Title:	HERSCHEL IST1 SPIRE Commissioning Test Report
CI-No:	125 200

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Distribution: See Distribution List (last page)

Issue	Date	Sheet	Description of Change	Release
1	13/08/2008	All	Formal Issue	

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1 Scope

This document reports on the SPIRE Commissioning Test performed on the SPIRE FM Instrument to check correct operation in the frame of the HERSCHEL IST. The test included a Cold Functional Test (CFT), the Peak-Up mode test and the manual cooler recycling as part of the Specific Performance Test (SPT).

The cooler recycling has only been executed in order to check, if the SPT can be performed in this configuration (S/C filling level ~ 61%, no 20° tilting as required for the SPT).

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

The test has been performed in accordance with the IST Leading Procedure and SPIRE Instrument specific test procedures.

1.1 Objective

The objective of the IST commissioning phase is:

- To verify the S/C ability to support the instrument commissioning and
- To support the performance verification of the SPIRE FM under He2 conditions in the S/C environment on nominal and redundant side.

1.2 Summary Conclusion

The test has been successfully completed. All planned tests have been performed. However, the BSM test as well as the manual cooler recycling needs to be repeated in conjunction with the SPT.

The detailed evaluation of the test results will be performed by RAL.

The Non-Conformance Reports (listed below), as raised during the test, did not affect the test objectives.

2 Documents / Drawings

2.1 Applicable Documents

AD1	IST INSTRUMENT COMMISSIONING SPIRE FM COLD FUNCTIONAL TEST	HP-2-ASED-TP-0217, Issue 1.4
AD2	IST Instrument Commissioning SPIRE FM Peak-up Mode Test	HP-2-ASED-TP-0226, Issue 1.1
AD3	SPIRE IST Specific Performance Test	HP-2-ASED-TP-0204, Issue 1.1
AD4	Leading Procedure for Herschel Integrated Satellite Test	HP-2-ASED-TP-0134, Issue 5
AD5	Herschel Satellite IST – Instruments Commissioning – S/C Configuration	HP-2-ASED-TP-0237, Issue 1
AD6	Test Specification for HERSCHEL Instruments FM tests performed at satellite level	H-P-2-ASP-TS-1083, Issue 2
AD-7	TRR for Herschel IST SPIRE Commissioning MoM, dated 28/07/2008	HP-2-ASED-MN-1588
AD-8	PTR for Herschel IST SPIRE Commissioning MoM, dated 01/08/2008	HP-2-ASED-MN-1593

2.2 Reference Documents

RD-1	As-Run (30/07/2008) IST Instrument Commisioning – SPIRE FM Cold Functional Test	HP-2-ASED-TP-0217 issue 1.4
RD-2	As-Run (30/07/2008) IST Instrument Commisioning – SPIRE FM Peak-Up Mode Test	HP-2-ASED-TP-0226 issue 1.1
RD-3	As-Run (30/07/2008) HERSCHEL Satellite IST – Instrument Commissioning – S/C Configuration	HP-2-ASED-TP-0237 issue 1
RD-4	As-Run (30/07/2008) Leading procedure for HERSCHEL integrated satellite test	HP-2-ASED-TP-0134 issue 5

2.3 Other Documents

2.4 Acronyms & Abbreviations

See “as-run” procedure.

3 Test characteristics

3.1 Title

HERSCHEL IST1 SPIRE Commissioning Test (Cold Functional Test, Peak-Up Mode Test)

3.2 Unit tested

SPIRE (for configuration see MoM TRR – AD 7)

3.3 Description

The tests performed functionally check the complete SPIRE instrument in He2 condition (Cold Functional Check)

The Peak-Up Mode test functionally checks the peak commands send by SPIRE to the ACMS and the ACMS related actions/events.

All tests were performed on primary and redundant unit.

3.4 Applied procedures

See AD-1 and AD-2

3.5 Requirements to be verified

See chapter 4.10

3.6 Corresponding minutes of meetings

AD-7 and AD-8

3.7 General test flow

The Test flow, as described in PVS#1 (see ANNEX 1), was as follows:

1. Power on and configure SPIRE I-EGSE for test
2. Power on and configure SVM for test including CCU
3. Power on NOMINAL SPIRE Prime DPU & DRCU and enable Mil1553B-bus interface
4. Perform Peak-Up Mode Test according to HP-2-ASED-TP-0226, chapter 7.2.2
5. Before SPIRE Switch OFF start CFT Nominal Procedures according to HP-2-ASED-TP-0217, chapter 7.2.2.2
6. Execute BSM Control Loop Setting after chapter 7.2.2.14 of HP-2-ASED-TP-0217
7. Switch OFF SPIRE Nominal according to HP-2-ASED-TP-0217, chapter 7.2.2.32
8. Power on SPIRE Redundant DPU & DRCU and enable Mil1553B-bus interface according to HP-2-ASED-TP-0226, chapter 7.2.3
9. Perform Peak-Up Mode Test according to HP-2-ASED-TP-0226, chapter 7.2.3
10. Before SPIRE Switch OFF start CFT Redundant Procedures according to HP-2-ASED-TP-0217, chapter 7.2.3.2
11. Before SPIRE Switch OFF at chapter 7.2.4 of CFT Procedure HP-2-ASED-TP-0217 run Manual Cooler Recycling according to SPT Procedure HP-2-ASED-TP-0204, chapter 7.2.2 (see PVS#5)
12. Stop test according to PVS#5
13. Switch off I-EGSE

4 Test execution

4.1 Date and time

Power ON and initial S/C configuration:

30/07/2008 00:38 UTC

Test configuration and actual test:

30/07/2008 06:01 UTC – 30/07/2008 22:27 UTC

Power OFF:

31/07/2008 00:42 UTC

4.2 Tag / session reference

2008_07_30_00_38_hercdmu_hpws22_REALTIME_SPIRE_COM

Start tag : TP_0217_iss1_4_TP-226_iss1_1_SPIRE_Commissioning_He2_END_001

End tag : TP_0217_iss1_4_TP-226_iss1_1_SPIRE_Commissioning_He2_END_001

4.3 Personnel

Test Director:	S. Mooney
Test Conductor :	S. Hamer / S. Ilsen
HPCCS Operator :	See As-Run
AIT QA:	See As-Run

4.4 Detailed test timeline

This section references the relevant documentation detailing the test execution timeline. For a summary of the main events of the test timeline refer to section 4.7.

4.4.1 Start of test / end of test

See section 4.1.

Further details are provided in the as-run procedures annexed to this test report. The AIT logbooks covering the test are also attached for information.

4.4.2 Time of event as deviation

Details are provided in the as-run procedures annexed to this test report. The AIT logbooks covering the test are also attached for information.

4.4.3 Time zone to be ignored in case of deviation

Details are provided in the as-run procedures annexed to this test report. The AIT logbooks covering the test are also attached for information.

4.4.4 Time of SPR / NCR

Details are provided in the as-run procedures annexed to this test report. The AIT logbooks covering the test are also attached for information.

4.4.5 Time of milestone in test

Details are provided in the as-run procedures annexed to this test report. The AIT logbooks covering the test are also attached for information.

4.5 Problems found during the test

4.5.1 Procedure Variations

4.5.1.1 Herschel Satellite IST – Instruments Commissioning – S/C Configuration (TP-0237)

PVS No	Description and Impact on Test (If any)	Impacts Test Objectives (Y/N)
1.	Incorrect Prompts	N
2.	Missing step	N
3.	"End TS" Missing in procedure between step 32 and 33	N
4.	Restore all sections on SAS SCOE	N

4.5.1.2 IST Instrument Commisioning – SPIRE FM Cold Functional Test (TP-0217)

PVS No	Description and Impact on Test (If any)	Impacts Test Objectives (Y/N)
1.	Sequence of test (from TRR)	N
2.	Repeat IST BSM OSA -P	N
3.	Skip COLD-FUNC-DCU-14-PHOT-P	N
4.	Skip test for redundant since already performed on primary	N
5.	Manual cooler recycle	N

4.5.1.3 IST Instrument Commisioning – SPIRE FM Peak-Up Mode Test (TP-226)

PVS No	Description and Impact on Test (If any)	Impacts Test Objectives (Y/N)
1.	Sequence of test (from TRR)	N
2.	Errors in procedure during power on	N
3.	Repeat peak-up test to gather more info	N
4.	Added additional peak-up tests	N

4.5.1.4 SPIRE IST Specific Performance Test (TP-0204)

PVS No	Description and Impact on Test (If any)	Impacts Test Objectives (Y/N)
1.	Sequence of test (from TRR)	N

4.5.2 NCR/SPR Summary

4.5.2.1 NCRs Opened/Recurred/Closed

NCR No	Title	O/R/C
4390	SPIRE IST Peak-Up Cmd's not accecpted by ACMS	O
4393	Unknown 8,6 Packet from ACMS when executing AC082109 (Peak-Up)	O
4394	SM014500, SPIRE MIB, should be signed	O
4422	TCL/Tk problem with SPIRE cooler recycle script	O
3965	IST Launch Robustness - Inconsistent data from LPS SAS SCOE	R
4287	OBCP triggered during SPIRE DRCU & DPU Power OFF	C
4355	Lost SPIRE IEGSE Connection with CCS when starting a new test script	C

4.5.2.2 SPRs Opened/Recurred/Closed

SPR No	Title	O/R/C
634	Parameter failures during IST Status (SPIRE COMM)	O + C
635	CDMS used by SPIRE IST Peakup mode test incorrect	O
637	Install temporary SPIRE Peekup scripts on HPCCS for NCR-4390	O + C

4.5.3 *List of NCRs and SPRs raised and what action was taken if any*

4.5.3.1 NCRs

NCR No	Action taken	Impacts Test Objectives (Y/N)
4390	Additional tests performed with different peak-up commands	N
4393	Analysis by ACMS underway	N
4394	SPIRE to update MIB	N
4422	SPIRE manual cooler recycle script manually changed and tested	N
3965	New info to be added to NCR	N
4287	Closed	N
4355	Closed	N

4.5.3.2 SPRs

SPR No	Action taken	Impacts Test Objectives (Y/N)
634	Closed (Implemented)	N
635	Analysis ongoing	N
637	Closed (Implemented)	N

4.5.4 Procedure changes

See PVS sheets in section 8 of the “as-run” procedures and summarised in 4.5.1.

4.6 Deviations from Test Requirements

N/A

4.7 Test Execution Summary

The test has been successfully completed. All planned tests have been performed. However, the BSM test as well as the manual cooler recycling needs to be repeated in conjunction with the SPT.

4.7.1 HIFI/PACS FDIR OBCP IST 29-30/04/2008

Date(DoY) & Time UTC	**Event**	**NCR**
30/07/2008 (212) 01:08	Start of IST start (Power ON S/C)	
30/07/2008 (212) 02:37	S/C Powered Up	
30/07/2008 (212) 03:55	S/C in correct configuration for commissioning test to start	
30/07/2008 (212) 04:15	IST Status parameter failure	3965
30/07/2008 (212) 06:01	SPIRE powered in ready mode	
30/07/2008 (212) 06:17 – 06:58	SPIRE peak-up test	4390
30/07/2008 (212) 07:12	Perform SPIRE CFT TP-0217 Nominal	
30/07/2008 (212) 08:44	Repeat SPIRE IST COLD FUNC BSM-05A-P	
30/07/2008 (212) 15:34	Testing finished on Prime side	
30/07/2008 (212) 15:35	Switch OFF SPIRE Prime	
30/07/2008 (212) 16:16	Switch ON SPIRE Redundant side	
30/07/2008 (212)	Unknown 8,6 packet from ACMS when executing AC082109 (stop function) with	4393

Date(DoY) & Time UTC	Event	NCR
16:38	parameter peakup	
30/07/2008 (212) 19:54	Spire Redundant is OFF.	
30/07/2008 (212) 20:13	Step 3 Power-on SPIRE Prime	
30/07/2008 (212) 20:27	Perform manual cooler recycle	
30/07/2008 (212) 22:21	Start switch-off SPIRE	
30/07/2008 (212) 22:32	Start IST_END	
31/07/2008 (213) 00:42	S/c powered off	
End Condition	SPIRE OFF – S/C OFF	

Table 4.7.1-1 SPIRE Commissioning Timeline

4.8 Summary conclusion

The test has been successfully completed. All planned tests have been performed. However, the BSM test as well as the manual cooler recycling needs to be repeated in conjunction with the SPT.

The detailed evaluation of the test results will be performed by RAL.

The Non-Conformance Reports (listed above), as raised during the test, did not affect the test objectives.

4.9 Open issues

None

4.10 Requirements Verified

With the above test the requirement for the SPIRE IST Commissioning (CFT & Peak-Up), according to chapter 4.7.3.1 of "Test Specification for HERSCHEL Instruments FM tests performed at satellite level", ref. H-P-2-ASP-TS-1083 [AD-6], has been verified.

5 Post-Test Data Retrieval

Post test data is stored in a common location on the Astrium-EADS FTP server at Friedrichshafen. The directory structure is common to all IST tests with only the top level directory name changing to reflect the test concerned. In this instance the top level directory **<Session Name>** s are:

Session:

2008_07_30_00_38_hercdmu_hpws22_REALTIME_SPIRE_COM

The Common structure is as follows:

```
<Session Name>
- sub-directory >> Session_archive
- sub-directory >> SSMM_dump_data
- sub-directory >> TM_Pkt_history
- sub-directory >> TM_history
- sub-directory >> TC_Pkt_history
- sub-directory >> TMTC_DFE_data
      - sub-directory >> CLTU
      - sub-directory >> Tc_packets
      - sub-directory >> Tm_packets
      - sub-directory >> Tm_frame
- sub-directory >> 1553_DFE_data  (if data has been extracted for this
                                   session)
- sub-directory >> ACMS_SCOE_data  (if data has been extracted for this
                                   session)
- sub-directory >> TTC_SCOE data  (if data has been extracted for this
                                   session)
- sub-directory >> Cleanliness_data
```

5.1 Engineering values stored during test

See data on attached CD.

5.2 Raw values stored during test

See data on attached CD.

6 Attachments – Supporting Documentation

6.1 Contamination control report

See CD containing test data.

All environmental values were within specification, No NCR raised.

6.2 Pictures taken on the specimen in test configuration

Not applicable.

6.3 Record (CD-ROM) of all acquired data during test

See CD containing test data.

6.4 Test measurements devices calibration reports

EGSE	UNIT NAME	Manufacturer	P/N or Model	S/N	TAS-I C.I	TAS-I ID & Calibration		
						Instrument n. (SSS)	Calibration performed	Calibration expires
BCE SCOE	DC electonic load simulator	Agilent	6050A	3620A04731	3A2140-23.1.06	6344	30.01.2008	30.01.2009
BCE SCOE	DC power supply	Agilent	6654A	MY40001318	3A2140-23.1.05	6819	30.01.2008	30.01.2009
BS SCOE	DC electonic load simulator	Agilent	6060B	US37350708	3A2140-22.1.11	4002	30.01.2008	30.01.2009
BS SCOE	DC power supply	Agilent	6674A	3637A01524	3A2140-22.1.10	301	30.01.2008	30.01.2009
TT&C SCOE	Signal generator 9KHz - 3.3GHz SML03	Rhode & Schwarz	1090.3000.13	101398	3A2150.1.13	6297	31.01.2008	31.01.2009
TT&C SCOE	Signal generator 9KHz - 3.3GHz SML03	Rhode & Schwarz	1090.3000.13	101399	3A2150.1.8	6295	31.01.2008	31.01.2009
TT&C SCOE	Signal generator 9KHz - 3.3GHz SML03	Rhode & Schwarz	1090.3000.13	101400	3A2150.1.14	6296	31.01.2008	31.01.2009
TT&C SCOE	ESG series signal generator 250MHz - 4GHZ	Agilent	E4422B	MY43350106	3A2150.1.12	6290	31.01.2008	31.01.2009
TT&C SCOE	Network analyser 10KHz-180MHz	Agilent	E5100A	MY40500710	3A2150.1.11	6288	01.02.2008	01.02.2009
TT&C SCOE	EPM Series Power Meter	Agilent	E4416B	GB43313104	3A2150.1.5	6287	01.02.2008	01.02.2009
TT&C SCOE	20MHz Function/Arbitrary Waveform Generator	Agilent	33220A	MY40500710	3A2150.1.6	6948	01.02.2008	01.02.2009
TT&C SCOE	FSP Spectrum analyser 9KHz - 13.6GHz	Rhode & Schwarz	1164.4391.13	100018	3A2150.1.4	6294	01.02.2008	01.02.2009

6.5 Logbook Extracts from Test

Note the following logbook extracts are for information only and do not necessarily represent a complete and accurate sequence of events. All essential information is provided in the signed off "as-run" procedures appended to this report.

Date	30/07/2008	
Operator	S. Elsley / B. Chen	
QA	R. Goossens / B. Hogg	
EGSE	I. Luck	
Test Case	SPIRE Commissioning He2	
OBSW	CDMS 3.4.0.9, ACMS 3.8	
HPSDB	H-P-2-ASP-LI-1441 issue 15	
HPCCS Release	HPCCS_2.0-1317	
Test Environment / Version	TP_0217_iss1_4_TP-226_iss1_1_SPIRE_Commissioning_He2_END_001	
Session ID	2008_07_30_00_38_hercdmu_hpws22_REALTIME_SPIRE_COM	
Purpose of test	Debugging	
	NCR Investigation	
	Calibration/Maintenance	
	Unit Integration Testing	
	Formal	X

Time UTC	Test Procedure / Step / Script / Command / Event / Anomaly	Remarks / Cause of anomaly / Corrective action	C/A type (T/P)	NCR ref. (P)
00:38	Start up the session			
		NOTE: CCS light is complaining that there is less than 10% disk space remaining ==> EGSE operator to backup & free disk space again		
01:08	Perform IST START to Switch ON SC ready for SPIRE	TP-0134 issue 5		

	Commissioning			
01:48	Startracker EGSE found failed	Restarted application in cleanroom		
02:37	S/c powered up.			
	Since we have time left we decide to continue with the next step and start with the configuration procedure TP-237 issue 1			
02:43	Start script IST_INSTR_COMMISSIONING	PVS#1 also applies to step 4 !!		**PVS#1 , PVS#2 and PVS #3 to TP-237**
03:55	Reached part of script where we have to handover to the testconductor.....Waiting now for early shift			
04:15	IST Status parameter failure param RMB33442 expected= 1.2 actual= 0 (config looks nominal) (in script log statement is WARNING!! code still to complete !!!!) SAS pwr is calculated as 1313W which is less than 90% of 1475W Test EMV simulator closed loop reports NO DYNAMIC activated flag has been read	PVS re-perform PCDU transition FDIR to try to config the SAS PWR into the correct state for the test. On inspection of SAS Scoe it appears that it is a reoccurance of NCR3965 where the SAS Scoe is working correctly but the TLM reported back to the CCS is corrupted.NCR was closed needs to be reopened		**PVS#1 TP0237 SPR634** **NCR3965 to be REOPENED**
05:46	SPIRE report that they are not seeing CCS TLM on IEGSE	Received TLM now		
05:50	CCS Lite OFFline to cleanup disk space			
06:01	SPIRE powered in ready mode Bias temp going in and out of limits(probably due to warming up)			
06:07	CCS Lite back ONline			
	Start SPIRE Peakup Mode Test TP-0226			
06:17	First peakup test is OK, and the second peakup test, we got a failure report TM.			
06:XX	Peakuptest 2 failed - 1,8 event from ACMS	NOT EXPECTED Failure, 2's complement is required		**NCR4390**

		not 1's complement as used.		**RAISED SPR635**
	Peakuptest 3 failed - 1,8 event from ACMS	NOT EXPECTED Failure, 2's complement is required not 1's complement as used.		**AS ABOVE**
06:27	Peakuptest 4 failed - 1,8 event from ACMS	NOT EXPECTED Failure, 2's complement is required not 1's complement as used.		**AS ABOVE**
06:29	Peakuptest 5 failed - 1,8 event from ACMS	EXPECTED Failure - 2's Comp is Applicable		
06:30	Peakuptest 6 failed - 1,8 event from ACMS	EXPECTED Failure - 2's Comp is Applicable		
06:32	Peakuptest 7 failed - 1,8 event from ACMS	EXPECTED Failure - 2's Comp is Applicable		
06:38	Peakuptest 8 failed - 1,8 event from ACMS	EXPECTED Failure - 2's Comp is Applicable		
06:39	Peakuptest 9 failed - 1,8 event from ACMS	EXPECTED Failure - 2's Comp is Applicable		
06:41	Peakuptest 10 failed - 1,8 event from ACMS	EXPECTED Failure - 2's Comp is Applicable		
06:43	Peakuptest 11 - Cmd accepted but no report produced	Cmd Accepted but no Report from ACMS		
06:58	Repeat Peakuptest 1 – No report issued (may be due to a report pending)	PVS raised to repeat some of the tests to gather more info for expected NCRCmd Accepted but no Report from ACMS		**PVS#3 TP0226**
	Completed SPIRE Nominal Peakuo Mode Test	Post Analysis still to be performed		
07:12	Perform SPIRE CFT TP-0217 Nominal			
08:44	Repeat SPIRE IST COLD FUNC BSM-05A-P	Requested by SPIRE PVS raised		**PVS#2 TP0217**
	Perform SPIRE BSM loop control setting iaw PVS#1 TP0217/0204/0226			
09:17	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90CA01E0)			
09:20	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90CA0232)			
09:24	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90CA023F)			
09:28	Send Cmd			

	SPIRE_SEND_DRCU_COMMAND(0x90CA0258)			
09:31	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90E42)			
09:36	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90ED8)			
09:41	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90CA023F)			
09:43	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90CA024B)			
09:46	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90CA0271)			
09:52	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90E74)			
09:55	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90E10)			
09:58	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DAF)			
10:02	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90E10)			
10:02	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90CA028A)			
10:15	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DAC)			
10:18	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90D48)			
10:21	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DAC)			
10:24	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90D98)			
10:32	Send Cmd			

	SPIRE_SEND_DRCU_COMMAND(0x90CA0271)			
10:34	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90CA0276)			
10:36	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90CA027B)			
10:39	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90CA0280)			
10:42	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DBB)			
10:53	Execute script SPIRE-IST-BSM-CHOP-POS1			
10:56	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DB6)			
10:57	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DB1)			
11:00	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DA6)			
11:03	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DA2)			
11:04	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90D98)			
11:06	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DBB)			
11:08	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90CA0226)			
11:10	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90CA0244)			
11:13	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90D98)			
11:14	Send Cmd			

	SPIRE_SEND_DRCU_COMMAND(0x90C90DE2)			
11:16	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DEC)			
11:17	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DB6)			
11:19	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C0DC0)	Typo in command		
11:21	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DC0)			
11:23	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C9A024E)			
11:24	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DB6)			
	Lunch Break			
12:16	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DAC)			
12:18	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DA2)			
12:19	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90D98)			
12:22	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90CA024E)	Wrong TC sent according to SPIRE Team		
12:24	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90CA0258)			
12:25	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DA2)			
12:26	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DAC)			
12:27	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DB6)			

12:29	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90CD0)			
12:32	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90CA026C)			
12:35	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DB6)			
12:36	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90C90DA2)			
12:46	Send Cmd SPIRE_SEND_DRCU_COMMAND(0x90CA0280)			
	BSM Test Completed continue with the remaining of the TP0217			
13:07	TM parameter SMD2V505 (DPUM15V) out-of-limits and back in limits again several times	Known NCR		
13:45	Skip 7.2.2.22 Spire-IST-COLD-FUNC-DCU-14-PHOT-P			
13:46	Proceed with 7.2.2.23 Spire-IST-COLD-VSS-P			
14:50	Proceed with 7.2.2.28 Spire-IST-COLD-SPEC-VSS-P			
15:34	Testing finished on Prime side			
	SPR raised to Install temporart SPIRE Peek-Up Scripts on HPCCS			**SPR637**
15:35	Switch OFF SPIRE Prime			
15:41	SPIRE is now OFF.			
	Pause for discussions			
16:16	Switch ON SPIRE Redundant side			
16:30	Using SPR637 and PVS#4 TP-0226, to run SPIRE Peek-Up scripts	TP-0226, PVS#4 raised		
16:38	Run SPIRE scripts command sent			
16:38	Unknown 8,6 packet from ACMS when executing AC082109 (stop function) with parameter peakup			**NCR-4393 raised**
16:41	We ran the first Peak-Up 1 request and we got a TM 1,2 packet from ACMS which reports wrong function state. We updated the PVS#4 to add a command to re-start the Peak-Up	TP-0226, PVS#4 updated		**PVS#4 TP226 SPR???**

	function.			
16:50	Peak-up service enabled; 8,6 packet received with the contents of the Peak-up cmd that was sent when the service was off	To be checked by ACMS specialist (ADC/ MT)		**Investigate**
17:03	Repeat peak-up 1 request.	Peakup cmd sent while Peakup function was stopped'		
17:23	Parameter SM014500 (SPIRE MIB) should be signed			**NCR-4394 raised**
19:40	Import and online patch SPIRE-IST-SMECm.tcl			
19:54	Spire Redundant is OFF.			
20:09	Start executing agreed steps according PVS#5, TP-0217	To add manual SPIRE cooler recycle PVS#5 is agreed		**PVS#5 TP217**
20:10	Step 1 Performed, step 2 is waiting for 5 minutes.			
20:13	Step 3 Power-on SPIRE Prime			
20:22	Step 4 Perform SPIRE_IST_COLD_FUNC_SCU03_P			
20:24	Step 4 Perform SPIRE_IST_COLD_FUNC_SCU06_P			
20:2X	Step 4 Perform SPIRE_IST_COLD_FUNC_MCU01_P	SPIRE reports this script already ran so no need for manual start. Cause is that SPIRE was powered using the IST procedure (TP-0206) instead of the procedure which was used before during this test.		
20:27	SPIRE_IST_CRECm.tcl	Error reported: BAD WINDOW PATH NAME -> script already under SPR-637 control; online patched & check-in then continue teststep		
21:16	Despite PUMPHTRTEMP not reaching 45 K SPIRE asked to goto next step	Temp was ~ 30 K when decision was made		
22:21	Start switch-off SPIRE			
22:27	SPIRE OFF	SPECIAL NOTE: 3 prints of plots of the cooler cycle can be found in the RESULTS folder		

22:31	S/c handed over to Operator for switch-off			
22:32	Start IST_END	Noticed that we're still in RF mode.....Switching from RF to UMB after DUMP PKT STORE		
00:42	S/c powered off			

6.6 Copy of the raised SPRs / NCRs

For NCRs, reference should be made to PRISMA for an accurate and detailed status of each, see section 4.5.2.1 & 4.5.3.1 for a summary of the NCRs related to this test.

A copy of SPRs raised during the test are attached (pdf copy of this report only).

A copy of NCRs raised during the test are attached (pdf copy of this report only).

6.7 As-Run Procedures

A copy of the “as-run” procedures follow (pdf copy of this report only).

6.8 TRR, PTR

See RD-7 and RD-8

6.9 Script File Configuration

TBC

6.10 Engineering (Pre-Evaluation)

N/A

END OF DOCUMENT

	Name	Dep./Comp.		Name	Dep./Comp.
	Baldock Richard	FAE12	X	Sonn Nico	ASG51
	Barlage Bernhard	AED13		Steininger Eric	AED321
	Bayer Thomas	ASA42	X	Stritter Rene	AED11
	Brune Holger	ASA45		Suess Rudi	OTN/ASA44
X	Chen Bing	HE Space	X	Theunissen Martijn	DSSA
X	Davis William	Captec	X	Vascotto Riccardo	HE Space
	Edelhoff Dirk	AED21		Wagner Klaus	ASG23
	Fehringer Alexander	ASG15	X	Wietbrock Walter	AET12
X	Fricke Wolfgang Dr.	AED 65		Wöhler Hans	ASG23
	Geiger Hermann	ASA42		Wössner Ulrich	ASE252
	Grasl Andreas	OTN/ASA44		Zumstein Armin	AED15
	Grasshoff Brigitte	AET12			
X	Hamer Simon	Terma			
X	Hanka, Erhard	FI522			
X	Hendrikse Jeffrey	HE Space			
X	Hendry David	Terma			
	Hengstler Reinhold	ASA42			
	Hinger Jürgen	ASG23			
X	Hohn Rüdiger	AED65			
	Hopfgarten Michael	AET32			
	Huber Johann	ASA42			
	Hund Walter	ASE252			
X	Idler Siegmund	AED312			
	Ivády von András	FAE12			
	Jahn Gerd Dr.	ASG23			
	Jolk Matthias	AET1	X	ESA/ESTEC	ESA
X	Klenke Uwe	ASG72	X	Thales Alenia Space Cannes	TAS-F
X	Kölle Markus	ASA43		Thales Alenia Space Torino	TAS-I
	König Werner	AET32			
X	Koppe Axel	AED312			
	Kroeker Jürgen	AED65		**Instruments:**	
X	La Gioia Valentina	Terma		MPE (PACS)	MPE
	Lang Jürgen	ASE252	X	RAL (SPIRE)	RAL
	Langenstein Rolf	AED15		SRON (HIFI)	SRON
	Langfermann Michael	ASA41			
	Leitermann Stefan	AET12			
X	Liberatore Danilo	Rhea		**Subcontractors:**	
X	Martin Olivier	Altec		Austrian Aerospace	AAE
X	Maukisch Jan	ASA43		Austrian Aerospace	AAEM
X	Much Christoph	ASA43		BOC Edwards	BOCE
X	Müller Martin	ASA43		Dutch Space Solar Arrays	DSSA
	Pietroboni Karin	AED65		EADS Astrium Sub-Subsyst. & Equipment	ASSE
	Reichle Konrad	ASA42		EADS CASA Espacio	CASA
	Runge Axel	OTN/ASA44		EADS CASA Espacio	ECAS
	Saal Christoph	External		European Test Services	ETS
	Schink Dietmar	AED321		Patria New Technologies Oy	PANT
	Schmidt Thomas	AED15		SENER Ingenieria SA	SEN
	Schweickert Gunn	ASG23		Thales Alenia Space, Antwerp	TAS-ETCA

Attachment 1 to Section 6.6 :
SPRs Raised during SPIRE Commissioning

SPR Formsheet

Nr.: 634	Date: 30/07/08	Author: B. HOGG	Classification:

Test: SPIRE COM 2 HE2	Session ID: 2008_07_30_00_38_herschel_hpws22 REALTIME_SPIRE_COM	Subsystem:

Title: PARAMETER FAILURES DURING 1ST STATUS (SPIRE COMM)

Type: (Script/Picture /Test structure):	Name: Z010999MCNT153_1ST_STATUS.tcl.	Version: 1.53

Problem description (to be filled by Test conductor (TC) / Test operator (TO)):

Time (UTC): 03:53 **Step no:** Sec 7.2 step 38 of TP-0237.

Param failure RMB33442 expected=1.2 actual=0 (config looks nominal)
SAB pwr is calc as 1313W <90% of 1475W
TEST EMV Sim closed loop reports no DYNAMIC ACTIVE FLAG RAISED.

Proposed solution (to be filled by TC / TO):

No modulation is applied in High Bit Rate
correct status check of Tx chain.

Review board decision (to be filled by TC, TO, QA plus Engineering / experts if required):

Implement as proposed: ☒ **Reject:** ☐

Other:

Proposed rerun (Date / Test case):

Date: 30/07/08	Participants: [signature]

Implemented: ☒ **Code Inspected:** ☒

Confirmed by Test Conductor(s) / Experts to check-in: ☒ 1.54

Date: 30/07/08	Name: [signature]

Close out (Functional team member & QA):

Verified during test case / ID:

Date:	Version:	Func. Team Name:

Date:	QA:

SPR Formsheet

Nr.: 635	Date: 30/07/08	Author: B.HOGG	Classification:
Test: SPIRE COM @ HeR	Session ID: 2008_07_30_00_38_hercdmu_hpws22_ REALTIME_SPIRE_COM		Subsystem:

Title: CMD's USED BY SPIRE 1ST PEAKUP MODE TEST INCORRECT.

Type: (Script/Picture /Test structure):	Name: SPIRE-1ST-PeakUp TEST-<n>.tcl	Version:

Problem description (to be filled by Test conductor (TC) / Test operator (TO)):

Time (UTC): **Step no:** 7.2.2.2 of TP0226 step 1.

1's Complement are used to build the TC's. However THE ACMS REQUIRES 2's COMPLEMENT TO BUILD CMDs.
- 1,8 EVENTS WERE SENT FROM THE ACMS

Proposed solution (to be filled by TC / TO):

Review board decision (to be filled by TC, TO, QA plus Engineering / experts if required):

Implement as proposed: ☐ Reject: ☐

Other: ______________________________

Proposed rerun (Date / Test case): ______________________________

Date:	Participants:

Implemented: ☐ Code inspected: ☐

Confirmed by Test Conductor(s) / Experts to check-in: ☐

Date:	Name:

Close out (Functional team member & QA):

Verified during test case / ID: ______________________________

Date:	Version:	Func. Team Name:

Date:	QA:

SPR Formsheet

Nr.: 637

Date: 30-7-08

Author: DLAMONBY

Classification: MINOR

Test: SPIRE COMMISSIONING He2

Session ID: 2008.07.30.00.33_herdmulhpws22_REALTIME_SPIRE.COM

Subsystem:

Title: Install temporary SPIRE PeakUp Scripts on HPCCS for NGC-4392

Type: (Script/Picture /Test structure):

Name:

Version:

Problem description (to be filled by Test conductor (TC) / Test operator (TO)):

Time (UTC): N/A **Step no:** N/A

Install Scripts listed above

Proposed solution (to be filled by TC / TO):

As above

SPIRE-IST-PeakUpTest-4.tcl
SPIRE-IST-PeakUpTest-8.tcl
SPIRE-IST-PeakUpTest-9.tcl
SPIRE-IST-PeakUpTest-10.tcl
SPIRE-IST-PeakUpTest-2.tcl
SPIRE-IST-PeakUpTest-3.tcl
SPIRE-IST-SMEC...tcl

Review board decision (to be filled by TC, TO, QA plus Engineering / experts if required):

Implement as proposed: [X] **Reject:** [ ]

Other:

Proposed rerun (Date / Test case): 30/07/08.

Date: 30/07/08 **Participants:** LAMONBY / HAMER / KUENKE

Implemented: [X] **Code inspected:** [X]

Confirmed by Test Conductor(s) / Experts to check-in: [X]

Date: 30/07/08 **Name:** HAMER

Close out (Functional team member & QA):

Verified during test case / ID:

Date: **Version:** **Func. Team Name:**

Date: **QA:**

Attachment 2 to Section 6.6 : NCRs Raised during SPIRE Commissioning

Company	Project Name	
ALENIA	HERSCHEL-PLANCK	NCR-No: HP-130000-ASED-NC-4393 Related internal NCR-No: Critical Item:Yes ☐ No ☒ Revision 0 Page 1 of 2

Nonconformance Report

NCR **Title** Unknown 8,6 Packet from ACMS when executing AC082109 (Peak-Up)	
NC Item **Identification** HERSCHEL SVM	
Next Higher Assembly HERSCHEL SATELITE	
Drawing No	Sr No.
Procedure No	
Supplier	Purchase Order
Subsystem	Model FM
NC Observation Date: 30-JUL-08 Location: Estec	NC Detected During Test

Description of Nonconformance

Requirements Violated

SPIRE FM IST INST Comm Peak-Up, HP-2-ASED-TP-0226, Chapter 7.2.3.2, test step 1. Following instruction on PVS#4.
16:38 (UTC)
Unknown 8,6 Packet from ACMS when executing AC082109 (Stop Function Peak-Up)

Initiator: Date, Name and Signature 30-JUL-08 D.Lamonby.

Cause of NC

Corrective/Preventative Action(s)

Verification

NCR Close Out Close Out Status: Open Close Out Date Reference:	Disposition:
Internal NRB Dispositions NRB to be held ASAP Ref. to MoMs	Classification: **Major** ☐ **Minor** ☒ Customer Notification 30-JUL-08

Date:
Name:
Signature:

Company	Project Name	
ALENIA	HERSCHEL-PLANCK	NCR-No: HP-130000-ASED-NC-4393 Related internal NCR-No: Critical Item: Yes ☐ No ☒ Revision 0 Page 2 of 2

Nonconformance Report - Continuation Sheet -

NCR/NRB Attachments

	Description	Filename	Last Updated
1	TM Packet History	NCR4393_1.pdf	30-JUL-08 19:09:52

Company	Project Name	
ALCATEL	HERSCHEL-PLANCK	NCR-No: HP-112000-ASED-NC-4422 Related internal NCR-No: Critical Item: Yes [ ] No [X] Revision 0 Page 1 of 1

Nonconformance Report

NCR **Title** TCL/Tk problem with SPIRE cooler recycle script

NC Item **Identification** HERSCHEL SATELITE,SPIRE,HERSCHEL SVM

Next Higher Assembly HERSCHEL-PLANCK COMPOSITE,HERSCHEL INSTRUMENTS AND TELESCOPE (CFE),HERSCHEL SATELITE

Drawing No	Sr No.
Procedure No	
Supplier	Purchase Order
Subsystem	Model FM
NC Observation Date: 30-JUL-08 Location: ESTEC	NC Detected During Test

Description of Nonconformance Requirements Violated

The SPIRE script for a manual, interactive cooler recycle (SPIRE_IST_CRECm.tcl) should not contain the phrase "package require Tk" but instead use "setip_win".

sessionid=2008_07_30_00_38_hercdmu_hpws22_REALTIME_SPIRE_COM
CDMS=3.4.0.9
ACMD=3.8
HPSDB=Li-1441 iss 15
HPCCS=2.0-1317

Initiator: Date, Name and Signature 05-AUG-08 R. Goossens/ S. Ilsen

Cause of NC

Corrective/Preventative Action(s)

Verification

NCR Close Out Close Out Status: Open Close Out Date Reference:	Disposition:
Internal NRB Dispositions NRB to be organised Ref. to MoMs	Classification: **Major** [ ] **Minor** [X] Customer Notification 05-AUG-08

Date:
Name:
Signature:

Company	Project Name	
ALCATEL	HERSCHEL-PLANCK	NCR-No: HP-100000-ASED-NC-4287 Related internal NCR-No: Critical Item:Yes [X] No [ ] Revision 2 Page 1 of 4

Nonconformance Report

NCR **Title** OBCP triggered during SPIRE DRCU & DPU Power OFF	
NC Item **Identification** HERSCHEL SATELITE,SPIRE,HERSCHEL INSTRUMENTS AND TELESCOPE (CFE)	
Next Higher Assembly HERSCHEL-PLANCK COMPOSITE,HERSCHEL INSTRUMENTS AND TELESCOPE (CFE),HERSCHEL SATELITE	
Drawing No	Sr No.
Procedure No HP-2-ASED-SD-0370	
Supplier	Purchase Order
Subsystem	Model FM
NC Observation Date: 17-JUN-08 Location: Estec	NC Detected During Test

Description of Nonconformance Requirements Violated

During ACS0370 SPIRE Detector Test @ HEI at step 20(which calls procedure HP-2-ASED-TP-0217), an OBCP was triggered by SPIRE.

The step within the ASC was performing switch off the prime DRCU & DPU.

In the Onboard Event History Log, a TLM Failure was reported, in addition a TLM warning was also reported stating that SPIRE non-vital RT sick TM.

In the Script log for powering off the DRCU & DPU, Param WM408565 SPIRE HsfN_L51_I fail to meet the limits.
Expected value to be >=0.38 <=0.5 actual value =0.8392. Time of failure =16:49

OBCP Event started 16:50

The same event re-occurred when performing tests on the redundant side. OBCP Event triggered @ 18:29, Param WM708565 SPIRE HsfR_L52_I failed.

Log Files Attached

Session ID:2008_06_17_08_34_hercdmu_hpws22_REALTIME_RFTRANS

OBSW: CDMS 3.4.0.9 ACMS 3.7
HPSDB: H-P-2-ASP-LI-1441 iss10
HPCCS: HPCCS_2.0-1219

Initiator: Date, Name and Signature 17-JUN-08 Brian Hogg

Cause of NC

Corrective/Preventative Action(s)

Verification

Company	Project Name	
ALCATEL	HERSCHEL-PLANCK	NCR-No: HP-100000-ASED-NC-4287 Related internal NCR-No: Critical Item:Yes [X] No [ ] Revision 2 Page 2 of 4

Nonconformance Report - Continuation Sheet -

NCR Close Out HP-2-ASED-SD-0370 Close Out Status: Open Close Out Date Reference:	Disposition: Fix
Internal NRB Dispositions To be arranged Updated 12-07-08 by BH, SCI-PT-52496 dated 25.06.08 Participants: RAL-ES, ESA-CS,MC,JR, ASED-DH,AK,SH, TASF-BC linked to NCR to ASED-NC-3954 ;problem is current out of limits and secondary effect was timeout no TM being received and OBCP triggered.For future testing prior to Inst Switch off disable Spire specific FDIR update test scripr ASED (SH) Ref. to MoMs SCI-PT-52496	Classification: **Major** [X] **Minor** [ ] Customer Notification 17-JUN-08

Date:
Name:
Signature:

Company	Project Name	
ALCATEL	HERSCHEL-PLANCK	NCR-No: HP-100000-ASED-NC-4287 Related internal NCR-No: Critical Item: Yes [X] No [ ] Revision 2 Page 3 of 4

Nonconformance Report - Continuation Sheet -

NCR Treatment Sequence / Findings / Statements / Actions

Int. Ref	Actionee	Due Date	Action	Conclusion / Remark	Closed
I0-1	ASED S. Hamer	17-JUL-08	For future testing prior to InstSwitch off disable Spire specific FDIR update test script		Yes [ ] No [X]

Company	Project Name	
ALCATEL	HERSCHEL-PLANCK	NCR-No: HP-100000-ASED-NC-4287 Related internal NCR-No: Critical Item:Yes [X] No [ ] Revision 2 Page 4 of 4

Nonconformance Report - Continuation Sheet -

NCR/NRB Attachments

	Description	Filename	Last Updated
1	Onboard Event History for Spire Prime Side	SpireP_SwitchOff.txt	17-JUN-08 20:52:01
2	Script Log for Prime Power OFF for SPIRE	20080617_164709_0085_S102999SCVT032_ASDCFTSPIR_PWR_OFF_P.log	17-JUN-08 20:53:54
3	Onboard Event History for Spire Redundant Side	SpireR_SwitchOffEvt.txt	17-JUN-08 20:54:49
4	Script Log for Redundant Power OFF for SPIRE	20080617_182536_0104_S102999SCVT034_ASDCFTSPIR_PWR_OFF_R.log	17-JUN-08 20:55:16
5	copy of TP and event log	Hendry057.PDF	19-JUN-08 09:28:36

Company	**Project Name**	
ESTEC	HERSCHEL-PLANCK	NCR-No: HP-100000-ASED-NC-4355 Related internal NCR-No: Critical Item:Yes ☐ No ☒ Revision 0 Page 1 of 2

Nonconformance Report

NCR **Title** Lost SPIRE IEGSE Connection with CCS when starting a new test script

NC Item **Identification** HERSCHEL INSTRUMENTS AND TELESCOPE (CFE),SPIRE,HERSCHEL SATELITE,SPIRE EGSE

Next Higher Assembly HERSCHEL SATELITE,HERSCHEL INSTRUMENTS AND TELESCOPE (CFE),HERSCHEL-PLANCK COMPOSITE,SPIRE instrument GSE

Drawing No	Sr No.
Procedure No	
Supplier	Purchase Order
Subsystem	Model FM
NC Observation Date: 17-JUL-08 Location: Estec	NC Detected During Test

Description of Nonconformance

Requirements Violated

During the SPIRE SMEC test, the connection between the CCS and the IEGSE was lost. The connection is cut by
the CCS when the IEGSE does not reply to a request of command parameters. This happened before during PACS
and HIFI test when the request was send, but the CUS on the IEGSE was not yet ready. SPIRE indicates that
the CUS database was indeed updated prior to this test, but that it should have been ready.
SPIRE will analyse further what happened.

Initiator: Date, Name and Signature 18-JUL-08 B. Hogg / S. Ilsen

Cause of NC

Corrective/Preventative Action(s)

Verification

NCR Close Out Close Out Status: Open Close Out Date Reference:	Disposition: Fix
Internal NRB Dispositions To be arranged Ref. to MoMs	Classification: **Major** ☒ **Minor** ☐ Customer Notification 18-JUL-08

Date:
Name:
Signature:

Company	Project Name	NCR-No: HP-100000-ASED-NC-4355
ESTEC	HERSCHEL-PLANCK	Related internal NCR-No:
		Critical Item:Yes ☐ No ☒ Revision 0
		Page 2 of 2

Nonconformance Report - Continuation Sheet -

Company	Project Name	
ESTEC	HERSCHEL-PLANCK	NCR-No: HP-100000-ASED-NC-4390 Related internal NCR-No: Critical Item:Yes ☐ No ☒ Revision 0 Page 1 of 2

Nonconformance Report

NCR **Title** SPIRE IST PEAKUP TEST CMD'S NOT ACCEPTED BY ACMS	
NC Item **Identification** SPIRE,HERSCHEL INSTRUMENTS AND TELESCOPE (CFE),HERSCHEL SATELITE	
Next Higher Assembly HERSCHEL INSTRUMENTS AND TELESCOPE (CFE),HERSCHEL SATELITE,HERSCHEL-PLANCK COMPOSITE	
Drawing No	Sr No.
Procedure No HP-2-ASED-TP-0226	
Supplier	Purchase Order
Subsystem	Model FM
NC Observation Date: 30-JUL-08 Location: ESTEC	NC Detected During Test

Description of Nonconformance — Requirements Violated

During SPIRE Commissioning Peakup Mode testing performed 30/07/08
Cmd's used by SPIRE Peakup Mode test are incorrect, cause 1, 8 events when performing these tests.
SPR635
Raised.
On investigation the CMD's are built using 1's complement. The ACMS requires CMD's built with 2's complement.
Session ID: 2008_07_30_00_38_hercdmu_hwps22_REALTIME_SPIRE_COM
CDMS: 3.4.09, ACMS: 3.8, HPSDB: H-P-2-AST-LI-1441 iss15, HPCCS_2.0-1317

Initiator: Date, Name and Signature 30-JUL-08 B. HOGG

Cause of NC

Corrective/Preventative Action(s)

Verification

NCR Close Out Close Out Status: Open — Close Out Date Reference:	Disposition: Fix
Internal NRB Dispositions To be arranged Ref. to MoMs	Classification: **Major** ☒ **Minor** ☐ Customer Notification 30-JUL-08

Date:
Name:
Signature:

Company	Project Name	
ESTEC	HERSCHEL-PLANCK	NCR-No: HP-100000-ASED-NC-4390 Related internal NCR-No: Critical Item:Yes ☐ No ☒ Revision 0 Page 2 of 2

Nonconformance Report - Continuation Sheet -

Company	Project Name	
ALENIA	HERSCHEL-PLANCK	NCR-No: HP-130000-ASED-NC-4394 Related internal NCR-No: Critical Item:Yes ☐ No ☒ Revision 0 Page 1 of 2

Nonconformance Report

NCR **Title** SM014500, SPIRE MIB, should be signed	
NC Item **Identification** HERSCHEL SVM	
Next Higher Assembly HERSCHEL SATELITE	
Drawing No	Sr No.
Procedure No	
Supplier	Purchase Order
Subsystem	Model FM
NC Observation Date: 30-JUL-08 Location: ESTEC	NC Detected During Test
Description of Nonconformance SPIRE FM IST INST Comm Peak-Up, HP-2-ASED-TP-0226, Chapter 7.2.3.2, Peak-Up step 4. Following instruction on PVS#4. 17:20 (UTC) Associated with ACMS HSDB SM014500, SPIRE MIB, should be signed	Requirements Violated
Initiator: Date, Name and Signature 30-JUL-08 D.Lamonby.	

