-R.tcl	—	—	—	✓
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail):		<i>pass</i>			

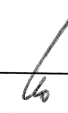
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7.2.3.29 Procedure SPIRE-IST-COLD-SDET-OFF-R

Version	2.4
Date	6th December 2007
Purpose	Spectrometer BDAs 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 and Spectrometer BDAs 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 and Spectrometer BDAs are OFF
Preconditions	<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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	3 minutes
Pass/Fail criteria	DCU HK parameters show expected values

Procedure Steps:

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Step	Description	Parameter - Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/Failure
1	Execute TCL script SPIRE-IST-COLD-SDET-OFF-R.tcl	—	—		✓
2	Check that the Spectrometer detectors are switched off	SPECJFETSTAT	7/-0	0	✓
3	Check that the Spectrometer LIAs are switched off	SLIABITSTAT	1/-0	0	✓
4	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail):		<i>pass</i>			

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
Cryostat Check Procedure for CFT							
5	Record Temperatures: T246: (KD223302 if connected to CCU) T247: (KD223303 if connected to CCU)	>10K - <15K >10K - <15K		12,66 12,73		✓	
6	Inform Cryo Engineers that Level 3 temperature no longer needs to be maintained between 10K and 15K	OK					
End of Cryostat Check							


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7.2.3.31 Procedure SPIRE-IST-COLD-SCU-OFF-R

Version	2.4
Date	6th December 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
Preconditions	<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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	Specified SCU HK Parameters show expected value.

Procedure Steps:

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Step	Description	Parameter - Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/Failure
1	Execute TCL script SPIRE-IST-COLD-SCU-OFF-R.tcl	—	—	—	✓
2	A few seconds later record the value of parameter SCUTEMPSTAT	SCUTEMPSTAT	0xFFFF/-0		✓
3	A few seconds later record the value of parameter SUBKSTAT	SUBKSTAT	1/-0		✓
Test Result (Pass/Fail):		<i>pass</i>			

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7.2.3.32 Switch OFF SPIRE 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 REDUNDANT: S102999SCVT034_ASDCFTSPIR_PWR_OFF_R	OK			✓	
2.	On HPCCS when prompted: "SPIRE Switch OFF for CFT related tests in Hel/Hell conditions only - Select NO to abort TS if not correct" Select YES	YES			✓	
	If YES is selected the test script will go on to automatically power off all SPIRE warm units.				✓	

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
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Step- No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
	<p>Note: During Switch OFF of SPIRE, the following (5,1) and (5,4) event messages on APID 1281 may be expected and do not indicate a problem:</p> <p>c) EVID 1313 No_MCU_Response_Error d) EVID 21773 ALARM_LSMCU_DEAD</p> <p>However, be aware that if FDIR is enabled for SPIRE in the CDMU then this may trigger an OBCP</p>				✓	
3.	<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>		OK OK	AND: SA_1_559	✓	
4.	Select OK to continue	OK			✓	

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Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
5.	On HPCCS when all autonomous actions have been completed by the power on script S102999SCVT034_ASDCFTSPIR_PWR_OFF_R it will prompt: "Bus profile left as SPIRE PRIME, change manually after if required - OK to continue"			OBCD triggered NCR 4287		
6.	Select OK to continue	OK				
7.	On HPCCS stop Packet History displays for the following APIDs:1281,1283	OK				
	SPIRE REDUNDANT OFF				✓	

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7.2.4 Satellite & EGSE Switch Off After CFT Tests

Step- No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	P	N
Satellite & EGSE Switch Off						
	Initial Conditions: Nominal & Redundant SPIRE warm units OFF					
1	On HPCSS terminate ALL_SubscribeParams.tcl test script.	OK				
2	From HPCSS Test Conductor console issue command to disconnect from SPIRE I-EGSE disconnect HSPIREEGSE	OK			✓	
3	Confirm from HPCSS and SPIRE I-EGSE that the disconnection was successful	YZS29940= DISCONNECTED		AND SYS_PARS	✓	
4	If no longer required switch OFF I-EGSE i.a.w. AD 5	OK			✓	
5	Stop monitoring CryoSCOE data on the CCS by selecting Stop Record & Exit from the following script: K102999ECVT035_ASDGEN_SCOE_CCU_LOG	OK				✓
6	Power OFF i.a.w. AD 10 section 7.4 (IST END for SPIRE Commissioning)	OK			✓	
7	Confirm both Satellite and EGSE powered down	OK			✓	
	End Conditions: Satellite and EGSE OFF				✓	
END OF SPIRE CFT TEST						

Enter Date/Time:	18.40	<i>O. Norton</i>	Sign Off:	<i>[Signature]</i>
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END OF DOCUMENT

	Name	Dep./Comp.		Name	Dep./Comp.
	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		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