Cause of NC

Corrective/Preventative Action(s)

Verification

NCR Close Out Close Out Status: Open Reference:	Close Out Date	Disposition:

Internal NRB Dispositions NRB to be held ASAP Ref. to MoMs	Classification: **Major** ☐ **Minor** ☒ Customer Notification 30-JUL-08

Date:
Name:
Signature:

Company	Project Name	
ALENIA	HERSCHEL-PLANCK	NCR-No: HP-130000-ASED-NC-4394 Related internal NCR-No: Critical Item:Yes ☐ No ☒ Revision 0 Page 2 of 2

Nonconformance Report - Continuation Sheet -

NCR/NRB Attachments

	Description	Filename	Last Updated
1	Peak_Up_ Report	NCR4394_1.pdf	30-JUL-08 19:34:11

Company	Project Name	
ASTRIUM	HERSCHEL-PLANCK	NCR-No: HP-141230-ASED-NC-3965 Related internal NCR-No: Critical Item:Yes ☐ No ☒ Revision 0 Page 1 of 3

Nonconformance Report

NCR **Title** IST Launch Robustness - Inconsistent data from LPS SAS SCOE	
NC Item **Identification** S-C Power SCOE,HERSCHEL SVM	
Next Higher Assembly HERSCHELS-C EGSE,HERSCHEL SATELITE	
Drawing No	Sr No.
Procedure No HP-2-ASED-TP-0195 issue 1	
Supplier	Purchase Order
Subsystem	Model NA(GSE)
NC Observation Date: 13-FEB-08 Location: ESTEC	NC Detected During Test

Description of Nonconformance

Requirements Violated

During IST Launch Robustness run (ref. CCS session 2008_02_13_09_13_hercdmu_hpws22_REALTIME_LNC_ROBUS) some inconsistent power data have been found between voltage/current values displayed on LPS/SAS controller and ELGAR SAS controller display. In detail:

the LPS/SAS Siemens controller is displaying:

ch 2 1.05 V 0.95 A
ch 15 0.00 V -0.05 A
ch 23 0.00 V -0.02 A

ELGAR SAS controller is displaying:

ch 2 1.403 V 0.637 A
ch 15 1.383 V 0.638 A
ch 23 30.12 V 0.637 A

See pictures attached (ref. #1).

The above discrepancies have been also detected and reported by the CCS (print-out attached, ref. #2, where
first page is telemetry from ELGAR SAS controller and the second page is telemetry from LPS/SAS Siemens
controller).

Note that small differences in decimals values between values shown in att.#1 and corresponding values in
att.#2 are due to the time difference in freezing data for analysis.

Update 28/03/08 by RV (as per MN-10274 input): session log files too large to be attached here, will be provided to TAS-I via FTP.
by L. Allegretti).

Initiator: Date, Name and Signature 15-FEB-08 R. Vascotto/Allegretti

Cause of NC

Corrective/Preventative Action(s)

Verification

Company	Project Name	
ASTRIUM	HERSCHEL-PLANCK	NCR-No: HP-141230-ASED-NC-3965 Related internal NCR-No: Critical Item:Yes ☐ No ☒ Revision 0 Page 2 of 3

Nonconformance Report - Continuation Sheet -

HP-2-ASED-TP-0195 issue 1

NCR Close Out Close Out Status: Open Close Out Date Reference:	Disposition:

Internal NRB Dispositions

to be held

Added by D.Lamonby on 08 July 2008
Following an NCR washup meeting, held on 04 July 2008:
Those present: J.Hall, A. Knight, J. Huesler, B. Hogg, M. Hopfgarten (PT), E. Pourrier, C.
Jewell, S. Hamer (PT)
"This was rectified after a full, cold reboot of the SCOE. The problem as not re-occurred.

AI BH to add closeout from the IST Launch Robustness PTS"

Updated by B. Hogg 05/08/08
NCR can not be closed based on the above close-out referrence due to a reoccurrence of this NCR during SPIRE Commissioning @ He2 performed on the 30-07-08.
Session ID: 2008_07_30_00_38_hercdmu_hpws22_REALTIME_SPIRE_COM.
TAG: TP_0217_iss1_4_TP-226_iss1_1_SPIRE_Commissioning_He2_END_001

TLM reported by the SAS Scoe controller was invalid and did not reflect the physical state of the FEE for channels 2 & 23, the displays on the rack front panels and ELGAR rack mounted PCs however showed the correct status. Upon rebooting the SAS Scoe application SW the reported TLM was now correct.

Added by A Knight 12 August 2008

Input from I Luck

"The inconsistent data was corrected by rebooting the SAS SCOE application.
Problem re-occurred last week, with the same solution.
Cause cannot be determined."

Ref. to MoMs

Classification:
Major ☐ **Minor** ☒

Customer Notification
15-FEB-08

Date:
Name:
Signature:

Company	Project Name	
ASTRIUM	HERSCHEL-PLANCK	NCR-No: HP-141230-ASED-NC-3965 Related internal NCR-No: Critical Item: Yes ☐ No ☒ Revision 0 Page 3 of 3

Nonconformance Report - Continuation Sheet -

NCR/NRB Attachments

	Description	Filename	Last Updated
1	Current/voltage discrepancies - display snapshots	LPS-SAS & SAS ELGAR display snapshots.PDF	15-FEB-08 09:32:03
2	Current/voltage discrepancies - CCS TM	LPS-SAS & SAS ELGAR CCS TM data.PDF	15-FEB-08 09:33:05

Attachment 1 to Section 6.7:

As-Run Procedure HP-2-ASED-TP-0134 for SPIRE Commissioning

Title: **Leading Procedure for Herschel Integrated Satellite Test**

As Run Copy 30/07/08 for SPIRE SFT & commissioning

CI-No: sessionid= 2008_07-30_00-38_hercdmu_hpws22_REALTIME_SPIRE_COM

Prepared by:	Functional Team	Date
Checked by:	C. Much / H. THEUNISSEN	28.07.2008
Product Assurance:	J. Hall	28/7/2008
Configuration Control:	W. Wietbrock	
TASF Engineering	F. Chatte	28/7/2008
TASF Test Director	S. Mooney	28/7/2008
Project Management:	Dr. W. Fricke	29/7/08
Project Management:	Denis Montet p.o.	28/07/08

Distribution: See Distribution List (last page)

Change Record:

Issue	Date	Sheet	Description of Change	Release
1	11.01.2008		Initial version	1
1.1	04.02.2008		- see change bar	
1.2	27.02.2008		Update IST START step description according to AS RUN procedures, Add Operator note in Annex D, Add IST_GUI pictures, Update Hierarchy Script	
2.0	11.03.2008		5.4.3.1 Add CCS Light in EGSE Hardware Configuration 7.1.2 change all RFDN SM values from BBBB to ABBB (See procedure variations) 7.1.2 change value of "Bat.SCOE in table for launch clean run 7.1.2 change value of "TTR in SM" in table for "FDIR" and "Nom mode Robustness" 7.1.2 Correct SSMM configuration for ACMS commissioning 7.1.3 Step 1 add script name 7.1.3 Step 2 describe how to open window 7.1.3 Step 4 additional remark N/A for "Launch Clean Run" 7.1.3 Step 5 additional remark N/A for "Launch Clean Run" 7.1.3 Step 7 additional remark N/A for "Launch Clean Run" 7.1.3 Move Step 7b as 9b 7.1.3 Step 8-9 appears always (not only for launch cases) 7.1.3 step 20 add Operator Note 11 reference 7.1.3 step 22 deleted 7.1.3 step 23 added "Satellite state displayed" 7.1.3 step 29 remark deleted 7.1.3 step 33-34 Remark moved from step 34 to step 33 7.1.3 step 39 additional remark 7.1.4.1 step 9 add SPR 282 7.1.4.2 step 4 correct script name 7.1.4.2 step 5-6-7 clarify N/A 7.1.4.2 step 8 move remark to step 10 7.1.4.2 step 10 add SPR and NCR and expected TM(5,1) 7.1.4.2 step 13 add PM_reset TC Not Acknowledged 7.3 step 2 change YES to Confirm	

			7.3 step 2 add "RWL ON" condition 7.3 step 5 correct typo 7.3 step 7 add out of limit comment 7.3 add step 12a 7.3 remove step24 7.3 move step21 after WRITE_CROME step 23 7.3.1 4th Step 31 Add event TM(5,1) expected during ACC OFF Annex D add Operator Note 11 Rename Chapter 7 as IST Test Create new subchapters 7.1 HPCCS configuration for IST Test 7.1.1 Apply Tag on test files	
3	17.04.08		Update IST START procedure according to the AS RUN procedure for Nominal Mode Robstness (minor changes), 4.3.1 & 4.3.2 to include SCOE Sk01J04 and to correct hcu connector ident Typo's 7.2.1 Insert IST Start overview test flow diagram 7.2.2 update table 5.8.12 Nom Mode Robustness table to be i.a.w. the IST Specification	
4	24.04.08		Update IST START procedure according to the AS RUN procedure for minor updates, Include step 21 in Section 7.2.4 - start a CCU log file to monitor temperature TLM's	
5	24.07.08		Update IST START procedure according to the AS RUN procedure for minor updates, Step added to startup a session on the CCS Lite Including Annex E to adjust CCS Time.	

Table of Content

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None

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1 Scope

This Test Procedure contains the overall IST start-up and shutdown procedures for the satellite covering all the defined test cases as well as being the entry point for calling the appropriate test configuration.

It also contains the supporting definition of the relevant supporting infrastructure and pre test conditions required for the IST tests to be performed correctly.

All pre-requisites for the Helium II procedures shall be incorporated into a future issue of this document.

1.1 Objective

This document is the entry point for the Integrated Satellite Test - IST - test cases to be executed as part of the overall IST campaign for the Herschel project.

This document shall act as the leading procedure, to become 'as run' procedure for each IST test case that is executed, and shall be identified on the front sheet in 'Red' before start of test. A new 'as run' copy of the procedure shall be used for each test run, and will become a accurate history of the test performed. All activities will be recorded, with results obtained. Any anomalies found will be noted in the step by step section as they arise, and where applicable an SPR (Software Problem reports) will be raised.

The identification of hazardous conditions associated with the test article and the operations, which might damage equipment, cause injury or invalidate test data, will be herein provided. Precautions to be observed, with correlation to the specific areas of applicability, will be provided as well in the descriptions of the test set-up to be adopted.

1.2 Flow

The test flow is divided into two main areas: IST1 pre-environmental testing and IST2 which will be performed post environmental testing. For IST1 the tests will be grouped into 3 main test groups: Warm Case, He I, and He II condition. (See list below). For IST2 all testing shall be performed in He II condition.

IST 1

- **Warm case**
  - Launch clean run
  - Launch phase, separation and post separation
  - Satellite Commissioning warm case
  - ACMS commissioning
  - Launch sequence robustness
  - Mode transitions Warm case

- **He I**
  - Mode transitions He I or He II
  - S/C reconfiguration
  - NOM mode robustness
  - Test of Instrument FDIR OBCP

- **He II**
  - Instruments commissioning and performance verification
  - CDMS management
  - DTCP worst case scenario
  - Satellite/ CCU Commissioning He II only
  - Reference Mission Scenario

IST 2

All tests will be performed in He II

Tests may be run in any order

2 Documents

2.1 Applicable Documents

This section contains the list of documents originator of the test procedure, the list of documents filled with the requirement applicable to the activities explained in this procedure, the list of documents used to define the activities on the items (like design reports)

AD 2.1.1 Herschel Integrated Satellite Test Specification H-P-2-ASP-0939

2.2 Reference Documents

This section contains a list of documents filled with statements necessary to organise and to detail the operative execution of the test activities

RD 2.2.1.a.	Herschel/Planck Reference Mission Scenario	SCI-PT-12759
RD 2.2.1.b.	H/P ACMS S/S AVM SIT Specification	H-P-SP-AI-0059
RD 2.2.1.c.	H CDMS SIT Specification	H-P-SP-AI-0065
RD 2.2.1.d.	H TT&C SIT Specification	H-P-SP-AI-0078
RD 2.2.1.e.	H PCS SIT Specification	H-P-SP-AI-0079
RD 2.2.1.f.	Packet Store Usage on H/P	PT-CMOC-OPS-TN-6603
RD 2.2.1.g.	Software user's Manual	P-HPL-NOT-0029-SE
RD 2.2.1.h.	CDMU ASW Requirement Specification	H-P-SP-AI-0031
RD 2.2.1.I.	Basic Software Requirement Specification	H-P-SP-AI-0006
RD 2.2.1.m.	H/P ACMS Requirement Specification	H-P-SP-AI-0011
RD 2.2.1.n.	SVM FDIR Design Specification	H-P-TN-AI-0024
RD 2.2.1.o.	Herschel Planck PSICD	SCI-PT-ICD-07527
RD 2.2.1.p.	H-P-CDMU ASW User Manual	H-P-4-SSF-MA-0001
RD 2.2.1.q.	H-P ACMS Design Report	H-P-4-DS-TN-0011
RD 2.2.1.r.	H-P ACMS TC Definition	H-P-4-DS-TN-0024
RD 2.2.1.s.	ACMS FDIR Analysis Report	H-P-4-DS-TN-0010
RD 2.2.1.t.	CDMU HW User Manual	P-HPL-NOT-0009

2.3 Other Documents

Additional to the IST Leading procedure there are the Step by Step IST procedure for each test case and a separate Instrument Power ON/OFF Switching procedure (see the table below).

IST Step by Step Test Procedures	HP-2-ASED-	Test to be performed
Herschel IST Test Case 'Launch Phase, Separation and Post Separation'	TP-0185	
Herschel IST Test Case 'Satellite Commissioning'	TP-0186	
Herschel IST Test Case 'ACMS Commissioning'	TP-0187	
Herschel IST Test Case 'Instruments Commissioning and Performance Verification'	TP-0188	
Herschel IST Test Case 'Mode Transitions'	TP-0189	
Herschel IST Test Case 'S/C Reconfiguration'	TP-0190	
Herschel IST Test Case 'CDMS Management'	TP-0191	
Herschel IST Test Case 'DTCP Worst Case Scenario'	TP-0192	
Herschel IST Test Case 'REFERENCE Mission Scenario'	TP-0193	
Herschel IST Test Case 'Launch Clean Run'	TP-0194	
Herschel IST Test Case 'Launch Sequence Robustness'	TP-0195	
Herschel IST Test Case 'NOM Mode Robustness'	TP-0196	
Herschel IST Test Case 'Test of Instrument FDIR OBCP'	TP-0197	
Herschel Instrument Power On/Off and Mode Switching Procedure for Functional Testing	TP-0206	

3 Requirements to be verified

See AD 2.1.1 "Herschel Integrated Satellite Test Specification" section 9

4 Configuration

4.1 Hardware Configuration

The activities described in this test procedure require the complete system configuration according to the hardware matrix here below reported.

S/S	Unit	Configuration	SCOE simulated equipments	Remarks
		Herschel		
EGSE	CCS	1		
	CCS lite	1		
	TM/TC DFE	1		
	CDMU SCOE	1		
	ACMS SCOE	1		
	TT&C SCOE	1		
	POWER SCOE	1		
	CCU SCOE			
IGSE	**HIFI IGSE**	1		
	PACS IGSE	1		
	SPIRE IGSE	1		
PCS	PCDU	1+1		
	Battery	1 Installed. Only connected for Launch clean run	1	Battery Simulation for other tests
	Solar Array	30 nom sections not required for IST	1	Power SCOE
CDMS	CDMU	1+1		
ACMS	ACC	1+1		
	RWA	3+1		
	GYRO	3+1		
	STR	2		
	CRS	2		
	AAD	1+1 internal red		
	SAS	2+2 internal red		
TT&C	XPND	2		
	TWT	2		
	EPC	2		
	LGA	2 (not used during the IST)		

S/S	Unit	Configuration	SCOE simulated equipments	Remarks
	MGA	1 (not used during the IST)		
RCS		1+1 (not used during the IST)		ACMS SCOE
TCS		1 (partially installed)		
VMC		1		
SREM		1		
HIFI		1		
PACS		1		
SPIRE		1		
Telescope		1		
HSS		1		

Table 1: Satellite configuration required for IST

4.2 SW Configuration

The Satellite IST will be run with the on-board software configuration as detailed in the IST TRR.

The actual configuration of the software should be noted here to ensure correct system status

- CDMS OBSW: ____________________
- ACMS OBSW: ____________________
- STR PROM SW: ____________________
- STR EEPROM SW: ____________________
- PACS DPU SW: ____________________
- PACS SPU SW: ____________________
- PACS DMC SW: ____________________
- HIFI ICU SW: ____________________
- SPIRE DPU SW: ____________________

4.3 SCOE Cables Connection

For the IST there are four different SCOE cables configuration.

- Configuration 1 for "Nominal Launch" and "RMS" see 4.3.1
- Configuration 2 for " Instrument Commissioning", "Mode Transitions", "S/C Reconfiguration", "Launch Mode Robustness", "CDMS management", "ACMS Commissioning", "Satellite commissioning" and "DTCP Worst Case Scenario" " NOM Mode Robustness" 4.3.2
- Configuration 3 for " Launch Clean Run" 4.3.3

4.3.1 SCOE cable connection for "RMS"

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		PCDU Flight Plug SK01BP09 Plugged
	BS Red Power	SK01BJ10	PCDU		PCDU Flight Plug SK01BP09 Plugged
	BDR1 AIT	SK01BJ11	PCDU	LPS SCOE Cable Plugged	
	BDR2 AIT	SK01BJ12	PCDU	LPS SCOE Cable Plugged	
	SA Nom Power	SK01AJ01	PCDU	POWER SCOE Cable Plugged	
	SA Nom Power	SK01AJ02	PCDU	POWER SCOE Cable Plugged	
	SA Nom Power	SK01AJ03	PCDU	POWER SCOE Cable Plugged	
	SA Red Power	SK01AJ04	PCDU	Connector Cover	
	SA Red Power	SK01AJ05	PCDU	POWER SCOE Cable Plugged	
	SA Red Power	SK01AJ06	PCDU	POWER SCOE Cable Plugged	
	SA Red Power	SK01AJ07	PCDU	POWER SCOE Cable Plugged	
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	Bus Monitor Cable Plugged	
SKIN-02	DMS 1553 Bus_B	J02	CDMU	Bus Monitor Cable Plugged	
SKIN-02	ACMS 1553 Bus_A	J03	ACC	ACMS SCOE Cable Plugged	
SKIN-02	ACMS 1553 Bus_B	J04	ACC	ACMS SCOE Cable Plugged	
SKIN-02	LV1/FCV 20N CMD S/A M	J05	ACC/RCS	ACMS SCOE Cable Plugged	
SKIN-02	LV2/FCV 20N CMD S/A R	J06	ACC/RCS	ACMS SCOE Cable Plugged	

SKIN-02	RCS Press/Tank Temp/PT Pwr	J07	ACC/PT&TH	ACMS SCOE Cable Plugged	
SKIN-02	Thruster Temp M/LV1 Sts	J08	ACC/RCS	ACMS SCOE Cable Plugged	
SKIN-02	CDMU and ACC EEPROM reprogramming input	J09	ACC/CDMU		Flight Cap SK02P09 Plugged
SKIN-02	CDMU and ACC EEPROM reprogramming input	J10	ACC/CDMU		Flight Cap SK02P10 Plugged
SKIN-02	Thruster Temp R/LV2 Sts	J11	ACC/RCS	ACMS SCOE Cable Plugged	
SKIN-02	Thruster C/B Heaters M	J12	ACC/CBH	ACMS SCOE Cable Plugged	
SKIN-02	Thruster C/B Heaters R	J13	ACC/CBH	ACMS SCOE Cable Plugged	
SKIN-02	Str1/2 On/Off Cmd M/Str1 Sts	J14	ACC/STR-1		ACMS Flight Cap SK02P14 Plugged
SKIN-02	Str1/2 On/Off Cmd R/Str2 Sts	J15	ACC/STR-2		ACMS Flight Cap SK02P15 Plugged
SKIN-02	Gyro A On/Off Cmd	J16	ACC/GYRO-E1		ACMS Flight Cap SK02P16 Plugged
SKIN-02	Gyro B On/Off Cmd	J17	ACC/GYRO-E2		ACMS Flight Cap SK02P17 Plugged
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		Plastic cap (See note1)
SKIN-03	Test point TC + protection jumper EPC2	SK03J02	XPND2/EPC2		Plastic cap (See note1)
	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
	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 Cap SK04P01 Plugged
SKIN-04	RWL2 Sgn	J02	ACC/RWL-2		ACMS Flight Cap SK04P02 Plugged
SKIN-04	RWL3 Sgn	J03	ACC/RWL-3		ACMS Flight Cap SK04P03 Plugged

SKIN-04	RWL4 Sgn	J04	ACC/RWL-4		ACMS Flight Cap 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 Cap
SKIN-05	CRS2 AOCS Sgn	J02	CRS-2/ACC		ACMS Flight Cap
SKIN-05	GYRO RS422 / Test	J03	GYRO	ACMS SCOE Cable Plugged	
SKIN-05	CRS 1/2 Stimuli	J04	CRS-1,2	ACMS SCOE Cable Plugged	
SKIN-05	AAD Sgn M	J05	AAD/ACC	ACMS SCOE Cable Plugged	
SKIN-05	SAS1/2 Sgn M	J06	SAS/ACC	ACMS SCOE Cable Plugged	
SKIN-05	SAS1/2 Sgn R	J07	SAS/ACC	ACMS SCOE Cable Plugged	
SKIN-05	AAD Sgn R	J08	AAD/ACC	ACMS SCOE Cable Plugged	
SKIN-06	STR Panel				
	Connector Function	Skin Connector	S/C unit	SCOE CABLE	Flight Connector
SKIN-06	STR1 Stimuli	J01	STR1	ACMS SCOE Cable Plugged	
SKIN-06	STR2 Stimuli	J02	STR2	ACMS SCOE Cable Plugged	
	UMBILICAL				
	Connector Function	Connector	S/C unit	SCOE CABLE	
	Power/Data	HU1 J01	SYSTEM	SCOEs cable Plugged	
	Power/Data	HU2 J01	SYSTEM	SCOEs cable Plugged	

CryoSCOE harness setup for ACS/PR/TP No.:

Annex No.:

315 100 on top of

Connector Function	Connector	S/C unit	SCOE	CryoSCOE connected	CCU Flight connected
Temperature Sensors	315100-J01	T117, T118, T207, T211, T238, T239, T249,T251, T253, T255, T423, T443, T463, T851, T852, T853, T861	Cryo SCOE J07 & J15		no flight
Temperature & pressure Sensors	315100-J03	T702, T872, P101, T103, T115, T116, T704, T802, T803, T805, T806, T871	Cryo SCOE J01 & J17		no flight
Temperature Sensors	315100-J05	T331, T333, T335, T337, T339, T341 (Telescope)	Cryo SCOE J14		X
Temperature Sensors	315100-J06	T332, T334, T336, T338, T340, T342 (Telescope)	Cryo SCOE J10		X

316 100 on top of

Connector Function	Connector	S/C unit	SCOE	CryoSCOE connected	CCU Flight connected
Valve Sensor	316100-J01	VS501, VS504			X
Valve Sensor	316100-J02	VS503, VS505			X

321 100 on top of

Connector Function	Connector	S/C unit	SCOE	CryoSCOE connected	CCU Flight connected
	321100-J01	L701, H701	Cryo SCOE J11		no flight
	321100-J02	LL702, H702	Cryo SCOE J03		no flight
	321100-J03	H502, H503	Cryo SCOE J06		no flight
	321100-J04	P501	Cryo SCOE J01		no flight

		321100-J05	H103, H701, L102, VT102, VT103, VT105, VT701, VH102, VH103, VH105, VH701, VS102, VS105, VS701	Cryo SCOE J11		no flight
		321100-J06	H104, H702, L101, VT104, VT106, VT702, VH104, VH106, VH702, VS104, VS702	Cryo SCOE J03		no flight
		321100-J07	H501	Cryo SCOE J06		no flight
		321100-J08	T502	Cryo SCOE J01		no flight
321 200	on top of					
	Connector Function	Connector	S/C unit	SCOE	CryoSCOE connected	CCU Flight connected
		321200-J01	T202, T212, T221, T223, T227, T228, T232, T234, T236, T242, T244, T246, T250, T254, T258, T424, T464	Cryo SCOE J08		X
		321200-J02	T102, T105, T106, T111, PR_P701, T421, T442, T461, H101	Cryo SCOE J04		X
		321200-J03	T321, T323, T501, T505, T651, T901, T903, T907, T911	Cryo SCOE J09		X
		321200-J04	T312, T314, T316, T905, T909, T931, T933, T935	Cryo SCOE J09		X
		321200-J05	VS103, H102	Cryo SCOE J04		X
321 300	on top of					
	Connector Function	Skin Connector	S/C unit	SCOE	SCOE Cable connected	Flight Cap connected

		321300-J01	T208, T213, T222, T224, T225, T226, T231, T233, T235, T237, T247, T248, T252, T256, T862, T444	Cryo SCOE J02		X
		321300-J02	T101, T104, T107, T112, T703, T422, T441, T462, T701, H102	Cryo SCOE J04		X
		321300-J03	P502,T322, T324, T504, T506, T507, T652, T902, T908, T912	Cryo SCOE J18		X
		321300-J04	T311, T313, T315, T904, T906, T910, T932, T934	Cryo SCOE J14		X
		321300-J05	VS106, H102	Cryo SCOE J04		X
CVSE I/F	on top of					
	Connector Function	Skin Connector	S/C unit	SCOE	SCOE Cable connected	Flight Cap connected
				Cryo SCOE J18		X
to be approved & released before start of ACS/PR/TP by Floor-Manager		Date:		Sign:		

SAFE / ARM plug setup for ACS/PR/TP No.:						
Annex No.:						
314 200	on top of					
	Connector Function	Connector	S/C unit	SAFE	ARM	Sign
	SAFE / ARM plug	314 200-J03	NED (601)	X		
	SAFE / ARM plug	314 200-J04	NED (602)	X		
	SAFE / ARM plug	314 200-J05	SI 601	X		
	SAFE / ARM plug	314 200-J06	SI 602	X		
to be approved & released before start of ACS/PR/TP by Floor-Manager	Date:			Sign:		

4.3.2 SCOE cable connection for " Nominal Launch", " Satellite Commissioning",,"Instrument Commissioning "ACMS Commissioning", "Mode Transitions", S/C Reconfiguration", "CDMS management", DTCP Worst Case Scenario", "Launch Mode Robustness",."NOM Mode Robustness" and "Instrument FDIR"

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	BS SCOE Cable Plugged ✓	✓
	BS Red Power	SK01BJ10	PCDU	BS SCOE Cable Plugged ✓	✓
	BDR1 AIT	SK01BJ11	PCDU	LPS SCOE Cable Plugged ✓	✓
	BDR2 AIT	SK01BJ12	PCDU	LPS SCOE Cable Plugged ✓	✓
	SA Nom Power	SK01AJ01	PCDU	POWER SCOE Cable Plugged ✓	✓
	SA Nom Power	SK01AJ02	PCDU	POWER SCOE Cable Plugged ✓	✓
	SA Nom Power	SK01AJ03	PCDU	POWER SCOE Cable Plugged ✓	✓
	SA Red Power	SK01AJ04	PCDU	Connector Cover ✓	✓
	SA Red Power	SK01AJ05	PCDU	POWER SCOE Cable Plugged ✓	✓
	SA Red Power	SK01AJ06	PCDU	POWER SCOE Cable Plugged ✓	✓
	SA Red Power	SK01AJ07	PCDU	POWER SCOE Cable Plugged ✓	✓
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	Bus Monitor Cable Plugged ✓	✓
SKIN-02	DMS 1553 Bus_B	J02	CDMU	Bus Monitor Cable Plugged ✓	✓
SKIN-02	ACMS 1553 Bus_A	J03	ACC	ACMS SCOE Cable Plugged ✓	✓
SKIN-02	ACMS 1553 Bus_B	J04	ACC	ACMS SCOE Cable Plugged ✓	✓
SKIN-02	LV1/FCV 20N CMD S/A M	J05	ACC/RCS	ACMS SCOE ✓	

As compared with DTCP-WCS previous days testing no change. 30/07/08 01:04

				Cable Plugged	
SKIN-02	LV2/FCV 20N CMD S/A R	J06	ACC/RCS	ACMS SCOE Cable Plugged	
SKIN-02	RCS Press/Tank Temp/PT Pwr	J07	ACC/PT&TH	ACMS SCOE Cable Plugged	
SKIN-02	Thruster Temp M/LV1 Sts	J08	ACC/RCS	ACMS SCOE Cable Plugged	
SKIN-02	CDMU and ACC EEPROM reprogramming input	J09	ACC/CDMU		Flight Cap SK02P09 Plugged
SKIN-02	CDMU and ACC EEPROM reprogramming input	J10	ACC/CDMU		Flight Cap SK02P10 Plugged
SKIN-02	Thruster Temp R/LV2 Sts	J11	ACC/RCS	ACMS SCOE Cable Plugged	
SKIN-02	Thruster C/B Heaters M	J12	ACC/CBH	ACMS SCOE Cable Plugged	
SKIN-02	Thruster C/B Heaters R	J13	ACC/CBH	ACMS SCOE Cable Plugged	
SKIN-02	Str1/2 On/Off Cmd M/Str1 Sts	J14	ACC/STR-1		ACMS Flight Cap SK02P14 Plugged
SKIN-02	Str1/2 On/Off Cmd R/Str2 Sts	J15	ACC/STR-2		ACMS Flight Cap SK02P15 Plugged
SKIN-02	Gyro A On/Off Cmd	J16	ACC/GYRO-E1		ACMS Flight Cap SK02P16 Plugged
SKIN-02	Gyro B On/Off Cmd	J17	ACC/GYRO-E2		ACMS Flight Cap SK02P17 Plugged
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		Plastic cap (See note1)
SKIN-03	Test point TC + protection jumper EPC2	SK03J02	XPND2/EPC2		Plastic cap (See note1)
	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
	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 Cap SK04P01 Plugged
SKIN-04	RWL2 Sgn	J02	ACC/RWL-2		ACMS Flight Cap

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					SK04P02 Plugged
SKIN-04	RWL3 Sgn	J03	ACC/RWL-3		ACMS Flight Cap SK04P03 Plugged
SKIN-04	RWL4 Sgn	J04	ACC/RWL-4		ACMS Flight Cap 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 Cap
SKIN-05	CRS2 AOCS Sgn	J02	CRS-2/ACC		ACMS Flight Cap
SKIN-05	GYRO RS422 / Test	J03	GYRO	ACMS SCOE Cable Plugged	
SKIN-05	CRS 1/2 Stimuli	J04	CRS-1,2	ACMS SCOE Cable Plugged	
SKIN-05	AAD Sgn M	J05	AAD/ACC	ACMS SCOE Cable Plugged	
SKIN-05	SAS1/2 Sgn M	J06	SAS/ACC	ACMS SCOE Cable Plugged	
SKIN-05	SAS1/2 Sgn R	J07	SAS/ACC	ACMS SCOE Cable Plugged	
SKIN-05	AAD Sgn R	J08	AAD/ACC	ACMS SCOE Cable Plugged	
SKIN-06	STR Panel				
	Connector Function	Skin Connector	S/C unit	SCOE CABLE	Flight Connector
SKIN-06	STR1 Stimuli	J01	STR1	ACMS SCOE Cable Plugged	
SKIN-06	STR2 Stimuli	J02	STR2	ACMS SCOE Cable Plugged	
	UMBILICAL				
	Connector Function	Connector	S/C unit	SCOE CABLE	
	Power/Data	HU1 J01	SYSTEM	SCOEs cable Plugged	
	Power/Data	HU2 J01	SYSTEM	SCOEs cable Plugged	

30/07/08

01:04

CryoSCOE harness setup for ACS/PR/TP No.:

Annex No.:

315 100 — on top of

Connector Function	Connector	S/C unit	SCOE	CryoSCOE connected	CCU Flight connected
Temperature Sensors	315100-J01	T117, T118, T207, T211, T238, T239, T249,T251, T253, T255, T423, T443, T463, T851, T852, T853, T861	Cryo SCOE J07 & J15		no flight
Temperature & pressure Sensors	315100-J03	T702, T872, P101, T103, T115, T116, T704, T802, T803, T805, T806, T871	Cryo SCOE J01 & J17		no flight
Temperature Sensors	315100-J05	T331, T333, T335, T337, T339, T341 (Telescope)	Cryo SCOE J14		X
Temperature Sensors	315100-J06	T332, T334, T336, T338, T340, T342 (Telescope)	Cryo SCOE J10		X

316 100 — on top of

Connector Function	Connector	S/C unit	SCOE	CryoSCOE connected	CCU Flight connected
Valve Sensor	316100-J01	VS501, VS504			X
Valve Sensor	316100-J02	VS503, VS505			X

321 100 — on top of

Connector Function	Connector	S/C unit	SCOE	CryoSCOE connected	CCU Flight connected
	321100-J01	L701, H701	Cryo SCOE J11		no flight
	321100-J02	LL702, H702	Cryo SCOE J03		no flight
	321100-J03	H502, H503	Cryo SCOE J06		no flight

		321100-J04	P501	Cryo SCOE J01		no flight
		321100-J05	H103, H701, L102, VT102, VT103, VT105, VT701, VH102, VH103, VH105, VH701, VS102, VS105, VS701	Cryo SCOE J11		no flight
		321100-J06	H104, H702, L101, VT104, VT106, VT702, VH104, VH106, VH702, VS104, VS702	Cryo SCOE J03		no flight
		321100-J07	H501	Cryo SCOE J06		no flight
		321100-J08	T502	Cryo SCOE J01		no flight
321 200	on top of					
	Connector Function	Connector	S/C unit	SCOE	CryoSCOE connected	CCU Flight connected
		321200-J01	T202, T212, T221, T223, T227, T228, T232, T234, T236, T242, T244, T246, T250, T254, T258, T424, T464	Cryo SCOE J08		X
		321200-J02	T102, T105, T106, T111, PR_P701, T421, T442, T461, H101	Cryo SCOE J04		X
		321200-J03	T321, T323, T501, T505, T651, T901, T903, T907, T911	Cryo SCOE J09		X
		321200-J04	T312, T314, T316, T905, T909, T931, T933, T935	Cryo SCOE J09		X
		321200-J05	VS103, H102	Cryo SCOE J04		X

321 300	on top of					
	Connector Function	Skin Connector	S/C unit	SCOE	SCOE Cable connected	Flight Cap connected
		321300-J01	T208, T213, T222, T224, T225, T226, T231, T233, T235, T237, T247, T248, T252, T256, T862, T444	Cryo SCOE J02		X
		321300-J02	T101, T104, T107, T112, T703, T422, T441, T462, T701, H102	Cryo SCOE J04		X
		321300-J03	P502,T322, T324, T504, T506, T507, T652, T902, T908, T912	Cryo SCOE J18		X
		321300-J04	T311, T313, T315, T904, T906, T910, T932, T934	Cryo SCOE J14		X
		321300-J05	VS106, H102	Cryo SCOE J04		X
CVSE I/F	on top of					
	Connector Function	Skin Connector	S/C unit	SCOE	SCOE Cable connected	Flight Cap connected
				Cryo SCOE J18		X

to be approved & released before start of ACS/PR/TP by Floor-Manager	Date:	Sign:

<table>
<tr><td colspan="7">SAFE / ARM plug setup for ACS/PR/TP No.:</td></tr>
<tr><td colspan="7">Annex No.:</td></tr>
<tr><td rowspan="6">314 200</td><td colspan="6">on top of</td></tr>
<tr><td>Connector Function</td><td>Connector</td><td>S/C unit</td><td>SAFE</td><td>ARM</td><td>Sign</td></tr>
<tr><td>SAFE / ARM plug</td><td>314 200-J03</td><td>NED (601)</td><td>X</td><td></td><td></td></tr>
<tr><td>SAFE / ARM plug</td><td>314 200-J04</td><td>NED (602)</td><td>X</td><td></td><td></td></tr>
<tr><td>SAFE / ARM plug</td><td>314 200-J05</td><td>SI 601</td><td>X</td><td></td><td></td></tr>
<tr><td>SAFE / ARM plug</td><td>314 200-J06</td><td>SI 602</td><td>X</td><td></td><td></td></tr>
<tr><td colspan="2">to be approved & released before start of ACS/PR/TP by Floor-Manager</td><td colspan="2">Date:</td><td colspan="3">Sign:</td></tr>
</table>

4.3.3 SCOE cable connection for" Launch Clean Run"

SVM / EGSE harness setup for ACS/PR/TP No.:

Annex No.:

SKIN-01	PWR Panel (PCDU)						
	Connector Function	SCOE	S/C unit	Skin Connector	Connection		Sign
	SA Nom Power	SAS SCOE	PCDU	SK01A J/P01	disconnected		
	SA Nom Power	SAS SCOE	PCDU	SK01A J/P02	disconnected		
	SA Nom Power	SAS SCOE	PCDU	SK01A J/P03	disconnected		
			Battery	SK01A J/P04	EMC cover		
	SA Red Power	SAS SCOE	PCDU	SK01A J/P05	disconnected		
	SA Red Power	SAS SCOE	PCDU	SK01A J/P06	disconnected		
	SA Red Power	SAS SCOE	PCDU	SK01A J/P07	disconnected		
	BS Nom Power	BS SCOE	PCDU	SK01B J/P09	Flight		
	BS Red Power	BS SCOE	PCDU	SK01B J/P10	Flight		
	BDR1 AIT	SAS SCOE	PCDU	SK01B J/P11	LPS SCOE Cable Plugged		
	BDR2 AIT	SAS SCOE	PCDU	SK01B J/P12	LPS SCOE Cable Plugged		
SKIN-02	PWR Panel (ACC, CDMU, RCS, 1553 & Thruster)						
	Connector Function	SCOE	S/C unit	Skin Connector	Connection		Sign
	DMS 1553 Bus_A	CDMU SCOE	CDMU	SK02 J/P01	Flight		
	DMS 1553 Bus_B	CDMU SCOE	CDMU	SK02 J/P02	Flight		
	ACMS 1553 Bus_A	ACMS SCOE	ACC	SK02 J/P03	Flight		
	ACMS 1553 Bus_B	ACMS SCOE	ACC	SK02 J/P04	Flight		
	LV1/FCV 20N CMD S/A M	ACMS SCOE	ACC/RCS	SK02 J/P05	disconnected		
	LV2/FCV 20N CMD S/A R	ACMS SCOE	ACC/RCS	SK02 J/P06	disconnected		
	RCS Press/Tank Temp/PT Pwr	ACMS SCOE	ACC/PT&TH	SK02 J/P07	Flight		
	Thruster Temp M/LV1 Sts	ACMS SCOE	ACC/RCS	SK02 J/P08	Flight		

	Quick S/W load	grey ACMS	black CDMS	SK02 J/P09	disconnected		
	Quick S/W load	grey ACMS	black CDMS	SK02 J/P10	disconnected		
	Thruster Temp R/LV2 Sts	ACMS SCOE	ACC/RCS	SK02 J/P11	Flight		
	Thruster C/B Heaters M	ACMS SCOE	ACC/CBH	SK02 J/P12	disconnected		
	Thruster C/B Heaters R	ACMS SCOE	ACC/CBH	SK02 J/P13	disconnected		
	Str1/2 On/Off Cmd M/Str1 Sts	ACMS SCOE	ACC/STR-1	SK02 J/P14	Flight		
	Str1/2 On/Off Cmd R/Str2 Sts	ACMS SCOE	ACC/STR-2	SK02 J/P15	Flight		
	Gyro A On/Off Cmd		ACC/GYRO-E1	SK02 J/P16	Flight		
	Gyro B On/Off Cmd		ACC/GYRO-E2	SK02 J/P17	Flight		
SKIN-03	TTC Panel						
	Connector Function	SCOE	S/C unit	Skin Connector	Connection		Sign
	Test point TC + protection jumper EPC1	Plastic Cap	XPND1/EPC1	SK03 J/P01	Flight		
	Test point TC + protection jumper EPC2	Plastic Cap	XPND2/EPC2	SK03 J/P02	Flight		
	RF LINK						
	Connector Function	SCOE	S/C unit	Skin Connector	Connection		Sign
	RF link for antenna LGA1	TT&C SCOE	LGA1	LGA1 Anechoic Cap	RF-SCOE		
	RF link for antenna LGA2	TT&C SCOE	LGA2	LGA2 Anechoic Cap	RF-SCOE		
	RF link for antenna MGA	TT&C SCOE	MGA	MGA Anechoic Cap	RF-SCOE		
SKIN-04	ACMS Panel (RWE)						
	Connector Function	SCOE	S/C unit	Skin Connector	Connection		Sign
	RWL1 Sgn		ACC/RWL-1	SK04 J/P01	Flight		
	RWL2 Sgn		ACC/RWL-2	SK04 J/P02	Flight		
	RWL3 Sgn		ACC/RWL-3	SK04 J/P03	Flight		
	RWL4 Sgn		ACC/RWL-4	SK04 J/P04	Flight		

SKIN-05	GYR/QRS Panel						
	Connector Function	SCOE	S/C unit	Skin Connector	Connection		Sign
	CRS1 AOCS Sgn		CRS-1/ACC	SK05 J/P01	Flight		
	CRS2 AOCS Sgn		CRS-2/ACC	SK05 J/P02	Flight		
	GYRO RS422 / Test	ACMS SCOE	GYRO	SK05 J/P03	disconnected		
	CRS 1/2 Stimuli	ACMS SCOE	CRS-1,2	SK05 J/P04	disconnected		
	AAD Sgn M	ACMS SCOE	AAD/ACC	SK05 J/P05	Flight		
	SAS1/2 Sgn M	ACMS SCOE	SAS/ACC	SK05 J/P06	Flight		
	SAS1/2 Sgn R	ACMS SCOE	SAS/ACC	SK05 J/P07	Flight		
	AAD Sgn R	ACMS SCOE	AAD/ACC	SK05 J/P08	Flight		
SKIN-06	STR Panel						
	Connector Function	SCOE	S/C unit	Skin Connector	Connection		Sign
	STR1 Stimuli	STR1	STR1	SK06 J/P01	disconnected		
	STR2 Stimuli	STR2	STR2	SK06 J/P02	disconnected		
UMBILICAL							
	Connector Function	SCOE	S/C unit	Connector	Connection		Sign
	Power/Data	System	SYSTEM	HUJ01	SCOE		
	Power/Data	System	SYSTEM	HUJ02	SCOE		
approved SE		approved AIT		approved PA/Safety		approved Floor-Manger	
sign off:							

CryoSCOE harness setup for ACS/PR/TP No.:

Annex No.:

315 100	on top of					
	Connector Function	Connector	S/C unit	SCOE	CryoSCOE connected	CCU Flight connected
	Temperature Sensors	315100-J01	T117, T118, T207, T211, T238, T239, T249,T251, T253, T255, T423, T443, T463, T851, T852, T853, T861	Cryo SCOE J07 & J15		no flight
	Temperature & pressure Sensors	315100-J03	T702, T872, P101, T103, T115, T116, T704, T802, T803, T805, T806, T871	Cryo SCOE J01 & J17		no flight
	Temperature Sensors	315100-J05	T331, T333, T335, T337, T339, T341 (Telescope)	Cryo SCOE J14		X
	Temperature Sensors	315100-J06	T332, T334, T336, T338, T340, T342 (Telescope)	Cryo SCOE J10		X
316 100	on top of					
	Connector Function	Connector	S/C unit	SCOE	CryoSCOE connected	CCU Flight connected
	Valve Sensor	316100-J01	VS501, VS504			X
	Valve Sensor	316100-J02	VS503, VS505			X
321 100	on top of					
	Connector Function	Connector	S/C unit	SCOE	CryoSCOE connected	CCU Flight connected
		321100-J01	L701, H701	Cryo SCOE J11		no flight
		321100-J02	LL702, H702	Cryo SCOE J03		no flight
		321100-J03	H502, H503	Cryo SCOE J06		no flight
		321100-J04	P501	Cryo SCOE J01		no flight

		321100-J05	H103, H701, L102, VT102, VT103, VT105, VT701, VH102, VH103, VH105, VH701, VS102, VS105, VS701	Cryo SCOE J11		no flight
		321100-J06	H104, H702, L101, VT104, VT106, VT702, VH104, VH106, VH702, VS104, VS702	Cryo SCOE J03		no flight
		321100-J07	H501	Cryo SCOE J06		no flight
		321100-J08	T502	Cryo SCOE J01		no flight
321 200	on top of					
	Connector Function	Connector	S/C unit	SCOE	CryoSCOE connected	CCU Flight connected
		321200-J01	T202, T212, T221, T223, T227, T228, T232, T234, T236, T242, T244, T246, T250, T254, T258, T424, T464	Cryo SCOE J08		X
		321200-J02	T102, T105, T106, T111, PR_P701, T421, T442, T461, H101	Cryo SCOE J04		X
		321200-J03	T321, T323, T501, T505, T651, T901, T903, T907, T911	Cryo SCOE J09		X
		321200-J04	T312, T314, T316, T905, T909, T931, T933, T935	Cryo SCOE J09		X
		321200-J05	VS103, H102	Cryo SCOE J04		X
321 300	on top of					
	Connector Function	Skin Connector	S/C unit	SCOE	SCOE Cable connected	Flight Cap connected

		321300-J01	T208, T213, T222, T224, T225, T226, T231, T233, T235, T237, T247, T248, T252, T256, T862, T444	Cryo SCOE J02		X
		321300-J02	T101, T104, T107, T112, T703, T422, T441, T462, T701, H102	Cryo SCOE J04		X
		321300-J03	P502,T322, T324, T504, T506, T507, T652, T902, T908, T912	Cryo SCOE J18		X
		321300-J04	T311, T313, T315, T904, T906, T910, T932, T934	Cryo SCOE J14		X
		321300-J05	VS106, H102	Cryo SCOE J04		X
CVSE I/F	on top of					
	Connector Function	Skin Connector	S/C unit	SCOE	SCOE Cable connected	Flight Cap connected
				Cryo SCOE J18		X
to be approved & released before start of ACS/PR/TP by Floor-Manager		Date:		Sign:		

SAFE / ARM plug setup for ACS/PR/TP No.:						
Annex No.:						
314 200	on top of					
	Connector Function	Connector	S/C unit	SAFE	ARM	Sign
	SAFE / ARM plug	314 200-J03	NED (601)	X		
	SAFE / ARM plug	314 200-J04	NED (602)	X		
	SAFE / ARM plug	314 200-J05	SI 601	X		
	SAFE / ARM plug	314 200-J06	SI 602	X		
to be approved & released before start of ACS/PR/TP by Floor-Manager	Date:			Sign:		

5 Conditions

5.1 Personnel

The following table shall be filled in detailing which personnel are required to be present for the test. The signature of the appropriate responsible is classified as agreement to start the test as stated in the TRR.

Responsibility	Required for Test (Y/N)	Name / Organization	Signature
Floor Manager	Y		
Test Director	Y		
Test Conductor	Y		
EGSE Operator			
SVM Support Engineer			
Cryo Support Engineer			
HIFI Instrument Support Engineer			
PACS Instrument Support Engineer			
Spire Instrument Support Engineer			
PA Responsible	Y		
Customer Representative			

Table 2: List of IST test attendants

Persons, other than test personal as mentioned in the test team organization and participants of the TRR, are allowed to observe the test at the discretion of the Test Director and Test Conductor.

5.2 Environmental

During all the phases of the test the HERSCHEL Satellite shall be maintained in a controlled environment in order to prevent degradation or contamination of the satellite equipment and surface, which could result in operational failures.

ESTEC site clean room will be used.

Ambient conditions shall comply with ISO14644-1 for cleanliness requirement.

The characteristic shall be:

- Temperature = 22C ± 3C
- Relative Humidity = 50 % +/- 10%
- Delta Pressure = above 0.6 mm H2O
- Clean Conditions = Class 100 000

The following table defines the S/C conditions for each IST test sequence with respect to Cryostat He I/He II status, tilting angle and usage of the real battery.

IST 1 Part 1 Warm preferred

Chapter of IST Spec Issiue 4		Instr. Mode	Real Battery required	Satellite X- Axis tilting	Ambient or cool down (deviating from IST Spec !!!)	He I HTT venting >20mg/sec	He II HTT venting >20mg/sec
5.8.2	**Launch phase, separation and post separation**	3 shift	4 shift	5 shift	6 shift	7 shift	8 shift
5.8.2.3	Initial configuration	OFF	Y	n.a	Preferred	alternative	alternative
5.8.2.4.2	Satellite power ON	OFF	Y	n.a	Preferred	alternative	alternative
5.8.2.4.4	Configuration for launch	OFF	Y	n.a	Preferred	alternative	alternative
5.8.2.4.5	Launch	OFF	Y	n.a	Preferred	alternative	alternative
5.8.2.4.6	Separation	OFF	Y	n.a	Preferred	alternative	alternative
5.8.2.4.7	Post separation	OFF	Y	n.a	Preferred	alternative	alternative
5.8.2.4.8	Initial check out in SAM mode	OFF	Y	n.a	Preferred	alternative	alternative
5.8.2.4.9	CDMS transition to NOM mode	OFF	Y	n.a	Preferred	alternative	alternative
5.8.2.4.10	Orbit Control Manoeuvre	OFF	Y	n.a	Preferred	alternative	alternative
5.8.2.4.11	End of the sequence	OFF	Y	n.a	Preferred	alternative	alternative
5.8.3	**Satellite Commissioning**						
5.8.3.3	Test start configuration	OFF	N	n.a	Preferred	alternative	alternative
5.8.3.4	TTC commissioning	OFF	N	n.a	Preferred	alternative	alternative
5.8.3.6	CDMS commissioning	OFF	N	n.a	Preferred	alternative	alternative
	TCS commissioning	OFF	N	n.a.	Preferred	alternative	alternative
5.8.3.7	PCS commissioning	OFF	N	n.a	Preferred	alternative	alternative
5.8.3.10	SREM commissioning	OFF	N	n.a	Preferred	alternative	alternative
5.8.3.11	TCS commissioning	OFF	N	n.a	Preferred	alternative	alternative
5.8.3.12	Telescope decontamination	OFF	N	n.a	Preferred	alternative	alternative
5.8.3.13	Cryo Cover opening	OFF	N	n.a	Preferred	alternative	alternative
5.8.3.14	Test end	OFF	N	n.a	Preferred	alternative	alternative
5.8.3.9	**ACMS commissioning**						
5.8.3.9.1	AAD, SAS, CRS, STR, GYR, RCS unit check	OFF	N	n.a	Preferred	alternative	alternative
5.8.3.9.2	RWLs health check	OFF	N	n.a	Preferred	alternative	alternative
5.8.3.9.3	STR functional verification	OFF	N	n.a	Preferred	alternative	alternative
5.8.3.9.4	ACC health check	OFF	N	n.a	Preferred	alternative	alternative
5.8.3.9.5	ACMS dynamic verification	OFF	N	n.a	Preferred	alternative	alternative
5.8.5	**Mode transitions**						
5.8.5.3	Test start configuration	OFF	N	n.a	Preferred	alternative	alternative
5.8.5.4	Launch to Launch	OFF	N	n.a	Preferred	alternative	alternative
5.8.5.5	Launch to SAM	OFF	N	n.a	Preferred	alternative	alternative
5.8.5.6	SAM to SAM	OFF	N	n.a	Preferred	alternative	alternative
5.8.5.7	SAM to NOM	OFF	N	n.a	Preferred	alternative	alternative
5.8.10	**Launch clean run**						
		OFF	Y	n.a	Preferred	alternative	alternative
5.8.11	**Launch sequence robustness**						
5.8.11.3.2	Satellite power on	OFF	N	n.a	Preferred	alternative	alternative
5.8.11.3.4	Configuration for launch (status)	OFF	N	n.a	Preferred	alternative	alternative
5.8.11.3.5	Configuration for launch	OFF	N	n.a	Preferred	alternative	alternative
5.8.11.3.6	Separation	OFF	N	n.a	Preferred	alternative	alternative
5.8.11.3.7	S/C acquisition	OFF	N	n.a	Preferred	alternative	alternative
5.8.11.3.8	Initial checkout in SAM mode	OFF	N	n.a	Preferred	alternative	alternative
5.8.11.3.9	Transition to NOM mode	OFF	N	n.a	Preferred	alternative	alternative
5.8.11.3.10	Orbit control manoeuvre	OFF	N	n.a	Preferred	alternative	alternative

IST 1 Part 2 He I or He II

Chapter of IST Spec Issiue 4		Instr. Mode	Real Battery required	Satellite X- Axis tilting	Ambient or cool down (deviating from IST Spec !!!)	He I HTT venting >20mg/sec	He II HTT venting >20mg/sec
5.8.5	**Mode transitions**						
5.8.5.8	NOM to NOM	PACS spectro SPIRE STBY HIFI STBY	N	0-23		alternative	Preferred
5.8.5.9	NOM to EAM	PACS STBY SPIRE STBY HIFI STBY	N	0-23		alternative	Preferred
5.8.5.10	EAM to EAM	PACS STBY SPIRE STBY-> Photo->STBY HIFI STBY	N	0-23		alternative	Preferred
5.8.5.11	EAM to NOM	PACS STBY SPIRE STBY- >Photo	N	0-23		alternative	Preferred
5.8.5.12	NOM to SM	PACS STBY->OFF SPIRE Photo->OFF HIFI STBY->OFF	N	0-23		alternative	Preferred
5.8.5.13	SM to SM	OFF	N	0-23		alternative	Preferred
5.8.5.14	SM to SAM	OFF	N	0-23		alternative	Preferred
5.8.5.17	EAM to SAM (needs new SAM to NOM and NOM to EAM)	PACS STBY SPIRE STBY HIFI Science -> STBY	N	0-23		alternative	Preferred
5.8.5.18	NOM to SAM (needs new SAM to NOM)	PACS Burst- >STBY SPIRE STBY	N	0-23		alternative	Preferred
5.8.5.19	Test end	OFF	N	0-23		alternative	Preferred
5.8.6	**S/C reconfiguration**						
5.8.6.2	Test start configuration	PACS STBY SPIRE STBY HIFI STBY	N	0-23		alternative	Preferred
5.8.6.3	CDMS level 3a	PACS STBY SPIRE STBY HIFI Prime-	N	0-23		alternative	Preferred
5.8.6.4	CDMS level 3b	PACS STBY SPIRE STBY HIFI STBY	N	0-23		alternative	Preferred
5.8.6.5	ACMS level 4	PACS Prime->OFF SPIRE STBY->OFF HIFI STBY->OFF	N	0-23		alternative	Preferred
5.8.6.6	ACMS recovery from Survival Mode (ACMS SASM to SAM)	OFF	N	0-23		alternative	Preferred
5.8.6.7	CDMS level 4	PACS Prime->OFF SPIRE STBY->OFF HIFI STBY->OFF	N	0-23		alternative	Preferred
5.8.6.8	Test end	OFF	N	0-23		alternative	Preferred
5.8.12	**NOM mode robustness**						
5.8.12.3.1	Initial State	PACS STBY SPIRE Photo HIFI STBY	N	0-23		alternative	Preferred
5.8.12.3.2	CDMS PM 1553 BC failure simulation	PACS STBY SPIRE Photo- >STBY	N	0-23		alternative	Preferred
5.8.12.3.3	CDMS PM 1553 BC failure recovery	PACS Photo SPIRE STBY HIFI STBY	N	0-23		alternative	Preferred
5.8.12.3.4	Initial state second test	PACS Photo SPIRE STBY HIFI STBY	N	0-23		alternative	Preferred
5.8.12.3.5	ACMS 1553 RT failure simulation	PACS Photo - >STBY SPIRE STBY	N	0-23		alternative	Preferred
5.8.12.3.6	ACMS 1553 RT failure recovery	PACS STBY->OFF SPIRE STBY->OFF HIFI STBY->OFF	N	0-23		alternative	Preferred
5.8.13	**Test of Instrument FDIR OBCP**						
5.8.13.4	SPIRE FDIR OBCP	SPIRE	N	0-23		alternative	Preferred
5.8.13.5	PACS FDIR OBCP	PACS	N	0-23		alternative	Preferred
5.8.13.6	HIFI FDIR OBCP	HIFI	N	0-23		alternative	Preferred
5.9	**DEGRADED CASES**						
5.9.1	S/C ability to be operated in degraded modes					alternative	Preferred

IST 1 Part 3 He II only

Chapter of IST Spec Issue 4		Instr. Mode	Real Battery required	Satellite X-Axis tilting	Ambient or cool down (deviating from IST Spec !!!)	He I HTT venting >20mg/sec	He II HTT venting >20mg/sec
5.8.3	**Satellite Commissioning**						
5.8.3.8	CCU (cryostat) commissioning	OFF	N	23			Required
5.8.4	**Instruments commissioning and performance verification**						
5.8.4.3	Test start (restart) configuration	OFF	N	23			Required
5.8.4.4							Required
5.8.4.5	SPIRE commissioning test	Spire	N	23 -> 90			Required
5.8.4.6	PACS commissioning test	PACS	N	23			Required
5.8.4.7	HIFI commissioning test	HIFI	N	0-23			Required
5.8.4.8	SPIRE and PACS parallel mode	SPIRE/PACS	N	23			Required
5.8.4.9	Test end or interruption	OFF	N				Required
5.8.7	**CDMS management**						
5.8.7.2.1	General Sequence (Integration with RMS DTCP number 2)	PACS Prime STBY -> Burst -> X SPIRE STBY HIFI STBY	N	0-23		alternatively if MTL is compatible with instrument operations	Preferred
5.8.7.2.2	MTL management	PACS Prime STBY -> Burst -> X SPIRE STBY HIFI STBY	N	0-23		alternatively if MTL is compatible with instrument operations	Preferred
5.8.7.2.3	OBCP management	PACS Prime STBY -> Burst -> X SPIRE STBY HIFI STBY	N	0-23		alternatively if MTL is compatible with instrument operations	Preferred
5.8.7.2.4	SSMM management	PACS Prime STBY -> Burst -> X SPIRE STBY HIFI STBY	N	0-23		alternatively if MTL is compatible with instrument operations	Preferred
5.8.7.2.5	FDIR level 1 & 2	PACS Prime STBY -> Burst -> X SPIRE STBY HIFI STBY	N	0-23		alternatively if MTL is compatible with instrument operations	Preferred
5.8.7.2.6	OBT management	PACS Prime STBY -> Burst -> X SPIRE STBY HIFI STBY	N	0-23		alternatively if MTL is compatible with instrument operations	Preferred
5.8.8	**DTCP worst case scenario**						
		PACS (Burst) SPIRE STBY HIFI Prime	N	0-23		*TBC*	Preferred
5.8.9	**REFERENCE Mission Scenario**						
5.8.9.2	Test start configuration		Y				Required
5.8.9.3	Test steps		Y				Required
5.8.9.4	HIFI OD	HIFI OD	Y	0-23			Required
5.8.9.5	PACS OD	PACS OD	Y	0-23			Required
5.8.9.6	SPIRE OD	SPIRE OD	Y	0-23			Required
5.8.9.7	Test end		Y				Required

Table 3: S/C conditions for each IST test sequence

5.3 General Precautions and Safety

5.3.1 General Safety Requirements, Precautions

Special condition and hazards

The following Operational restrictions shall be carefully taken into account:

1. Before any test article modification the relevant power sources shall be switched OFF
2. Protective caps shall be installed on each harness or unit connector when these are not linked to their equipment
3. All the test data shall be recorded
4. Before starting the test sequence, care must be taken in verifying that all hardware links are correctly connected.
5. to avoid possible damages, no signal shall be applied in no powered units, except where otherwise specified
6. During testing the step by step procedure shall be followed. Changes will be possible and will be managed by a Procedure Variation Sheet approved by the AIV and PA.
7. In case of any failure, the activities shall be stopped until troubleshooting plan is generated and approve d.
8. In case of non-conformance, the procedure addressed in [AD 2.1.2.b] shall be applied.
9. The time of usage (ON/OFF cycles and ON duration) of each limited life equipment (FPGAs', etc?) shall be noted and recorded by the QA.
10. No stimulus has to be applied to any CRS switched-OFF
11. The EPC cannot be switched-ON for more than 5 minutes without any TWT turned-ON.
12. Care must be exercised when working around the S/C; in particular, if real IMU(s) or CRS rate sensors are involved, which may register any mechanical vibration affecting the responses of the ACC and/or invalidating the overall test results.
13. In case of AC failure, when the AC power will be again available, preliminary checks will be performed to verify that no damage has be caused to EGSE, SLE and S/L. The test conductor can decide to restart or to continue the test depending on the point where the failure happened.
14. Considering the SVM NCR affecting the XPND FM4, the transponder will be continuously flushed with Nitrogen during the tests.
15. Due to the use of liquid Helium during the Herschel mechanical test campaign, particular safety precautions need to be taken. The cryostat operations which require handling of liquid Helium are described in a dedicated procedure.
16. It shall be ensured that, for the beginning of each IST_START, the BDR's have been switched offi in order that skin plug reconfiguration can be carried out safely in presence of the flight battery. Note : During IST End the power down sequence, commands to turn the BDR's off (to isolate the battery)are issued via the CDMU. If it is suspected for any reason the battery has not been isolated by

switching the BDR's off then the stand alone procedure "BDR Isolation" from HP-2-ASED-TP-0215 shall be executed, startup from the power down state.

17. The maximum continuous battery discharge limit of 36 A shall be respected at all times.

5.3.1.1 Instrument specific safety requirements and precautions

HIFI

LOU being at ambient temperature, IMT objectives on HIFI will be limited. Specifically, the LO power should be limited and higher frequency channel should not used (IID-B). The bias range to the mixers and electromagnets should also be restricted

PACS

Whenever PACS FPU is at HEII conditions:

Prior to any PACS instrument switch-on within this procedure, the FDIR mechanisms as described in "PACS Failure Detection Isolation and Recovery"(PACS-ME-GP-002, Issue 1.2) must be in place and have to be up and running on the CDMU. This shall remain activate during all modes of the PACS instrument, except the off mode.

5.3.2 ESD constraints

- The spacecraft must be grounded
- All connectors have to be covered with ESD dust caps when not mated
- All AIT personnel have to wear antistatic shoes and clothes
- The clean room floor around and under the item under test shall be covered with an antistatic carpet, which is grounded to facility ground.

5.3.3 Grounding Configuration

A distributed single point grounding (DSPG) approach is used between the facility GSE and the satellite for electrical integration and performance tests.

Instrument signal ground isolation to the EGSE data processing electronics will be
ensured.

5.3.4 Test Equipment Calibration and Performances

All equipment used for test activities shall be within their normal calibration period performed and certified either by the Facility or equipment supplier. Certification and calibration labels shall be available for inspections before activity start. Calibration shall be performed by/with qualified personnel/procedures under PA/QA supervision and approval. All the instrumentation to be used for the test shall follow the relevant PA rules.

Item Name	Item Type	Serial Number	Calibration Status

5.3.5 Special QA Requirements

The QA/PA representative shall be present during all test activities.
All documentation shall be inspected and approved before start and end of each test activity. The responsible PA engineer shall ensure that all 'as run' procedures have all the relevant information correctly recorded.

5.4 GSE

Test Equipment List					
Item	Manuf.	Model No.	SN No.	Invent No.	Next Calib.

5.4.1 MGSE

No additional mechanical GSE is required to perform the test described in this test procedure.

5.4.2 CVSE

The set-up of the CVSE will be performed according to HP-2-ASED-0095

Helium operations will be performed according

The cool down and filling procedure: HP-2-ASED-PR-0082 for Helium I

The Helium II top-up procedure: HP-2-ASED-TP-0083 for Helium II

The cover cooling procedure: HP-2-ASED-PR-0048 for special instrument stimulation

A list of the CVSE hardware which might be used is given below.

Qty.	Designation/Manufacturer	Provided by	Drawing/Ident. NR:	Calibr. Date
2	LHe Service Vacuum Pumping Unit I	BOCE	CI No. 142 310-01	
2	LHe Service Vacuum Pumping Unit II	BOCE	CI No. 142 310-02	
1	Main High Vacuum Pumping Unit	BOCE	CI No. 142 310-03	
1	Mobile High Vacuum Pumping Unit	BOCE	CI No. 142 310-03	
3	Molecular Turbo pumps	BOCE	CI No. 142 310-03	
1	Laboratory Vacuum Pump in safety unit	BOCE	CI No. 142 310-04	
1	Laboratory Vacuum Pump in scaffolding	BOCE	CI No. 142 310-04	
1	Laboratory Vacuum Pump in scaffolding (Ex proof.)	BOCE	CI No. 142 310-05	
2	CVSE Monitoring Rack	BOCE	CI No. 142 310-06	
2	Leak Detector Spectron 5000	BOCE	CI No. 142 310-07	
3	He I transfer lines (Y0211/Y0221/Y0231)	DeMaCo	CI No. 142 310-08	
3	He II transfer lines (Y0201-1, -2, -3)	De MaCo	CI No. 142 310-08	
2	Dewar to dewar transfer lines (Y0241 - Y0242)	De MaCo	CI No. 142 310-08	
1	Cover flushing line inlet (L1 + L2, separable)	AAE	CI No. 155 210	
1	Cover flushing line outlet (L3 + L4, separable)	AAE	CI No. 155 210	
1	Heater unit for cover inlet line	DeMaCo		
3	Venting line (Y0601/Y0602/Y0601-3)	DeMaCo	CI No. 142 310-09	
2	Pumping lines (Y0611-1 / Y0611-2)	DeMaCo	CI No. 142 310-09	
Set	Bake out lines (Y0633)	ASED	CI No. 142 310-09	
Set	HiVac Pumping lines (Y0673)	ASED	CI No. 142 310-09	

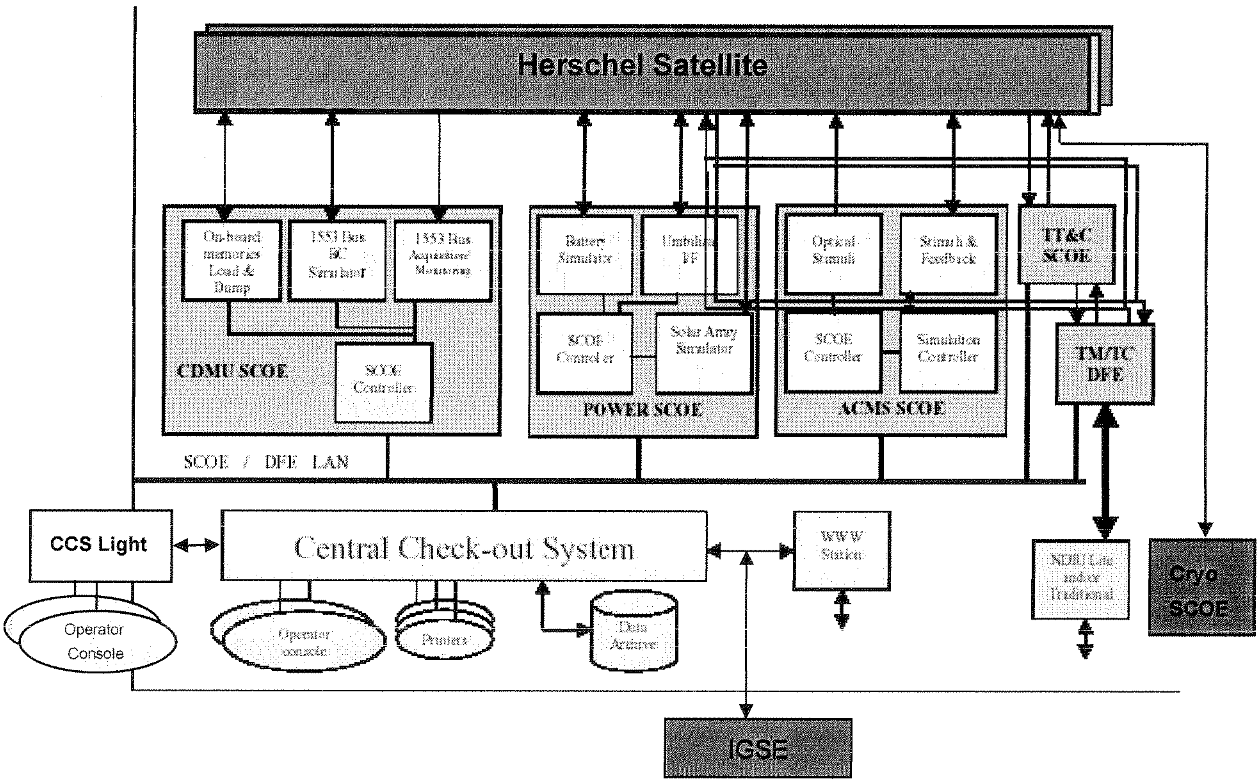
Qty.	Designation/Manufacturer	Provided by	Drawing/Ident. NR:	Calibr. Date
Set	Helium I lines (Y0612)	ASED	CI No. 142 310-09	
Set	Helium II Pumping lines (Y0602)	ASED	CI No. 142 310-09	
2	Scaffolding for He lines	ASED	CI No. 142 310-10	
10	450 l LHe Dewars type HDS 450 -EIPS	Linde		
1	Spiro pump DryTel 1025	ASED		
2	Liquid level sensor	ASED		
2	Helium depth indicator	ASED		
3	Pressure indicator (Keller)	ASED		
1	Laminar flow meter (0-10 mg/s / 0-70 mg/s)	ASED		
1	Standard flow meter (0-5 g/s)	ASED		
2	Gas flow counter	ASED		
Set	Vacuum houses	ASED		
Set	Miscellaneous vacuum seals	ASED		
Set	Vacuum parts	ASED		
Set	Special tools	ASED		
1	Scale	ASED		
1	Pressure Control unit (0-1500 mbar, Ziegler)	ASED		
Set	Plastic pipes (Diameter 20-40 mm, different length)	ASED		
1	HEXA He heating unit	CryoVac	S-21-7021	
Set	Stands	ASED		
Set	Trip tray	ASED		
Set	Special adapters	ASED		
1	Gate valve DN160	ASED		
1	He II bypass valve	ASED		

5.4.3 EGSE

5.4.3.1 EGSE Hardware Configuration

The EGSE configuration, when completed, is shown in the figure below

S/S	Unit	Configuration			SCOE simulated equipments	Remarks
		Herschel				
EGSE	CCS	1				
	CCS Light	1				
	TM/TC DFE	1				
	CDMU SCOE	1				
	ACMS SCOE	1				
	TT&C SCOE	1				
	POWER SCOE	1				
	Cryo SCOE					
	NDIU					



The Herschel/ EGSE will be built with the following equipment:

- Central Check Out System (CCS)

- Central Check Out System Light (CCS Lite)
- The Power Control Subsystem SCOE (Power SCOE)
- The Telemetry, Tracking and Command SCOE (TT&C SCOE)
- The Telemetry and Telecommand Data Front End Equipment (TM/TC DFE)
- The Attitude and Control Measurement Subsystem SCOE (ACMS SCOE)
- The Central Data Management Unit SCOE (CDMU SCOE)
- The Cryo SCOE which performs four general tasks
    - Control and monitoring the Cryostat Instrumentation either directly by the Cryo SCOE, i.e. locally or initiated by the CCS, i.e. remotely.
    - Substitution of the real CCU if the CCU is not available
    - Monitoring of several parameters of the Cryo Vacuum Support Equipment (CVSE).
    - Simulate the launcher interface by providing “dry loop commands” to be sent to the CCU.

All the above items are interconnected through an Ethernet Local Area Network (LAN) used to exchange both data and command & control information.

The CCS Lite will be used and configured in order to have a hot TM/TC backup in case of main CCS crashes.

The NDIU will be configured to put ESOC in listening mode.

5.4.3.2 EGSE User Software

Most of the Test Software will be developed on the CCS, based on SCOS 2k, and will interface the HPSDB. It will consists mainly of:

- Test Sequences
- Synoptic Displays
- Data Evaluation and Test Analysis Software
- Simulation Software Master sequences (mainly for ACMS S/S).

On the contrary, on the SCOE's/DFE only a very peculiar type of software will be developed; it will mainly consist of:

- Configuration/set-up files for SCOE's/DFE instrumentation
- Sequence of commands
- Simulation files for Dynamic control and ACMS Sensors simulation
- Telemetry Simulation file for Missing Unit (Experiments).

A complete list of EGSE SW version (particularly CCS and HPSDB) shall be provided before start of test and attached to this procedure.

Step-No.	IST_END-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
12. Only if Survival Register set with separated flag	**Z010999MCVT004_IST_END** At the prompt "The survival register is set with the launch flag "separated". It must be set to "not separated" to avoid any reconfiguration during power off" ⇨ Click the button "Yes" to proceed					✓	
13. Only if Survival Register set with separated flag	**D102159SCVT175_SET_SURV_REG** ⇨ Click the button "End TS!" to proceed					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S.Essex	R.Goossens	30/7/08	23:54

Step-No.	IST_END-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
14. Only if CROME wrongly set	**Z010999MCVT004_IST_END** Reply to the prompt "The CROME registers are not configured " "in PMA or PMB nominal " "Such configuration will block TM during Power OFF" ⇨ Click the button "YES" to proceed				N/A		
15. Only if CROME wrongly set	**D102159SCVT176_WRITE_CROME** ⇨ Click the button "End TS!" to proceed				N/A		
16. Only if SSMM is ON	**D102159SCVT188_IST_DUMP_PKT_STORE** ⇨ Click the button "End TS!" to proceed					✓	
17. Only if SSMM is ON	**D102159SCVT181_Disable_PKT_STORE** ⇨ Click the button "End TS!" to proceed					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Asley	R. Goossens	31/7/08	00:26

Step-No.	IST_END-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
18. Only if SSMM is ON	**D102159SCVT187_IST_SSMM_OFF** During this sequence, the following events are expected: • TM(5,2) EvtId: 84 PM COCOS SPW C Reconnection • TM(5,4) EvtId: 88 MM A COCOS RT Failure • TM(5,4) EvtId: 148 MM SPW C address transfer error • TM(5,2) EvtId: 85 PM COCOS SPW C Reconnection • TM(5,4) EvtId: 89 MM A COCOS RT Failure • TM(5,4) EvtId: 149 MM SPW C address transfer error ⇨ Click the button "End TS!" to proceed					✓	
19. Not for Launch Cases	**D102159SCVT001PM_SELECT** ⇨ Click the button "End TS!" to proceed					✓	
20.	**Z010999MCVT002_POWER_OFF_HER_IST** ⇨ Click the button "End TS!" to proceed					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Eslen	R. Goossens	31/7/08	00:42

Step-No.	IST_END-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
21 Only if TTC-SCOE is still ON	**Y102989ETVT020_TTC_SCOE_OFF** ⇨ Click the button "End TS!" to proceed				N/A		
21.	**Z010999MCVT004_IST_END** ⇨ Click the button "End TS!" to proceed					✓	
22.	**IST_GUI** ⇨ Click the button "Quit" to terminate the test sequence					✓	
23.	**Update CVS Tag** 1. Log on as herdb 2. Open a **shell** (xterm) 3. Execute the command **update_tag** Insert the name of **TAG →** **IST_x_PART_x_TP_xxxx_x_x_END_xxx**						

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Gasca	R. Goossens	31/7/08	00:43

7.4.1 ACMS SCM to OCM transition for power off

Step-No.	IST_END-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
24.	**A102109SPVT003_ACMS_CONFIG25** At the prompt "Enter your choice", insert **"2"** to select **"Transition SCM to OCM"** ⇨ Click the button "OK" to proceed, then "Continue"	2				✓	
25.	**A102109SPVT003_ACMS_CONFIG25** At the prompt Menu 7 "Enter your choice", insert **"5"** to select **"Reaction wheels spin down"** Click the button "OK" to proceed, then "Continue"	5			N/A		
26.	**A102109SPVT003_ACMS_CONFIG25** At the prompt Menu 9 "Enter your choice", insert **"1"** to select **"Switch off ACMS"** Click the button "OK" to proceed, then "Continue"	1			N/A		

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Gasc[illegible]	R. Goossens	25/7/08	23:37

Step-No.	IST_END-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
27.	**A102109SPVT012_ACMS_OFF** During this sequence, following event are expected to occur: • TM(5,4) EvtId:16426 Mode SBSM Entry • Event Report - Boot Report and Reconfiguration Log • Event Report - SDB Unhealthy • TM(5,2) EvtID: 33 Event Report - ACB Rx Failed • TM(5,2) EvtID: 33 Event Report - ACB Rx Failed • Multiple "New Tm 251004939" • Multiple "New Tm 251001939" • Multiple "New Tm 251002939" • Multiple TM(5,1) such as "FDir Task Overrun", etc...						
28.	**A102109SPVT003_ACMS_CONFIG25** At the prompt "Enter your choice", insert **"99"** to select **"Terminate ACMS_CONFIG25"** Click the button "OK" to proceed, then "Confirm" and continue in parallel with the next step.	99					

Test location:	Operator	Product-Assurance:	Date:	Time
				:

Step-No.	IST_END-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
29.	A102109SPVT017_ACMS_CRS_BACKGROUND ⇨ Terminate the sequence.						

Test location:	Operator	Product-Assurance:	Date: Time :

8 Summary Sheets

8.1 Procedure Variation Summary

	Test Change		Curr. No.: Date Page of	
Test designation		Test Procedure	Issue	Rev.
Test step changed		Reason for Change		
Prepared by:	Resp. Test Leader		Project Engineer	
PA/QA	Prime		Customer	

Table 8.1-1: Procedure Variation Sheet

8.2 Non Conformance Report (NCR) and SPR Summary

The status of all NCRs/SPRs generated during the test shall be given in the table below:

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

Table 8.2-2: NCR/SPR Record Sheet

8.3 Sign-off Sheet

To finalise the test campaign, all responsible personnel shall sign off the filled-in procedure in the following table:

	Date	Signature
Test Director		
Test Conductor		
PA Responsible		

Annex B: Script Hierarchy

============ IST START ================

```
>Z010999MCVT001_POWER_ON_HER_IST $PM $tcDec $batScoe
 |-----> Y102989EPVT007_IST_PWR_SCOE_ON $configBS
 |-----|-----> Z010999MMXX002UNITS_CHECK
 |-----> async referby timeSynchronisation D102159SCVT032TIMESYNCRO
 |-----> D102159SCVT210_GET_ALARM_STATUS
 |-----> D102159SCVT210_GET_ALARM_STATUS
 |-----> W102584EPVT007_IST_CHECK_PCDU
 |-----> Z010999MMXX002UNITS_CHECK
 |-----> R102479ECVT009_UNITS_SELECTION
> Z010999MCVT001_POWER_ON_HER_IST $PM $tcDec $batScoe
 |-----> Y102989EPVT007_IST_PWR_SCOE_ON $configBS
 |-----|-----> Z010999MMXX002UNITS_CHECK
 |-----> async referby timeSynchronisation D102159SCVT032TIMESYNCRO
 |-----> D102159SCVT210_GET_ALARM_STATUS
 |-----> D102159SCVT210_GET_ALARM_STATUS
 |-----> W102584EPVT007_IST_CHECK_PCDU
 |-----> Z010999MMXX002UNITS_CHECK
 |-----> R102479ECVT009_UNITS_SELECTION
> D102159SCVT210_GET_ALARM_STATUS
> D102159SCVT176_WRITE_CROME $papCcs 1
> D102159SCVT174_IST_REDUNDANT_CONF $bus $pcduTmTc $hps $txChain $rfdn $tmObt
$tmRate
 |-----> D102159SCVT104_ENCODER_SELECT $tmObt $tm_Enc_Config
> async referby istStartSSMM Z010999MCVT005_IST_START_SSMM $ssmm]
> K102999ECVT001_ASDGENCCU_ABPWRON
 |-----> K102999ECVT001_ASDGENCCU_MnDisDLC
 |-----> K102999ECVT001_ASDGENCCUA_POWERON
 |-----|-----> Z010999MMXX002UNITS_CHECK
 |-----> K102999ECVT001_ASDGENCCUA_ChkEssTM
 |-----> K102999ECVT001_ASDGENCCUB_POWERON
 |-----|-----> Z010999MMXX002UNITS_CHECK
 |-----> K102999ECVT001_ASDGENCCUB_ChkEssTM
> K102999ECVT001_ASDGENCCU_MnEBOTH2
> K102999ECVT001_ASDGENCCU_MnEBOTH1
> K102999ECVT001_ASDGENCCUA_POWERON
 |-----> Z010999MMXX002UNITS_CHECK
> K102999ECVT001_ASDGENCCUA_MnEnaMd2
> K102999ECVT001_ASDGENCCUA_MnEnaMd1
> K102999ECVT001_ASDGENCCUB_POWERON
 |-----> Z010999MMXX002UNITS_CHECK
> K102999ECVT001_ASDGENCCUB_MnEnaMd2
> K102999ECVT001_ASDGENCCUB_MnEnaMd1
> Z010999MCVT153_IST_STATUS 5.8.2.4.2
 |-----> ACMS_get_RM_status RMA
 |-----> ACMS_get_RM_status RMB
> async A102109SPVT003_ACMS_CONFIG25
|-----> A102109SPVT004_ACMS_LOADCONFIG1
|-----> A102109SPVT010_ACMS_SCOE_CONFIG1
|-----|-----> async A102109SPVT017_ACMS_CRS_BACKGROUND
|-----> A102109SPVT011_ACMS_ON
|-----|-----> Z010999MMXX002UNITS_CHECK
|-----|-----> ACMS_get_RM_status RMA
```

```
|-----|-----> ACMS_get_RM_status RMB
|-----> A102109SPVT021_ACMS_ACC_SEPARA
> D102159SCVT032EnNomTCSLoops ist_herschel_tcs_config
> D102159SCVT115_CHECK_HCS_OFF
> D102159SCVT192_IST_UPLOAD_EAT
 |-----> D102159SCVT192_GET_EAT_REPORT
 |-----> D102159SCVT192_GET_EAT_REPORT 1
> D102159SCVT175_SET_SURV_REG $busSM $pcduSM $rfdnSM $txChainSM $ttrSM $sepStsSM
> D102159SCVT219_GET_BSW_HEALTH_UIU 1
> D102159SCVT204_GET_MOT 1
> D102159SCVT192_GET_EAT_REPORT 1
> D102159SCVT205_SAT_COM_TCT 1
> D102159SCVT207_SAT_COM_FCCT 1
> D102159SCVT188_IST_DUMP_PKT_STORE 0 80 1 81 2 82 3 83
> async referby celDownlink D102159SCVT188_IST_DUMP_PKT_STORE CEL_A CEL_B


============  IST END ================

 > $swOFFsequence
 > A102109SPVT061_RWL_SPINDOWN
 > async referby acmsOff A102109SPVT012_ACMS_OFF
 > Z102999SCVT002_SREM_OFF
 > D102159SCVT174_IST_REDUNDANT_CONF A A 0 0  0 0 0
 |-----> D102159SCVT104_ENCODER_SELECT $tmObt $tm_Enc_Config
 > D102159SCVT175_SET_SURV_REG B B ABBB B B not
 > D102159SCVT176_WRITE_CROME AB 1
 > D102159SCVT181_DISABLE_PKT_STORE
 > D102159SCVT187_IST_SSMM_OFF
 > Y102989ETVT020_TTC_SCOE_OFF
 |-----> Y102989ECVT018_TTC_TC_OP_METHOD OFFLINE
 |-----|-----> Y102989ETVT017_TTC_CHECK_ROUTINE
 |-----|-----> Y102989ETVT019_TTC_SCOE_ACTIVITY
 > W102584SPVT101_PCDU_TRANSITION_FDIR 5
 > Z010999MCVT002_POWER_OFF
 |-----> D102159SCVT028SSMM_OFF
 |-----> D102159SCVT001PM_SELECT B
 |-----|-----> D102159SCVT003DISTHERMALCONTROL
 |-----|-----> Z010999MMXX002UNITS_CHECK
 |-----> D102159SCVT001PM_SELECT A
 |-----|-----> D102159SCVT003DISTHERMALCONTROL
 |-----|-----> Z010999MMXX002UNITS_CHECK
 |-----> R102479SMXX001_XPND_HUM_TXT
 |-----> Y102989EPVT002_PWR_SCOE_OFF
 |-----|-----> Z010999MMXX003UNITS_CHECK_PWR_OFF
 |-----|-----> Z010999MMXX003UNITS_CHECK_PWR_OFF
 |-----|-----> Z010999MMXX003UNITS_CHECK_PWR_OFF
 |-----> Z010999MMXX003UNITS_CHECK_PWR_OFF
```

Annex C: Session Record

Test Description	
Session ID	
Start Time:	
End Time	
CVS Tag for Test	
Applicable IST Specification	
Test conductor	
QA Approval	

Test Description	
Session ID	
Start Time:	
End Time	
CVS Tag for Test	
Applicable IST Specification	
Test conductor	
QA Approval	

Test Description	
Session ID	
Start Time:	
End Time	
CVS Tag for Test	
Applicable IST Specification	
Test conductor	
QA Approval	

Annex D: Operation Notes

Operation Note 3

Title: ACMS SCOE does not boot	Date: 06/02/08
Observation: The ACMS SCOE does not boot. Reason: One of the STR UCE (Unit Checkout Equipment) electrical stimuli programs hangs.	
Operator Action: Until NCR / SPR is solved the following workaround is proposed (by Martijn): During powering the Power SCOE in the cleanroom: 1) Go to the STR UCE (in cleanroom) and select electrica stimuli PC on the KVM switch, press 2 time 'scroll lock' and select PC#2. 2) Kill the running application, by pressing the cross in the upper right corner. 3) Start the UCE application by double clicking the icon 'SMI', an application 'Star Mapper Analogue Chain Simulation' should start up. 4) Press 2 time 'scroll lock' and select PC#3 and repeat step 3.	

Operation Note 8

Title: DOD Alarm	Date: 14/02/08

Observation:

During each Power on within the "IST_START" there is a check of the DOD flag. Directly after the "D102159SVT32TIMESYNCRO" the dump of the RM LOG and the DOD Flag check is performed by the "D102159SCVT210_Get_ALARM_STATUS".

If the DOD alarm is present it has to be reset , otherwise the S/C will enter Save Mode directly after separation.

Operator Action:

For resetting the DOD alarm decrease the Vbat under the DoD threshold and then increasing the Vbat upper the DoD threshold therefore perform the following steps:
Open a shell window -> startCMD bsvnc
On the window "H-P BS SCOE" switch to local
On the window "BS SCOE Config" change the Battery Voltage from 25,4 to 19
The push the button save&update
On the window "BS SCOE Config" change the Battery Voltage from 19 to 25,4
The push the button save&update
On the window "H-P BS SCOE" switch to remote

Execute the script: D102159SCVT210_Get_ALARM_STATUS
to dump the RM Log to check DOD Flag Check if DOD alarm is still present

Operation Note 11

Title: Failure in TM Check of CCU Valves	Date: 14/02/08

Observation:

If CCU Valves sensing lines are connected to CRYO SCOE instead of CCU the valves status check fails at CCU Power ON

Operator Action:

1) On Test conductor Console, perform “connect PFM_CRYO”

2) Thanks Telemetry Query Display (TQD) check following TMs
   - YM648958 (VLV_STATUS_V103) instead of KM269302 = “CLOSED”
   - YM649958 (VLV_STATUS_V106) instead of KM269303 = “CLOSED”
   - YM640958 (VLV_STATUS_V501) instead of KM270302 = “CLOSED”
   - YM641958 (VLV_STATUS_V503) instead of KM270303 = “CLOSED”
   - YM643 958 (VLV_STATUS_V505) instead of KM271303 = “OPEN”

3) On Test conductor Console, perform “disconnect PFM_CRYO”

Annex E: CCS Time Adjustment Notes

To Adjust time to be TIME IN FUTURE.

Step No.	EGSE item	User / Psw	File	Action
Important note N.1 Before starting with time setting verify that – on all EGSE equipments – all the real time applications are terminated.				
Important note N.2 In case it would be required to run the EGSE in future time for a period longer than 1/2 days, it has to be kept into account that the MTP internal clock – if not synchronized with some external reference time source – is drifting. This drift can have serious impacts if ESOC is in the loop. ESOC machines are quite sensitive respect to synchronization and timing business and they experience big problems if the EGSE time goes in the future of more than 1 sec. respect to their own time: one of the side effects is that TM is received "before" the relevant TC are sent. In order to avoid this problem the EGSE and ESOC time must be perfectly aligned and MTP drift adjusted at least once a day.				
Important note N.3 If during the following steps, an error message is displayed " CPU overload error …..". this message can be ignored. Select **OK** to continue.				

Step No.	EGSE item	User / Psw	File	Action
Step 1	HPWS27 (in cleanroom)	Login User: root Password: changeME Logout Reboot the workstation.		Check the synchronization with NDIU and if CCS is not synchnized, execute the following command to set the time: ***ssh root@hp2-s*** *(pwd:* ***changeME****)* ***date monthdayhourminute.second*** Check on MTP screen that the date/time have been updated as required typing the command: ***date***
Step 2	Wait for at least 2 minutes before preceding			
Step 3	Any WS	Login User: heregse Password: hertest Logout		From whichever workstation execute the command: ***startCMD syncWs***
Step 4	Reboot all of the CSS workstations (don't forget the workstations in the IEGSE areas).			
NOTE: Time updating on DS is not mandatory; relevant steps could also be skipped.				

Step No.	EGSE item	User / Psw	File	Action
NOTE: Before executing the above mentioned operation on the BS SCOE it is better to check if the whole CCS restart is completed by at least a 4/5 minutes of minutes. In order to be sure of this, it can be useful to issue the following command: ***ntpq –p*** and check that the value shown in column "reach" is > 17.				
Step 5	BS SCOE	Open shell User: su Password: HPP_ad Exit shell		From a terminal execute the command: ***/etc/init.d/xntpd restart***
Step 6	SAS/LPS SCOE	Open shell User: su Password: HPP_ad Exit shell		From a terminal execute the command: ***/etc/init.d/xntpd restart***
Step 7	TT&C SCOE	Open shell User: su Password: HPTTC_ad Exit shell		From a terminal execute the command: ***/etc/init.d/xntpd restart***

Step No.	EGSE item	User / Psw	File	Action
Step 8	TMTC DFE Ws	User: H-P_User Password: H-P		Use "**AboutTime**" program (select the **Globe Icon** in the bottom right of screen) to synchronize the DFE with CCS time: in "Control/Time Client" tab click on "**Set Time**" button one or two times to reduce up to few milliseconds the difference between MTP and DFE time. In Option remove the option "**Set time**" and push **Apply**.
Step 9	TMTC DFE Platform	User: H-P_User Password: H-P		Remotely connect to TM/TC Platform (address 192.168.90.2) Use "**AboutTime**" program (globe Icon) to synchronize the Platform as already done for the TMTC DFE WS
Step 10	CDMU SCOE Ws	User: H-P_User Password: H-P		Same as per TMTC DFE
Step 11	CDMU SCOE Platform	User: H-P_User Password: H-P		Same as per TMTC DFE (address 192.168.90.32)

Step No.	EGSE item	User / Psw	File	Action
Step 12	ACMS asim	Login User: root Password: hpscoe Logout		In shell window, type in : **cd /etc/init.d/** and press **Enter** In shell window, type in : ***./ntpd restart*** and press **Enter**
Further checks to be done before starting a Real Time session				
Step 13	On any WS	Login User: heregse Password: hertest Logout		At least on the WS where the Real time session will be started, check the time is set to the desired value typing: ***chronyc sources –v*** In case the synchronization is not as expected type again: ***startCMD syncWs***

To Adjust time back to the PRESENT TIME.

Step no	EGSE item	User / Psw	File	Action
Important note: before starting with time setting verify that – on all EGSE equipments – all the real time applications are terminated.				
Step 1	HPx-S (MTP) (in checkout)	Login User: root Password: changeME Logout		Execute the following command to set the UTC time: ***date monthdayhourminute.second*** Check on MTP screen that the date/time have been updated as required typing the command: ***date***
Step 2	Wait for at least 2 minutes before preceding			
Step 3	Any WS	Login User: heregse Password: hertest Logout		From whichever workstation execute the command: ***startCMD syncWs***
Step 4	Reboot all of the CSS workstations (don't forget the workstations in the IEGSE areas).			

Step no	EGSE item	User / Psw	File	Action
NOTE: Time updating on DS is not mandatory; relevant steps could also be skipped.				
NOTE: Before executing the above mentioned operation on the BS SCOE it is better to check if the whole CCS restart is completed by at least a 4/5 minutes of minutes. In order to be sure of this, it can be useful to issue the following command: ***ntpq –p*** and check that the value shown in column "reach" is > 17.				
Step 5	BS SCOE	Open shell User: su Password: HPP_ad Exit shell		From a terminal execute the command: ***/etc/init.d/xntpd restart*** In the main application window, select: ***File*** > ***Exit*** Select to exit the application only Logout and reboot the platform. Restart the BS application from the desktop icon. When requested select **Herschel** and **Normal**. Select **OK** Enter **yes** to continue.

Step no	EGSE item	User / Psw	File	Action
Step 6	SAS/LPS SCOE	Open shell User: su Password: HPP_ad Exit shell		From a terminal execute the command: ***/etc/init.d/xntpd restart*** In the main application window, select: ***File > Exit*** Select to exit the application only Logout and reboot the platform. Restart the SAS application from the desktop icon. When requested select **Herschel** and **Normal**. Select **OK**

Step no	EGSE item	User / Psw	File	Action
Step 7	TT&C SCOE	Open shell User: su Password: HPTTC_ad Exit shell Login User: hpttc Password: HPTTC_us		From a terminal execute the command: ***/etc/init.d/xntpd restart*** In the main application window, select: ***File*** > ***Exit*** Select to exit the application only Logout and reboot the platform. Restart the TT&C application from the desktop icon **HPTTC main**.
Step 8	TM/TC DFE Ws	User: H-P_User Password: H-P		Use "**AboutTime**" program (select the **Globe Icon** in the bottom right of screen) to synchronize the DFE with CCS time: in "Control/Time Client" tab click on "Set Time" button one or two times to reduce up to few milliseconds the difference between MTP and DFE time. If required, select the option "Set time at 240" and push Apply.

Step no	EGSE item	User / Psw	File	Action
Step 9	TM/TC DFE Platform	User: H-P_User Password: H-P		Remotely connect to TM/TC Platform (address 192.168.90.2) Use "**AboutTime**" program (globe Icon) to synchronize the Platform as already done for the WS If required, select the option "Set time at 480'" and push Apply.
Step 10	CDMU SCOE Ws	User: H-P_User Password: H-P		Same as per TM/TC DFE.
Step 11	CDMU SCOE Platform	User: H-P_User Password: H-P		Same as per TM/TC DFE (address 192.168.90.32).
Step 12	ACMS asim	Login User: root Password: hpscoe	/etc//init.d/	In shell window, type in : **cd /etc/init.d/** and press **Enter** In shell window, type in : ***./ntpd restart*** and press **Enter** *Logout & reboot the SCOE controller*
Further checks to be done before starting a Real Time session				
Step 13	WS	User: heregse Password: hertest (or any other user)		At least on the WS where the Real time session will be started, check the time is set to the desired value typing: ***chronyc sources –v*** In case the synchronization is not as expected type again: ***startCMD syncWs***

END OF DOCUMENT

Insert actual distribution list

5.4.4 OGSE

No OGSE is required to carry out the test activities of the IST.

5.4.5 Special Equipment

5.4.5.1 Cooling device

The HIFI units when equipped with MLI (WEV, WEH, HRV, HRH) exceed their maximum operating temperature, WEV 35,5°C vs30°C, HRV 40,1°C vs 40°C, WEH 35,3°C vs 30°C, HRH 41,9°C vs 40°C.

Therefore the implementation of a cooling system for the two HIFI panels (forced convection directed in these areas) is mandatory.

All the units stay in their operating temperature range with comfortable margins, except:

- GYRO baseplate 63,5°C vs 55°C, due to use of flight thermal control parameters, covered by RFD HP-300000-AI-RD-0011 issue 03.
- CRS1 and CRS2 around 50°C, due to use of flight thermal control parameters, covered by RFD H-P-300000-AI-RD-0014 issue03.

6 Verification Requirements and Test Criteria

PASS/FAIL CRITERIA

At each test stage completion, the test success is determined comparing the results obtained against the expected values.

If the compliance between obtained and expected values has been met, and authorisation to proceed with the next stage of the test is given, then the actual test stage must be considered satisfactory completed.

The success of the overall testing activities is determined from the satisfactory completion of all test stages.

Successful criteria to be satisfied in each test stage shall be:

- Test conditions according to specification requirement;
- Complete verification of the requirement aspects according to the test specifications
- Fulfilment of test results with respect to required data;
- Verification that all the TM parameters used to monitor the SAT do not exceed the limit thresholds loaded in the HPSDB (OOL display);
- Verification that the TM (5,2), TM (5,4) and TM (1,8) received event reports are only those ones expected to fulfil the pass test criteria.

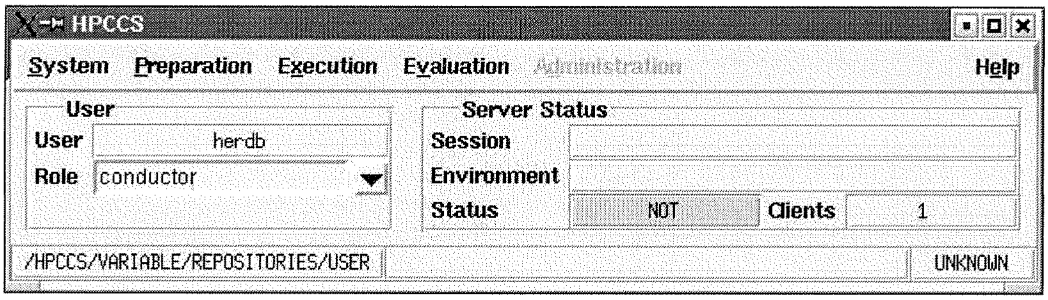
7 IST Test

7.1 HPCCS Configuration for IST Test

7.1.1 Apply Tag on test files

The **EGSE operator** has to perform the following steps **before starting IST test**:

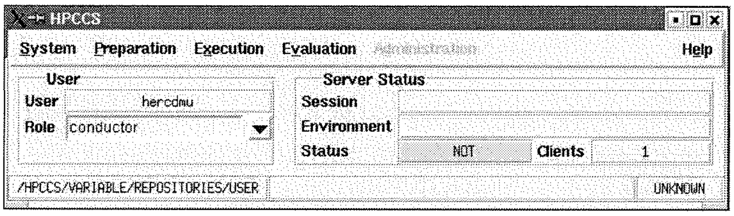
1. On a Workstation login as **herdb** (password **hertest**), being this user dedicated to DB operations for Herschel FM Checkout System, and open a shell (xterm).
2. Logged as herdb, run Startmmi and the following window will occur



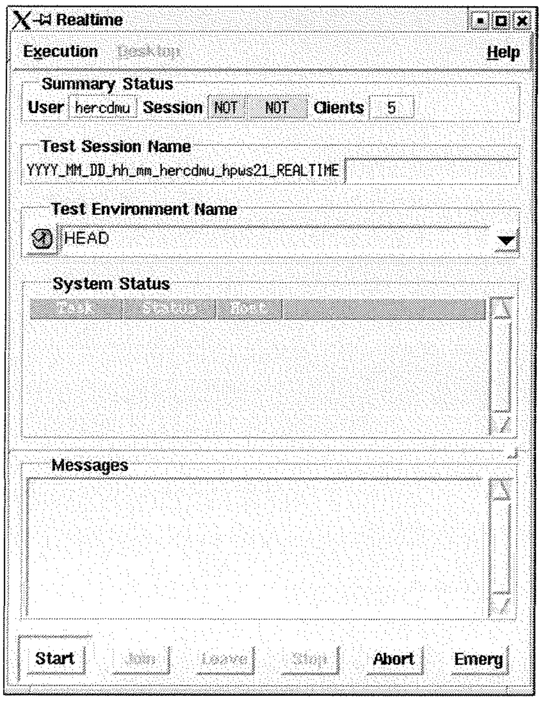
3. Logged as herdb, in HPCCS window, select menu "**Preparation → Prepare**"
4. Logged as herdb, In **PREP** window, select menu "**Preparation→ Discard all**"
5. Logged as herdb, In **Confirm Discard** window, click the button **Discard**
6. Logged as herdb, in **PREP** window, select menu "**Preparation→ Update**"
7. Logged as herdb, in **Check out environment** window, click the button **Check out** and then **Close**
8. Logged as herdb, in **PREP** window, select menu "**Tag → Apply**"
9. Logged as herdb, in the window **Apply Tag →New Tag,** insert TAG name
   Currently, TAG name for IST has the format:
   IST_x_PART_x_TP_xxxx_x_x_BEGIN_xxx
10. Logged as herdb, push **Apply → Apply**
11. Logged as herdb, confirm Tag Application Push Apply button
12. Logged as herdb, open a new **shell** window (xterm)
13. Logged as herdb, execute the command **update_tag**
14. Logged as herdb, insert the name of **TAG**
    IST_x_PART_x_TP_xxxx_x_x_BEGIN_xxx
15. Logged as herdb, in **PREP** window, select menu "**Tag → Apply**"
16. Logged as herdb, in **Apply tag** window, select in the list the TAG
    IST_x_PART_x_TP_xxxx_x_x_BEGIN_xxx
17. Logged as herdb, push **Copy selected tag**
18. Logged as herdb, modify the TAG name with **IST_x_PART_x_TP_xxxx_x_x_END_xxx**
19. Logged as herdb, push **Apply → Apply**
20. Logged as herdb, confirm Tag Application Push Apply button

7.1.2 Start test session on HPCCS

Logged as **hercdmu** or **heracms** run “startmmi”



On **HPCCS** window, select menu **“Execution → Start“** in order to open the following window. In the **“Test Session Name”** field, insert an abbreviation describing which IST test will be performed and click the button **“Start”** to proceed.



Once the real time session initialized, the button **“Join”** is enabled and shall be clicked. Then configure desktop of different CCS stations throught the menu “Desktop” and the following menus:

- Monitoring → Telemetry Desktop
- Monitoring → Telemetry Packet history
- Monitoring → Out of limit
- Monitoring → On Board Event History
- Test Sequences → Test Conductor Console
- Command → Telecommand History

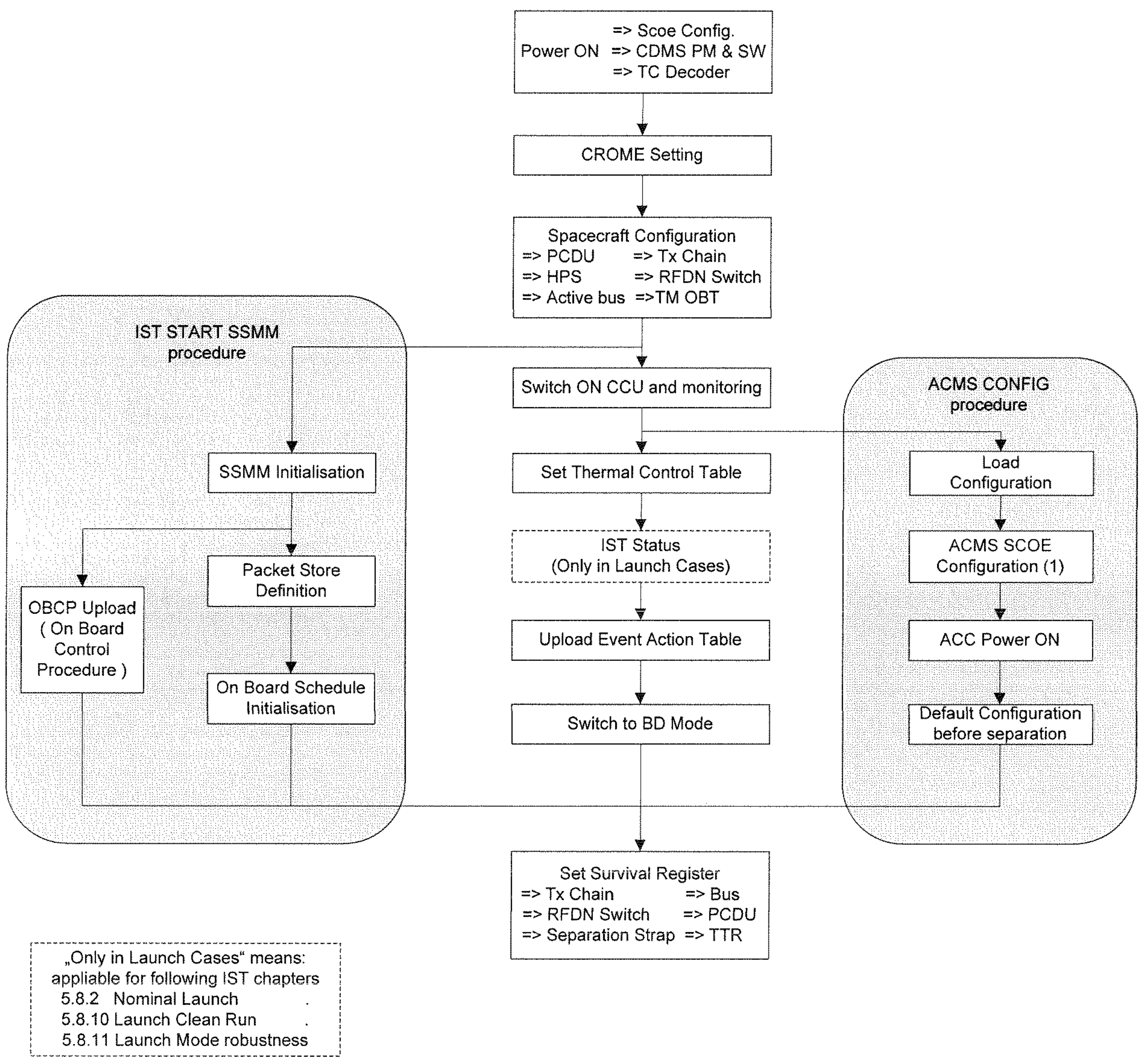
NOTE: A session must be started on the ‘CCS Lite’ with a similar session name.

7.2 IST START for Spacecraft configuration

7.2.1 Diagram Overview

The flow of the "IST START" sequence is depicted in the diagram below. To save time during the satellite power on, the SSMM initialising and the ACMS switch on is performed in parallel.

=



(1) „ACMS SCOE Configuration" is not executed during 5.8.10 Launch Clean Run

7.2.2 IST Configuration Table

The Herschel Satellite configuration for each IST test case is listed in the table below.

SASLPS SCOE	Bat. SCOE	Crome PAP/CCS	Sep. Strap SM	TTR SM	TM OBT	TC Dec.	PM SW	SSMM	Bus SM		PCDU SM		HPS	TxChain SM		RFDN SM		CCU ON	CCU Mode	ACMS Config. File
5.8.2 NOMINAL LAUNCH																				
SAS	Sim. Charged + Launch	PM A Nominal	Not Separated	B	A	A	A1	A 0-1-2 B 0-1-2	A	B	A	B	A	A	B	1&3	ABBB	A&B	2	IST_FN
5.8.3a ACMS Commissioning																				
SAS	Sim. Charged	PM A Nominal	Separated	B	A	B	A1	A 0-1-2 B 0-1-2	A	B	A	B	A	A	B	1&3	ABBB	A&B	1	IST_SCA1
5.8.3b S/C Commissioning																				
SAS	Sim. Charged	PM A Nominal	Separated	B	A	A	A1	A 0-1-2 B 0-1-2	A	B	A	B	A	A	B	1&3	ABBB	A&B	1	IST_MOD
5.8.4.5.1 SPIRE Commissioning																				
$AS	Sim. Charged	PM A Nominal	Separated	B	A	A	A1	A 1 B 1	B	A	A	B	A	A	B	1&3	ABBB	A&B	1	IST_COM1
5.8.4.5.2 SPIRE Spectrometer Complementary Test																				
$AS	Sim. Charged	PM B Nominal	Separated	A	B	B	B1	A 3 B 3	B	A	B	A	B	B	A	2&4	AABB	A&B	1	IST_COM2

SASLPS SCOE	Bat. SCOE	Crome PAP/CCS	Sep. Strap SM	TTR SM	TM OBT	TC Dec.	PM SW	SSMM	Bus SM		PCDU SM		HPS	TxChain SM		RFDN SM		CCU ON	CCU Mode	ACMS Config. File
5.8.4.6 PACS Commissioning																				
SAS	Sim. Charged	PM A Nominal	Separated	A	A	B	A1	A 2 B 2	B	A	B	A	B	B	A	2&4	AABB	A&B	1	IST_COM6
5.8.4.7 HIFI Commissioning																				
SAS	Sim. Charged	PM B Nominal	Separated	B	A	A	B1	A 3 B 3	A	B	A	B	A	A	B	1&3	ABBB	A&B	1	IST_COM7
5.8.4.8 Parallel Mode Commissioning																				
SAS	Sim. Charged	PM B Nominal	Separated	A	B	B	B1	A 0 B 0	A	B	B	A	B	B	A	2&4	AABB	A&B	1	IST_COM8
5.8.5 Mode Transition																				
SAS	Sim. Charged	PM A Nominal	Separated	B	A	A	A1	A 1 B 1	A	B	A	B	A	A	B	1&3	ABBB	A&B	2	IST_MOD
5.8.6 SC Reconfiguration																				
SAS	Sim. Charged	PM A Nominal	Separated	A	B	B	A1	A 2 B 2	B	A	B	A	B	B	A	2&4	AABB	A&B	1	IST_FD_B
5.8.7 CDMS Management																				
SAS	Sim. Charged	PM B Nominal	Separated	A	B	B	B1	A 0 B 0	A	B	B	A	B	B	A	2&4	AABB	A&B	1	IST_CDMS
5.8.8 DTCP Worst Case Scenario																				
SAS	Sim. Charged	PM B Nominal	Separated	A	B	B	B2	A 2 B 2	B	A	B	A	B	B	A	2&4	AABB	A&B	2	IST_WCS

SASL PS	Bat. SCOE	Crome PAP/CCS	Sep. Strap SM	TTR SM	TM OBT	TC Dec.	PM SW	SSMM	Bus SM		PCDU SM		HPS	TxChain SM		RFDN SM		CCU ON	CCU Mode	ACMS Config. File
5.8.9 RMS Reference Mission Scenario																				
SAS	REAL	PM A Nominal	Separated	B	A	A	A1	A 0-1-2 B 0	A	B	A	B	A	A	B	1&3	ABBB	A&B	1	IST_RMS
5.8.9 Launch Clean Run																				
LPS	REAL	PM A Nominal	Not Separated	B	A	A	A1	A 0-1-2 B 0-1-2	A	B	A	B	A	A	B	1&3	ABBB	A&B	2	IST_CLN
5.8.11 Launch Mode Robustness																				
SAS	Sim. Charged +Launch	PM A Nominal	Not Separated	B	A	A	A1	A 0 B 0	A	B	A	B	A	A	B	1&3	ABBB	A&B	2	IST_LSR
5.8.12 NOM Mode Robustness																				
SAS	Sim. Charged	PM A Nominal	Separated	A	B	B	A1	A 3 B 3	B	A	B	A	B	B	A	2&4	AABB	A&B	1	IST_NMR
5.8.13 Instrument FDIR																				
SAS	Sim. Charged	PM A Nominal	Separated	B	A	A	A2	A 1 B 1	A	B	A	B	A	A	B	1&3	ABBB	A&B	1	IST_CDMS

7.2.3 Initialisation

Step-No.	Initialisation-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
	TT&C SCOE initialisation						
1	Verify that TT&C SCOE application SW is running Otherwise go on TTC SCOE or access remotely (command "startCMD ttcvnc" on shell window") and click "TTC SCOE Herschel" icon on TT&C SCOE desktop controller and wait for self test completion.					✓	
2	On TT& SCOE application, in window ":: CONF namespace" (that can be open by menu "windows/SCOE config"), select menu "Config/Load", load the file "Herschel.conf" then click "open" button.					✓	
	SPACECRAFT SKIN CONNECTORS CONFIGURATION						
3	**Verify that all the SCOE skin connectors cables are installed** • Goto chapter 4.3 • Choose according to the IST Test case the related skin configuration table • Check the list and sign off (together with PA and Floor Manager).					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. ELSLEY	R. Goossens	30/11/08	00:38

Step-No.	Initialisation-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
	ACMS SCOE CHECK						
4 N/A for "Launch Clean Run"	Verify that the ACMS SCOE is ON and operational					✓	
5 N/A for "Launch Clean Run"	In the Clean Room, check on the ACMS SCOE that STR UCE Electrical Stimuli program on PC2 and PC3 are enabled (i.e. double click on "scroll lock" and check "01-02 & 01-03" that mouse pointer can be moved). Otherwise execute Annex D Operator Note 3					✓	
	TMTC DFE & CCS TIME CHECK						
6	Check that the TMTC DFE time is the same as the CCS time. If the is a difference correct the DFE by right clicking on the time in the bottom right hand corner and select 'Adjust Time/Date'.					✓	

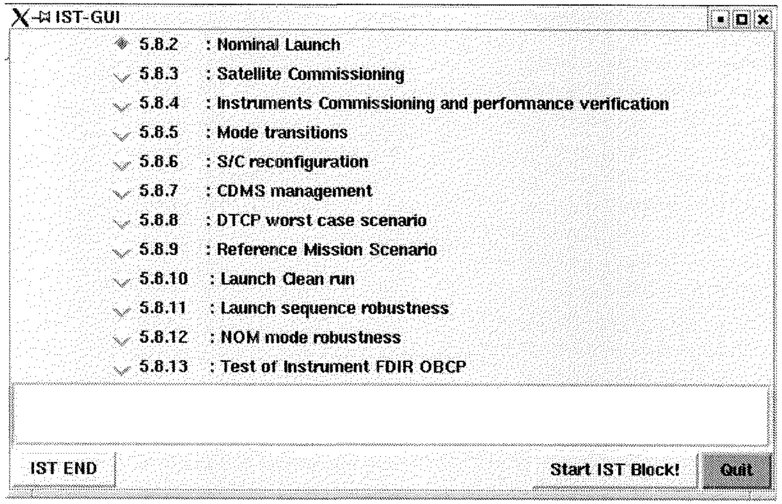
Test location:	Operator	Product-Assurance:	Date:	Time
Estec	S. Easley	R. Goossens	30/07/08	00:32

Step-No.	Initialisation-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
CCS SESSION STARTUP							
7	Start a session on the CCS, applying a relevant session name with respect to the test case being performed	Refer to chapter 7.1.2 (Page 70)				✓	
8	Start a session on the CCS Lite And from the Test Conductor console execute connect TMTCDFE					✓	

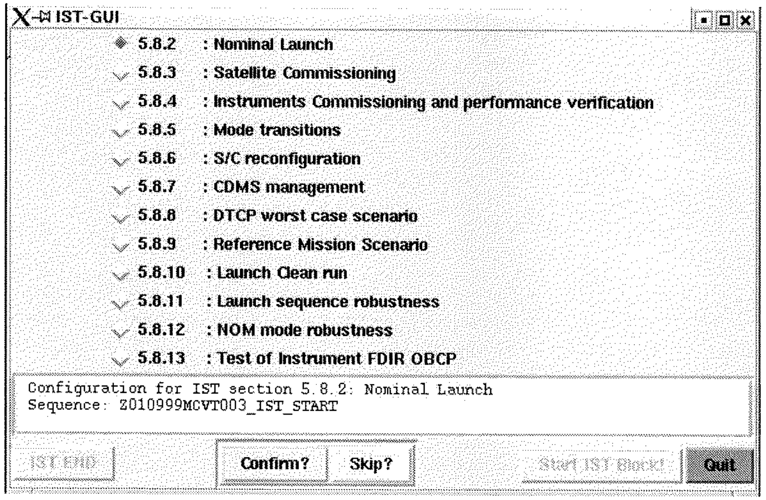
Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Esier	R. Goossens	30/7/08	00:38

7.2.4 IST Start Step by Step Procedure

At the CCS test sequence console call the sequence "Z010999MCVT201_IST_GUI " to start an IST test. When the Graphical User Interface (see Picture 1) occurs, select the appropriate test case (and note it down in this Test Procedure) followed by a click on the "Start IST Block".



Picture 1

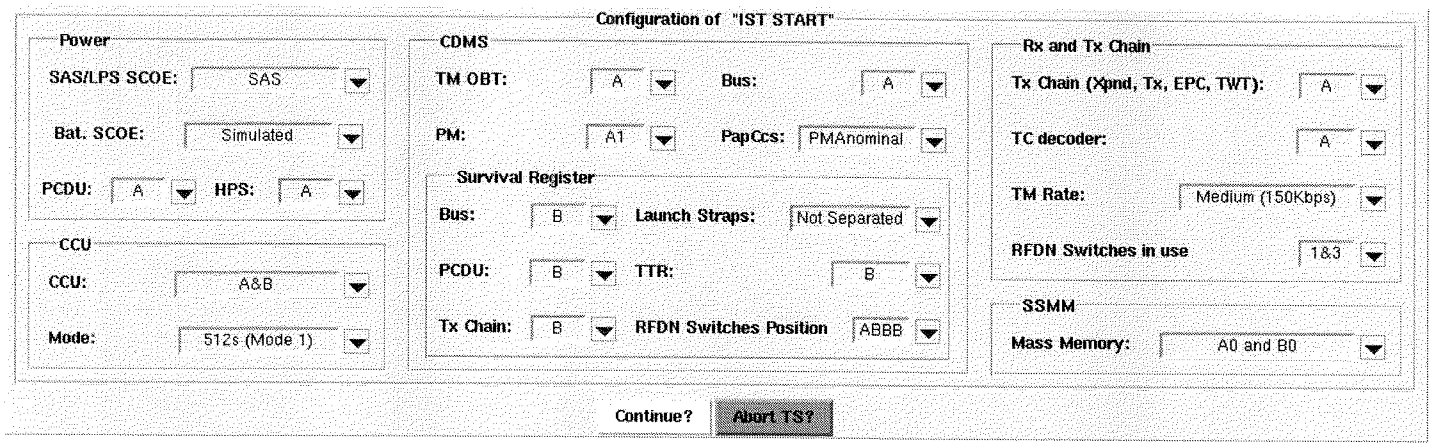


Picture 2

Then configuring the spacecraft for the selected IST Test is proposed to be run or skipped (see Picture 2).
If the button "Confirm" has been clicked, continue with step 1 of the following IST START step description. Otherwise pressing the button "Skip" will lead to chapter 7.2

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. [illegible]	R. Goossens	30/7/08	00:38

Step-No.	IST_START-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
1	**Z010999MCVT003_IST_START** At the bottom of the window, the IST_START configuration panel displays all parameters applied during the IST_START. ⇨ Click the button "Continue" to proceed	To Check in Config. Table (Page 73)				✓	



IST_START Configuration Panel

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Easien	R. Goossens	30/7/08	01:07

Step-No.	IST_START-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
2	**Z010999MCVT003_IST_START** Note the execution diagram, resuming each configuration steps and check all parameters are set as previously (particularly if any modification has been done on configuration panel) **"START Satellite HERSCHEL "IST_START""** ⇨ Choose "Yes" or "No"	YES				✓	
3	**Z010999MCVT097_ASDGEN_CRIT_PARS_CHECK** This script will run during the whole session to monitor critical parameters. As soon as wrong value will be detected. A popup window will occur alerting the operator about incorrect TM checks ⇨ Minimise this window by clicking the corresponding button (on corner top right, first button from left)					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. ELSEN	R. Goossens	30/7/08	01:07

Step-No.	IST_START-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
4	**Z010999MCVT003_IST_START** Reply to the prompt: **"SPACECRAFT POWER_ON"** ⇨ Click the button "Confirm" to proceed					✓	
5	**Z010999MCVT001_POWER_ON_HER_IST** **Set Battery ??????????** **Set TCDecoder to ?** **Set PM_SW ??** Do you want to continue with the upper configuration: If these parameter values are in accordance with the IST Configuration Table (Page 73), ⇨ click the button "OK" to proceed	To Check in Config. Table (Page 73) Bat.SCOE TCDec. PM/SW				✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Eslém	R. Goossens	30/7/08	01:08

Step-No.	IST_START-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
6	**Z010999MCVT001_POWER_ON_HER_IST** A Popup window occurs asking to verify data reception on TM/TC Data Front End workstation: In window "System Status", check following panels ➔ TM chain / TM Acquisition synchronised and locked Status expected ➔ View / TM Transfer Frame Monitor TM frame data should be received before few minutes ⇨ click the button "OK" to proceed					✓	
7	**Z010999MCVT001_POWER_ON_HER_IST** A Popup Window occurs asking to start a new acquisition in Bus Monitor with name IST on the CDMU SCOE: - start a new acquisition by clicking "Menu Mode/Start new Acquisition" If an acquisition is already started, please stop and restart ⇨ click the button "OK" to proceed After few minutes Data transfer should be visible on the Bus Monitor.				N/A for "Launch Clean Run" as the cables for CDMU BUS monitor are disconnected	✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Elsley	R. Goossens	30/7/08	09 : 17

Step-No.	IST_START-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
8	**D102159SCVT001_GET_ALARM_STATUS** Check that both DOD ext1 and ext2 are "Not Asserted". Otherwise execute Annex D – Operator Note 8 ⇨ Click the button "End TS!" to proceed				No DOD	✓	
9	**D102159SCVT001_GET_ALARM_STATUS** Check that both DOD ext1 and ext2 are "Not Asserted". Otherwise execute Annex D – Operator Note 8 ⇨ Click the button "End TS!" to proceed				No DOD	✓	
9b when BCR OCP are detected ACTIVE	**Z010999MCVT001_POWER_ON_HER_IST** Temporary workaround until **SPR-107 / NCR-3312** are solved ⇨ click the button "YES" to proceed the workaround **See SPR 107 / NCR 3312**	YES			NCR **3492**: TTRMMemCorEr_A1 := 0 SPR **244**: OutOfLimit for SA_Pan?_Temp_N/R (WMB0?569) SPR **285**: many TCs not acknowleged For launch clean run with real Battery fully charged, parameters BCR1, BCR2 are expected active.	✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Elsley	R. Goossens	30/7/08	01:21

Step-No.	IST_START-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
10	**D102159SCVT032TIMESYNCRO** Wait until the synchronization between CDMS On-board Time and CCS is finished ⇨ Click the button "End TS!" to proceed Note: The time synchronisation (step 10) is performed in parallel to the rest of the procedure. The test operator can continue with the following step (11 onwards) whilst this occurs.				TM parameter ZE00999 out of limits and back in limits again at synchronisation to be expected.	✓	
11	**Z010999MCVT001_POWER_ON_HER_IST** ⇨ Click the button "End TS!" to proceed					✓	
12	**D102159SCVT001_GET_ALARM_STATUS** Check that both DOD ext1 and ext2 are "Not Asserted". Otherwise execute Annex D – Operator Note 8 ⇨ Click the button "End TS!" to proceed				NO DOD	✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. ELSLEY	R. Goossens	30/7/08	09:26

Step-No.	IST_START-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
13	**Z010999MCVT003_IST_START** Reply to the prompt: **"CDMS Configuration:"** **"CROME settings PM?????"** If the CROME settings is in accordance with the CROME PAP/CCS of IST Configuration Table (Page73), Click the button "Confirm" to proceed	To Check in Config. Table (Page 73) CROME PAP/CCS				✓	
14	**D102159SCVT176_WRITE_CROME** ⇨ Click the button "End TS!" to proceed					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. EASLEY	R. Goossens	30/7/08	01:28

Step-No.	IST_START-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
15	**Z010999MCVT003_IST_START** Reply to the prompt: **"CDMS Configuration:"** **"Set configuration"** **"Bus ? PCDU ? HPS ? TxChain ? RFDN ???"** **"TM-OBT ? TMrate ?)"** If all these parameter value are in accordance with the IST Configuration Table (Page 73), ⇨ Click the button "Confirm" to proceed	To Check in Config. Table (Page 73) BUS PCDU HPS TxCh. RFDN TM-Obt			Please note that the TMrate Medium (150 Kbps) is not specified in IST Config. Table on page 73.	✓	
16 Only if Encoder B is req.	**D102159SCVT104_ENCODER_SELECT** ⇨ Click the button "End TS!" to proceed				SPR 286: TM check needs repeat N/A		
17	**D102159SCVT174_IST_REDUNDANT_CONF** ⇨ Click the button "End TS!" to proceed					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Elsley	R. Goossens	30/7/08	01:28

Step-No.	IST_START-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
18	**Z010999MCVT003_IST_START** Reply to the prompt: **"SSMM Configuration" ????????"** ⇨ Click the button "Confirm" to proceed	To Check in Config. Table (Page 73) SSMM				✓	
19	**Z010999MCVT005_IST_START_SSMM** Start initialising with Steps 1-2 of IST START SSMM Procedure (see Page 98). Then continue with the next test step of IST_START. **NOTE:** After completion of Mass Memory initialisation (roughly 12 minutes per bank), i.e. when **ALL** affected mass memory banks are **ON**, continue with step 3 of IST START SSMM Procedure (see Page 98).				In Launch cases, IST_START_SSMM shall be completely performed before next step	✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Easley	R. Goossens	30/7/08	01:29

Step-No.	IST_START-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
20	**Z010999MCVT003_IST_START** Reply to the prompt: **"SWITCH ON CCU ??? and"** **"START MONITORING in MODE ?"** ⇨ Click the button "Confirm" to proceed In case that TM checks for CCU valves are failed, see Annex D Operator note 11 and perform actions if required.	To Check in Config. Table (Page 73) CCU On Mode			**NCR-3119:** Alarms for TMs o KM130300 o KM120300 o KM110300 fails status consistency check during CCU A on And for TMs o KM130301 o KM120301 o KM110301 fails status consistency check The following is expected until TC DCT53170 is sent: o Events 28417 CCU A monitoring discarded	✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Elsien	R. Goossens	25/7/08	01:29

Step-No.	IST_START-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
21	**Z010999MCVT003_IST_START** Reply to the prompt: **"Record CCU Temp In Background"** ⇨ Click the button "Confirm" to proceed				**Minimise Log file after starting**	✓	
22	**Z010999MCVT003_IST_START** From the Test Conductor Console command line, execute the following command to clear the failed consistency check alarms from the CCU resetsccparams K*					✓	

Test location:	Operator	Product Assurance:	Date:	Time
ESTEC	S. Essen	R. Goossens	30/7/08	01:39

Step-No.	IST_START-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
23 applicable only in launch (IST spec. 5.8.2 5.8.10 5.8.11)	**Z010999MCVT003_IST_START** Reply to the prompt : **"STATUS SPACECRAFT and EGSE (Power ON)"** ⇨ Click the button "Confirm" to proceed Reply to the next prompt: **"Do you want to stop and notice each failure?"** ⇨ Choose "YES" to proceed				N/A		
24 applicable only in launch (IST spec. 5.8.2 5.8.10 5.8.11)	**Z010999MCVT1533_IST_STATUS** Check the Satellite status displayed and ⇨ Click the button "OK" to proceed				N/A		

Test location:	Operator	Product-Assurance:	Date:	Time
Estec	S. Easley	R. Geossens	30/7/08	9 : 40

Step-No.	IST_START-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
25	**Z010999MCVT003_IST_START** Reply to the prompt: **ACMS SCOE Configuration – ACMS Power ON** ⇨ Click the button “Confirm” to proceed Execute ACMS CONFIG procedure (Page 102) in parallel to the IST_START master					✓	
26	**Z010999MCVT003_IST_START** Reply to the prompt: **"SET TCT Table for Ambient Temperature"** ⇨ Click the button “Confirm” to proceed					✓	
27	**D102159SCVT032EnNomTCSLoops** ⇨ Click the button "End TS!" to proceed					✓	
28	**D102159SCVT115_CHECK_HCS_OFF** ⇨ Click the button "End TS!" to proceed					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Easley	R. Goossens	30/7/08	01 : 46

Step-No.	IST_START-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
29	**Z010999MCVT003_IST_START** Reply to the prompt: **"EAT UPLOADING"** ⇨ Click the button “Confirm” to proceed”					✓	
30	**D102159SCVT192_GET_EAT_REPORT** Check that every initial entries of the Event Action Table are successfully checked ⇨ Click the button "End TS!" to proceed					✓	
31	**D102159SCVT192_GET_EAT_REPORT** Check that every initial entries of the Event Action Table are correctly set ⇨ Click the button "End TS!" to proceed					✓	
32	**D102159SCVT192_IST_UPLOAD_EAT** ⇨ Click the button "End TS!" to proceed					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Elson	R. Goossens	30/7/08	01:56

Step-No.	IST_START-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
33	**Z010999MCVT003_IST_START** Ckeck that ACC is running on TM Packet history with filter on APID 512 (set on Step 1 of ACMS Configuration Procedure 7.2.4.2 Page 102) and checking packets reception.					✓	
34	**Z010999MCVT003_IST_START** Do not perform before the completion of the procedures: - IST START SSMM and - ACMS Configuration Cannot be run in parallel with other "active" sequences or TCs send in parallel Reply to the prompt: **“CDMS CONFIGURATION:”** **“SURVIVAL REGISTER SETTING”** **“(Bus ?, PCDU ?, RFDN ????, TxChain ?, TTR ?, Sep Strap ?????)”** ⇨ Click the button “Confirm” to proceed	To Check in Config. Table (Page 73) Bus PCDU RFDN TxCh. TTR Sep Strap				✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Gasior	R. Goossens	30/7/08	02:26

Step-No.	IST_START-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
35	**D102159SCVT175_SET_SURV_REG** ⇨ Click the button "End TS!" to proceed					✓	
36 (only in launch test cases	**Z010999MCVT003_IST_START** Prompt: "Check CDMS Tables" ⇨ Click the button "Confirm" to proceed				N/A		
37 (only in launch test cases	**D102159SCVT219_GET_BSW_HEALTH_UIU** ⇨ Click the button "End TS!" to proceed				N/A		
38 (only in launch test cases)	**D102159SCVT204_GET_MOT** ⇨ Click the button "End TS!" to proceed				N/A		

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Easen	R. Goossens	30/7/08	02:29

Step-No.	IST_START-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
39 (only in launch test cases)	**D102159SCVT192_GET_EAT_REPORT** Check that every uploaded entries of the Event Action Table are correctly set ⇨ Click the button "End TS!" to proceed				N/A		
40 (only in launch test cases)	**D102159SCVT205_SAT_COM_TCT** ⇨ Click the button "End TS!" to proceed				Expected that checks will fail as the uploaded TCT is for ambient but the checks are performed against the N/A		
41 (only in launch test cases)	**D102159SCVT207_SAT_COM_FCCT** ⇨ Click the button "End TS!" to proceed				N/A		

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Gsuly	R. Goossens	30/7/08	02:29

Step-No.	IST_START-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
42	**Z010999MCVT003_IST_START** Reply to the prompt: **"DOWNLINK SSMM PACKET STORE and CEL A&B"** ⇨ Click the button "Confirm" to proceed					✓	
43	**D102159SCVT188_IST_DUMP_PKT_STORE** ⇨ Click the button " End TS!" to proceed				With parameters: 0 80 1 81 2 82 3 83	✓	
44	**D102159SCVT188_IST_DUMP_PKT_STORE** ⇨ Click the button " End TS!" to proceed				With parameters: CEL_A CEL_B **All events, warnings and alarms recorded before the dump, re-occur during this step**	✓	
45	**Z010999MCVT003_IST_START** ⇨ Click the button "End TS!" to proceed					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
GTEL	S. Gsiep	R. Goossens	30/7/08	02:36

7.2.4.1 IST_START_SSMM Procedure

Step-No.	IST_START_SSMM-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
1	**Z010999MCVT005_IST_START_SSMM** Reply to the prompt: **"SSMM CONFIGURATION ??????"** ⇨ Click the button "Confirm" to proceed	To Check in Config. Table (Page 73) SSMM				✓	
2	**D102159SCVT186_IST_SSMM_ON** **Reply to the prompt "Do you want to continue" "with such configuration?"** Check the SSMM configuration and then ⇨ Click the button "Continue" to proceed				Mass Memory config. takes about 12 minutes per bank. Therefore, the next step in IST_START procedure can be executed.	✓	
3	**D102159SCVT186_IST_SSMM_ON** ⇨ Click the button "End TS!" to proceed					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Easley	R. Goossens	30/7/08	02:00

Step-No.	IST_START_SSMM-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
4	**Z010999MCVT005_IST_START_SSMM** Reply to the prompt: **"OBCP UPLOADING"** ⇨ Click the button "Confirm" to proceed **Let run in parallel the sequence D102159SCVT193_IST_UPLOAD_OBCP** and continue with next step "Packet Store Definition"				occurrence of 2 BSW problems EvtID 30738 expected when starting OBCP Management for the 1st time.	✓	
5	**Z010999MCVT005_IST_START_SSMM** Reply to the prompt: **"Definition of the Packet Store"** ⇨ Click the button "Confirm" to proceed					✓	
6	If only 1 Bank (bank 0, 1, 2 or 3) is initialised on each SSMM **D102159SCVT185_IST_PACKET_STORE_DEF** If 3 banks (banks 0, 1 and 2) are initialised on each SSMM **D102159SCVT189_IST_PACKET_STORE_DEF2** If SSMM A banks 0, 1 and 2 and only SSMM B bank 0 are initialised **D102159SCVT178_RMS_PKT_STORE_DEF** When the requested SSMM bank are initialised ⇨ Click the button "Yes" to proceed					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Goslin	R. Goossens	30/7/08	02:01

Step-No.	IST_START_SSMM-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
7	If only 1 Bank is initialised on SSMM A & B **D102159SCVT185_IST_PACKET_STORE_DEF** If 3 banks are initialised on SSMM A & B **D102159SCVT189_IST_PACKET_STORE_DEF2** If 3 banks on SSMM A and only 1 on SSMM B are initialised **D102159SCVT178_RMS_PKT_STORE_DEF** ⇨ Click the button "End TS!" to proceed				**NCR-3492** occurs: (TTRRMMemCorEr_A 2 := 1)!	✓	
8	**Z010999MCVT005_IST_START_SSMM** Reply to the prompt: **"Initialise MTL Service Buffers"** ⇨ Click the button "Confirm" to proceed				TM(5,4) alarms expected: o Evt_MTLBufADel (ID:26914) o Evt_MTLBufBDel (ID 26915)	✓	
9	**D102159SCVT209_START_ON_BOARD_SCHEDULE** ⇨ Click the button "End TS!" to proceed					✓	
10	**D102159SCVT193_IST_UPLOAD_OBCP** ⇨ Click the button "End TS!" to proceed					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Easton	R. Goossens	30/7/08	02:20

Step-No.	IST_START_SSMM-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
11	**Z010999MCVT005_IST_START_SSMM** ⇨ Click the button "End TS!" to proceed					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Gavan	R. Goossens	30/7/08	02:20

7.2.4.2 ACMS Configuration Procedure

Step-No.	ACMS_CONFIG-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
1	Open the ACMS_H_BLOC MIM Display to verify the telemetry status updating. Configure a "Telemetry Packet History" window set with filter APID = 512					✓	
2	**A102109SPVT003_ACMS_CONFIG25** At the prompt "Enter your choice", insert **"1"** to select **"Select/Load ACMS_CONFIG Input File"** ⇨ Click the button "OK" to proceed	1				✓	
3	**A102109SPVT003_ACMS_CONFIG25** ⇨ Click the button "Continue" to proceed					✓	
4	**A102109SPVT004_ACMS_LOADCONFIG1** At the prompt, **"Enter your choice:** ⇨ Click the button "OK" to proceed	To Check in Config. Table (Page 73) ACMS Config. File			IST_COM1	✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Easley	R. Goossens	30/7/08	01:40

Step-No.	ACMS_CONFIG-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
5 N/A for "Launch Clean Run"	**A102109SPVT003_ACMS_CONFIG25** At the prompt "Enter your choice", insert **"6"** to select **"ACMS SCOE Configuration"** ⇨ Click the button "OK" to proceed	6				✓	
6 N/A for "Launch Clean Run"	**A102109SPVT003_ACMS_CONFIG25** ⇨ Click the button "Continue" to proceed					✓	
7 N/A for "Launch Clean Run"	**A102109SPVT003_ACMS_CONFIG25** Verify on AND YA001939 AMCS SCOE - AS_PSEUDO 1 of 1 the parameters YMACT939 (ACMS SCOE state) YMASE939 (Simulator stata) YMAMS939 (MILFE state) YMAUS939 (UIFE state)	executing executing executing executing			Alarms are expected for TM with APID 2018 and EVID 4 when the parameters on the left have not reached the executing stage yet.	✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. ELSLEY	R. Goossens	30/7/08	02:02

Step-No.	ACMS_CONFIG-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
8	**A102109SPVT003_ACMS_CONFIG25** At the prompt "Enter your choice", insert **"4"** to select **"ACMS Power ON (in Pre-Sep configuration)"** ⇨ click the button "OK" to proceed	4				✓	
9	**A102109SPVT003_ACMS_CONFIG25** ⇨ Click the button "CONTINUE" to proceed					✓	
10	**A102109SPVT011_ACMS_ON** During this sequence, following events are expected: - TM(5,4) Event Report and Reconfiguration Log - TM(5,2) APID:2018 (ACMS_SCOE) indicates ACMS "TestDataWord" needs to be switched ON. A few seconds later when the corresponding TC is sent, this TM(5,2) must disappear. - Multiple other events TM(5,1), such as "Fdir Task Overrun" or "Fdir Rm Parity Error"				Expected Out of Limit of AEYYY109 (synchronisation) ACC may become INVALID for a short time SPR **245** NCR **2862**: Out of Limit of HKA_ANTH?_Data SPR **334** OutOfLimit of Gyro Calib Curve in LCR	✓	

Test location:	Operator	Product Assurance:	Date:	Time
ESTEC	S. Gsley	R. Goossens	30/7/08	02:11

Step-No.	ACMS_CONFIG-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
11	**A102109SPVT003_ACMS_CONFIG25** At the prompt "Enter your choice", Insert **"5"** to select **"Modify ACC SGM/RM content"** ⇨ Click the button "OK" to proceed	5				✓	
12	**A102109SPVT003_ACMS_CONFIG25** ⇨ Click the button "Continue" to proceed					✓	
13	**A102109SPVT003_ACMS_CONFIG25** At the prompt "Enter your choice", Insert **"20"** for **"Default configuration for separation"** ⇨ Click the button "OK" to proceed	20			Expected Out of Limit of AEYYY109 (synchronisation) ACC may become INVALID for a short time TC PM_Reset (ACY42109) not acknowledge expected	✓	
14	**A102109SPVT003_ACMS_CONFIG25** ⇨ Click the button "Continue" to proceed					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Elsley	R. Goossens	30/7/08	02:13

Step-No.	ACMS_CONFIG-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
15	**A102109SPVT003_ACMS_CONFIG25** After about 10 min verify that ACMS Sequences are correctly terminated and ACMS CONFIG MAIN MENU 1.0 is available.					✓	
16	**A102109SPVT003_ACMS_CONFIG25** At the prompt "Enter your choice", Insert **"99"** to select **"Return to Main Menu 1.0"** ⇨ Click the button "OK" to proceed	99				✓	
17	**A102109SPVT003_ACMS_CONFIG25** ⇨ Click the button "Continue" to proceed					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Elsner	R. Goossens	30/07/08	02:25

7.3 IST Test Case

According to the actual IST Test Case, IST_GUI will prompt with following window(see Figure 1) to execute the relevant test sequence / procedure as listed below.

Click the button “Confirm” to call the appropriate sequence displayed in the message box.

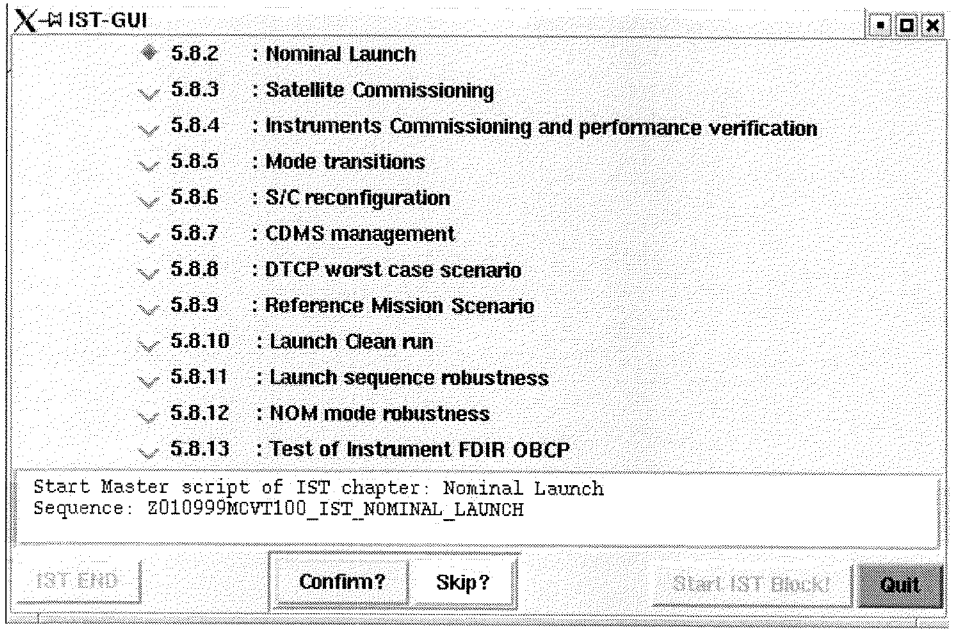


Figure 1: IST_GUI calling Master sequence, for instance “Nominal Launch”

Test location:	Operator	Product-Assurance:	Date:	Time :

Important Note: After execution of the IST Test Case, S/C has to be switched off with the "IST END" procedure as described in chapter 7.4.

Herschel IST Test Case 'Launch Phase, Separation and Post Separation':	HP-2-ASED-TP-0185
Herschel IST Test Case 'Satellite Commissioning':	HP-2-ASED-TP-0186
Herschel IST Test Case 'ACMS Commissioning':	HP-2-ASED-TP-0187
Herschel IST Test Case 'Instruments Commissioning and Performance Verification':	HP-2-ASED-TP-0188
Herschel IST Test Case 'Mode Transitions':	HP-2-ASED-TP-0189
Herschel IST Test Case 'S/C Reconfiguration':	HP-2-ASED-TP-0190
Herschel IST Test Case 'CDMS Management': ..	HP-2-ASED-TP-0191
Herschel IST Test Case 'DTCP Worst Case Scenario': ..	HP-2-ASED-TP-0192
Herschel IST Test Case 'REFERENCE Mission Scenario':	HP-2-ASED-TP-0193
Herschel IST Test Case 'Launch Clean Run':	HP-2-ASED-TP-0194
Herschel IST Test Case 'Launch Sequence Robustness':	HP-2-ASED-TP-0195
Herschel IST Test Case 'NOM Mode Robustness':	HP-2-ASED-TP-0196
Herschel IST Test Case 'Test of Instrument FDIR OBCP'	HP-2-ASED-TP-0197

Highlight the TEST Case to be performed in the above

Test location:	Operator	Product-Assurance:	Date:	Time
				:

7.4 IST END Procedure

Step-No.	IST_END-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
1.	**IST_GUI** ⇨ Click the button "OK" and then ⇨ Click the button "IST_END" to proceed					✓	
2.	**D102159SCVT188_IST_DUMP_PKT_STORE** ⇨ Click the button "Confirm" to proceed					✓	
3.	**D102159SCVT188_IST_DUMP_PKT_STORE** ⇨ Click the button " End TS!" to proceed					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Ashley	R. Goossens	30/7/08	23:31

Step-No.	IST_END-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
4. Only if PACS, SPIRE or HIFI is still ON	**Z010999MCVT004_IST_END** If one of the instruments is detected "ON" reply to the prompt: "Should the sequence" Z102999SCVT011_ASDGEN_PACSPWROFF_P Z102999SCVT005_ASDGEN_SPIREPWROFF_P Z102999SCVT015_ASDGEN_HIFIPWROFF_P "be called?" ⇨ Click the button "YES" to proceed				N/A		
5. Only if CCU A is ON	**Z010999MCVT004_IST_END** If CCU is detected "ON" reply to the prompt: Should the sequence "K102999ECVT001_ASDGENCCU_ABPWROFF be called ⇨ Click the button "YES" to proceed					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Easley	R. Goossens	30/7/08	23:32

Step-No.	IST_END-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
6. Only if RWL ON and ACMS is still in SCM	**Z010999MCVT004_IST_END** "Please ensure that ACMS is set in OCM mode, otherwise select the correct menu in the ACMS_CONFIG25" Perform chapter 7.4.1 then click OK					✓	
7. Only if RWL are still spinning	**Z010999MCVT004_IST_END** Start the sequence A102109SPVT061_RWL_SPINDOWN? ⇨ Click the button "YES" to proceed				Out of Limits concerning RWL speed are expected during RWL spin down	✓	
8. Only if ACMS is still ON	**Z010999MCVT004_IST_END** Start the sequence A102109SPVT012_ACMS_OFF ? ⇨ Click the button "YES" to proceed					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Elsien	R. Goossens	30/7/08	23:40

Step-No.	IST_END-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
9. Only if ACMS is still ON	**A102109SPVT012_ACMS_OFF** During this sequence, following event are expected to occur: • TM(5,2) EvtID: 33 Event Report - ACB Rx Failed • TM(5,2) EvtID: 33 Event Report - ACB Rx Failed • TM(5,4) EvtId:16426 Mode SBSM Entry • Event Report - Boot Report and Reconfiguration Log • Event Report - SDB Unhealthy • Multiple "New Tm 251004939" • Multiple "New Tm 251001939" • Multiple "New Tm 251002939" This sequence needs time to be completely run, so let run in parallel with the following steps.					✓	
10. Only if SREM is still ON	**Z102999SCVT002_SREM_OFF** ⇨ Click the button "End TS!" to proceed					✓	
11.	**D102159SCVT174_IST_REDUNDANT_CONF** ⇨ Click the button "Ens TS" to proceed					✓	

Test location:	Operator	Product-Assurance:	Date:	Time
ESTEC	S. Gasan	R. Goossens	30/7/08	23:51

Attachment 2 to Section 6.7:

As-Run Procedure HP-2-ASED-TP-0237 for SPIRE Commissioning

30/07/08

As Run Format

EADS astrium

Test Procedure

Herschel

2008_07_30_00.58_heredunn_hpws22_realtime_spire_com

TP_0217_iss1.4_TP-226_iss1_1_SPIRE_COMMISSIONING_He2_END_001

Title: **Herschel Satellite IST – Instruments Commissioning – S/C Configuration**

CI-No: 100000

Prepared by: Y.P.	V. La Gioia/TERMA	Date:1st July 2008
Checked by:	C. Much C. Much	02/07/08
Product Assurance:	J. Hall	3/7/2008
Configuration Control:	W. Wietbrock W. Wietbrock	09/07/08
TASF Engineering	R Jones	04/07/08
TASF Test Director	S. Mooney SR Jones	04/7/08
Project Management:	Dr. W. Fricke	11/07/2008
Approval TAS-F	D. Montet	21.07.2008

Distribution: See Distribution List (last page)

Issue	Date	Sheet	Description of Change	Release
1	01/07/2008		Initial version	

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1 Scope

1.1 Objective

This procedure provides the final part of the S/C configuration for IST Instrument Commissioning tests as defined in AD1 (note that the S/C configuration is different for each Instrument's commissioning test).

The initial basic S/C configuration for IST Instrument Commissioning will be performed using AD-2 prior to execution of this procedure.

Both this procedure and AD-2 are called from the corresponding Instrument specific commissioning procedure (refs. RD-5, RD-6 & RD-7).

At the end of the commissioning procedure, this procedure is called again to re-establish the umbilical link and switch off the RF.

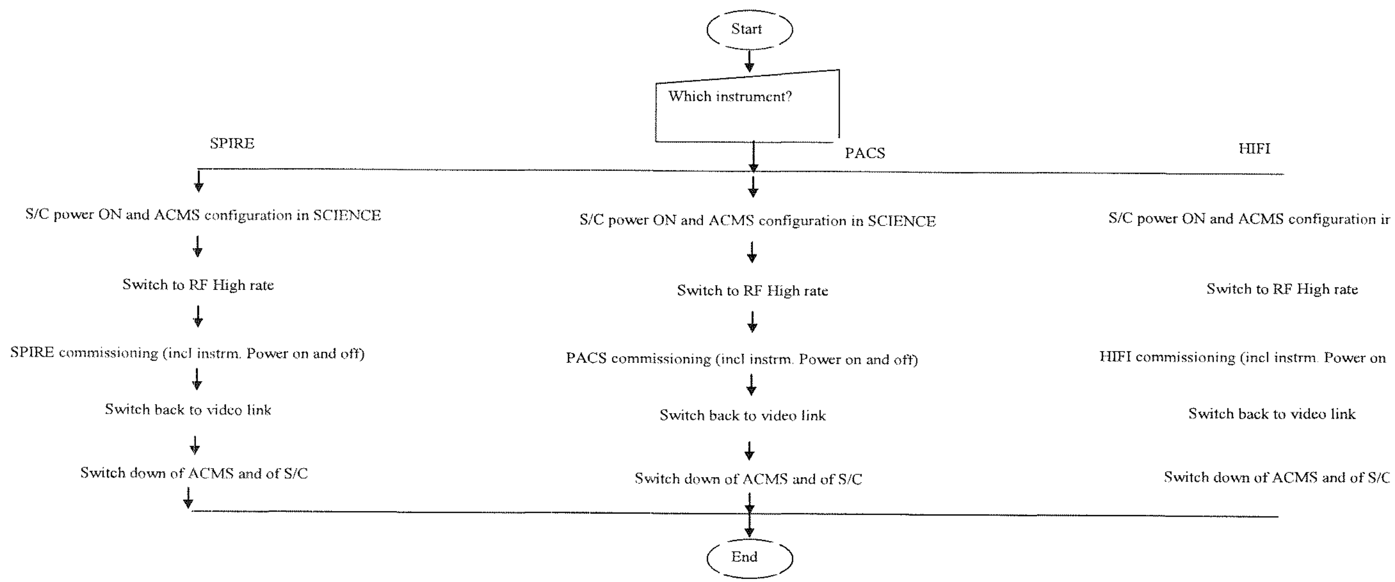
1.2 Operational Flow

The overall flow of the Instruments Commissioning is described in the following schema.

In chapter 7 the detailed step-by-step procedure is provided

.

Figure 1: S/C Specific Configuration for Instrument Commissioning



2 Documents/Drawings

This document incorporates, by dated or undated references, provisions from other publications. These normative references are cited at appropriate places in the text and publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these apply to this document only when incorporated into it by amendment or revision. For undated references, the latest edition of the publication referred to apply.

2.1 Applicable Documents

AD-1 Herschel Integrated Satellite Test Specification
H-P-2-ASP-SP-0939, Issue 6 redmarked

AD-2 Leading Procedure for Herschel Integrated Satellite Test 'IST'
HP-2-ASED-TP-0134 issue 4

2.2 Reference Documents

RD-1 Herschel SVM User Manual
H-P-MA-AI-0001

RD-2 Herschel/Planck List of Acronyms
H-P-ASP-LI-0077

RD-3 Not Used

RD-4 Not Used

RD-5 HP-2-ASED-TP-0217 IST Instrument Commissioning: SPIRE Cold Functional Test

RD-6 HP-2-ASED-TP-0218 IST Instrument Commissioning: PACS FM FDIR & Full Functional Test

RD-7 HP-2-ASED-TP-0188 IST Instrument Commissioning: HIFI Performance & Peak-Up Test

2.3 Other Documents

None

2.4 Acronyms

Acronyms are specified in RD-2 and are therefore not listed in this document.

3 Requirements to be verified

AD-1 chapter 5.8.4

4 Configuration

4.1 Herschel S/C Configuration

Refer to AD-2

4.1.1 Hardware Configuration

Refer to AD-2

4.1.2 Software Configuration

Refer to AD-2

4.1.3 Test Configuration

Refer to AD-2

4.1.4 Simulated Equipments

Refer to AD-2

4.2 Set-up

Refer to AD-2

5 Conditions

5.1 Personnel

Refer to AD-2

5.2 Environmental

Refer to AD-2

5.3 General Precautions and Safety

Refer to AD-2

5.3.1 General Safety Requirements, Precautions

Refer to AD-2

5.3.2 ESD constraints

Refer to AD-2

5.3.3 Special QA Requirements

Refer to AD-2

5.4 GSE

Refer to AD-2

5.4.1 MGSE

Refer to AD-2

5.4.2 CVSE

Refer to AD-2

5.4.3 EGSE

5.4.3.1 EGSE Hardware Configuration

Refer to AD-2

5.4.3.2 EGSE User Software

Refer to AD-2

5.4.3.3 Grounding Configuration

Refer to AD-2

5.4.3.4 Test Equipment

Refer to AD-2

5.4.3.5 Data Acquisition System

Refer to AD-2

5.4.4 OGSE

Refer to AD-2

5.4.5 Special Equipment

Refer to AD-2

6 Verification Requirements and Test Criteria

PASS/FAIL CRITERIA

At each test stage completion, the test success is determined comparing the results obtained against the expected values.

If the compliance between obtained and expected values has been met, and authorisation to proceed with the next stage of the test is given, then the actual test stage must be considered satisfactorily completed.

The success of the overall testing activities is determined from the satisfactory completion of all test stages.

Successful criteria to be satisfied in each test stage shall be:

- Test conditions according to specification requirement;
- Complete verification of the requirement aspects according to the test specification [AD-1];
- Fulfilment of test results with respect to required data;
- Verification that all the TM parameters used to monitor the SVM do not exceed the limit thresholds loaded in the HPSDB (OOL display);
- Verification that the TM(5,2), TM(5,4) and TM(1,8) received event reports are only those ones expected to fulfil the pass test criteria.

7 Test Execution Step-by-Step Procedure

7.1 INSTRUMENT'S TEST CASE SELECTION

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
1.	*Enter the following In the CCS Test Console:* *callasync* ***Z010999MCVT130_IST_INSTR_COMMISSIONING***	PASS				✓	
2.	*During* ***Z010999MCVT130_IST_INSTR_COMMISSIONING*** *STARTINSTRUMENTS COMMISSIONING, Section 5.8.4* ⇨ *Click the button "YES" to proceed*	YES			If NO, the sequence is terminated.	✓	

Test location:	Operator	Product Assurance:	Date:
ESTEC	S. Elsen	R. Goossens	30/7/08 02:43

PUS #1 →

PUS Performance Session

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
3.	***Z010999MCVT130_IST_INSTR_ COMMISSIONING Changes status to "PROMPTING" in test conductor console with the following message*** ***"Which Instruments commissioning test case?(HIFI/PAS/SPIRE)"*** *⇨ type the desired instrument's name, then click button "OK"and proceed following the prompts in the master sequence window*				For SPIRE: execute §7.2 For PACS: execute §7.3 For HIFI: execute §7.4 of this procedure.		

Test location:	Operator	Product-Assurance:	Date:
ESTEC	S. Essen	R. Goossens	30/7/08 02:45

7.2 SPIRE COMMISSIONING

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
4.	*During* ***Z010999MCVT130_IST_INSTR_COMMISSIONING*** *Configuration of the IST section 5.8.4.5.1 SPIRE COMMISSIONING "* *⇨ Click the button "Confirm"" to proceed*	CONFIRM			PIS #1		
5.	*During Z010999MCVT130_IST_INSTR_COMMISSIONING* *" TT&C SCOE CONNECTION"* *⇨ Click the button "Confirm" to proceed*	CONFIRM			Y102989ETVT021_TTC_SCOE_ON is called	✓	
6.	*During Z010999MCVT130_IST_INSTR_COMMISSIONING* *"CDMS setting for separation"* *⇨ Click the button "Confirm" to proceed*	CONFIRM			A102109SPVT202_ACMS_STATUS_H is called asynchronously and D102159SCVT138_IST_LAUNCH_SUNACQ synchronously	✓	

Test location:	Operator	Product-Assurance:	Date:
ESTEC	S. Ashley	R. Goossens	30/7/08 02:48

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
7.	*During …* *D103159SCVT138_IST_LAUNCH_SUNACQ* *⇨ Wait, switch to script …ACMS_CONFIG25*	PASS				✓	
8.	*During A102109SPVT103_ACMS_CONFIG25* *⇨ enter option 88, to go to Main Menu 3* *⇨ Click the button "OK"* *⇨ then press "Continue"*	88 OK CONTINUE				✓	

Test location:	Operator	Product-Assurance:	Date:
ESTEC	S. Easley	R. Goossens	30/7/08 02.49

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
9.	*During A102109SPVT103_ACMS_CONFIG25* *(1,6,4,5,20,99,88)* *SEPARATION (open separation straps)* *Main Menu 3.0: option 2* ⇨ *Click the button "OK" and then* ⇨ *Click the button "Continue"*	2 OK CONTINUE				✓	
10.	*During A102109SPVT034_ACMS_SAM_MON* *Do you want to continue to monitor SAM Sun Pointing mode?* ⇨ *Enter your choice: no*	NO				✓	
11.	*At end of D102159SCVT138_IST_LAUNCH_SUNACQ* ⇨ *Click the button "End TS!" to proceed*	ENDTS				✓	
12.	*Back to Master Script, Z010999MCVT130_IST_INSTR_COMMISSIONING* *TRANSITION TO NOMINAL* ⇨ *Click the button "Confirm" to proceed*	CONFIRM				✓	

Test location:	Operator	Product-Assurance:	Date:
ESTEC	S. Easley	R. Goossens	30/7/08 02.54

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
13.	*Script D102159SCVT137_IST_SUNACQ_NOM shall pop-up. Check that script ends without any 'No-Go'* *⇨ Click the button "End TS!" to proceed*	ENDTS				✓	
14.	*During Z010999MCVT130_IST_INSTR_COMMISSIONING* *At the prompt "Command ACMS (via OCM/Earth) to SCM/Earth. In parallel, continue with the master "* *⇨ Click the button "OK" to proceed* *⇨ Perform steps 15 to 25 (ACMS in SCM) in parallel with the following ones 26 –28 (PCDU transition, SREM)*	OK				✓	
15.	*During A102109SPVT103_ACMS_CONFIG25* *Select Transition to OCM.* *Main Menu 4.0 SAM Phase: Option 6* *⇨ Click the button "OK" and then* *⇨ Click the button "Continue" to proceed*	6 OK CONTINUE				✓	
16.	*During A102109SPVT036_ACMS_STR_ON* *Do you want to change the current STR in use? Type no* *⇨ Click the button "OK" to proceed*	NO				✓	

Test location:	Operator	Product-Assurance:	Date:
ESTEC	S. Easley	R. Goossens	30/7/08 02:58

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
17.	*During A102109SPVT043_TRANSITION_TO_OCM* *Only for info:* ⇨ *Verify after ca.7 min if ACMS mode is = OCM point fine (Earth pointing)* ⇨ *Verify in AND: ZAA00999 if Est Attitude Q1..Q4 is close to Target (absolute value)* ⇨ *Verify AESM3002 = OCM point fine or in synoptic SAT – ACMS – ACC – Mode Nominal*	PASS PASS PASS			Check in seq. TRANSITION IN OCM Might fail. Check attitude in AND ZAA01999 until mode is OCM point fine. Then click repeat TM.	✓	
18.	*During A102109SPVT043_TRANSITION_TO_OCM* *If the sequence prompts as SUSPENDED (fcv duty cycle higher than 0.01)* ⇨ *click on script name in Test Console* ⇨ *Click the button "RESUME" to proceed*	RESUME			N/A		

Test location:	Operator	Product-Assurance:	Date:
ESTEC	S. Esian	R. Goossens	30/7/08 03:09

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
19.	*During A102109SPVT103_ACMS_CONFIG25* *Main Menu 7.0: Option 3* *Select Transition to SCM (Science mode).* ⇨ *Click the button "OK" and then* ⇨ *Click the button "Continue" to proceed*	3 OK CONTINUE				✓	
20.	*During A102109SPVT038_RWL_ON* *"Do you want to change actual on-board wheel set selected in the nominal configuration?* *RWL 1-2-3-4 selected* ⇨ *Click the button "NO" to proceed ?*				AEW1A002, AEW2A002, AEW3A002, AEW4A002 LOW expected until wheels are spun up.	✓	
21.	*During A102109SPVT042_RWL_SPINUP* *"Change actual Angular Momentum (initial values)?"* *Option: no* ⇨ *Wait for about 10 minutes*	RWL-1 ang momentum 10.6999999 RWL-2 ang momentum 10.6999999 RWL-3 ang momentum 10.6999999 RWL-4 ang momentum 10.6999999 NO				✓	

Test location:	Operator	Product-Assurance:	Date:
ESTEC	S. Essley	R. Goossens	30/7/08 03:16

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
22.	Only for info: ⇨ Verify RWL speed in plotting window 1. Select REALTIME => DESKTOP => MONITORING => TM Plotting Tool 2. Select Directory: Home/heracms/plotting 3. Select FILE => LOAD => /home/heracms/plotter/RWLsSPEED.txt					✓	

Test location:	Operator	Product-Assurance:	Date:
ESTEC	S. ELSLEY	R. GOOSSENS	30.7.08 03.16

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
23.	*Only for info:* *⇨ Verify 4x RWL momentum parameters are within +/-20%* *AEWMA002 = 10.7 (RWL1 momentum)* *AEWMB002 = 10.7 (RWL2 momentum)* *AEWMC002 = 10.7 (RWL3 momentum)* *AEWMD002 = 10.7 (RWL4 momentum)* *⇨ Verify in SAT synoptic SAT – ACMS – ACC – Mode Nominal = OCM Point Fine* *⇨ Verify in Telemetry window ZAAF0999 (diagnostic TM)* *As long as the ACMS is switched On the Menu Box has to be present !!!*	PASS PASS PASS			*Values in IST_RMS1 file*	✓	
24.	*During* *A102109SPVT042_RWL_SPINUP* *SUSPEND* *⇨ Click the button "RESUME" in the test sequence console to proceed*	RESUME				✓	

Test location:	Operator	Product-Assurance:	Date:
ESTEC	S. ELSLEY	R. Goossens	30/7/08 03:25

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
25.	*At end of A102109SPVT042_RWL_SPINUP* *⇨ Click the button "End TS!" to proceed*	ENDTS			During transition to SCM for ACMS, ACZ2T109 may timeout because of slew time too short.	✓	
26.	*During Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Transition from SAS 900W and BS 24V to SAS 1475W and BS full charged"* *⇨ Click the button "Confirm" to proceed*	CONFIRM				✓	
27.	*During Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Switch on SREM"* *⇨ Click the button "Confirm" to continue*	CONFIRM				✓	
28.	*During Z102999SCVT003_SREM_ACQ_START* *⇨ Click the button "End TS!" to proceed*	ENDTS			SPR-290	✓	

Test location:	Operator	Product-Assurance:	Date:
ESTEC	S. Easley	R. Goossens	30/7/08 03:26

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
29.	Back to Master, Z010999MCVT130_IST_INSTR_COMMISSIONING Reply to the prompt: " Final Setting to test start" ⇨ Click the button "Confirm" to continue	CONFIRM			*ACMS shall be already in SCM mode*	✓	
30.	At the end of the step check that the following have been applied: STR 1 LCL B is ON, RX-2 is 125 bps, GYRO and STR 1 I/F on BUS B	PASS				✓	
31.	*Back to Master,* *Z010999MCVT130_IST_INSTR_COMMISSIONING* *SET BUS PROFILE TO SPIRE PRIME* ⇨ *Click the button "Confirm" to continue*	CONFIRM				✓	
32.	*During* *Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Setting TM/TC DFE for AD mode commanding"* ⇨ Click the button "Confirm" to continue	CONFIRM				✓	

Test location:	Operator	Product-Assurance:	Date:
ESTEC	S. ELSLEY	R. GOOSSENS	30/7/08 03:32

PVS #3

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
33.	*During Z010999MCVT130_IST_INSTR_COMMISSIONING* *"switching to RF for SPIRE Photometer Commissioning"* ⇨ Click the button "Confirm" to continue	CONFIRM				✓	
34.	*Back to Master, Z010999MCVT130_IST_INSTR_COMMISSIONING* *"CEL DOWNLINK"* ⇨ Click the button "Confirm" to continue	CONFIRM				✓	

PVS #2

Test location:	Operator	Product-Assurance:	Date:
ESTEC	S. ELSLEY	R Goossens	30/7/08 03.49

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
35.	*Back to Master, D102159SCVT080_CEL_DOWNLINK* *"CEL DOWNLINK"* ⇨ Click the button "EndTS" to continue	ENDTS			IF CEL is not empty, send following TCs to clear it: DC167160 with parameters: DH002160 1 DH003160 0x7F DC167160 with parameters: DH002160 1 DH003160 0xFF	✓	
36.	*Back to Master, Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Initial S/C status check "* ⇨ Click the button "Confirm" to continue	Confirm				✓	

Test location:	Operator	Product-Assurance:	Date:
ESTEC	S. Easley	R. Goossens	30/07/08 03:53

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
37.	*During* *Z010999MCVT153_IST_STATUS* *At prompt* *"Do you want to Stop for each failure"* ⇨ Click the button "NO" to continue	NO				✓	
38.	*During* *Z010999MCVT153_IST_STATUS* *⇨ CHECK STATUS then click the button "OK" to continue*	OK			Param Failures PUS 4. SPR634		
39.	*Back to Master,* *Z010999MCVT130_IST_INSTR_COMMISSIONING* *"SPIRE COMMISSIONING"* ⇨ Click the button "Confirm" to continue	CONFIRM				✓	
40.	*Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Start specific SPIRE COMMISSIONING sequences"* When prompted as above Return to calling procedure.				Instruments power ON/OFF are not included in this procedure.	✓	

30/7

Test location:	Operator	Product-Assurance:	Date:
ESTEC	S. ELSLEY	R Goossens	30/7/08

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
41.	*Z010999MCVT130_IST_INSTR_COMMISSIONING* *Once SPIRE specific commissioning test completed and SPIRE switched off, click "Confirm" and continue from the next step*	CONFIRM				✓	
42.	*Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Switch S/C control (TC and TM) from RF link to umbilical"* ⇨ Click the button "Confirm" to continue	CONFIRM				✓	
43.	*Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Switching off TT&C Chain* ⇨ Click the button "Confirm" to continue	CONFIRM				✓	
44.	*Z010999MCVT130_IST_INSTR_COMMISSIONING* *"TT&C SCOE OFF"* ⇨ Click the button "Confirm" to continue	CONFIRM				✓	
45.	Return to calling procedure					✓	

Test location:	Operator	Product-Assurance:	Date:
ESTEC	S. Asley	R. Goossens	300708 23:30

7.3 PACS COMMISSIONING

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
46.	*During* ***Z010999MCVT130_IST_INSTR_COMMISSIONING*** *Configuration of the IST section 5.8.4.6 PACS COMMISSIONING"* ⇨ *Click the button "Confirm"" to proceed*	CONFIRM					
47.	*During Z010999MCVT130_IST_INSTR_COMMISSIONING* *" TT&C SCOE CONNECTION"* ⇨ *Click the button "Confirm" to proceed*	CONFIRM			Y102989ETVT021_TTC_SCOE_ON is called		
48.	*During Z010999MCVT130_IST_INSTR_COMMISSIONING* *"CDMS setting for separation"* ⇨ *Click the button "Confirm" to proceed*	CONFIRM			A102109SPVT202_ACMS_STATUS_H is called asynchronously and D102159SCVT138_IST_LAUNCH_SUNACQ synchronously		

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
49.	*During …* *D103159SCVT138_IST_LAUNCH_SUNACQ* *⇨ Wait, switch to script …ACMS_CONFIG25*	PASS					
50.	*During A102109SPVT103_ACMS_CONFIG25* *⇨ enter option 88, to go to Main Menu 3* *⇨ Click the button "OK"* *⇨ then press "Continue"*	88 OK CONTINUE					
51.	*During A102109SPVT103_ACMS_CONFIG25* *(1,6,4,5,20,99,88)* *SEPARATION (open separation straps)* *Main Menu 3.0: option 2* *⇨ Click the button "OK" and then* *⇨ Click the button "Continue"*	2 OK CONTINUE					

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
52.	*During A102109SPVT034_ACMS_SAM_MON* *Do you want to continue to monitor SAM Sun Pointing mode?* *⇨ Enter your choice: no*	NO					
53.	*At end of D102159SCVT138_IST_LAUNCH_SUNACQ* *⇨ Click the button “End TS!” to proceed*	ENDTS					
54.	*Back to Master Script, Z010999MCVT130_IST_INSTR_COMMISSIONING* *TRANSITION TO NOMINAL* *⇨ Click the button "Confirm" to proceed*	CONFIRM					
55.	*Script D102159SCVT137_IST_SUNACQ_NOM shall pop-up. Check that script ends without any ‘No-Go’* *⇨ Click the button “End TS!” to proceed*	ENDTS					

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
56.	*During Z010999MCVT130_IST_INSTR_COMMISSIONING* *At the prompt "Command ACMS (via OCM/Earth) to SCM/Earth. In parallel, continue with the master "* *⇨ Click the button "OK" to proceed* *⇨ Perform steps 55 to 65 (ACMS in SCM) in parallel with the following ones 66-68 (PCDU transition, SREM)*	OK					
57.	*During A102109SPVT103_ACMS_CONFIG25* *Select Transition to OCM.* *Main Menu 4.0 SAM Phase: Option 6* *⇨ Click the button "OK" and then* *⇨ Click the button "Continue" to proceed*	6 OK CONTINUE					
58.	*During A102109SPVT036_ACMS_STR_ON* *Do you want to change the current STR in use? Type no* *⇨ Click the button "OK" to proceed*	NO					

Test location:	Operator	Product-Assurance:	Date:

Step No.	*Test-Step-Description*	*Nominal Value*	*Tolerance*	*Actual Value*	*Remarks*	*P*	*N*
59.	*During A102109SPVT043_TRANSITION_TO_OCM* *Only for info:* *⇨ Verify after ca.7 min if ACMS mode is = OCM point fine (Earth pointing)* *⇨ Verify in AND: ZAA00999 if Est Attitude Q1..Q4 is close to Target (absolute value)* *⇨ Verify AESM3002 = OCM point fine or in synoptic SAT – ACMS – ACC – Mode Nominal*	PASS PASS PASS			Check in seq. TRANSITION IN OCM Might fail. Check attitude in AND ZAA01999 until mode is OCM point fine. Then click repeat TM.		
60.	*During A102109SPVT043_TRANSITION_TO_OCM* *If the sequence prompts as SUSPENDED (fcv duty cycle higher than 0.01)* *⇨ click on script name in Test Console* *⇨ Click the button "RESUME" to proceed*	RESUME					

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
61.	*During A102109SPVT103_ACMS_CONFIG25* *Main Menu 7.0: Option 3* *Select Transition to SCM (Science mode).* ⇨ *Click the button "OK" and then* ⇨ *Click the button "Continue" to proceed*	3 OK CONTINUE					
62.	*During A102109SPVT038_RWL_ON* *"Do you want to change actual on-board wheel set selected in the nominal configuration?* *RWL 2-3-4 selected* ⇨ *Click the button "NO" to proceed ?*				AEW2A002, AEW3A002, AEW4A002 LOW expected until wheels are spun up.		
63.	*During A102109SPVT042_RWL_SPINUP* *"Change actual Angular Momentum (initial values)?"* *Option: no* ⇨ *Wait for about 10 minutes*	RWL-2 ang momentum 10.6999999 RWL-3 ang momentum 10.6999999 RWL-4 ang momentum 10.6999999 NO					

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
64.	*Only for info:* *⇨ Verify RWL speed in plotting window* *1. Select REALTIME => DESKTOP => MONITORING => TM Plotting Tool* *2. Select Directory: Home/heracms/plotting* *3. Select FILE => LOAD =>* */home/heracms/plotter/RWLsSPEED.txt*						

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
65.	*Only for info:* *⇨ Verify 3x RWL momentum parameters are within +/-20%* *AEWMB002 = 10.7 (RWL2 momentum)* *AEWMC002 = 10.7 (RWL3 momentum)* *AEWMD002 = 10.7 (RWL4 momentum)* *⇨ Verify in SAT synoptic SAT – ACMS – ACC – Mode Nominal = OCM Point Fine* *⇨ Verify in Telemetry window ZAAF0999 (diagnostic TM)* *As long as the ACMS is switched On the Menu Box has to be present !!!*	PASS PASS PASS			*Values in IST_RMS1 file*		
66.	*During* *A102109SPVT042_RWL_SPINUP* *SUSPEND* *⇨ Click the button "RESUME" in the test sequence console to proceed*	RESUME					

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
67.	*At end of A102109SPVT042_RWL_SPINUP* *⇨ Click the button "End TS!" to proceed*	ENDTS			During transition to SCM for ACMS, ACZ2T109 may timeout because of slew time too short.		
68.	*During Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Transition from SAS 900W and BS 24V to SAS 1475W and BS full charged"* *⇨ Click the button "Confirm" to proceed*	CONFIRM					
69.	*During Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Switch on SREM"* *⇨ Click the button "Confirm" to continue*	CONFIRM					
70.	*During Z102999SCVT003_SREM_ACQ_START* *⇨ Click the button "End TS!" to proceed*	ENDTS			SPR-290		

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
71.	Back to Master, Z010999MCVT130_IST_INSTR_COMMISSIONING Reply to the prompt: " Final Setting to test start" ⇨ Click the button "Confirm" to continue	CONFIRM			*ACMS shall be already in SCM mode*		
72.	At the end of the step check that the following have been applied: STR 2 LCL A is ON, RX-1 is 125 bps, GYRO and STR 2 I/F on BUS B	PASS					
73.	*Back to Master,* *Z010999MCVT130_IST_INSTR_COMMISSIONING* *COMMAND THE S/C BUS PROFILE TO PACS PRIME* ⇨ *Click the button "Confirm" to continue*	CONFIRM					
74.	*During* *Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Setting TM/TC DFE for AD mode commanding"* ⇨ Click the button "Confirm" to continue	CONFIRM					

Test location:	Operator	Product-Assurance:	Date:

Step No.	***Test-Step-Description***	***Nominal Value***	***Tolerance***	***Actual Value***	***Remarks***	***P***	***N***
75.	*During Z010999MCVT130_IST_INSTR_COMMISSIONING* *"switching to RF for PACS Commissioning"* ⇨ Click the button "Confirm" to continue	CONFIRM					
76.	*Back to Master, Z010999MCVT130_IST_INSTR_COMMISSIONING* *"CEL DOWNLINK"* ⇨ Click the button "Confirm" to continue	CONFIRM					

Test location:	Operator	Product-Assurance:	Date:

Step No.	*Test-Step-Description*	*Nominal Value*	*Tolerance*	*Actual Value*	*Remarks*	*P*	*N*
77.	*Back to Master,* *D102159SCVT080_CEL_DOWNLINK* *"CEL DOWNLINK"* ⇨ Click the button "EndTS" to continue	ENDTS			IF CEL is not empty, send following TCs to clear it: DC167160 with parameters: DH002160 1 DH003160 0x7F DC167160 with parameters: DH002160 1 DH003160 0xFF		
78.	*Back to Master,* *Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Initial S/C status check "* ⇨ Click the button "Confirm" to continue	Confirm					

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
79.	*During* *IST_STATUS* *At prompt* *"Do you want to Stop for each failure"* ⇨ Click the button "NO" to continue	NO					
80.	*During* *Z010999MCVT153_IST_STATUS* ⇨ *CHECK STATUS then click the button "OK" to continue*	OK					
81.	*Back to Master,* *Z010999MCVT130_IST_INSTR_COMMISSIONING* *"PACS COMMISSIONING"* ⇨ Click the button "Confirm" to continue	CONFIRM					
82.	*Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Start specific PACS COMMISSIONING sequences"* When prompted as above Return to calling procedure.				Instruments power ON/OFF are not included in this procedure.		

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
83.	*Z010999MCVT130_IST_INSTR_COMMISSIONING* *Once PACS specific commissioning test completed and PACS switched off, click "Confirm" and continue from the next step*	CONFIRM					
84.	*Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Switch S/C control (TC and TM) from RF link to umbilical"* ⇨ Click the button "Confirm" to continue	CONFIRM					
85.	*Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Switching off TT&C Chain* ⇨ Click the button "Confirm" to continue	CONFIRM					
85.5	*Z010999MCVT130_IST_INSTR_COMMISSIONING* *"TT&C SCOE OFF"* ⇨ Click the button "Confirm" to continue	CONFIRM					
86.	Return to calling procedure						

Test location:	Operator	Product-Assurance:	Date:

7.4 HIFI COMMISSIONING

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
87.	*During* ***Z010999MCVT130_IST_INSTR_COMMISSIONING*** *Configuration of the IST section 5.8.4.7 HIFI COMMISSIONING "* *⇨ Click the button "Confirm"" to proceed*	CONFIRM					
88.	*During Z010999MCVT130_IST_INSTR_COMMISSIONING* *" TT&C SCOE CONNECTION"* *⇨ Click the button "Confirm" to proceed*	CONFIRM			Y102989ETVT021_TTC_SCOE_ON is called		
89.	*During Z010999MCVT130_IST_INSTR_COMMISSIONING* *"CDMS setting for separation"* *⇨ Click the button "Confirm" to proceed*	CONFIRM			A102109SPVT202_ACMS_STATUS_H is called asynchronously and D102159SCVT138_IST_LAUNCH_SUNACQ synchronously		

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
90.	*During …* *D103159SCVT138_IST_LAUNCH_SUNACQ* ⇨ *Wait, switch to script …ACMS_CONFIG25*	PASS					
91.	*During A102109SPVT103_ACMS_CONFIG25* ⇨ *enter option 88, to go to Main Menu 3* ⇨ *Click the button "OK"* ⇨ *then press "Continue"*	88 OK CONTINUE					

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
92.	*During A102109SPVT103_ACMS_CONFIG25* *(1,6,4,5,20,99,88)* *SEPARATION (open separation straps)* *Main Menu 3.0: option 2* *⇨ Click the button "OK" and then* *⇨ Click the button "Continue"*	2 OK CONTINUE					
93.	*During A102109SPVT034_ACMS_SAM_MON* *Do you want to continue to monitor SAM Sun Pointing mode?* *⇨ Enter your choice: no*	NO					
94.	*At end of D102159SCVT138_IST_LAUNCH_SUNACQ* *⇨ Click the button "End TS!" to proceed*	ENDTS					
95.	*Back to Master Script, Z010999MCVT130_IST_INSTR_COMMISSIONING* *TRANSITION TO NOMINAL* *⇨ Click the button "Confirm" to proceed*	CONFIRM					

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
96.	*Script D102159SCVT137_IST_SUNACQ_NOM shall pop-up. Check that script ends without any 'No-Go'* *⇨ Click the button "End TS!" to proceed*	ENDTS					
97.	*During Z010999MCVT130_IST_INSTR_COMMISSIONING* *At the prompt "Command ACMS (via OCM/Earth) to SCM/Earth. In parallel, continue with the master "* *⇨ Click the button "OK" to proceed* *⇨ Perform steps 95 to 105 (ACMS in SCM) in parallel with the following ones 106 –108 (PCDU transition, SREM)*	OK					
98.	*During A102109SPVT103_ACMS_CONFIG25* *Select Transition to OCM.* *Main Menu 4.0 SAM Phase: Option 6* *⇨ Click the button "OK" and then* *⇨ Click the button "Continue" to proceed*	6 OK CONTINUE					
99.	*During A102109SPVT036_ACMS_STR_ON* *Do you want to change the current STR in use? Type no* *⇨ Click the button "OK" to proceed*	NO					

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
100.	*During A102109SPVT043_TRANSITION_TO_OCM* *Only for info:* *⇨ Verify after ca.7 min if ACMS mode is = OCM point fine (Earth pointing)* *⇨ Verify in AND: ZAA00999 if Est Attitude Q1..Q4 is close to Target (absolute value)* *⇨ Verify AESM3002 = OCM point fine or in synoptic SAT – ACMS – ACC – Mode Nominal*	PASS PASS PASS			Check in seq. TRANSITION IN OCM Might fail. Check attitude in AND ZAA01999 until mode is OCM point fine. Then click repeat TM.		
101.	*During A102109SPVT043_TRANSITION_TO_OCM* *If the sequence prompts as SUSPENDED (fcv duty cycle higher than 0.01)* *⇨ click on script name in Test Console* *⇨ Click the button "RESUME" to proceed*	RESUME					

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
102.	*During A102109SPVT103_ACMS_CONFIG25* *Main Menu 7.0: Option 3* *Select Transition to SCM (Science mode).* *⇨ Click the button "OK" and then* *⇨ Click the button "Continue" to proceed*	3 OK CONTINUE					
103.	*During A102109SPVT038_RWL_ON* *"Do you want to change actual on-board wheel set selected in the nominal configuration?* *RWL 1-2-3-4 selected* *⇨ Click the button "NO" to proceed ?*				AEW1A002, AEW2A002, AEW3A002, AEW4A002 LOW expected until wheels are spun up.		
104.	*During A102109SPVT042_RWL_SPINUP* *"Change actual Angular Momentum (initial values)?"* *Option: no* *⇨ Wait for about 10 minutes*	RWL-1 ang momentum 10.6999999 RWL-2 ang momentum 10.6999999 RWL-3 ang momentum 10.6999999 RWL-4 ang momentum 10.6999999 NO					

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
105.	*Only for info:* *⇨ Verify RWL speed in plotting window* *1. Select REALTIME => DESKTOP => MONITORING => TM Plotting Tool* *2. Select Directory: Home/heracms/plotting* *3. Select FILE => LOAD =>* */home/heracms/plotter/RWLsSPEED.txt*						

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
106.	*Only for info:* *⇨ Verify 4x RWL momentum parameters are within +/-20%* *AEWMA002 = 10.7 (RWL1 momentum)* *AEWMB002 = 10.7 (RWL2 momentum)* *AEWMC002 = 10.7 (RWL3 momentum)* *AEWMD002 = 10.7 (RWL4 momentum)* *⇨ Verify in SAT synoptic SAT – ACMS – ACC – Mode Nominal = OCM Point Fine* *⇨ Verify in Telemetry window ZAAF0999 (diagnostic TM)* *As long as the ACMS is switched On the Menu Box has to be present !!!*	PASS PASS PASS			*Values in IST_RMS1 file*		
107.	*During* *A102109SPVT042_RWL_SPINUP* *SUSPEND* *⇨ Click the button "RESUME" in the test sequence console to proceed*	RESUME					

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
108.	*At end of A102109SPVT042_RWL_SPINUP* ⇨ *Click the button "End TS!" to proceed*	ENDTS			During transition to SCM for ACMS, ACZ2T109 may timeout because of slew time too short.		
109.	*During Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Transition from SAS 900W and BS 24V to SAS 1475W and BS full charged"* ⇨ *Click the button "Confirm" to proceed*	CONFIRM					
110.	*During Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Switch on SREM"* ⇨ *Click the button "Confirm" to continue*	CONFIRM					
111.	*During Z102999SCVT003_SREM_ACQ_START* ⇨ *Click the button "End TS!" to proceed*	ENDTS			SPR-290		

Test location:	Operator	Product-Assurance:	Date:

Step No.	*Test-Step-Description*	*Nominal Value*	*Tolerance*	*Actual Value*	*Remarks*	*P*	*N*
112.	Back to Master, Z010999MCVT130_IST_INSTR_COMMISSIONING Reply to the prompt: " Final Setting to test start" ⇨ Click the button "Confirm" to continue	CONFIRM			*ACMS shall be already in SCM mode*		
113.	At the end of the step check that the following have been applied: STR 1 LCL B is ON, RX-2 is 125 bps	PASS					
114.	*Back to Master,* *Z010999MCVT130_IST_INSTR_COMMISSIONING* *SET BUS PROFILE TO HIFI PRIME* ⇨ *Click the button "Confirm" to continue*	CONFIRM					
115.	*During* *Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Setting TM/TC DFE for AD mode commanding"* ⇨ Click the button "Confirm" to continue	CONFIRM					

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
116.	*During Z010999MCVT130_IST_INSTR_COMMISSIONING* *"switching to RF for HIFI Commissioning"* ⇨ Click the button "Confirm" to continue	CONFIRM					
117.	*Back to Master, Z010999MCVT130_IST_INSTR_COMMISSIONING* *"CEL DOWNLINK"* ⇨ Click the button "Confirm" to continue	CONFIRM					

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
118.	*Back to Master,* *D102159SCVT080_CEL_DOWNLINK* *"CEL DOWNLINK"* ⇨ Click the button "EndTS" to continue	ENDTS			IF CEL is not empty, send following TCs to clear it: DC167160 with parameters: DH002160 1 DH003160 0x7F DC167160 with parameters: DH002160 1 DH003160 0xFF		
119.	*Back to Master,* *Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Initial S/C status check "* ⇨ Click the button "Confirm" to continue	Confirm					

Test location:	Operator	Product-Assurance:	Date:

Step No.	*Test-Step-Description*	*Nominal Value*	*Tolerance*	*Actual Value*	*Remarks*	*P*	*N*
120.	*During* *Z010999MCVT153_IST_STATUS* *At prompt* *"Do you want to Stop for each failure"* ⇨ Click the button "NO" to continue	NO					
121.	*During* *Z010999MCVT153_IST_STATUS* *⇨ CHECK STATUS then click the button "OK" to continue*	OK					
122.	*Back to Master,* *Z010999MCVT130_IST_INSTR_COMMISSIONING* *"HIFI COMMISSIONING"* ⇨ Click the button "Confirm" to continue	CONFIRM					
123.	*Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Start specific HIFI COMMISSIONING sequences"* When prompted as above Return to calling procedure.				Instruments power ON/OFF are not included in this procedure.		

Test location:	Operator	Product-Assurance:	Date:

Step No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
124.	*Z010999MCVT130_IST_INSTR_COMMISSIONING* *Once HIFI specific commissioning test completed and HIFI switched off, click "Confirm" and continue from the next step*	CONFIRM					
125.	*Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Switch S/C control (TC and TM) from RF link to umbilical"* ⇨ Click the button "Confirm" to continue	CONFIRM					
126.	*Z010999MCVT130_IST_INSTR_COMMISSIONING* *"Switching off TT&C Chain* ⇨ Click the button "Confirm" to continue	CONFIRM					
127.	*Z010999MCVT130_IST_INSTR_COMMISSIONING* *"TT&C SCOE OFF"* ⇨ Click the button "Confirm" to continue	CONFIRM					
128.	Return to calling procedure						

Test location:	Operator	Product-Assurance:	Date:

8 Summary Sheets

8.1 Procedure Variation Summary

<table>
<tr><td colspan="2"></td><td colspan="2">Test Change</td><td colspan="2">Curr. No.:
Date
Page of</td></tr>
<tr><td colspan="3">Test designation</td><td colspan="1">Test Procedure</td><td>Issue</td><td>Rev.</td></tr>
<tr><td colspan="3">Test step changed</td><td colspan="3">Reason for Change</td></tr>
<tr><td colspan="6"></td></tr>
<tr><td colspan="2">Prepared by:</td><td colspan="2">Resp. Test Leader</td><td colspan="2">Project Engineer</td></tr>
<tr><td colspan="2">PA/QA</td><td colspan="2">Prime</td><td colspan="2">Customer</td></tr>
</table>

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 Director		
Test Conductor		
Test operator		
PA Responsible		
ESA Representative		

END OF DOCUMENT

	Name	Dep./Comp.		Name	Dep./Comp.
	Baldock Richard	FAE12	X	Sonn Nico	ASG51
	Barlage Bernhard	AED13		Steininger Eric	AED321
	Bayer Thomas	ASA42	X	Stritter Rene	AED11
	Brune Holger	ASA45		Suess Rudi	OTN/ASA44
X	Chen Bing	HE Space		Theunissen Martijn	DSSA
X	Davis William	Captec		Vascotto Riccardo	HE Space
	Edelhoff Dirk	AED21		Wagner Klaus	ASG23
	Fehringer Alexander	ASG15	X	Wietbrock Walter	AET12
X	Fricke Wolfgang Dr.	AED 65		Wöhler Hans	ASG23
	Geiger Hermann	ASA42		Wössner Ulrich	ASE252
	Grasl Andreas	OTN/ASA44		Zumstein Armin	AED15
X	Grasshoff Brigitte	AET12			
X	Hamer Simon	Terma			
	Hanka, Erhard	FI522			
X	Hendrikse Jeffrey	HE Space			
X	Hendry David	Terma			
	Hengstler Reinhold	ASA42			
	Hinger Jürgen	ASG23			
X	Hohn Rüdiger	AED65			
	Hopfgarten Michael	AET32			
	Huber Johann	ASA42			
	Hund Walter	ASE252			
X	Idler Siegmund	AED312			
	Ivády von András	FAE12			
	Jahn Gerd Dr.	ASG23			
	Jolk Matthias	AET1	X	ESA/ESTEC	ESA
X	Klenke Uwe	ASG72	X	Thales Alenia Space Cannes	TAS-F
	Kölle Markus	ASA43		Thales Alenia Space Torino	TAS-I
	König Werner	AET32			
X	Koppe Axel	AED312			
X	Kroeker Jürgen	AED65		**Instruments:**	
X	La Gioia Valentina	Terma	X	MPE (PACS)	MPE
	Lang Jürgen	ASE252	X	RAL (SPIRE)	RAL
	Langenstein Rolf	AED15	X	SRON (HIFI)	SRON
	Langfermann Michael	ASA41			
	Leitermann Stefan	AET12			
X	Liberatore Danilo	Rhea		**Subcontractors:**	
X	Martin Olivier	Altec		Austrian Aerospace	AAE
X	Maukisch Jan	ASA43		Austrian Aerospace	AAEM
X	Much Christoph	ASA43		BOC Edwards	BOCE
X	Müller Martin	ASA43		Dutch Space Solar Arrays	DSSA
	Pietroboni Karin	AED65		EADS Astrium Sub-Subsyst. & Equipment	ASSE
	Reichle Konrad	ASA42		EADS CASA Espacio	CASA
	Runge Axel	OTN/ASA44		EADS CASA Espacio	ECAS
	Saal Christoph	External		European Test Services	ETS
	Schink Dietmar	AED321		Patria New Technologies Oy	PANT
	Schmidt Thomas	AED15		SENER Ingenieria SA	SEN
	Schweickert Gunn	ASG23		Thales Alenia Space, Antwerp	TAS-ETCA

Attachment 3 to Section 6.7:

As-Run Procedure HP-2-ASED-TP-0217 for SPIRE Commissioning

EADS astrium | Test Procedure | Herschel

2008_07_30_00_38_herdmu_hpice22_REALTIME_SPIRE_COM

TP_0217_iss1_4_TP_226_iss1_1_SPIRE_Commissioning_He2_END_001

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

CI-No: 125200

Prepared by:	S. Hamer/A. Koppe	Date:	23.07.2008
Checked by:	S. Idler		24.07.08
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Distribution: See Distribution List (last page)

Issue	Date	Sheet	Description of Change	Release
1	08.05.08	All	First Formal Issue	
1.1	30.05.08	All	Updates to reflect redlining from 1st SMEC test in Hel plus addition of LL latch relay status check for nominal and redundant. Minor typos + replacement of outstanding S/C level TBCs/TBDs	
1.2	01.07.08		Typo in I-EGSE connection cmd removed (**YC00X966)** **Update of power on/off details for CFT**	
1.3	03.07.08		Implementation of new issue (2.5) of RD2, SPIRE Cold Functional Test Procedures, SPIRE-RAL-PRC-2398	
1.4	23.07.08		Implementation of new issue (2.6) of RD2, SPIRE Cold Functional Test Procedures, SPIRE-RAL-PRC-2398	

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1 Scope

This document describes the set of Cold Functional Tests (CFTs) to be performed on the SPIRE FM Instrument for IST Instrument Commissioning (refs. AD6 & AD9) in HeII conditions.

It also includes the SMEC Functional & Microvibration Tests. However, these have to be run independently of the other parts of the CFT, as they require a very specific test and satellite configuration and will be run in HeI conditions

Both redundancies are tested within this procedure.

Constraints General

- This procedure requires the presence of SPIRE personnel as the I-EGSE will be required to assess the results online as part of the pass/fail criteria.
- Before carrying out the next procedure within the test sequence always ask for the go ahead by the SPIRE staff.

Constraints Specific

- Specific constraints apply if Launch Lock Latch status monitoring EGSE is fitted, see section 5.4.3.
- The **CFT** part of the procedure **shall** only be performed in HeII conditions
- The **SMEC** part of the procedure **shall** only be performed in HeI conditions, with satellite Horizontal with +Y axis up, and a recommended Cryostat fill level at < 50%.
- **SMEC** Microvibration tests shall be performed with minimal external acoustic noise/vibration (e.g. at night)
- For **SMEC** Functional tests:
  - Level 1 temperature between 10 K and 20 K with a stability of ca. 2 K is tolerable, since the encoder is less sensitive as it gets warmer
  - For Level 0 and Level 2 section 5.2 applies

1.1 Objective

The objective of the test is to functionally check the FM instrument as much as feasibly possible in HeI or HeII conditions and in an AIT environment.

1.2 Test Flow

The CFT flow is as follows:

1. Power on and configure SPIRE I-EGSE for test

2. Power on and configure SVM for IST Instrument Commissioning (IST START)
3. Power on NOMINAL SPIRE Prime DPU & DRCU and enable Mil1553B-bus interface
4. Run Nominal CFT Procedures
5. Power off MCU Prime
6. Disable Mil1553B-bus interface and Power off SPIRE Prime DRCU & DPU
7. Repeat Steps 3 – 6 for Spire Redundant CFT Procedures
8. Power off SVM including CCU (IST END)
9. Switch off all EGSE

The SMEC flow is as follows:

1. Power on and configure SPIRE I-EGSE for test
2. Power on and configure SVM for test including CCU
3. Power on NOMINAL SPIRE Prime DPU & DRCU and enable Mil1553B-bus interface
4. Run SMEC CFT Nominal Procedures
5. Run SMEC Microvibration Procedures (on Nominal only)
6. Power off MCU Prime
7. Disable Mil1553B-bus interface and Power off SPIRE Prime DRCU & DPU
8. Repeat Steps 3, 4, 6 & 7 for Spire Redundant SMEC CFT Procedures
9. Power off SVM including CCU
10. Switch off all EGSE

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	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 2.2	SPIRE-RAL-DOC-002841
AD 9	Herschel Integrated Satellite Test Specification, Issue 6	H-P-2-ASP-SP-0939
AD 10	Herschel IST Lead Procedure	HP-2-ASED-TP-0134
AD11	SPIRE SMEC Launch Lock Status EGSE, issue 3.0	SPIRE-RAL-NOT-003015
AD12	S/C Configuration for IST Instrument Commissioning, Issue 1	HP-2-ASED-TP-0237

2.2 Reference Documents

RD 1	Herschel Planck Central Checkout System System User Manual	H-P-4-TE-MA-0010
RD 2	SPIRE Cold Functional Test Procedures, Iss. 2.5	SPIRE-RAL-PRC-2398
RD 3	Herschel CDMU ASW S/W Interface	H-P-4-SSF-IC-0001

	Control Document	
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. 1.0	SPIRE-RAL-PRJ-002395
RD 8	H/P OBT-UTC Time Synchronisation Technical Note Iss. 1.3	PT-CMOC-OPS-TN-6604-OPS- OGH
RD 9	SPIRE IST SPT Procedure; Iss 3.1	SPIRE-RAL-PRC-2398

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

CFT	Cold Functional Test
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
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
OBDH	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
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	Subsytems 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 including the CCU (connected to cryostat temperature and pressure sensors). Note this also means that the cryostat valves (commandable from the CCS) may also be connected therefore this has to be considered as a SAFETY critical area to be addressed in section 5.

For the CFT in Hell the satellite configuration will be as per the IST SPIRE Commissioning Configuration ref. AD10.

For SMEC parts of the CFT a minimum SVM configuration can be used as per AD2.

The Cryostat and therefore the satellite must be horizontal (+Y axis up) to perform the SMEC parts (section 7.2.6) of the CFT.

SPIRE FM units will be powered ON as per this procedure and assumes that FPU has already been successfully integrated to the warm units.

3.2 EGSE Configuration

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

I-EGSE shall be configured and connected to the HPCCS in accordance with AD 5 & AD 8.

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 Sequence

Ensure that the latest delivery of SPIRE CFT & SPT test scripts are installed on the CCS prior to start of test.

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

I-EGSE Software	Version	Comment
SPIRE MIB version		
SPIRE CUS version		
SCOS version		

The HPCSS HPSDB must also include the same SPIRE MIB version.

5 Conditions

5.1 Personnel

Responsibility	Name / Organisation
Test Director	
Test Conductor	
EGSE Operator	
PA Responsible	
Instrument Representative	
Customer Representative	
ESA Representative	

5.2 Environmental

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

Clean Room Conditions	Nominal	Actual
Clean Room Class	class 100000 or better	
Temperature	22°C ± 3°C	
Rel. Humidity	40 % - 60 %	
Pressure	Ambient	

S/C Environmental	Required	Actual
S/C Orientation	CFT: 20deg from Z, +Y down SMEC: Horizontal, +Y up	0° VERTICAL
Cryostat Status (HeI/HeII)	CFT: HeII SMEC: HeI	He II 61% full
Cryostat Level 0 Temp	CFT: T < 2.0K SMEC: 4.2K < T < 6.5K	T107 1.906 °K
Cryostat Level 1 Temp (T235-T236)	CFT: T < 6.2K SMEC: 10K < T < 20K **	T235 3.11 °K T236 3.81 °K
Cryostat Level 2 Temp	CFT: T < 12K SMEC: 5K < T < 30K	T254 7.4 °K
Cryostat Level 3 Temp	CFT: 5K < T < 50K SMEC: N/A	T250 7.1 °K T252 7.2 °K

T225 1.9 °K
T226 1.91 °K
T227 1.93 °K

** Stability of 2K/test period (ref. HP-2-ASED-MN-1528 10/04/08) T246 7.07 °K
T247 6.99 °K

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 Cryo Specific Safety Requirements

During the test the CCU may be connected to the Cryostat sensors and valves. Although no valve operation is performed in this test all Cryogenic specific safety requirements shall be considered when running this procedure as indicated below.

Safety instruction for cryogenic hazards coming from the Helium system are as follows:

1	Helium itself is a non-toxic gas. The hazards to be expected are personal injuries from frostbites (cold surfaces, cold gas plumes), asphyxiation due to insufficient oxygen in the remaining air, loss of orientation due to dense fog generation and impacts of cold damaged structures.
2	Due to the amount of stored energy the Herschel cryostat is a pressure vessel and the general rules for pressure vessel design have to be followed. In addition to these general rules, the safety regulations at CSG launch site have to be considered. The application of these rules leads to a safety concept, which is based on the 'leak before burst' criterion. Herschel is based on the following safety and reliability philosophy: a. Two failure tolerant b. Three independent paths for overpressure relief c. Passive safety system for all operation modes (no active controls for monitoring is required at any time) As emergency situations may occur at unexpected points in time and typically need immediate action, the full hierarchy of the project cannot be deployed and consultation of all knowledgeable persons may not be possible.
3	The main intent of immediate actions will therefore be to ensure safety of personnel and to bring the S/C into a safe waiting condition. The priority of safeguarding is 1) Personnel 2) S/C 3) Facility 4) Support equipment The second aim is to keep the cryostat near the foreseen test conditions in order to continue the test without unnecessary time delay if the failure can be corrected.
4	The ASED test director (or his representative) will be informed by the test personnel of any non-conformances, alarm and unforeseen events that might lead to emergency situations. The ASED test director (or his representative) will initiate immediate steps and call the decision committee (ASED test director, ASED PA, ESA test director, ASP representative, ETS representative) if necessary.

5	Prior to begin a pre-task briefing shall be performed to inform all participants about purpose of operation, possible hazards and emergency shut down
6	In case of operation of the Cryostat safety system the following IMMEDIATE activities shall be performed: • Operation of the safety valve: EVERYBODY has to leave the test room, except test Conductor and necessary CVSE operations personnel • Operation of burst disc: EVERYBODY has to leave the test room

5.3.4 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 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 required for this test and will be connected to the HPCCS in accordance with AD 5.

For SMEC tests the Launch Lock latch monitoring EGSE maybe fitted to the S/C according to AD11.

5.4.4 OGSE

None.

5.4.5 Special Equipment

None.

6 Verification Requirements and Test Criteria

This is a functional check of all SPIRE PFM subsystems in HeI or HeII conditions and AIT configuration as per AD6 and AD9.

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:			

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 7.2.8 shall be executed.

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

Enter Date/Time:			Sign Off:	

Enter Start Date/Time:			

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, SCOEs and Satellite/SVM and configure into Basic Test Mode, with SSMM initialised OBCP/EAT load/active and CCU monitoring in Mode 1 i.a.w. AD 10 sections 7.1 and 7.2. In	OK					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
	section 7.2.4 selecting the test case SPIRE Commissioning 5.8.4.5.1, in the Master GUI						
5	Configure the Satellite specifically for SPIRE Commissioning i.a.w. with AD12 Section 7.2 continuing up to step 41	OK					
6	Confirm that EGSE and Satellite are in the correct configuration as per AD 10	OK					
7	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					
8	From HPCCS Test Conductor console issue command to connect to SPIRE I-EGSE **connect HSPIREEGSE**	OK					
9	Confirm from HPCCS and SPIRE I-EGSE that the connection has been established	YZS29940= CONNECTED			**AND SYS_PARS**		
10	Verify that I-EGSE is receiving CCU Cryo packets	OK					
11	On HPCCS start the following test script: **ALL_SubscribeParams**	OK					
12	Verify HPCCS-IEGSE connection by sending test command: **YC00X966** From the manual command stack (repeater value of "0")	OK					
13	If required load Synoptics INSTRUMENTS on HPCCS to display	OK					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
	SPIRE status overview						
	READY FOR START OF SPIRE CFT						

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

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_HERSCHEL		

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

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 HeI/HeII 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**		

Enter Date/Time:			Sign Off:	

Enter Start Date/Time:			

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 TM2N Select OK to continue	 Not refreshing Not incrementing 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 TM2N	 Refreshing @ 1Hz Incrementing by 1 @ 1Hz		**AND: SA_1_559**		

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

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					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:	30/07/08		

7.2.2.2 Procedure SPIRE-IST-COLD-FUNC-SCU-02-P

Version	2.4
Date	6th December 2007
Purpose	SCU Nominal Science Contents Check PRIME
Initial configuration	SPIRE DPU and DRCU PRIME are switched ON, SPIRE HK is being produced
Final configuration	Unchanged
Preconditions	• **SPIRE-IST-COLD-DPU-ON-P** and **SPIRE-IST-COLD-DRCU-ON-P** procedures have been executed. • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • I-EGSE is up and running • DPU AND OBS PARAMETERS & FUNCTIONAL TEST PARAMETERS displays are selected on the CCS
Duration	5 minutes
Pass/Fail criteria	HK parameters have the expected values

Procedure Steps:

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-FUNC-SCU-02-P.tcl	SCUFRAMECNT TM5N	0/31 0x3FFF/1	31, 1	ok
Test Result (Pass/Fail):					

Enter Date/Time:	30/07/08	07:12	Sign Off:	

Enter Start Date|Time:	30/07/08	07:13	

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	• 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	—	—	—	OK
2	**Wait for the parameter BBFULLTYPE to get set to SCU_DC_Therm**	—	—	—	OK

Enter Date/Time:	30/07/08	07:18	Sign Off:	

Enter Start Date|Time:	30/07/08		

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	0xFFFF	OK
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 ~4.7K ~4.8K ~4.8K ~4.8K ~4.7K ~4.7K ~4.8K		
5	If the instrument is at He II temperatures check the values of	 PUMPHTRTEMP	(All Values TBC) -/~4.6K	2.67K	

Enter Date/Time:	30/07/08	07:19	Sign Off:	

Enter Start Date|Time:	30/07/08		

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	3.87K 3.68K 1.90 K 6.24 K 1.91 K 1.93 K 6.30 K 6.77 K 6.36 K 6.36 K 6.25 K 6.24 K 6.14 K 6.15 K 6.29 K	
6	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:	30/07/08	07.20	Sign Off:	[signatures]

DS: 65535 ID: SA_4_5 Title: SCU PARAMETERS Sample Time: 2008.212.07.20.20.031 Workstation: hpws21

NAME	DESCRIPTION	VALUE	UNIT
SM10N500	OBSID	B0000000	HEX
SM2LN500	BBFULLTYPE	Null	
SMD0N520	SCUFRAMECNT	31	DEC
SMD1F520	SCUIFSTAT	00000000	HEX
SMD2F520	SCUIFCTRL	00000007	HEX
SMD0T520	SCUSSDEL	0.07	ms
SM_0F520	SCUSTAT	00000000	HEX
SM_1F520	SCUTEMPSTAT	0000FFFF	HEX
SM_2F520	SCUDCDCSTAT	00000000	HEX
SM_0V520	SCUP5V	5.2390	V
SM_1V520	SCUP9V	9.0872	V
SM_2V520	SCUM9V	-9.0821	V
SMH0A520	SPHSV	0.1299	mV
SMT0A520	EVHSV	0.1087	mV
SMF0A520	TCHTRV	0.000833	V
SMT1A520	SPHTRV	0.0023	V
SMT0K520	CCUTEMP	297.5466	K
SMT1K520	TCUTEMP	297.6992	K
SMW0K520	PSUTEMP1	300.2932	K
SM_0N520	SCUFRAMECONF	00000000	HEX
SM_1N520	SCUFRAMES	0000001F	HEX
SMD3F520	SCUFRAMESTAT	00000000	HEX
SMD4F520	SCUCTRL	00000001	HEX
SMP0V520	PCALV	0.000145	V
SMS0V520	SCAL2V	0.000136	V
SMS1V520	SCAL4V	6.8e-05	V
SMS2V520	SCUCHT2_5V	2.5285	V
SMS3V520	SCUCHTREF	1.2274	V
SMS4V520	SCUCHTGND	0.0015	V
SMP0A520	PCALCURR	0.000928	mA
SMS0A520	SCAL2CURR	0.000102	mA
SMS1A520	SCAL4CURR	0.000269	mA

NAME	DESCRIPTION	VALUE	UNIT
SMW1K520	PSUTEMP2	300.9035	K
SMK0F520	SUBKSTAT	00000000	HEX
SMF0K520	PUMPHTRTEMP	2.67407542	K
SMF1K520	PUMPHSTEMP	3.87165819	K
SMF2K520	EVAPHSTEMP	3.68131315	K
SMF3K520	SHUNTTEMP	1.90674126	K
SMF4K520	EMCFILTEMP	6.24394354	K
SMF5K520	SL0TEMP	1.91930710	K
SMF6K520	PL0TEMP	1.93828154	K
SMF7K520	OPTTEMP	6.30225976	K
SMF8K520	BAFTEMP	6.77542473	K
SMF9K520	BSMIFTEMP	6.36730674	K
SMS0K520	SCAL2TEMP	6.36374928	K
SMS1K520	SCAL4TEMP	6.25736165	K
SMS2K520	SCALTEMP	6.24585545	K
SMFAK520	SMECIFTEMP	6.13942018	K
SMFBK520	SMECTEMP	6.14923894	K
SMFCK520	BSMTEMP	6.29021791	K
SMK0K520	SUBKTEMP	566.29900000	K
SMKEV520	SCUTHTREF	1.2299	V
SMKFV520	SCUTHTGND	-0.000459	V
SM_0X520	PLIABITSTAT	00000000	HEX
SM_1X520	SLIABITSTAT	00000000	HEX
SM_2X520	MCUBITSTAT	00000000	HEX

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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	• 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	—	—	—	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	SUBKSTAT	0/1/1	1	OK
4	If the instrument is at He I temperatures check the value of SCU AC thermometry channel.	SUBKTEMP	~4K	~~2.03~~	
5	If the instrument is at He II temperatures check the value of SCU AC thermometry channel.	SUBKTEMP	~1.7K	2.03	OK
6	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

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7.2.2.5 Procedure SPIRE-IST-COLD-FUNC-SCU-07-P

Version	2.4
Date	6th December 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	**This test should not be performed at He II temperatures, unless specifically instructed to do so by the I-EGSE staff.**
Preconditions	• 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	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-IST-COLD-FUNC-SCU-07-P.tcl	—	—	—	ok
2	Wait for the parameter BBFULLTYPE to get set to Cooler_Htr_Chk	BBFULLTYPE	Cooler_Htr_Chk		ok

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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. This voltage stays on for ~20 seconds. Wait for the voltage to go to zero to continue.	SPHSV – mV	0/~323/0	0/324/0	OK
4	Record the value of parameter EVHSV – the Evaporator Heat Switch Voltage. This voltage stays on for ~20 seconds. Wait for the voltage to go to zero to continue.	EVHSV – mV	0/~323/0	0/324./0	OK
5	Record the value of parameter SPHTRV – the Sorption Pump Heater Voltage. This voltage stays on for ~20 seconds.Wait for the voltage to go to zero to continue.	SPHTRV – V	0/~8.8/0	0/8.85/0	OK
6	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	
	Test Result (Pass/Fail):				

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7.2.2.6 Procedure SPIRE-IST-COLD-FUNC-PCAL-01-P

Version	1.0
Date	6th December 2007
Purpose	PCAL Characterisation 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	**This test should only be performed at He I or He II temperatures**
Preconditions	• 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	PCAL voltage and current agree with expected values

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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-IST-COLD-FUNC-PCAL-01-P.tcl	—	—	—	ok.
2	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: Unchanged

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7.2.2.7 Procedure SPIRE-IST-COLD-FUNC-SCAL-01-P

Version	1.0
Date	6th December 2007
Purpose	SCAL Characterisation 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	**This test should only be performed at He I or He II temperatures.** **If the test is to be performed at He II temperature then please confirm with I-EGSE staff first.**
Preconditions	• 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	18 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-IST-COLD-FUNC-SCAL-01-P.tcl	—	—	—	OK
2	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	OK
Test Result (Pass/Fail):					

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7.2.2.8 Procedure SPIRE-IST-COLD-FUNC-MCU-01-P

Version	2.4
Date	6th December 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.
Preconditions	• 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	MCU voltages and board temperatures show expected 'ON' 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-MCU-01-P.tcl	—	—	—	✓
2	Check that the MCU is booted up successfully	MCUBITSTAT	0/1/1	0/1/1	✓
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 ± 0.5V ~ 15.0 ± 0.5V ~ -15.0 ± 0.5V ~300K ~300K ~300K	5.01 14.15 -14.47 15.55 -15.63 294 K 299 K 298 K	✓
Test Result (Pass/Fail):					

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7.2.2.9 Procedure SPIRE-IST-COLD-FUNC-MCU-03-P

Version	2.4
Date	6th December 2007
Purpose	MCU Nominal Science Contents 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.
Preconditions	• 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 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-IST-COLD-FUNC-MCU-03-P.tcl	MCUFRAMECNT	0/-/297	0/297	✓
Test Result (Pass/Fail):		pass			

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7.2.2.10 Procedure SPIRE-IST-COLD-FUNC-BSM-01-P

Version	2.4
Date	6th December 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.
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 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-IST-COLD-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): pass					

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7.2.2.11 Procedure SPIRE-IST-COLD-FUNC-BSM-03-P

Version	2.4
Date	6th December 2007
Purpose	BSM (PRIME) Open Loop Dynamics 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. BSM Chop/Jiggle sensors are ON.
Final configuration	Unchanged
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	CHOPSENSSIG/JIGGSENSIG HK parameter evolve in the same direction as the commanded positions

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-BSM-03-P.tcl	—	—	—	✓
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	✓
Test Result (Pass/Fail):	pass				

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7.2.2.12 Procedure SPIRE-IST-COLD-FUNC-BSM-05A-P

Version	2.4
Date	6th December 2007
Purpose	BSM (PRIME) Open Loop Chop Test
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	Unchanged
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	The BSM Chops between the commanded positions

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-BSM-05A-P.tcl	—	—	—	✓
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	✓
Test Result (Pass/Fail):	pass				

TVS # ~~1~~ 2
(re-run script)

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7.2.2.13 Procedure SPIRE-IST-COLD-FUNC-BSM-05B-P

Version	2.4
Date	6th December 2007
Purpose	BSM (PRIME) Close Loop Chop Test
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	BSM is in closed loop mode
Preconditions	• 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 • CHOP PARAMETERS and JIGGLE PARAMETERS displays are selected on the CCS
Duration	5 minutes
Pass/Fail criteria	The BSM Chops in between the commanded positions

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute SPIRE-IST-COLD-BSM-INIT-P.tcl	CHOPLOOPMODE JIGGLOOPMODE	3/-/1 3/-/1	-/1 -/1	✓
2	Execute TCL script SPIRE-IST-COLD-FUNC-BSM-05B-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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7.2.2.14 Procedure SPIRE-IST-COLD-FUNC-BSM-06-P

Version	2.4
Date	6th December 2007
Purpose	BSM (PRIME) Closed Loop Operational Mode Chop Test
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. BSM is in closed loop.
Final configuration	Unchanged
Preconditions	• 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 • CHOP PARAMETERS and JIGGLE PARAMETERS displays are selected on the CCS
Duration	5 minutes
Pass/Fail criteria	The BSM Chops between the commanded positions

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute SPIRE-IST-COLD-BSM-06-P.tcl FUNC-	CHOPLOOPMODE JIGGLOOPMODE	1/1/1 1/1/1	1/1/1 1/1/1	✓
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):	pass				

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7.2.2.15 Procedure SPIRE-IST-COLD-BSM-OFF-P

Version	2.4
Date	6th December 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.
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 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-IST-COLD-BSM-OFF-P.tcl	—	—	—	
2	Check that the power to the BSM sensors is switched off	CHOPSENSPWR JIGGSENSPWR	1/-/0 1/-/0		✓
Test Result (Pass/Fail):	pass				

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7.2.2.16 Procedure SPIRE-IST-COLD-FUNC-SMEC-01-P

Version	2.4
Date	6th December 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.
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 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-IST-COLD-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 0/-/1	✓
Test Result (Pass/Fail):		pass			

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Enter Start Date|Time:	30.07.08	12:58	

7.2.2.17 Procedure SPIRE-IST-COLD-FUNC-SMEC-03-P

Version	2.4
Date	6th December 2007
Purpose	SMEC (PRIME) Encoder 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. SMEC Encoder and LVDT are ON.
Final configuration	Unchanged
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	MCUENGSMECENCSIG1/2 increase as the encoder power is increased

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-SMEC-03-P.tcl	—	—	—	✓
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	✓
Test Result (Pass/Fail): pass					

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Enter Start Date|Time:	30.07.08	13:02	

7.2.2.18 Procedure SPIRE-IST-COLD-SMEC-OFF-P

Version	2.4
Date	6th December 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.
Preconditions	• 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 • FUNCTIONAL TEST 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-IST-COLD-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):	pass				

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Enter Start Date|Time:	30.07.08	13:03	

7.2.2.19 Procedure SPIRE-IST-COLD-FUNC-DCU-02-P

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
	Cryostat Check Procedure for CFT						
2	Prior to performing next step verify that Level 3 temperature is between 5K and 50K (sensors T246 & T247)	OK				✓	
3	Record Temperatures: T246: (KD223302 if connected to CCU) T247: (KD223303 if connected to CCU)	 >5K - <50K >5K - <50K		 10.7 K 10.4 K		✓	
	End of Cryostat Check						

Version	2.4
Date	6th December 2007
Purpose	DCU Nominal Science Contents Check PRIME
Initial configuration	SPIRE DPU and DRCU PRIME are switched ON, SPIRE HK is being produced and MCU is booted.
Final configuration	Unchanged
Preconditions	• **SPIRE-IST-COLD-DPU-ON-P** and **SPIRE-IST-COLD-DRCU-ON-P** procedures have been executed. • SPIRE MIB PRIME is imported in the CCS database. • CCS is up and running • I-EGSE is up and running • DCU PARAMETERS display is selected on the CCS • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	DCU HK parameters increment as expected

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Enter Start Date|Time:			

Procedure Steps:

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-FUNC-DCU-02-P.tcl	DCUFRAMECNT	n/n+700	3664/4364	✓
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	✓
Test Result (Pass/Fail):		pass			

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Enter Start Date/Time:	30.07.08		

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	• 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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Enter Start Date|Time:	30.07.08		

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	0/ -/x3F 0/ -/x7F 0/1 5.23 V 11.58 V -11.58 V	✓
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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7.2.2.21 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	• 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):		pass			

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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	• 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

Pvs #3

skipped

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-P.tcl	—	—	—	
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	
Test Result (Pass/Fail):					

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Enter Start Date|Time:	30.07.08	13:46	

7.2.2.23 Procedure SPIRE-IST-COLD -PHOT-VSS-P

Version	1.1
Date	10th July 2008
Purpose	Photometer BDAs Vss Test PRIME
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	• 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	40 minutes
Pass/Fail criteria	Photometer BDA Vss values are optimised

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 - PHOT-VSS-P.tcl	—	—	—	✓
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	
Test Result (Pass/Fail):	passed				

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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	• 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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Enter Start Date|Time:	30.07.08		

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	0x3F/-/0 0x7F/-/0	✓
3	Check that the Photometer LIAs are switched off	PLIABITSTAT	1/-/0	1/-/0	✓
4	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail): pass					

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7.2.2.25 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	• 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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Enter Start Date|Time:	30.07.08		

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	0/-/7 0/1 5.25 V 11.59 V -11.57 V	✓
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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7.2.2.26 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	• 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	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	• 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

skipped

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):					

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7.2.2.28 Procedure SPIRE-IST-COLD- SPEC-VSS-P

Version	2.5
Date	10th July 2008
Purpose	Spectrometer BDAs Vss Test PRIME
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	• 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	40 minutes
Pass/Fail criteria	Spectrometer BDA Vss values are optimised

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	7 1	✓
2	Execute TCL script SPIRE-IST-COLD-SPEC-VSS-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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Enter Start Date|Time:	30.07.08	15:28	

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	• 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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Enter Start Date|Time:	30.07.08		

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	7/-/0	✓
3	Check that the Spectrometer LIAs are switched off	SLIABITSTAT	1/-/0	1/-/0	✓
4	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	
Test Result (Pass/Fail):	pass				

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)	 >5K - <50K >5K - <50K				✓	
6	Inform Cryo Engineers that Level 3 temperature no longer needs to be maintained between 5K and 50K	OK				✓	
	End of Cryostat Check						

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7.2.2.30 Procedure SPIRE-IST-COLD-MCU-OFF-P

Version	2.4
Date	6th December 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.
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 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-IST-COLD-MCU-OFF-P.tcl	—	—	—	✓
2	Check that the MCU is switched off	MCUBITSTAT	1/-/0	1/-/0	
Test Result (Pass/Fail): pass					

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Enter Start Date|Time:	30.07.08	15:33	

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	• 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	FFFF / 0	✓
3	A few seconds later record the value of parameter SUBKSTAT	SUBKSTAT	1/-/0	1/-/0	✓
Test Result (Pass/Fail): pass					

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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	YES		✓	
	If **YES** is selected the test script will go on to automatically power off all SPIRE warm units.				✓	

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Enter Start Date/Time:	30.07.08		

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
	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: a) EVID 1313 No_MCU_Response_Error b) EVID 21773 ALARM_LSMCU_DEAD However, be aware that if FDIR is enabled for SPIRE in the CDMU then this may trigger an OBCP				✓	
3.	On HPCCS when prompted: "Check Telemetry No Longer Updating - OK to continue" Check that parameters: THSK TM2N	Not refreshing Not incrementing		AND: SA_1_559	✓	
4.	Select OK to continue	OK			✓	

Enter Start Date|Time:	30.07.08		

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				✓	

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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		

Enter Start Date|Time:			

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**		
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				

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

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: THSK TM2N Select OK to continue	 Not refreshing Not incrementing 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 TM2N Select OK to continue	 Refreshing @ 1Hz Incrementing by 1 @ 1Hz OK		**AND: SA_1_559**		

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

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				
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					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.3.2 Procedure SPIRE-IST-COLD-FUNC-SCU-02-R

Version	2.4
Date	6th December 2007
Purpose	SCU Nominal Science Contents Check REDUNDANT
Initial configuration	SPIRE DPU and DRCU REDUNDANT are switched ON, SPIRE HK is being produced
Final configuration	Unchanged
Preconditions	• **SPIRE-IST-COLD-DPU-ON-R** and **SPIRE-IST-COLD-DRCU-ON-R** procedures have been executed. • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • I-EGSE is up and running • DPU AND OBS PARAMETERS & FUNCTIONAL TEST PARAMETERS displays are selected on the CCS
Duration	5 minutes
Pass/Fail criteria	HK parameters have the expected values

Procedure Steps:

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-FUNC-SCU-02-R.tcl	SCUFRAMECNT TM5N	0/31 0x3FFF/1	0/31 0x3FFF/1	V
Test Result (Pass/Fail):					

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Enter Start Date|Time:			

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	• 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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Enter Start Date|Time:			

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	~~0F~~ 0xFFFF	✓
4	If the instrument is at He II temperatures check the values of SCU DC thermometry channels.		(All Values TBC)		✓
		PUMPHTRTEMP	~4.2K	3,5	
		PUMPHSTEMP	~4.4K	5,14	
		EVAPHSTEMP	~4.3K	4,88	
		SHUNTTEMP	~4.2K	2,06	
		EMCFILTEMP	~4.8K	8,28	
		SL0TEMP	~4.2K	2,09	
		PL0TEMP	~4.2K	2,11	
		OPTTEMP	~4.8K	8,38	
		BAFTEMP	~4.8K	8,25	
		BSMIFTEMP	~4.7K	8,35	
		SCAL2TEMP	~4.8K	8,22	
		SCAL4TEMP	~4.8K	8,22	
		SCALTEMP	~4.8K	26,22 (known NCR)	
		SMECIFTEMP	~4.7K	8,15	
		SMECTEMP	~4.7K	8,12	
		BSMTEMP	~4.8K	8,33	
5	If the instrument is at He ~~II~~ I temperatures check the values of	PUMPHTRTEMP	(All Values TBC) -/~4.6K	✓	✓

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Enter Start Date|Time:			

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		
6	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:	30/07/08	17:48	Sign Off:	QA: D.Lamarby

Enter Start Date|Time:			

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	• 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

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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	1	✓
4	If the instrument is at He I temperatures check the value of SCU AC thermometry channel.	SUBKTEMP	~4K	~~2~~ 2	/
5	If the instrument is at He II temperatures check the value of SCU AC thermometry channel.	SUBKTEMP	~1.7K	2,2	✓
6	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	✓
Test Result (Pass/Fail):					

Enter Date/Time:	30/7/08	17:51	Sign Off:	QA: D Lamarty

Enter Start Date|Time:			

7.2.3.5 Procedure SPIRE-IST-COLD-FUNC-SCU-07-R

Version	2.4
Date	6th December 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	**This test should not be performed at He II temperatures, unless specifically instructed to do so by the I-EGSE staff.**
Preconditions	• 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	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-IST-COLD-FUNC-SCU-07-R.tcl	—	—	—	✓
2	Wait for the parameter BBFULLTYPE to get set to Cooler_Htr_Chk	BBFULLTYPE	Cooler_Htr_Chk		✓

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Enter Start Date|Time:			

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. This voltage stays on for ~20 seconds. Wait for the voltage to go to zero to continue.	SPHSV – mV	0/~323/0		✓
4	Record the value of parameter EVHSV – the Evaporator Heat Switch Voltage. This voltage stays on for ~20 seconds. Wait for the voltage to go to zero to continue.	EVHSV – mV	0/~323/0	325	✓
5	Record the value of parameter SPHTRV – the Sorption Pump Heater Voltage. This voltage stays on for ~20 seconds.Wait for the voltage to go to zero to continue.	SPHTRV – V	0/~8.8/0	8.8	✓
6	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:	30/7/08	17:55	Sign Off:	QA: D. [illegible]

Enter Start Date|Time:			

7.2.3.6 Procedure SPIRE-IST-COLD-FUNC-PCAL-01-R

Version	1.0
Date	6th December 2007
Purpose	PCAL Characterisation 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	**This test should only be performed at He I or He II temperatures**
Preconditions	• 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	PCAL voltage and current agree with expected values

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Enter Start Date|Time:			

Procedure Steps:

Step	Description	Parameter Name – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-FUNC-PCAL-01-R.tcl	—	—	—	V
2	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail):					

Final Configuration: Unchanged

Enter Date/Time:	30/7/08	17:56	**Sign Off:**	[signature] QA: D. [illegible]

Enter Start Date|Time:			

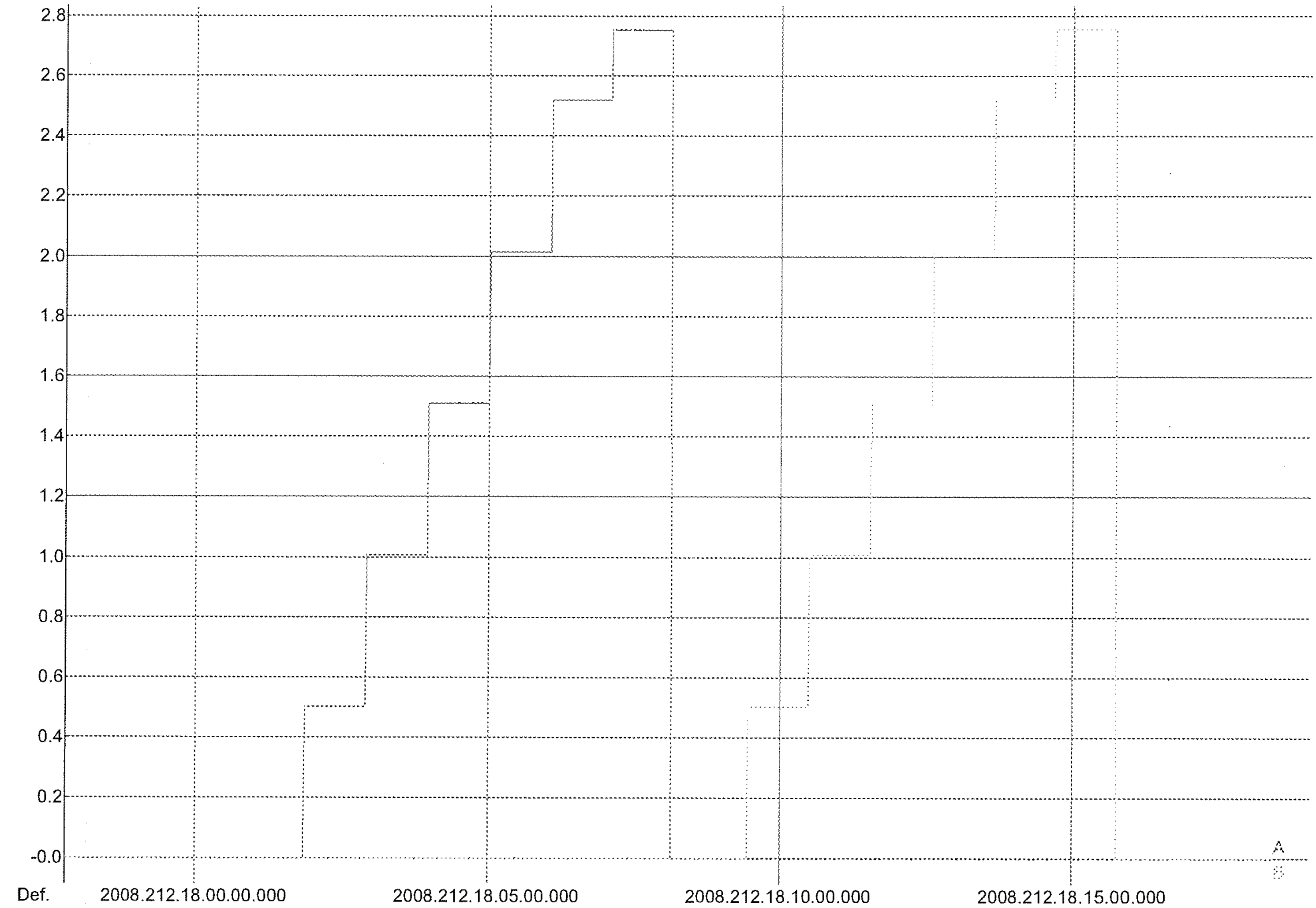
7.2.3.7 Procedure SPIRE-IST-COLD-FUNC-SCAL-01-R

Version	1.0
Date	6th December 2007
Purpose	SCAL Characterisation 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	**This test should only be performed at He I or He II temperatures.** **If the test is to be performed at He II temperature then please confirm with I-EGSE staff first.**
Preconditions	• 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	18 minutes
Pass/Fail criteria	SCAL2 and SCAL4 voltage and currents agree with expected values

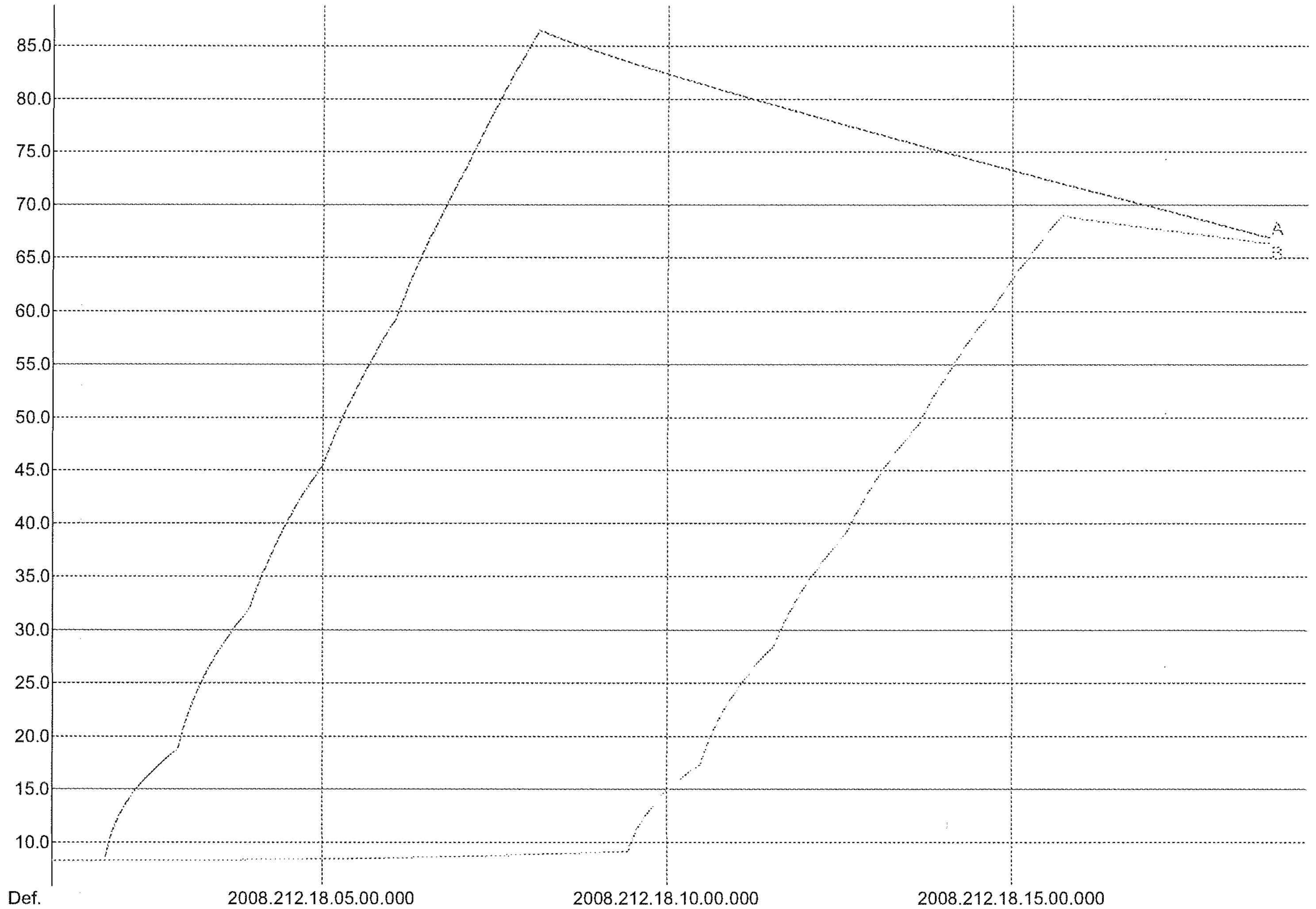
Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-FUNC-SCAL-01-R.tcl	—	—	—	✓ 18:01
2	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail):					

Enter Date/Time:	30/07/08	18:17	**Sign Off:**	QA: D. Lemonby



Quick ID	Plotted Parameter	Value	Timestamp	Validity	Axis	Pen style
A	SMS0V520 (Eng)	0.0001	2008.212.18.18.22.077	Valid	Def.	....
B	SMS1V520 (Eng)	-0.0000	2008.212.18.18.22.077	Valid	Def.	....



Quick ID	Plotted Parameter	Value	Timestamp	Validity	Axis	Pen style
A	SMS0K520 (Eng)	66.92002	2008.212.18.18.42.077	Valid	Def.	....
B	SMS1K520 (Eng)	66.36025	2008.212.18.18.42.077	Valid	Def.	....

Enter Start Date|Time:			

7.2.3.8 Procedure SPIRE-IST-COLD-FUNC-MCU-01-R

Version	2.4
Date	6th December 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.
Preconditions	• 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	MCU voltages and board temperatures show expected 'ON' values

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Enter Start Date|Time:			

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-MCU-01-R.tcl	—	—	—	
2	Check that the MCU is booted up successfully	MCUBITSTAT	0/1/1	1	✓
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 ± 0.5V ~ 15.0 ± 0.5V ~ -15.0 ± 0.5V ~300K ~300K ~300K	5.0 V 14.13V -14.49V 15,50V -15.61V 295,34K 299,~~93~~K 299 K	✓ ✓
Test Result (Pass/Fail):					

Enter Date/Time:	30/10/08	10:20	Sign Off:	QA: D.Lamontagne

Enter Start Date/Time:			

7.2.3.9 Procedure SPIRE-IST-COLD-FUNC-MCU-03-R

Version	2.4
Date	6th December 2007
Purpose	MCU Nominal Science Contents 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.
Preconditions	• 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 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-IST-COLD-FUNC-MCU-03-R.tcl	MCUFRAMECNT	0/-/297	0/-/297	V
Test Result (Pass/Fail):					

Enter Date/Time:	30/7/08	18:22	Sign Off:	QA: D. Lamarty

Enter Start Date|Time:			

7.2.3.10 Procedure SPIRE-IST-COLD-FUNC-BSM-01-R

Version	2.4
Date	6th December 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.
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 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-IST-COLD-FUNC-BSM-01-R.tcl	—	—	—	✓
2	Check that the Chop and Jiggle sensors have switched on	CHOPSENSPWR JIGGSENSPWR	0/1/1 0/1/1	1 1	✓
Test Result (Pass/Fail):					

Enter Date/Time:	30/7/08	18:24	Sign Off:	QA: D. Lamontagne

Enter Start Date|Time:			

7.2.3.11 Procedure SPIRE-IST-COLD-FUNC-BSM-03-R

Version	2.4
Date	6th December 2007
Purpose	BSM (REDUNDANT) Open Loop Dynamics 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. BSM Chop/Jiggle sensors are ON.
Final configuration	Unchanged
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	CHOPSENSSIG/JIGGSENSIG HK parameter evolve in the same direction as the commanded positions

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-BSM-03-R.tcl	—	—	—	✓
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	✓
Test Result (Pass/Fail):					

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7.2.3.12 Procedure SPIRE-IST-COLD-FUNC-BSM-05A-R

Version	2.4
Date	6th December 2007
Purpose	BSM (REDUNDANT) Open Loop Chop Test
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	Unchanged
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	The BSM Chops between the commanded positions

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-BSM-05A-R.tcl	—	—	—	√
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:	30/7/08	18:36	Sign Off:	QA D. Lamont

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7.2.3.13 Procedure SPIRE-IST-COLD-FUNC-BSM-05B-R

Version	2.4
Date	6th December 2007
Purpose	BSM (REDUNDANT) Close Loop Chop Test
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	BSM is in closed loop mode
Preconditions	• 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 • CHOP PARAMETERS and JIGGLE PARAMETERS displays are selected on the CCS
Duration	5 minutes
Pass/Fail criteria	The BSM Chops in between the commanded positions

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute SPIRE-IST-COLD-BSM-INIT-R.tcl	CHOPLOOPMODE JIGGLOOPMODE	3/-/1 3/-/1	1 1	✓
2	Execute TCL script SPIRE-IST-COLD-FUNC-BSM-05B-R.tcl	—	—	—	✓
3	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	✓
Test Result (Pass/Fail):					

Enter Date/Time:	30/07/08	18:42	Sign Off:	Uwe Klenke QA D. Lamoureux

Enter Start Date|Time:			

7.2.3.14 Procedure SPIRE-IST-COLD-FUNC-BSM-06-R

Version	2.4
Date	6th December 2007
Purpose	BSM (REDUNDANT) Closed Loop Operational Mode Chop Test
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. BSM is in closed loop.
Final configuration	Unchanged
Preconditions	• 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 • CHOP PARAMETERS and JIGGLE PARAMETERS displays are selected on the CCS
Duration	5 minutes
Pass/Fail criteria	The BSM Chops between the commanded positions

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute SPIRE-IST-COLD-BSM-06-R.tcl	CHOPLOOPMODE JIGGLOOPMODE	1/1/1 1/1/1	1/1/1 1/1/1	✓
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	✓
Test Result (Pass/Fail):					

Enter Date/Time:	30/07/2008	18:45	Sign Off:	[signature] QA: D. Lamarty

Enter Start Date|Time:			

7.2.3.15 Procedure SPIRE-IST-COLD-BSM-OFF-R

Version	2.4
Date	6th December 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.
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 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-IST-COLD-BSM-OFF-R.tcl	—	—	—	✓
2	Check that the power to the BSM sensors is switched off	CHOPSENSPWR JIGGSENSPWR	1/-/0 1/-/0	1/-10 1/-10	✓
Test Result (Pass/Fail):					

Enter Date/Time:	30/07/2008	18:48	Sign Off:	Uwe Klenke QA: D.Lamontagne

Enter Start Date|Time:		

7.2.3.16 Procedure SPIRE-IST-COLD-FUNC-SMEC-01-R

Version	2.4
Date	6th December 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.
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 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-IST-COLD-FUNC-SMEC-01-R.tcl	—	—	—	✓
2	Check that power to the SMEC LED and LVDT sensor is on	SMECENCPWR SMECLVDTPWR	0/-/2 0/-/1	0/-13 0/-/1	✓
Test Result (Pass/Fail):					

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Enter Start Date|Time:			

7.2.3.17 Procedure SPIRE-IST-COLD-FUNC-SMEC-03-R

Version	2.4
Date	6th December 2007
Purpose	SMEC (REDUNDANT) Encoder 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. SMEC Encoder and LVDT are ON.
Final configuration	Unchanged
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	MCUENGSMECENCSIG1/2 increase as the encoder power is increased

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-SMEC-03-R.tcl	—	—	—	✓
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	✓
Test Result (Pass/Fail):					

Enter Date/Time:	30/07/2008	18:52	Sign Off:	Marc Valenta QA: D. Lamonby

Enter Start Date/Time:			

7.2.3.18 Procedure SPIRE-IST-COLD-SMEC-OFF-R

Version	2.4
Date	6th December 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.
Preconditions	• 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 • FUNCTIONAL TEST 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-IST-COLD-SMEC-OFF-R.tcl	—	—	—	✓
2	Check that the power to the SMEC sensors is switched off	SMECENCPWR SMECLVDTPWR	2/-/0 1/-/0	3/-10 1/-10	✓
Test Result (Pass/Fail):					

Enter Date/Time:	30/07/2008	18:56	Sign Off:	Uwe Klenke QA: D. Lamarbz

Enter Start Date|Time:			

7.2.3.19 Procedure SPIRE-IST-COLD-FUNC-DCU-02-R

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
	Cryostat Check Procedure for CFT						
2	Prior to performing next step verify that Level 3 temperature is between 5K and 50K (sensors T246 & T247)	OK				✓	
3	Record Temperatures: T246: (KD223302 if connected to CCU) T247: (KD223303 if connected to CCU)	 >5K - <50K >5K - <50K		 – 15.3K		✓	
	End of Cryostat Check						

Version	2.4
Date	6th December 2007
Purpose	DCU Nominal Science Contents Check REDUNDANT
Initial configuration	SPIRE DPU and DRCU REDUNDANT are switched ON, SPIRE HK is being produced and MCU is booted.
Final configuration	Unchanged
Preconditions	• **SPIRE-IST-COLD-DPU-ON-R** and **SPIRE-IST-COLD-DRCU-ON-R** procedures have been executed. • SPIRE MIB REDUNDANT is imported in the CCS database. • CCS is up and running • I-EGSE is up and running • DCU PARAMETERS display is selected on the CCS • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	DCU HK parameters increment as expected

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Enter Start Date|Time:			

Procedure Steps:

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-FUNC-DCU-02-R.tcl	DCUFRAMECNT	n/n+700	1200/1900	✓
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	✓
Test Result (Pass/Fail):					

Enter Date/Time:	30/07/2008	19:02	Sign Off:	Uwe Klenke QA: D.Lamonby

Enter Start Date|Time:			

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	• 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:	30/07/2008	19:08	Sign Off:	Uwe Valenta QA: D. Lamonby

Enter Start Date|Time:			

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	0/-/0x3F 0/-/0x7F 1 0.012V /5.24V 0.0091V /+11.6 0.0096V /-11.6	✓
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail):					

Enter Date/Time:	30/07/2008	19:12	**Sign Off:**	Uwe Klenke QA: D. Laurent

Enter Start Date|Time:			

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	• 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

PVS #4

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-13-PHOT-R.tcl	—	—	—	
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	QA : D. [illegible]

Enter Start Date|Time:			

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	• 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

PVS#4

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):					

Enter Date/Time:			Sign Off:	QA: D.lamonby

Enter Start Date|Time:			

7.2.3.23 Procedure SPIRE-IST-COLD -PHOT-VSS-R

Version	1.1
Date	10th July 2008
Purpose	Photometer BDAs Vss Test REDUNDANT
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	• 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	40 minutes
Pass/Fail criteria	Photometer BDA Vss values are optimised

PVS#4

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 - PHOT-VSS-R.tcl	—	—	—	
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	QA D.lamouly

Enter Start Date|Time:			

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	• 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

Enter Date/Time:	30/07/2008	19:15	Sign Off:	Uwe Klenke QA D. Lamontagne

Enter Start Date|Time:			

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	0x3F/-/0 0x7F/-/0	✓
3	Check that the Photometer LIAs are switched off	PLIABITSTAT	1/-/0	1/-/0	✓
4	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail):					

Enter Date/Time:	30/07/2008	19:16	Sign Off:	Uwe Klenk QA: D. Lemonby

Enter Start Date|Time:			

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	• 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:	30/07/2008	19:19	Sign Off:	Uwe Veenker QA: Dlamonty

Enter Start Date/Time:			

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	0/-/7 1 ~0/5.25 ~0/+11.59 ~0/-11.59	✓
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail):					

Enter Date/Time:	30/07/2008	19:22	Sign Off:	[signature] QA: D. [signature]

Enter Start Date|Time:			

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	• 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

PVS #4

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):					

Enter Date/Time:			Sign Off:	QA: D.Lamonby

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	• 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

PVS#4

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):					

Enter Start Date/Time:			

7.2.3.28 Procedure SPIRE-IST-COLD- SPEC-VSS-R

Version	1.1
Date	10th July 2008
Purpose	Spectrometer BDAs Vss Test REDUNDANT
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	• 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	40 minutes
Pass/Fail criteria	Spectrometer BDA Vss values are optimised

PVS #4

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-SPEC-VSS-R.tcl	—	—	—	
3	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	QA: D.[illegible]

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	• 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:

Enter Date/Time:	30/07/2008	19:39	Sign Off:	QA: D.Lamonby

Enter Start Date/Time:			

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	7/-/0	✓
3	Check that the Spectrometer LIAs are switched off	SLIABITSTAT	1/-/0	1/-/0	✓
4	Wait for the I-EGSE staff to confirm the success or failure of this test	—	—	—	✓
Test Result (Pass/Fail):					

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)	 >5K - <50K >5K - <50K		 — 15.7 K		✓	
6	Inform Cryo Engineers that Level 3 temperature no longer needs to be maintained between 5K and 50K	OK		N/A			
	End of Cryostat Check						

Enter Date/Time:	30/07/2008	19:40	**Sign Off:**	Uwe Klenk QA: D.lamarby

Enter Start Date/Time:			

7.2.3.30 Procedure SPIRE-IST-COLD-MCU-OFF-R

Version	2.4
Date	6th December 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.
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 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-IST-COLD-MCU-OFF-R.tcl	—	—	—	✓
2	Check that the MCU is switched off	MCUBITSTAT	1/-/0	0	✓
Test Result (Pass/Fail):					

Enter Date/Time:	30/07/2008	19:44	Sign Off:	[signature] QA: D.lamont

Enter Start Date/Time:			

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	• 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:

Enter Date/Time:	30/07/2008	19:47	Sign Off:	[signature] QA: D. [signature]

Enter Start Date|Time:			

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	0xFFFF/0	✓
3	A few seconds later record the value of parameter SUBKSTAT	SUBKSTAT	1/-/0	1/0	✓
Test Result (Pass/Fail):					

Enter Date/Time:	30/07/2008	19:47	Sign Off:	[signature] QA: D. Lamonby

Enter Start Date|Time:			

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		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		YES	✓	
	If **YES** is selected the test script will go on to automatically power off all SPIRE warm units.				✓	

Enter Date/Time:	30/07/2008	19:49	Sign Off:	Clive Klenke QA: D. Lamonby

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
	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: c) EVID 1313 No_MCU_Response_Error d) EVID 21773 ALARM_LSMCU_DEAD However, be aware that if FDIR is enabled for SPIRE in the CDMU then this may trigger an OBCP				✓	
3.	On HPCCS when prompted: "Check Telemetry No Longer Updating - OK to continue" Check that parameters: THSK TM2N	 Not refreshing Not incrementing	 Not refreshing Not incrementing	AND: SA_1_559	✓	
4.	Select OK to continue	OK	OK			

Enter Date/Time:	30/07/2008	19:51	Sign Off:	[signature] QA: D. Lamoureux [signature]

Enter Start Date|Time:			

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"				✓	
6.	Select OK to continue	OK	OK		✓	
7.	On HPCCS stop Packet History displays for the following APIDs:1281,1283	OK			✓	
	SPIRE REDUNDANT OFF				✓	

Enter Date/Time:	30/07/2008	19:54	Sign Off:	Uwe Vlenke QA: D. Lamonby

Enter Start Date|Time:	30/7/08	22.30	

PVS 5

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 HPCCS 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	Switch off Satellite/SVM, HPCCS and SCOEs i.a.w. procedure AD12 Section 7.4 continuing from step 42, then return to lead procedure AD10 section 7.4 to complete the switch-off	OK				✓	
7	Confirm both Satellite and EGSE powered down	OK				✓	
	End Conditions: Satellite and EGSE OFF					✓	
	END OF SPIRE CFT TEST						

Enter Date/Time:	31/7/08	00 : 50	Sign Off:	J. [illegible] / QA: R. [illegible]

Enter Start Date|Time:			

7.2.5 EGSE & Satellite Switch On for SMEC Tests

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
	Satellite & EGSE Switch On						
0	Confirm all constraints for the SMEC Test 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, SCOEs and Satellite/SVM and configure into Basic Test Mode i.a.w. AD 2 Section 7.1 to 7.5.	OK					
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					
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					
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					

Enter Date/Time:			Sign Off:	

Enter Start Date/Time:			

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
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= CONNECTED			AND SYS_PARS		
11	Verify that I-EGSE is receiving CCU Cryo packets	OK					
12	On HPCCS start the following test script: **ALL_SubscribeParams.tcl**	OK					
13	Verify HPCCS-IEGSE connection by sending test command: **YC00X966** From the manual command stack (repeater value of "0")	OK					
14	If required load Synoptics INSTRUMENTS on HPCCS to display SPIRE status overview						
	READY FOR START OF SPIRE SMEC TESTS						

Enter Date/Time:			Sign Off:	

Enter Start Date/Time:			

7.2.6 SMEC Tests

7.2.6.1 Verify Nominal Latch Command Relay Status

Verify launch lock relays are positioned to allow SMEC launch lock to be unlatched.

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
	All TCs to be sent from the Manual Command Stack					
1.	*Send **DC904180** and verify from the resulting (14,4) packet that packet 120 (dec) is not already enabled (i.e. NOT present in the list). If present skip steps 2 – 4*	120 not present		Step 1 to 5 only required on CDMS ASW 3.4		
2.	*Send **ZCB00999** to allocate new diagnostic packet*	OK				
3.	*Send **DC900180** with repeater value 1 and parameters: DH019180 = 26, DH020180=120*	OK				
4.	*Send **DC904180** and verify from the resulting (14,4) packet that packet 120 (dec) is nowenabled (i.e. present in the list)*	120 present				
5.	*From TMPH verify that packets with SPID = **264000999** are cyclically arriving on the CCS*	Packets Arriving				
6.	Close LCL25, by sending **DC25D170**	OK		State of LCL #25 switches to ON		
7.	Verify LCL25 closed: **WM12B565** =	ON				
8.	Record Current **WM107565**	N/A				

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
9.	Send HLC 5 to switch relays to LCL position **DCT01170, DHT01170="CMD_ID_HLC5"**	OK				
10.	Verify Current **WM107565 =**	130-180 mA		Current between 130-180mA		
11.	Send HLC 6 to switch relays to MCU position **DCT01170, DHT01170="CMD_ID_HLC6"**	OK				
12.	Verify Current **WM107565 =**	0 mA		Current off		
13.	Open LCL25, by sending **DC25B170**	OK		State of LCL #25 switches to OFF		
14.	Verify LCL25 open: **WM12B565** =	OFF				
	SMEC Nominal LL latch relay position verification complete					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.2 Switch ON for SPIRE PRIME SMEC

The following will switch ON and configure SPIRE Prime instrument in REDY (Standby) mode. HKTM packets will be generated on APIDs 1280 dec 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_HERSCHEL		

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

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 HeI/HeII 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**		

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

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 TM2N Select OK to continue	Not refreshing Not incrementing 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 TM2N	Refreshing @ 1Hz Incrementing by 1 @ 1Hz		**AND: SA_1_559**		

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

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					

Enter Date/Time:			Sign Off:	

7.2.6.3 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	• 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**	—	—	—	

Enter Start Date|Time:			

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
	SCU_DC_Therm				
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 ~4.7K ~4.8K ~4.8K ~4.8K ~4.7K ~4.7K ~4.8K		
5	If the instrument is at He II		(All Values TBC)		

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

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 SL0TEMP PL0TEMP OPTTEMP BAFTEMP BSMIFTEMP SCAL2TEMP SCAL4TEMP SCALTEMP SMECIFTEMP SMECTEMP BSMTEMP	-/~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		
6	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.4 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	• 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

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

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		
5	If the instrument is at He II temperatures check the value of SCU AC thermometry channel.	SUBKTEMP	~1.7K		
6	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.5 Procedure SPIRE-IST-COLD-FUNC-MCU-01-P

Version	2.4
Date	6th December 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.
Preconditions	• 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	MCU voltages and board temperatures show expected 'ON' values

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

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-MCU-01-P.tcl	—	—	—	
2	Check that the MCU is booted up successfully	MCUBITSTAT	0/1/1		
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 ± 0.5V ~ 15.0 ± 0.5V ~ -15.0 ± 0.5V ~300K ~300K ~300K		
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.6 Procedure SPIRE-IST-COLD-FUNC-MCU-03-P

Version	2.4
Date	6th December 2007
Purpose	MCU Nominal Science Contents 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.
Preconditions	• 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 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-IST-COLD-FUNC-MCU-03-P.tcl	MCUFRAMECNT	0/-/297		
Test Result (Pass/Fail):					

Enter Start Date|Time:			

7.2.6.7 Procedure SPIRE-IST-COLD-FUNC-SMEC-01-P

Version	2.4
Date	6th December 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.
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 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-IST-COLD-FUNC-SMEC-01-P.tcl	—	—	—	
2	Check that power to the SMEC LED and LVDT sensor is on	SMECENCPWR SMECLVDTPWR	0/-/1 0/-/1		
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.8 Procedure SPIRE-IST-COLD-FUNC-SMEC-03-P

Version	2.4
Date	6th December 2007
Purpose	SMEC (PRIME) Encoder 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. SMEC Encoder and LVDT are ON.
Final configuration	Unchanged
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	MCUENGSMECENCSIG1/2 increase as the encoder power is increased

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-SMEC-03-P.tcl	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Enter Start Date|Time:			

7.2.6.9 Procedure SPIRE-IST-COLD-FUNC-SMEC-02A-P

Version	2.5
Date	3rd July 2008
Purpose	Open the SMEC Launch Latch Prime (Unlatch it)
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 SMEC is latched
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 SMEC is ON and Unlatched
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS • **The Herschel Cryostat should be tilted horizontal**
Duration	20 minutes
Pass/Fail criteria	The SMEC latch is open.

Procedure Steps:

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-FUNC-SMEC-02A-P.tcl	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test** **The I-EGSE staff will need to analyse the test data before continuing the test sequence.**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date/Time:			

7.2.6.10 Procedure SPIRE-IST-COLD-FUNC-SMEC-FFOFFSET-P

Version	1.2
Date	10th July 2008
Purpose	SMEC (PRIME) Open Loop Feed Forward Offset Test
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	Unchanged
Preconditions	• 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 • SMEC PARAMETERS display is selected on the CCS • **The Herschel Cryostat should be tilted horizontal**
Duration	60 minutes
Pass/Fail criteria	Optimum SMEC Feed Forward Offset is determined

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-SMEC-FFOFFSET-P.tcl	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
3	Based on the results of this test it may be necessary to set the SMEC FF Offset manually. **SPIRE_SEND_DRCU_COMMAND** • **param 1 = 0x9055xxxx** • **param 2 = 0** **I-EGSE staff will supply the 16-bit parameter value xxxx to this command.**	SMECFFOFFSET	-/ - /xxxx		
4	Based on the results of this test it may be necessary to set the SMEC FF Gain manually. **SPIRE_SEND_DRCU_COMMAND** • **param 1 = 0x9054xxxx** • **param 2 = 0** **I-EGSE staff will supply the 16-bit parameter value xxxx to this command.**	SMECFFGAIN	-/ - /xxxx		

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
5	A manual reset of the encoder signals 1 and 2 offsets may be required. If this is the case Two MANUAL commands will be required to be sent from the CCS: **SPIRE_SEND_DRCU_COMMAND** • **param 1 = 0x9058xxxx** • **param 2 = 0** **SPIRE_SEND_DRCU_COMMAND** • **param 1 = 0x905Axxxx** • **param 2 = 0** **The 16 bit parameters xxxx will be provided by I-EGSE staff**	SMECENCSIG1OFF SMECENCSIG2OFF	-/-/~ Commanded Value -/-/~ Commanded Value		
6	**Note that it may be necessary to repeat this test to fine tune the Feed Forward Offset** **The I-EGSE staff will need to analyse the test data before continuing the test sequence.**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date/Time:			

7.2.6.11 Procedure SPIRE-IST-COLD-FUNC-SMEC-04A-P

Version	2.5
Date	3rd July 2008
Purpose	SMEC (PRIME) Open Loop Positioning Test.
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	Unchanged
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS • **The Herschel Cryostat should be tilted horizontal**
Duration	30 minutes
Pass/Fail criteria	SMEC moves to the commanded positions

Procedure Steps:

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-FUNC-SMEC-04A-P.tcl	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test** **The I-EGSE staff will need to analyse the test data before continuing the test sequence.**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.12 Procedure SPIRE-IST-COLD-FUNC-SMEC-09-P

Version	2.5
Date	3rd July 2008
Purpose	SMEC (PRIME) Open Loop Scan Test.
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	Unchanged
Preconditions	• 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 • SMEC PARAMETERS display is selected on the CCS • **The Herschel Cryostat should be tilted horizontal**
Duration	30 minutes
Pass/Fail criteria	SMEC performs a scan between the commanded positions

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	A manual reset of the encoder signals 1 and 2 offsets may be required. If this is the case Two MANUAL commands will be required to be sent from the CCS: **SPIRE_SEND_DRCU_COMMAND** • **param 1 = 0x9058xxxx** • **param 2 = 0** **SPIRE_SEND_DRCU_COMMAND** • **param 1 = 0x905Axxxx** • **param 2 = 0** **The 16 bit parameters xxxx will be provided by I-EGSE staff**	SMECENCSIG1OFF SMECENCSIG2OFF	-/-/~ Commanded Value -/-/~ Commanded Value		
2	Execute TCL script SPIRE-IST-COLD-FUNC-SMEC-09-P.tcl	—	—	—	
3	**Wait for the I-EGSE staff to confirm the success or failure of this test** **The I-EGSE staff will need to analyse the test data before continuing the test sequence.**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.13 Procedure SPIRE-IST-COLD-FUNC-SMEC-07-P

Version	2.5
Date	3rd July 2008
Purpose	SMEC (PRIME) Close Loop Scan Test.
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	SMEC is in closed loop
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS • **The Herschel Cryostat should be tilted horizontal**
Duration	60 minutes
Pass/Fail criteria	SMEC performs a scan between the commanded positions and the loop remains closed

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	**Before this test a SMEC calibration table on the I-EGSE may have to be changed. Please confirm with the I-EGSE staff before continuing with the next test.**	—	—	—	
2	Execute TCL script SPIRE-IST-COLD-SMEC-INIT-P.tcl	SMECLOOPMODE	6/-/1		
3	Execute TCL script SPIRE-IST-COLD-FUNC-SMEC-07-P.tcl	—	—	—	
4	**Wait for the I-EGSE staff to confirm the success or failure of this test** **The I-EGSE staff will need to analyse the test data before continuing the test sequence.**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.14 Procedure SPIRE-IST-COLD-FUNC-SMEC-04B-P

Version	2.5
Date	3rd July 2008
Purpose	SMEC (PRIME) Close Loop Positioning Test.
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. SMEC is in closed loop.
Final configuration	Unchanged
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS • **The Herschel Cryostat should be tilted horizontal**
Duration	20 minutes
Pass/Fail criteria	SMEC moves to the commanded positions and remains in closed loop

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-SMEC-04B-P.tcl	SMECLOOPMODE	1/1/1		
2	**Wait for the I-EGSE staff to confirm the success or failure of this test** **The I-EGSE staff will need to analyse the test data before continuing the test sequence.**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.15 Procedure SPIRE-IST-COLD-FUNC-SMEC-LVDT-P

Version	1.1
Date	10th July 2008
Purpose	SMEC (PRIME) Backup LVDT Close Loop 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. SMEC Encoder and LVDT are ON. SMEC is in closed loop.
Final configuration	Unchanged
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS • **The Herschel Cryostat should be tilted horizontal**
Duration	90 minutes
Pass/Fail criteria	SMEC remains in closed loop on LVDT

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	**Manual commanding may be necessary during this test. Details to be specified** Change downlink data rate to 1.5 Mbps Send command DC27F170	—	—	—	

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
2	**Wait for the I-EGSE staff to confirm the success or failure of this test. The I-EGSE staff will need to analyse the test data before continuing the test sequence.**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.16 SMEC Microvibration Pre-Test Configuration

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
	ACMS Switch ON						
1	From Test Conductor Console, execute script: 'A102109SPVT003_ACMS_CONFIG25'	OK					
2	At the following main menu: HERSCHEL/PLANCK - MAIN MENU 1.0 - INIT PHASE == **1. Select/Load ACMS_CONFIG Input File** 2. Perform LAUNCH CONFIGURATION 3. On Board SW Updates 4. ACMS Power ON (in Pre-Sep configuration) 5. Modify ACC SGM/RM CONTENT (Enter sub-menu 1.1) 6. ACMS SCOE Configuration 77. JUMP to another Entry Point 88. Continue ACMS_CONFIG to menu 2.0 STBY/PRE-SEP 99. Terminate ACMS_CONFIG	Select option 1 and click OK then Continue					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
	select the point number 1 and press the relevant button:"CONTINUE".						
3	Sequence pops-up asking for the input file. Write SPIRE_UV and press OK	Write "SPIRE_UV" and press OK					
4	At sequence completion, the same main menu appears. *Select point number 6* **to switch on the ACMS SCOE then click OK, Continue**	Select Option 6 and click OK, Continue			ACMS SCOE is switched-on in 'executing' mode. Note: Until ACC is not fully powered-on, some WARNING ALARMS might come down in the On-Board Event History.		
5	On AND YA001939 'AMCS SCOE - AS_PSEUDO 1 of 1' check that parameters: YMACT939 (ACMS SCOE state) YMASE939 (Simulator stata) YMAMS939 (MILFE state) YMAUS939 (UIFE state) Turned to: 'executing'	Parameters set to 'executing'					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
6	At sequence completion, the same main menu appears. *Select point number 4* **to switch on the ACC then click OK, Continue**	Select Option 4 and click OK, Continue			Expected Out of Limit of AEYYY109 (synchronisation). ACC may become INVALID for a short time. SPR 245: Out of Limit of HKA_ANTHx_Data		
7	From a Packet History tool, select filter 'APID 512' and check that ACMS HK and ETM is correctly flowing down.	OK					
8	From On-Board Event History Display check that no 'NO-GO' are present.	OK					
9	From ACMS MASTER (ACMS_CONFIG25) sequence, move to Menu 3 (if not already there) with option 88. Click OK and then Confirm	OK					
10	From ACMS_CONFIG25, Menu 3, select option 1: 'Override Separation Flag' then Click button OK and then Confirm	Select 1, then OK and Continue			ACC goes in SAM Mode		

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
11	Sequence A102109SPVT034_ACMS_SAM_MON shall pop-up following the opening of separation straps, at prompt: 'Do you want to continue to monitor Sam Sun Pointing mode ? Enter your choice: no Then click OK	no			ACMS SAM Point Coarse is reached		
12	From ACMS_CONFIG25 Master Sequence, Menu 4.0, select option 6 'Transition to OCM' **Click OK and then Confirm**	Select 6, then OK and Continue					
13	Sequence 'A102109SPVT036_ACMS_STR_ON' shall pop-up. At prompt: 'Do You want to change current Str in Use' check if STR already selected is the correct one and answer **'no'**	no			STR-1 is switched ON and put in ATFAD mode		
14	When scripts are completed, From ACMS synoptic check that ACC Mode is turned to: 'OCM pnt fine'	OK					
	Synchronise CCS Time With ETS for Accelerometer Measurement Timing						

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
15	For correlation of test results, record time of ETS Accelerometer Test Equipment and at the same time record the CCS time:						
	ETS Time (Accelerometer Measurement T.E. Clock):						
	CCS Time:						
16	If not already active request ETS to start accelerometer acquisitions as per Appendix 2						

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.17 Reaction Wheel Operation for Variable Frequency Microvibration

This section should be performed in parallel with section 7.2.6.18 step 2. It takes approximately 40 mins to run.

Step	Reaction Wheel Activation	Nominal Value	Tolerance	Actual Value	Remark	P	N
1	From Test Conductor Console, execute script: 'A102109SPVT213_ACMS_RWL_SPIRE_uVIB'	OK					
2	Setup the 'TM Plotting Tool' to follow RWL spinning for the followiing monitoring parameters: AEWR1002 AEWR2002 AEWR3002 AEWR4002	OK					
3	At the following prompt: 'Positive Spin. Click OK' Check from ACMS Synoptic that RWL 1-2-3-4 are ON. Then Click OK to start positive spinning	Click OK					
	On the 'TM Plotting Tool' follow RWL positive spinning						
4	At the following prompt: 'Negative Spin. Click OK' Click OK to start negative spinning	Click OK					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step	Reaction Wheel Activation	Nominal Value	Tolerance	Actual Value	Remark	P	N
	On the 'TM Plotting Tool' follow RWL negative spinning						
6	At the following prompt: 'Click OK to spin-down RWL to 0 [Nms]' Click OK to bring RWLs to 0 [Nms]	Click OK					

Enter Date/Time:			Sign Off:	

Enter Start Date/Time:			

7.2.6.18 SMEC Variable Frequency Microvibration Test

The previous section (7.2.6.17) must be performed in parallel with this section step 2, which is assumed to take around 40 mins to run. Make sure that for this micro-vibration test the accelerometer acquisition has been activated before continuing.

Step	Description	Parameters	Expected Values	Actual Values	Success/ Failure
1	Execute stand alone script SPIRE-IST-SMEC-RAMP-MICROVIBRATION.tcl Generate high rate MCU engineering data – we are looking for fluctuations in SMEC velocity Set SMEC continuously scanning at 0.5 mm/s (TBC) over full range Number of scans set to make this a 1 hour test **An ABORT TEST pop up should visibe on the operator screen – only press if advised by I-EGSE staff.**	N/A	N/A	N/A	
	When given the go-ahead from SPIRE I-EGSE Operator, perform the following step				
2	Perform Section 7.2.6.17 to start reaction wheel operation i.a.w. agreed profile (see Appendix 2)	N/A	N/A	N/A	
Test Result (Pass/Fail):					

Enter Start Date|Time:			

~~7.2.6.19 Reaction Wheel Operation for Spot Frequency Microvibration~~

~~**This section should be performed in parallel with section 7.2.6.20 step 3. It takes approximately 40 mins to run.**~~

~~Step~~	~~Reaction Wheel Activation~~	~~Nominal Value~~	~~Tolerance~~	~~Actual Value~~	~~Remark~~	~~P~~	~~N~~
~~1~~	~~From Test Conductor Console, execute script:~~ ~~'A102109SPVT213_ACMS_RWL_SPIRE_uVIB'~~	OK					
~~2~~	~~Setup the 'TM Plotting Tool' to follow RWL spinning for the followiing monitoring parameters:~~ ~~AEWR1002~~ ~~AEWR2002~~ AEWR3002 ~~AEWR4002~~	~~OK~~					
~~3~~	~~At the following prompt:~~ ~~'Positive Spin. Click OK'~~ ~~Check from ACMS Synoptic that RWL 1-2-3-4 are ON. Then Click OK to start positive spinning~~	~~Click OK~~					
	~~On the 'TM Plotting Tool' follow RWL positive spinning~~						
4	~~At the following prompt:~~ ~~'Negative Spin. Click OK'~~ ~~Click OK to start negative spinning~~	~~Click OK~~					

Enter Date/Time:			Sign Off:	

Enter Start Date/Time:			

~~Step~~	~~Reaction Wheel Activation~~	~~Nominal Value~~	~~Tolerance~~	~~Actual Value~~	~~Remark~~	~~P~~	~~N~~
	~~On the 'TM Plotting Tool' follow RWL negative spinning~~						
6	At the following prompt: ~~'Click OK to spin-down RWL to 0 [Nms]'~~ ~~Click OK to bring RWLs to 0 [Nms]~~	~~Click OK~~					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

~~7.2.6.20 SMEC Spot Frequency Microvibration Test~~

~~**The previous section (7.2.6.17) must be performed in parallel with this section step 3, which is assumed to take around 40 mins to run. Make sure that for this micro-vibration test the accelerometer acquisition has been activated before continuing.**~~

~~Step~~	~~Description~~	~~Parameters~~	~~Expected Values~~	~~Actual Values~~	~~Success/ Failure~~
~~1~~	~~On HPCCS execute test script SPIRE-IST-SMEC-SPOT-MICROVIBRATION~~ ~~Generate high rate data – we are looking for fluctuations in SMEC velocity~~ ~~Scan SMEC at 0.1 mm/s over full range for four scans~~	~~N/A~~	~~N/A~~	~~N/A~~	
	~~**The following 2 steps shall be run in parallel**~~				
~~2~~	~~Perform Section 7.2.6.17 to start reaction wheel operation i.a.w. agreed profile (see Appendix 2)~~	~~N/A~~	~~N/A~~	~~N/A~~	
~~3~~	~~On HPCCS execute test script SPIRE-IST-SMEC-SPOT-MICROVIBRATION~~ ~~Generate high rate data – we are looking for fluctuations in SMEC velocity~~ ~~Scan SMEC at 0.1 mm/s over full range for four scans~~	~~N/A~~	~~N/A~~	~~N/A~~	
~~Test Result (Pass/Fail):~~					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.21 Microvibration Post-Test Configuration

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
	ACMS Switch OFF						
7.5.5.12.1	Ensure RWLs have spun down before switching OFF						
7.5.5.12.2	From ACMS_CONFIG25 main menu: • **Select the point number 99** and confirm the selection pressing the relevant button "CONTINUE".	Continue					
7.5.5.12.3	The following menu will appear: HERSCHEL/PLANCK - MAIN MENU 9.0 - ACMS OFF PHASE == ***select the point number 1*** 'Switch Off ACMS' and confirm the selection pressing the relevant button "CONTINUE".	Continue					
7.5.5.12.4	Check the "ACMS_OFF" Test Sequence has been successfully ended.	OK					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
7.5.5.12.5	By the same above menu, ***select the point number 99*** to end the ACMS_CONFIG25 Master Sequence". Click OK to Confirm	OK					
	Re-Synchronise Time With ETS for Accelerometer Measurement Timing						
7.5.5.12.6	For correlation of test results re-record time of ETS Accelerometer Test Equipment and at the same time record the CCS time:						
	ETS Time (Accelerometer Measurement T.E. Clock):						
	CCS Time:						
7.5.5.12.7	Notify ETS that accelerometer acquisitions can be stopped						

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.22 Procedure SPIRE-IST-COLD-FUNC-SMEC-02B-P

Version	2.5
Date	3rd July 2008
Purpose	Close the SMEC Launch Latch (Latch it)
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 SMEC is ON and unlatched
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 SMEC is ON and Latched
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	30 minutes
Pass/Fail criteria	The SMEC latch is closed

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-SMEC-02B-P.tcl	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			**Sign Off:**	

Enter Start Date/Time:			

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.23 Procedure SPIRE-IST-COLD-SMEC-OFF-P

Version	2.4
Date	6th December 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.
Preconditions	• 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 • FUNCTIONAL TEST 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-IST-COLD-SMEC-OFF-P.tcl	—	—	—	
2	Check that the power to the SMEC sensors is switched off	SMECENCPWR SMECLVDTPWR	1/-/0 1/-/0		
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.24 Procedure SPIRE-IST-COLD-MCU-OFF-P

Version	2.4
Date	6th December 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.
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 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-IST-COLD-MCU-OFF-P.tcl	—	—	—	
2	Check that the MCU is switched off	MCUBITSTAT	1/-/0		
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.25 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	• 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):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.26 Switch OFF After SPIRE PRIME SMEC

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
8.	From the HPCCS test conductor console start the test script to power OFF SPIRE Prime: **S102999SCVT032_ASDCFTSPIR_PWR_OFF_P**	OK				
9.	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.					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
	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: e) EVID 1313 No_MCU_Response_Error f) EVID 21773 ALARM_LSMCU_DEAD However, be aware that if FDIR is enabled for SPIRE in the CDMU then this may trigger an OBCP					
10.	On HPCCS when prompted: "Check Telemetry No Longer Updating - OK to continue" Check that parameters: THSK TM2N	 Not refreshing Not incrementing		**AND: SA_1_559**		
11.	Select OK to continue	OK				

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
12.	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"					
13.	Select OK to continue	OK				
14.	On HPCCS stop Packet History displays for the following APIDs:1280,1282	OK				
	SPIRE PRIME OFF					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.27 Verify Redundant Latch Command Relay Status

Verify launch lock relays are positioned to allow SMEC launch lock to be unlatched.

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
	All TCs to be sent from the Manual Command Stack					
1.	*Send **DC904180** and verify from the resulting (14,4) packet that packet 120 (dec) is not already enabled (i.e. NOT present in the list). If present skip steps 2 – 4*	120 not present		Step 1 to 5 only required on CDMS ASW 3.4		
2.	*Send **ZCB00999** to allocate new diagnostic packet*	OK				
3.	*Send **DC900180** with repeater value 1 and parameters: DH019180 = 26, DH020180=120*	OK				
4.	*Send **DC904180** and verify from the resulting (14,4) packet that packet 120 (dec) is nowenabled (i.e. present in the list)*	120 present				
5.	*From TMPH verify that packets with SPID = **264000999** are cyclically arriving on the CCS*	Packets Arriving				
6.	Close LCL26, by sending **DC26D170**	OK		State of LCL #26 switches to ON		
7.	Verify LCL26 closed: **WMA2B565** =	ON				
8.	Record Current **WMA07565**	N/A				
9.	Send HLC 5 to switch relays to LCL position **DCT01170, DHT01170="CMD_ID_HLC21"**	OK				

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
10.	Verify Current **WMA07565 =**	130-180 mA		Current between 130-180mA		
11.	Send HLC 6 to switch relays to MCU position **DCT01170, DHT01170="CMD_ID_HLC22"**	OK				
12.	Verify Current **WMA07565**	0 mA		Current off		
13.	Open LCL26, by sending **DC26B170**	OK		State of LCL #26 switches to OFF		
14.	Verify LCL26 open: **WMA2B565** =	OFF				
	SMEC Redundant LL latch relay position verification complete					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.28 Switch ON for SPIRE REDUNDANT SMEC

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
11.	On HPCCS start Packet History displays for the following APIDs:1281,1283	OK				
12.	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		

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
13.	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.					
14.	On HPCCS when prompted: "Check Telemetry Updating Correctly and OBT is Consistent with CDMU - OK to continue" **Select OK**	OK		**AND: SA_1_559**		
15.	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				

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
16.	On HPCCS when prompted: "Check Telemetry No Longer Updating - OK to continue" Check that parameters: THSK TM2N Select OK to continue	 Not refreshing Not incrementing OK		Note: Two TC failures on SCR00500 are expected because HKTM has been stopped		
17.	On HPCCS when prompted: "Check Telemetry Updating Correctly - OK to continue" Check that parameters: THSK TM2N Select OK to continue	 Refreshing @ 1Hz Incrementing by 1 @ 1Hz OK		**AND: SA_1_559**		

Enter Date/Time:			Sign Off:	

Enter Start Date/Time:			

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
18.	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				
19.	At the prompt: "Bus Profile left unchanged" Select OK to continue	OK				
20.	Verify HK TM packets are being received on APIDs 1281 & 1283	OK				
	SPIRE DPU & DRCU Redundant powered					

Enter Start Date|Time:			

7.2.6.29 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	• 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**	—	—	—	

Enter Date/Time:			Sign Off:	

Enter Start Date/Time:			

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 ~4.7K ~4.8K ~4.8K ~4.8K ~4.7K ~4.7K ~4.8K		
5	If the instrument is at He II temperatures check the values of	 PUMPHTRTEMP	(All Values TBC) -/~4.6K		

Enter Date/Time:			Sign Off:	

Enter Start Date/Time:			

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		
6	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date/Time:			

7.2.6.30 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	• 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:			Sign Off:	

Enter Start Date|Time:			

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		
5	If the instrument is at He II temperatures check the value of SCU AC thermometry channel.	SUBKTEMP	~1.7K		
6	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.31 Procedure SPIRE-IST-COLD-FUNC-MCU-01-R

Version	2.4
Date	6th December 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.
Preconditions	• 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	MCU voltages and board temperatures show expected 'ON' values

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

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-MCU-01-R.tcl	—	—	—	
2	Check that the MCU is booted up successfully	MCUBITSTAT	0/1/1		
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 ± 0.5V ~ 15.0 ± 0.5V ~ -15.0 ± 0.5V ~300K ~300K ~300K		
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.32 Procedure SPIRE-IST-COLD-FUNC-MCU-03-R

Version	2.4
Date	6th December 2007
Purpose	MCU Nominal Science Contents 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.
Preconditions	• 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 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-IST-COLD-FUNC-MCU-03-R.tcl	MCUFRAMECNT	0/-/297		
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.33 Procedure SPIRE-IST-COLD-FUNC-SMEC-01-R

Version	2.4
Date	6th December 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.
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 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-IST-COLD-FUNC-SMEC-01-R.tcl	—	—	—	
2	Check that power to the SMEC LED and LVDT sensor is on	SMECENCPWR SMECLVDTPWR	0/-/1 0/-/1		
Test Result (Pass/Fail):					

Enter Start Date|Time:			

7.2.6.34 Procedure SPIRE-IST-COLD-FUNC-SMEC-03-R

Version	2.4
Date	6th December 2007
Purpose	SMEC (REDUNDANT) Encoder 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. SMEC Encoder and LVDT are ON.
Final configuration	Unchanged
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 minutes
Pass/Fail criteria	MCUENGSMECENCSIG1/2 increase as the encoder power is increased

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-SMEC-03-R.tcl	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Enter Start Date|Time:			

7.2.6.35 Procedure SPIRE-IST-COLD-FUNC-SMEC-02A-R

Version	2.5
Date	3rd July 2008
Purpose	Open the SMEC Launch Latch REDUNDANT (Unlatch it)
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 SMEC is latched
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 SMEC is ON and Unlatched
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS • **The Herschel Cryostat should be tilted horizontal**
Duration	20 minutes
Pass/Fail criteria	The SMEC latch is open.

Procedure Steps:

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-FUNC-SMEC-02A-R.tcl	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test** **The I-EGSE staff will need to analyse the test data before continuing the test sequence.**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.36 Procedure SPIRE-IST-COLD-FUNC-SMEC-FFOFFSET-R

Version	1.2
Date	10th July 2008
Purpose	SMEC (REDUNDANT) Open Loop Feed Forward Offset Test
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	Unchanged
Preconditions	• 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 • SMEC PARAMETERS display is selected on the CCS • **The Herschel Cryostat should be tilted horizontal**
Duration	60 minutes
Pass/Fail criteria	Optimum SMEC Feed Forward Offset is determined

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-SMEC-FFOFFSET-R.tcl	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
3	Based on the results of this test it may be necessary to set the SMEC FF Offset manually. **SPIRE_SEND_DRCU_COMMAND** • **param 1 = 0x9055xxxx** • **param 2 = 0** **I-EGSE staff will supply the 16-bit parameter value xxxx to this command.**	SMECFFOFFSET	-/ - /xxxx		
4	Based on the results of this test it may be necessary to set the SMEC FF Gain manually. **SPIRE_SEND_DRCU_COMMAND** • **param 1 = 0x9054xxxx** • **param 2 = 0** **I-EGSE staff will supply the 16-bit parameter value xxxx to this command.**	SMECFFGAIN	-/ - /xxxx		

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
5	A manual reset of the encoder signals 1 and 2 offsets may be required. If this is the case Two MANUAL commands will be required to be sent from the CCS: **SPIRE_SEND_DRCU_COMMAND** • **param 1 = 0x9058xxxx** • **param 2 = 0** **SPIRE_SEND_DRCU_COMMAND** • **param 1 = 0x905Axxxx** • **param 2 = 0** **The 16 bit parameters xxxx will be provided by I-EGSE staff**	SMECENCSIG1OFF SMECENCSIG2OFF	-/-/~ Commanded Value -/-/~ Commanded Value		
6	**Note that it may be necessary to repeat this test to fine tune the Feed Forward Offset** **The I-EGSE staff will need to analyse the test data before continuing the test sequence.**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.37 Procedure SPIRE-IST-COLD-FUNC-SMEC-04A-R

Version	2.5
Date	3rd July 2008
Purpose	SMEC (REDUNDANT) Open Loop Positioning Test.
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	Unchanged
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS • **The Herschel Cryostat should be tilted horizontal**
Duration	30 minutes
Pass/Fail criteria	SMEC moves to the commanded positions

Procedure Steps:

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-FUNC-SMEC-04A-R.tcl	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test The I-EGSE staff will need to analyse the test data before continuing the test sequence.**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.38 Procedure SPIRE-IST-COLD-FUNC-SMEC-09-R

Version	2.5
Date	3rd July 2008
Purpose	SMEC (REDUNDANT) Open Loop Scan Test.
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	Unchanged
Preconditions	• 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 • SMEC PARAMETERS display is selected on the CCS • **The Herschel Cryostat should be tilted horizontal**
Duration	30 minutes
Pass/Fail criteria	SMEC performs a scan between the commanded positions

Enter Date/Time:			Sign Off:	

Enter Start Date/Time:			

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	A manual reset of the encoder signals 1 and 2 offsets may be required. If this is the case Two MANUAL commands will be required to be sent from the CCS: **SPIRE_SEND_DRCU_COMMAND** • **param 1 = 0x9058xxxx** • **param 2 = 0** **SPIRE_SEND_DRCU_COMMAND** • **param 1 = 0x905Axxxx** • **param 2 = 0** **The 16 bit parameters xxxx will be provided by I-EGSE staff**	SMECENCSIG1OFF SMECENCSIG2OFF	-/-/~ Commanded Value -/-/~ Commanded Value		
2	Execute TCL script SPIRE-IST-COLD-FUNC-SMEC-09-R.tcl	—	—	—	
3	**Wait for the I-EGSE staff to confirm the success or failure of this test** **The I-EGSE staff will need to analyse the test data before continuing the test sequence.**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date/Time:			

7.2.6.39 Procedure SPIRE-IST-COLD-FUNC-SMEC-07-R

Version	2.5
Date	3rd July 2008
Purpose	SMEC (REDUNDANT) Close Loop Scan Test.
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	SMEC is in closed loop
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS • **The Herschel Cryostat should be tilted horizontal**
Duration	60 minutes
Pass/Fail criteria	SMEC performs a scan between the commanded positions and the loop remains closed

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	**Before this test a SMEC calibration table on the I-EGSE may have to be changed. Please confirm with the I-EGSE staff before continuing with the next test.**	—	—	—	
2	Execute TCL script SPIRE-IST-COLD-SMEC-INIT-R.tcl	SMECLOOPMODE	6/-/1		
3	Execute TCL script SPIRE-IST-COLD-FUNC-SMEC-07-R.tcl	—	—	—	
4	**Wait for the I-EGSE staff to confirm the success or failure of this test** **The I-EGSE staff will need to analyse the test data before continuing the test sequence.**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.40 Procedure SPIRE-IST-COLD-FUNC-SMEC-04B-R

Version	2.5
Date	3rd July 2008
Purpose	SMEC (REDUNDANT) Close Loop Positioning Test.
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. SMEC is in closed loop.
Final configuration	Unchanged
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS • **The Herschel Cryostat should be tilted horizontal**
Duration	20 minutes
Pass/Fail criteria	SMEC moves to the commanded positions and remains in closed loop

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-SMEC-04B-R.tcl	SMECLOOPMODE	1/1/1		
2	**Wait for the I-EGSE staff to confirm the success or failure of this test The I-EGSE staff will need to analyse the test data before continuing the test sequence.**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.41 Procedure SPIRE-IST-COLD-FUNC-SMEC-LVDT-R

Version	1.1
Date	10th July 2008
Purpose	SMEC (REDUNDANT) Backup LVDT Close Loop 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. SMEC Encoder and LVDT are ON. SMEC is in closed loop.
Final configuration	Unchanged
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS • **The Herschel Cryostat should be tilted horizontal**
Duration	90 minutes
Pass/Fail criteria	SMEC remains in closed loop on LVDT

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	**Manual commanding may be necessary during this test. Details to be specified** Change downlink data rate to 1.5 Mbps Send command DC27F170	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.42 Procedure SPIRE-IST-COLD-FUNC-SMEC-02B-R

Version	2.5
Date	3rd July 2008
Purpose	Close the SMEC Launch Latch (Latch it)
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 SMEC is ON and unlatched
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 SMEC is ON and Latched
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	30 minutes
Pass/Fail criteria	The SMEC latch is closed

Procedure Steps:

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step	Description	Parameter – Unit	Expected Values Before/During/After	Actual Values Before/During/After	Success/ Failure
1	Execute TCL script SPIRE-IST-COLD-FUNC-SMEC-02B-R.tcl	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test** **The I-EGSE staff will need to analyse the test data before continuing the test sequence.**	—	—	—	
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.6.43 Procedure SPIRE-IST-COLD-SMEC-OFF-R

Version	2.4
Date	6th December 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.
Preconditions	• 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 • FUNCTIONAL TEST 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-IST-COLD-SMEC-OFF-R.tcl	—	—	—	
2	Check that the power to the SMEC sensors is switched off	SMECENCPWR SMECLVDTPWR	1/-/0 1/-/0		
Test Result (Pass/Fail):					

Enter Date/Time:			Sign Off:	

7.2.6.44 Procedure SPIRE-IST-COLD-MCU-OFF-R

Version	2.4
Date	6th December 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.
Preconditions	• 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 • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	5 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-IST-COLD-MCU-OFF-R.tcl	—	—	—	
2	Check that the MCU is switched off	MCUBITSTAT	1/-/0		
Test Result (Pass/Fail):					

Enter Start Date|Time:			

7.2.6.45 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	• 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:

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

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):					

Enter Date/Time:			Sign Off:	

Enter Start Date/Time:			

7.2.6.46 Switch OFF After SPIRE REDUNDANT SMEC

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
8.	From the HPCCS test conductor console start the test script to power OFF SPIRE REDUNDANT: **S102999SCVT034_ASDCFTSPIR_PWR_OFF_R**	OK				
9.	On HPCCS when prompted: "SPIRE Switch OFF for CFT related tests in HeI/HeII 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.					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
	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: g) EVID 1313 No_MCU_Response_Error h) EVID 21773 ALARM_LSMCU_DEAD However, be aware that if FDIR is enabled for SPIRE in the CDMU then this may trigger an OBCP					
10.	On HPCCS when prompted: `"Check Telemetry No Longer Updating - OK to continue"` Check that parameters: THSK TM2N	 Not refreshing Not incrementing		AND: SA_1_559		
11.	Select OK to continue	OK				

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
12.	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"					
13.	Select OK to continue	OK				
14.	On HPCCS stop Packet History displays for the following APIDs:1281,1283	OK				
	SPIRE REDUNDANT OFF					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.7 Satellite & EGSE Switch Off After SMEC 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 HPCCS 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	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	From HPCCS disable Monitoring Mode 1 (512sec cycle) for CCU A & B by executing test script: **K102999ECVT001_ASDGENCCU_MnDBOTH1**	OK					
7	From HPCCS power OFF CCU A & CCU B by executing test script: **K102999ECVT001_ASDGENCCU_ABPWROFF**	OK					
8	Switch OFF Satellite/SVM, HPCCS and SCOEs i.a.w. procedure	OK					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value		P	N
	AD 2 Sections 7.7 to 7.11.						
9	Confirm both Satellite and EGSE powered down	OK					
	End Conditions: Satellite and EGSE OFF						
	END OF SMEC TESTS						

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.8 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	2.4
Date	6th December 2007
Purpose	To switch OFF the SPIRE instrument if an anomaly should occur
Initial configuration	SPIRE can be in ANY configuration as specified in the test sequence in section 4.1
Final configuration	SPIRE is OFF
Preconditions	• SPIRE FM DPU is electrically integrated with the Herschel Satellite • SPIRE MIB 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.

Notes:

1. **All HK parameters relevant to this procedure can be located on the FUNCTIONAL TEST PARAMETERS CCS display**

2. **The expected values of HK parameters before the execution of a switch-off script are not indicated in the table below because the scripts can be run from any instrument configuration without harming the instrument.**

Enter Start Date|Time:			

Step	Description	Parameter - Unit	Expected value before/after	Actual value before/after
1.	Execute Procedures: ▪ SPIRE-IST-COLD-PDET-OFF-P/R ▪ SPIRE-IST-COLD-BSM-OFF-P/R	PLIABITSAT PSWJFETSTAT PMLWJFETSTAT CHOPSENSPWR JIGGSENSPWR	**- / 0** **- / 0** **- / 0** **- / 0** **- / 0**	
2.	Execute Procedures: ▪ SPIRE-IST-COLD-SDET-OFF-P/R ▪ SPIRE-IST-COLD-SMEC-OFF-P/R	SLIABITSAT SPECJFETSTAT SMECENCPWR SMECLVDTPWR	**- / 0** **- / 0** **- / 0** **- / 0**	
3.	Execute Procedures: ▪ SPIRE-IST-COLD-MCU-OFF-P/R ▪ SPIRE-IST-COLD-SCU-OFF-P/R	MCUBITSTAT SCUTEMPSTAT SUBKSTAT	**- / 0** **- / 0** **- / 0**	
4.	Power off according to procedure 7.2.2.32 for PRIME and 7.2.3.32 for REDUNDANT			

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.9 *SPIRE SAFE Switch Off for Standalone SMEC Test Sequence*

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

Version	1.0
Date	6th December 2007
Purpose	To switch OFF the SPIRE instrument if an anomaly should occur
Initial configuration	SPIRE can be in ANY configuration as specified in the test sequence in section 7.2.6
Final configuration	SPIRE is OFF
Preconditions	• SPIRE FM DPU is electrically integrated with the Herschel Satellite • SPIRE MIB is imported in the CCS database. • CCS is up and running • FUNCTIONAL TEST PARAMETERS display is selected on the CCS
Duration	~5-10 minutes
Pass/Fail Criteria	SPIRE is OFF. All instrument subsystems are completely powered OFF.

Notes:

3. **All HK parameters relevant to this procedure can be located on the FUNCTIONAL TEST PARAMETERS CCS display**

4. **The expected values of HK parameters before the execution of a switch-off script are not indicated in the table below because the scripts can be run from any instrument configuration without harming the instrument.**

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

	Description	Parameter - Unit	Expected value before/after	Actual value before/after
1.	Execute Procedures: ▪ SPIRE-IST-COLD-SMEC-02B-P/R ▪ SPIRE-IST-COLD-BSM-OFF-P/R	- CHOPSENSPWR JIGGSENSPWR	**-** **- / 0** **- / 0**	
2.	Execute Procedures: ▪ SPIRE-IST-COLD-SMEC-OFF-P/R	SMECENCPWR SMECLVDTPWR	**- / 0** **- / 0**	
3.	Execute Procedures: ▪ SPIRE-IST-COLD-MCU-OFF-P/R	MCUBITSTAT	**- / 0**	
4	Power off according to procedure 7.2.6.26 for PRIME and 7.2.6.46 for REDUNDANT			

Enter Date/Time:			Sign Off:	

8 Summary Sheets

8.1 Procedure Variation Summary

<table>
<tr><td colspan="2"></td><td colspan="2">Test Change</td><td colspan="2">Curr. No.:
Date
Page of</td></tr>
<tr><td colspan="3">Test designation</td><td>Test Procedure</td><td>Issue</td><td>Rev.</td></tr>
<tr><td colspan="3">Test step changed</td><td colspan="3">Reason for Change</td></tr>
<tr><td colspan="6"></td></tr>
<tr><td colspan="2">Prepared by:</td><td colspan="2">Resp. Test Leader</td><td colspan="2">Project Engineer</td></tr>
<tr><td colspan="2">PA/QA</td><td colspan="2">Prime</td><td colspan="2">Customer</td></tr>
</table>

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 Director		
Operator		
PA Responsible		
ESA Representative		

APPENDIX 1

Actual SCOE cable connection (to be confirmed by AIT)

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	BS SCOE Cable Plugged	
	BS Red Power	SK01BJ10	PCDU	BS SCOE Cable Plugged	
	BDR1 AIT	SK01BJ11	PCDU	LPS SCOE Cable Plugged	
	BDR2 AIT	SK01BJ12	PCDU	LPS SCOE Cable Plugged	
	SA Nom Power	SK01AJ01	PCDU	POWER SCOE Cable Plugged	
	SA Nom Power	SK01AJ02	PCDU	POWER SCOE Cable Plugged	
	SA Nom Power	SK01AJ03	PCDU	POWER SCOE Cable Plugged	
	SA Nom Power	SK01AJ04	Battery	EMC Dust Cap	
	SA Red Power	SK01AJ05	PCDU	POWER SCOE Cable Plugged	
	SA Red Power	SK01AJ06	PCDU	POWER SCOE Cable Plugged	
	SA Red Power	SK01AJ07	PCDU	POWER SCOE Cable Plugged	
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	Bus Monitor Cable Plugged	
SKIN-02	DMS 1553 Bus_B	J02	CDMU	Bus Monitor Cable Plugged	
SKIN-02	ACMS 1553 Bus_A	J03	ACC	ACMS SCOE Cable Plugged	
SKIN-02	ACMS 1553 Bus_B	J04	ACC	ACMS SCOE Cable Plugged	
SKIN-02	LV1/FCV 20N CMD S/A M	J05	ACC/RCS	ACMS SCOE Cable Plugged	

SKIN-02	LV2/FCV 20N CMD S/A R	J06	ACC/RCS	ACMS SCOE Cable Plugged	
SKIN-02	RCS Press/Tank Temp/PT Pwr	J07	ACC/PT&TH	ACMS SCOE Cable Plugged	
SKIN-02	Thruster Temp M/LV1 Sts	J08	ACC/RCS	ACMS SCOE Cable Plugged	
SKIN-02	CDMU and ACC EEPROM reprogramming input	J09	ACC/CDMU		Flight Plug SK02P09 Plugged
SKIN-02	CDMU and ACC EEPROM reprogramming input	J10	ACC/CDMU		Flight Plug SK02P10 Plugged
SKIN-02	Thruster Temp R/LV2 Sts	J11	ACC/RCS	ACMS SCOE Cable Plugged	
SKIN-02	Thruster C/B Heaters M	J12	ACC/CBH	ACMS SCOE Cable Plugged	
SKIN-02	Thruster C/B Heaters R	J13	ACC/CBH	ACMS SCOE Cable Plugged	
SKIN-02	Str1/2 On/Off Cmd M/Str1 Sts	J14	ACC/STR-1		ACMS Flight Plug SK02P14 Plugged
SKIN-02	Str1/2 On/Off Cmd R/Str2 Sts	J15	ACC/STR-2		ACMS Flight Plug SK02P15 Plugged
SKIN-02	Gyro A On/Off Cmd	J16	ACC/GYRO-E1		ACMS Flight Plug SK02P16 Plugged
SKIN-02	Gyro B On/Off Cmd	J17	ACC/GYRO-E2		ACMS Flight Plug SK02P17 Plugged
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		Plastic cap
SKIN-03	Test point TC + protection jumper EPC2	SK03J02	XPND2/EPC2		Plastic cap
	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
	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	ACMS SCOE Cable Plugged	
SKIN-05	CRS 1/2 Stimuli	J04	CRS-1,2	ACMS SCOE Cable Plugged	
SKIN-05	AAD Sgn M	J05	AAD/ACC	ACMS SCOE Cable Plugged	
SKIN-05	SAS1/2 Sgn M	J06	SAS/ACC	ACMS SCOE Cable Plugged	
SKIN-05	SAS1/2 Sgn R	J07	SAS/ACC	ACMS SCOE Cable Plugged	
SKIN-05	AAD Sgn R	J08	AAD/ACC	ACMS SCOE Cable Plugged	
SKIN-06	STR Panel				
	Connector Function	Skin Connector	S/C unit	SCOE CABLE	Flight Connector
SKIN-06	STR1 Stimuli	J01	STR1	ACMS SCOE Cable Plugged	
SKIN-06	STR2 Stimuli	J02	STR2	ACMS SCOE Cable Plugged	
	UMBILICAL				
	Connector Function	Connector	S/C unit	SCOE CABLE	
	Power/Data	HU1J01	SYSTEM	SCOEs cable Plugged	
	Power/Data	HU2J01	SYSTEM	SCOEs cable Plugged	

APPENDIX 2

Accelerometer Measurement & ACMS Reaction Wheel Profile for Microphonics Test

During reaction wheel activation the accelerometers on OBA and reaction wheel panel according to the Table A4-1 below shall be read. NB: The measurement precision is given by the type of accelerometers used for the test, which is in the order of a few milli-g.

ZONE	CHANNELS ID	DESCRIPTION
OPTICAL BENCH	PACRYO201X	OBA
	PACRYO202Y	OBA
	PACRYO203Z	OBA
	PACRYO204X	OBA
	PACRYO205Z	OBA
	PACRYO206Y	OBA
-Y +Z PANEL	381X	RWL#4 to bracket I/F
	381Y	RWL#4 to bracket I/F
	381Z	RWL#4 to bracket I/F
	382X	RWL#4/RWL#2 to bracket I/F
	382Y	RWL#4/RWL#2 to bracket I/F
	382Z	RWL#4/RWL#2 to bracket I/F
	386X	RWL#3 to bracket I/F
	386Y	RWL#3 to bracket I/F
	386Z	RWL#3 to bracket I/F
	384X	RWL#1 to bracket I/F
	384Y	RWL#1 to bracket I/F
	384Z	RWL#1 to bracket I/F
	383X	RWL#2 to bracket I/F
	383Y	RWL#2 to bracket I/F
	383Z	RWL#2 to bracket I/F

Table A4--1: Measurement Channels for Micro-vibration Test (RD8)

It should be noted that the test configuration, as required in chapter 4.1 of RD8, can not be achieved and the test has to be performed under the conditions of this procedure.

Hmax	25	N.m.s
Tmax	0,05	N.m
Friction	0,005	N.m
DT	10	Min

time (min)	H (N.m.s)
-10	0
0	0
9,25925926	25
10	25
28,5185185	-25
30	-25
39,2592593	0
50	0

Table A4-2: Reaction Wheel Profile

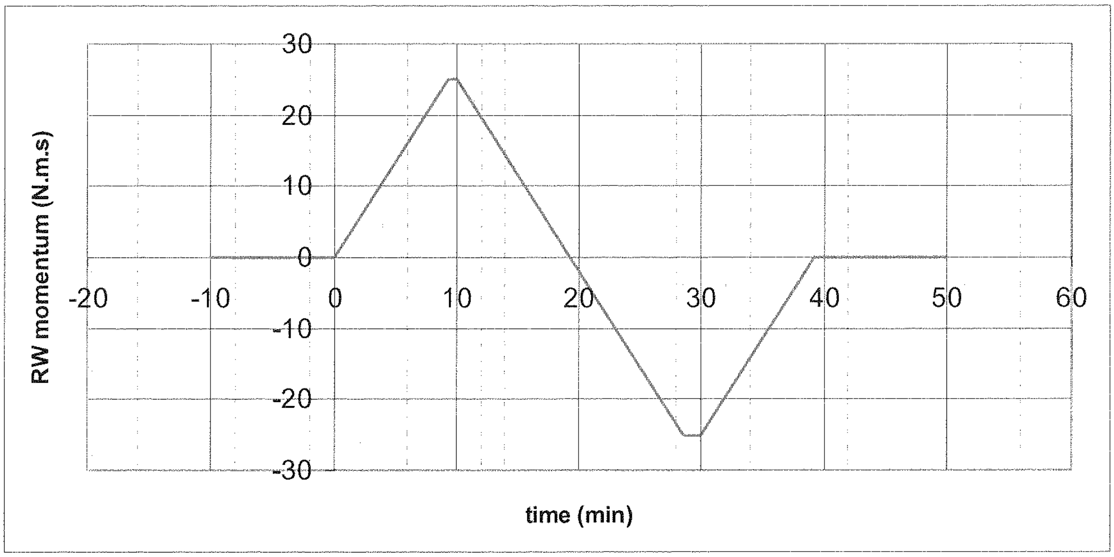

Figure A4-1: Reaction Wheel Profile Graphically

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	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			
	Ivády 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

Attachment 4 to Section 6.7:

As-Run Procedure HP-2-ASED-TP-0226 for SPIRE Commissioning

FORMAL AS RUN

EADS astrium | Test Procedure | Herschel

2008_07_30.00_38_herdmu_hpws22_REALTIME_SPIRE_COM
TP_0217_iss1_4_TP_226_iss1_1_SPIRE_Commissioning_
He2_END_001

Title:	**IST Instrument Commissioning SPIRE FM Peak-up Mode Test**
CI-No:	125200

Prepared by:	A. Koppe/S. Hamer	Date:	22.07.2008
Checked by:	S. Idler		24.07.2008
Product Assurance:	for R. Stritter		24/07/08
Configuration Control:	W. Wietbrock		24/07/08
Project Management:	W. Fricke		25/07/08
TAS-F	For D. Montet Collandin		24/7/08

Distribution: See Distribution List (last page)

Issue	Date	Sheet	Description of Change	Release
1	04.07.08	All	First Formal Issue	
1.1	22.07.08	22	Removal of "TBD" in step 4	

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1 Scope

This document describes the Peak-up Mode Tests to be performed on the SPIRE FM Instrument for IST Instrument Commissioning (ref AD6 & AD9) in HeI or HeII conditions.

This test will be run independently of the other parts of the IST Instrument Commissioning.

Both redundancies are tested within this procedure.

Constraints General

- This procedure requires the presence of SPIRE personnel as the I-EGSE will be required to assess the results online as part of the pass/fail criteria.
- Before carrying out the next procedure within the test sequence always ask for the go ahead by the SPIRE staff.

Constraints Specific

- There are no specific constraints for this test

1.1 Objective

The objective of the test is to functionally check FM instrument as much as feasibly possible in HeI or HeII conditions in an AIT environment.

1.2 Test Flow

The CFT flow is as follows:

1. Power on and configure SPIRE I-EGSE for test
2. Power on and configure SVM for test including CCU
3. Power on NOMINAL SPIRE Prime DPU & DRCU and enable Mil1553B-bus interface
4. Run Peak-up Mode Procedures
5. Power off MCU Prime
6. Disable Mil1553B-bus interface and Power off SPIRE Prime DRCU & DPU
7. Repeat Steps 3 – 6 for Spire Redundant Peak-up Mode Procedures
8. Power off SVM including CCU
9. Switch off all EGSE

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	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 2.2	SPIRE-RAL-DOC-002841
AD 9	Herschel Integrated Satellite Test Specification, Issue 5	H-P-2-ASP-SP-0939
AD 10	Herschel IST Lead Procedure	HP-2-ASED-TP-0134
AD11	S/C Configuration for IST Instrument Commissioning, Issue 1	HP-2-ASED-TP-0237

2.2 Reference Documents

RD 1	Herschel Planck Central Checkout System System User Manual	H-P-4-TE-MA-0010
RD 2	SPIRE Cold Functional Test Procedures, Iss. 2.5	SPIRE-RAL-PRC-2398
RD 3	Herschel CDMU ASW S/W Interface Control Document	H-P-4-SSF-IC-0001
RD 4	Herschel CDMU BSW S/W Interface	H-P-4-SES-NT-0076

RD 6	SPIRE Functional Test Specification Iss. 1.4	SPIRE-RAL-DOC-001652
RD 7	SPIRE Instrument User Manual Iss. 1.0	SPIRE-RAL-PRJ-002395
RD 8	H/P OBT-UTC Time Synchronisation Technical Note Iss. 1.3	PT-CMOC-OPS-TN-6604-OPS- OGH
RD 9	SPIRE Peak-up Mode Test Procedure; Issue 1.0	SPIRE-RAL-PRC-3033

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
CFT	Cold Functional Test
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
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
OBDH	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
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	Subsytems 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 plus CCU connected to cryostat temperature and pressure sensors. Note this also means that the cryostat valves (command able from the CCS) may also be connected therefore this has to be considered as a SAFETY critical area to be addressed in section 5.

SPIRE FM units will be powered ON as per this procedure and assumes that FPU has already been successfully integrated to the warm units.

3.2 EGSE Configuration

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

I-EGSE shall be configured and connected to the HPCCS in accordance with AD 5 & AD 8.

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 Sequence

Ensure that the latest deliveries of SPIRE Peak-up Mode test scripts are installed on the CCS prior to start of test. The SPIRE I-EGSE will be running the following software for the test:

I-EGSE Software	**Version**	**Comment**
SPIRE MIB version		
SPIRE CUS version		
SCOS version		

The HPCSS HPSDB must also include the same SPIRE MIB version.

The normal sequence of events for a Peak-up mode operation is:

Send peak-up mode command to SPIRE

SPIRE executes a set of operations to determine the offsets to bring the source back onto the central pixel (takes approximately 3 mins)

SPIRE issues an event packet, TM(5,1) containing the offsets in y and z (format defined in AD01)

The CDMS acts on this event packet and sends the appropriate TC(s) to the AOCS.

There are 11 TCL scripts to verify full compliance to the interface:

Test Script	Delay/ seconds	Yangle Raw Decimal / Hex	Zangle Raw Decimal/Hex	Comments
SPIRE-IST-PeakUpTest-1.tcl	180	500 / 0x01f4	500 / 0x01f4	Move +5 arcsec in Y and Z
SPIRE-IST-PeakUpTest-2.tcl	10	-500 /0x81f4	-500 / 0x81f4	Move -5 arcsec in Y and Z
SPIRE-IST-PeakUpTest-3.tcl	10	200 / 0x00c8	-200 / 0x80c8	Move +2 arcsec in Y and -2 arcsec in Z
SPIRE-IST-PeakUpTest-4.tcl	10	-200 / 0x80c8	200 / 0x00c8	Move -2 arcsec in Y and +2 arcsec in Z
SPIRE-IST-PeakUpTest-5.tcl	10	10100 / 0x2774	100 / 0x0064	Move +10.1 arcsec in Y and +1 arcsec in Z. Should be flagged as an error by the AOCS.

Test Script	Delay/ seconds	Yangle Raw Decimal / Hex	Zangle Raw Decimal/Hex	Comments
SPIRE-IST-PeakUpTest-6.tcl	10	100 / 0x0064	10100 / 0x2774	Move +1 arcsec in Y and +10.1 arcsec in Z. Should be flagged as an error by the AOCS.
SPIRE-IST-PeakUpTest-7.tcl	10	10100 / 0x2774	10100 / 0x2774	Move +10.1 arcsec in Y and +10.1 arcsec in Z. Should be flagged as an error by the AOCS.
SPIRE-IST-PeakUpTest-8.tcl	10	-10100 / 0xa774	100 / 0x0064	Move -10.1 arcsec in Y and +1 arcsec in Z. Should be flagged as an error by the AOCS.
SPIRE-IST-PeakUpTest-9.tcl	10	100 / 0x0064	-10100 / 0xa774	Move +1 arcsec in Y and -10.1 arcsec in Z. Should be flagged as an error by the AOCS.
SPIRE-IST-PeakUpTest-10.tcl	10	-10100 / 0xa774	-10100 / 0xa774	Move -10.1 arcsec in Y and -10.1 arcsec in Z. Should be flagged as an error by the AOCS.
SPIRE-IST-PeakUpTest-11.tcl	10	0 / 0x0	0 / 0x0	No movement in Y or Z. How does the AOCS treat this event?

5 Conditions

5.1 Personnel

Responsibility	Name / Organisation
Test Director	
Test Conductor	
EGSE Operator	
PA Responsible	
Instrument Representative	
Customer Representative	
ESA Representative	

5.2 Environmental

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

Clean Room Conditions	Nominal	Actual
Clean Room Class	class 100000 or better	100 000
Temperature	22°C ± 3°C	
Rel. Humidity	40 % - 60 %	
Pressure	Ambient	ambient

S/C Environmental	Required	Actual
S/C Orientation	20° tilted aroud Z-axis, +Y pointing down	0° not tilted
Cryostat Status (HeI/HeII)	He 2	He 2 61% full
Cryostat Level 0 Temp	1.77 K <T<1.82 K	1.8
Cryostat Level 1 Temp	< 7 K	T235 3.11 K T236 3.81 K
Cryostat Level 2 Temp	< 12 K	T254 7.4 K
Cryostat Level 3 Temp	N/A	T250 T252 ~~N/A~~ } 7 K

T246 7.07 K
T247 6.99 K } J-FET

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 Cryo Specific Safety Requirements

During the test the CCU may be connected to the Cryostat sensors and valves. Although no valve operation is performed in this test all Cryogenic specific safety requirements shall be considered when running this procedure as indicated below.

Safety instructions for cryogenic hazards coming from the Helium system are as follows:

1	Helium itself is a non-toxic gas. The hazards to be expected are personal injuries from frostbites (cold surfaces, cold gas plumes), asphyxiation due to insufficient oxygen in the remaining air, loss of orientation due to dense fog generation and impacts of cold damaged structures.
2	Due to the amount of stored energy the Herschel cryostat is a pressure vessel and the general rules for pressure vessel design have to be followed. In addition to these general rules, the safety regulations at CSG launch site have to be considered. The application of these rules leads to a safety concept, which is based on the 'leak before burst' criterion. Herschel is based on the following safety and reliability philosophy: a. Two failure tolerant b. Three independent paths for overpressure relief c. Passive safety system for all operation modes (no active controls for monitoring is required at any time) As emergency situations may occur at unexpected points in time and typically need immediate action, the full hierarchy of the project cannot be deployed and consultation of all knowledgeable persons may not be possible.
3	The main intent of immediate actions will therefore be to ensure safety of personnel and to bring the S/C into a safe waiting condition. The priority of safeguarding is 1) Personnel 2) S/C 3) Facility 4) Support equipment The second aim is to keep the cryostat near the foreseen test conditions in order to continue the test without unnecessary time delay if the failure can be corrected.
4	The ASED test director (or his representative) will be informed by the test personnel of any non-conformances, alarm and unforeseen events that might lead to emergency situations. The ASED test director (or his representative) will initiate immediate steps and call the decision committee (ASED test director, ASED PA, ESA test director, ASP representative, ETS representative) if necessary.

5	Prior to begin a pre-task briefing shall be performed to inform all participants about purpose of operation, possible hazards and emergency shut down
6	In case of operation of the Cryostat safety system the following IMMEDIATE activities shall be performed: • Operation of the safety valve: EVERYBODY has to leave the test room, except test Conductor and necessary CVSE operations personnel • Operation of burst disc: EVERYBODY has to leave the test room

5.3.4 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 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 required for this test and will 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 functional check of a specific SPIRE FM mode test in HeI or HeII conditions and in AIT configuration as per AD6 and AD9.

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:			

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 7.2.5 shall be executed.

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

Enter Date/Time:			Sign Off:	

Enter Start Date/Time:	30/7/08	00:38	

7.2 Step by Step Procedure

Test Location:	ESTEC
Test Session Id:	2008.07.30_00.38_herdmu_hpws22_REALTIME_SPIRE_COM
Test Environment:	TP_0217_iss1_4_TP_0226_iss1_1_SPIRE_COMMISSIONING_He2_END_001

7.2.1 EGSE & Satellite Switch On for Peak-up Mode Test

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
	Satellite & EGSE Switch On						
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	OK					
4	Switch on HPCCS, SCOEs and Satellite/SVM and configure into Basic Test Mode, with SSMM initialized OBCP/EAT load/active and CCU monitoring in Mode 1 i.a.w. AD 10 sections 7.1 and 7.2 . In section 7.2.4 selecting the test case SPIRE Commissioning 5.8.4.5.1 in the Master GUI	OK				✓	

Enter Date/Time:	30/7/08	02:36	Sign Off:	[signature]

Enter Start Date|Time:	30/7/08	02:43	

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
5	Configure the Satellite specifically for SPIRE Commissioning i.a.w. with AD11 Section 7.2 continuing up to step 41	OK		OK		✓	
6	Confirm that EGSE and Satellite are in the correct configuration as per AD 2	OK		OK		✓	
7	If not already on, from HPCCS power ON CCU A & CCU B by executing test script: **K102999ECVT001_ASDGENCCU_ABPWRON**	OK			N/A		
8	If not already enabled, from HPCCS enable Monitoring Mode 1 (512sec cycle) for CCU A & B by executing test script: **K102999ECVT001_ASDGENCCU_MnEBOTH1**	OK			N/A		
9	Confirm that the ACMS is connected and powered on (ACC in SCM mode)	OK		OK		✓	
10	From HPCCS Test Conductor console issue command to connect to SPIRE I-EGSE **connect HSPIREEGSE**	OK		OK		✓	
11	Confirm from HPCCS and SPIRE I-EGSE that the connection has been established	YZS29940= CONNECTED			AND SYS_PARS		
12	Verify that I-EGSE is receiving CCU Cryo packets	OK					
13	On HPCCS start the following test script: **ALL_SubscribeParams.tcl**	OK		OK		✓	
14	Verify HPCCS-IEGSE connection by sending test command: **YC00X066** From the manual command stack (repeater value of "0")	OK		OK		✓	

SPR-634

SPR-634

PJS #1 2 (1)

PJS #1 2 (2)

Enter Date/Time:	30/07/08	05:44	Sign Off:	

Enter Start Date|Time:	30/07/08.		

Step-No.	Test-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
15	If required load Synoptics INSTRUMENTS on HPCCS to display SPIRE status overview	Ok		Ok		✓	
	READY FOR START OF SPIRE PEAK-UP MODE TEST						

Enter Date/Time:	30/07/08.	05:44	Sign Off:	

Enter Start Date|Time:	30/07/08		

7.2.2 SPIRE Peak-up Mode 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 dec 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	OK		OK	
2.	From the HPCCS test conductor console start the test script to power on SPIRE Prime: **S102999SCVT031_ASDCFTSPIR_PWR_ON_P**	OK	OK	AND: ZAD07999, ZAD14999 MIM: LCL_HERSCHEL	OK	

Enter Date/Time:	30/07/08	05:50	Sign Off:	

Enter Start Date|Time:	30/07/08		

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 HeI/HeII conditions only - Select NO to abort TS if not correct" **Select YES**	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	OK	**AND: SA_1_559**	✓	

Enter Date/Time:	30/07/08	05:55	Sign Off:	

Enter Start Date|Time:	30/07/08.	05:56	

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	OK		✓	
6.	On HPCCS when prompted: "Check Telemetry No Longer Updating - OK to continue" Check that parameters:	THSK TM2N	Not refreshing Not incrementing	OK		✓	
	Select OK to continue		OK				
7.	On HPCCS when prompted: "Check Telemetry Updating Correctly - OK to continue" Check that parameters:	THSK TM2N	Refreshing @ 1Hz Incrementing by 1 @ 1Hz	OK	**AND: SA_1_559** 2 expected command completion failures for SCROISCD CLEAR_HK_REPORT.	✓	
	Select OK to continue		OK				

Enter Date/Time:	30/07/08.	05:57	Sign Off:	

Enter Start Date|Time:	30/07/08	05:59	

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 **S102999SCVT031_ASDCFTSPIR_PWR_ON_P** 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	OK		✓	
10.	Verify HK TM packets are being received on APIDs 1280 & 1282	OK	OK		✓	
	SPIRE DPU & DRCU powered					

Enter Date/Time:	30/07/08	05:59	Sign Off:	

Enter Start Date|Time:	30/07/08	06:01	

7.2.2.2 Peak-up Mode Procedure – Nominal

The instrument shall be in DPU ON mode before test execution

Step	Action(s)	Description	Comments
	The following step will generate peak-up command(s) to be sent to the ACMS. However because the test configuration is not a dynamic one (i.e. MTL controlled), these commands will have no direct effect on the ACMS (i.e. no manoeuvre performed), instead the ACMS will generate 5,1 events		
1	Execute TCL script SPIRE-IST-PeakUpTest-<n>.tcl Where n = 1 to 11.	If n=1 Wait for ~3 minutes, otherwise wait for 10 seconds (see table in section 4)	1 OK 2 NOK(1,8) 3 NOK(1,8) 4 NOK(1,8) 5 OK 6 ok 7 ok 8 ~~NOK~~ ok 9 ok 10 ok 11 OK
2	Check that 5,1 event packet is issued with correct contents on the CCS See **Appendix A** for an example of a peak-up event packet dump	Event ID = 0x0504 SID = 0x5101 Instrument ID = 2 Yangle – see section 2.2 Zangle – see section 2.2 The I-EGSE staff will also check the contents of peak-up event packet.	OK
3	Check CDMS issues correct commands to AOCS	Post test check by AOCS experts to see if the command to move is in accordance with	

PUS#5.
NCR4390

Enter Date/Time:	30/07/08.	07:05	Sign Off:	

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: SPUR00000500 Description: Peak_Up_Report

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: 792 Type: 5 Subtype: 1 PI1: 1284 PI2: 20737

SPID: 190105500 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: 2008.212.06.09.57.194 Reception time: 2008.212.06.10.00.286

TM Packet Raw Data

SCOS-2000 Header:

```
0000:0000 0000 B505 9048 5AF6 0200 B805 9048 555E 0400 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 0000 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0005 1803 0501
```

Packet Raw Data:

```
0000:0D00 C318 001F 0005 0100 5F22 6435 31B3 0504 5101 B000 0000 8000 0000 001F 0002
0020:01F4 01F4 BCC6
```

TP-0226 7.2.2.2 SPIRESST_PeakUpTest_1

TM Packet Query Display

TM Packet Details

```
                                                                                             Simulated: N
Mnemonic: A86PEAPND002   Description: TM_8_6 for PeakUp - PeakUpPending

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: 512          SSC: 1323             Type: 8         Subtype: 6      PI1: 26509    PI2: 0

SPID: 11441002           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: 2008.212.06.09.58.463    Reception time: 2008.212.06.10.00.287
```

TM Packet Raw Data

```
SCOS-2000 Header:
0000:0000 0000 B605 9048 A510 0700 B805 9048 1462 0400 0100 0000 E601 0000 6000 0000
0020:1138 FFFF 0000 0000 6A93 AE00 0000 0000 0000 0000 FFFF FFFF 10FF 0002 2B05 0806

Packet Raw Data:
0000:0A00 C52B 0019 0008 0600 5F22 6436 7688 678D 0000 8D00 0100 0002 01F4 01F4 6C85
```

TP-0226 .7.2.2.2 SPIRE IST - PeakUpTest_1

OK

```
                         TM Packet Query Display
                         =======================

   TM Packet Details
   -----------------
                                                             Simulated: N
Mnemonic: TcContentRep   Description: Telecommand Contents Report

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: 16          SSC: 7001          Type: 1        Subtype: 9     PI1: 0        PI2: 0

SPID: 40094180          TPSD: 40094180      HFA Counter: 15        Filing: E   Distribution: E

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


   TM Packet Parameter Data
   ------------------------
Generation time: 2008.212.06.14.58.044    Reception time: 2008.212.06.14.59.241

 DE001180       TC

   TM Packet Raw Data
   ------------------

SCOS-2000 Header:
0000:0000 0000 E206 9048 ADAC 0000 E306 9048 BCAD 0300 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 0F00 0000 E4C9 6302 0000 0000 0000 0000 E4C9 6302 10FF 1000 591B 0109

Packet Raw Data:
0000:0810 DB59 0023 0001 0900 5F22 6562 0B51 1A00 F002 0011 0908 0400 678D 0000 0100
0020:0002 81F4 81F4 05C2 A692
```

TP-0226 7.2.2.2 SPIRE IST_PeakUp Test_2

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: A18SEMCHK109 Description: TM_1_8_145 Semantic Check Failure

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: 512 SSC: 1345 Type: 1 Subtype: 8 PI1: 145 PI2: 0

SPID: 11678109 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: 2008.212.06.14.58.462 Reception time: 2008.212.06.15.05.243

TM Packet Raw Data

SCOS-2000 Header:

```
0000:0000 0000 E206 9048 9E0E 0700 E906 9048 53B7 0300 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 0000 0000 9D31 B200 0000 0000 0000 0000 FFFF FFFF 10FF 0002 4105 0108
```

Packet Raw Data:

```
0000:0A00 C541 0023 0001 0800 5F22 6562 7666 1A00 F002 0091 0804 678D 5F22 6562 7660
0020:0001 0011 00CD 003A 85EB
```

TP-0226 7.2.2.? SPIRE_IST_Peak-Up Test 2

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: SPUR00000500 Description: Peak_Up_Report

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: 946 Type: 5 Subtype: 1 PI1: 1284 PI2: 20737

SPID: 190105500 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: 2008.212.06.14.57.192 Reception time: 2008.212.06.14.59.240

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 E106 9048 B3F1 0200 E306 9048 76AB 0300 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 0100 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0005 B203 0501

Packet Raw Data:
0000:0D00 C3B2 001F 0005 0100 5F22 6561 3165 0504 5101 B000 0000 8000 0000 0020 0002
0020:81F4 81F4 CEEC

TP-0226 7.2.2 SPIRE_IST – Peak Up Test 2

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: SPUR00000500 Description: Peak_Up_Report

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: 1104 Type: 5 Subtype: 1 PI1: 1284 PI2: 20737

SPID: 190105500 TPSD: -1 HFA Counter: 2 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.20.03.193 Reception time: 2008.212.06.20.04.199

TM Packet Raw Data

SCOS-2000 Header:
```
0000:0000 0000 1308 9048 0FF2 0200 1408 9048 2B0A 0300 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 0200 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0005 5004 0501
```

Packet Raw Data:
```
0000:0D00 C450 001F 0005 0100 5F22 6693 316B 0504 5101 B000 0000 8000 0000 0022 0002
0020:00C8 80C8 00FB
```

TR-0226 7.22.2 SPIRE_IST_PeakUp_Test 3

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: TcContentRep Description: Telecommand Contents Report

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: 16 SSC: 7094 Type: 1 Subtype: 9 PI1: 0 PI2: 0

SPID: 40094180 TPSD: 40094180 HFA Counter: 16 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.20.04.047 Reception time: 2008.212.06.20.09.203

DE001180 TC

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 1408 9048 34BA 0000 1908 9048 8B1B 0300 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 1000 0000 E4C9 6302 0000 0000 0000 0000 E4C9 6302 10FF 1000 B61B 0109

Packet Raw Data:
0000:0810 DBB6 0023 0001 0900 5F22 6694 0C34 1A00 F003 0011 0908 0400 678D 0000 0100
0020:0002 00C8 80C8 047B 41BF

TP-0226 7.2.2.2 SPIRE_IST_Peak Up_Part 3

```
                              TM Packet Query Display
                              =======================

  TM Packet Details
  -----------------
                                                                  Simulated: N
Mnemonic: A18SEMCHK109   Description: TM_1_8_145 Semantic Check Failure

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: 512         SSC: 1366          Type: 1        Subtype: 8     PI1: 145     PI2: 0

SPID: 11678109          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: 2008.212.06.20.04.462    Reception time: 2008.212.06.20.09.205


  TM Packet Raw Data
  ------------------

SCOS-2000 Header:
0000:0000 0000 1408 9048 2B10 0700 1908 9048 AE22 0300 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 0100 0000 9D31 B200 0000 0000 0000 0000 FFFF FFFF 10FF 0002 5605 0108

Packet Raw Data:
0000:0A00 C556 0023 0001 0800 5F22 6694 7680 1A00 F003 0091 0804 678D 5F22 6694 767A
0020:0001 0011 00CD 003A BAA1
```

TP-0226 7.2.2.2 SPIRE_IST_PeakUp_Test3

TM Packet Query Display
======================

TM Packet Details

Simulated: N

Mnemonic: TcContentRep Description: Telecommand Contents Report

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: 16 SSC: 7206 Type: 1 Subtype: 9 PI1: 0 PI2: 0

SPID: 40094180 TPSD: 40094180 HFA Counter: 17 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.26.19.041 Reception time: 2008.212.06.26.24.241

DE001180 TC

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 8B09 9048 7FA3 0000 9009 9048 56AE 0300 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 1100 0000 E4C9 6302 0000 0000 0000 0000 E4C9 6302 10FF 1000 261C 0109

Packet Raw Data:
0000:0810 DC26 0023 0001 0900 5F22 680B 0AB7 1A00 F004 0011 0908 0400 678D 0000 0100
0020:0002 80C8 00C8 F8C4 2217

TP-0226 2.2.2 SPIRE-IST- Peak Up - Test 4

TM Packet Query Display

TM Packet Details

```
                                                                                     Simulated: N
Mnemonic: A18SEMCHK109   Description: TM_1_8_145 Semantic Check Failure

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: 512          SSC: 1392          Type: 1        Subtype: 8     PI1: 145     PI2: 0

SPID: 11678109          TPSD: -1            HFA Counter: 2          Filing: E   Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.26.19.462   Reception time: 2008.212.06.26.24.242

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 8B09 9048 DB0E 0700 9009 9048 DFB3 0300 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 0200 0000 9D31 B200 0000 0000 0000 0000 FFFF FFFF 10FF 0002 7005 0108

Packet Raw Data:
0000:0A00 C570 0023 0001 0800 5F22 680B 766A 1A00 F004 0091 0804 678D 5F22 680B 7664
0020:0001 0011 00CD 003A CD3F

TP-0226 2.2.2 SPIRE - IST - PeakUp - Test 4

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: SPUR00000500 Description: Peak_Up_Report

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: 1295 Type: 5 Subtype: 1 PI1: 1284 PI2: 20737

SPID: 190105500 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: 2008.212.06.26.18.192 Reception time: 2008.212.06.26.24.240

TM Packet Raw Data

```
SCOS-2000 Header:
0000:0000 0000 8A09 9048 58F1 0200 9009 9048 38AA 0300 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 0300 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0005 0F05 0501

Packet Raw Data:
0000:0D00 C50F 001F 0005 0100 5F22 680A 315F 0504 5101 B000 0000 8000 0000 0023 0002
0020:80C8 00C8 42EC
```

TP-0226 7-2.2.2 SPIRE_IST_PeakUp_Test 4

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: SPUR00000500 Description: Peak_Up_Report

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: 1363 Type: 5 Subtype: 1 PI1: 1284 PI2: 20737

SPID: 190105500 TPSD: -1 HFA Counter: 4 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.28.25.192 Reception time: 2008.212.06.28.32.379

TM Packet Raw Data

SCOS-2000 Header:

0000:0000 0000 090A 9048 95F1 0200 100A 9048 41CC 0500 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 0400 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0005 5305 0501

Packet Raw Data:

0000:0D00 C553 001F 0005 0100 5F22 6889 3163 0504 5101 B000 0000 8000 0000 0024 0002
0020:2774 0064 0EA3

TP-0226 7.2.2.2 SPIRE-IST_PeakUp-Test 3

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: TcContentRep   Description: Telecommand Contents Report

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: 16   SSC: 7245   Type: 1   Subtype: 9   PI1: 0   PI2: 0

SPID: 40094180   TPSD: 40094180   HFA Counter: 18   Filing: E   Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.28.26.043   Reception time: 2008.212.06.28.32.380

DE001180   TC

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 0A0A 9048 19A9 0000 100A 9048 38CD 0500 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 1200 0000 E4C9 6302 0000 0000 0000 0000 E4C9 6302 10FF 1000 4D1C 0109

Packet Raw Data:
0000:0810 DC4D 0023 0001 0900 5F22 688A 0B15 1A00 F005 0011 0908 0400 678D 0000 0100
0020:0002 2774 0064 6278 BA78

TP-0226 2.2.2 SPIRE_IST_PeakUp_Test 5

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: A18SEMCHK109 Description: TM_1_8_145 Semantic Check Failure

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: 512 SSC: 1402 Type: 1 Subtype: 8 PI1: 145 PI2: 0

SPID: 11678109 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: 2008.212.06.28.26.462 Reception time: 2008.212.06.28.32.381

TM Packet Raw Data

SCOS-2000 Header:

0000:0000 0000 0A0A 9048 0C10 0700 100A 9048 83D2 0500 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 0300 0000 9D31 B200 0000 0000 0000 0000 FFFF FFFF 10FF 0002 7A05 0108

Packet Raw Data:

0000:0A00 C57A 0023 0001 0800 5F22 688A 767E 1A00 F005 0091 0804 678D 5F22 688A 7678
0020:0001 0011 00CD 003A 9FD5

TP-0226 7.2.2.7 SPIRE_IST_Peak Up_Test 5

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: TcContentRep Description: Telecommand Contents Report

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: 16 SSC: 7284 Type: 1 Subtype: 9 PI1: 0 PI2: 0

SPID: 40094180 TPSD: 40094180 HFA Counter: 19 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.30.32.044 Reception time: 2008.212.06.30.33.134

DE001180 TC

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 880A 9048 A4AE 0000 890A 9048 800E 0200 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 1300 0000 E4C9 6302 0000 0000 0000 0000 E4C9 6302 10FF 1000 741C 0109

Packet Raw Data:
0000:0810 DC74 0023 0001 0900 5F22 6908 0B72 1A00 F006 0011 0908 0400 678D 0000 0100
0020:0002 0064 2774 B838 DFEB

TP-0226 7.2.2.2 SPIRE - IST - Peak Up - Test 6

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: A18SEMCHK109 Description: TM_1_8_145 Semantic Check Failure

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: 512 SSC: 1412 Type: 1 Subtype: 8 PI1: 145 PI2: 0

SPID: 11678109 TPSD: -1 HFA Counter: 4 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.30.32.462 Reception time: 2008.212.06.30.40.141

TM Packet Raw Data

SCOS-2000 Header:
```
0000:0000 0000 880A 9048 920F 0700 900A 9048 1627 0200 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 0400 0000 9D31 B200 0000 0000 0000 0000 FFFF FFFF 10FF 0002 8405 0108
```

Packet Raw Data:
```
0000:0A00 C584 0023 0001 0800 5F22 6908 7676 1A00 F006 0091 0804 678D 5F22 6908 7670
0020:0001 0011 00CD 003A E869
```

TP-0226 7.2.2.2 SPIRE_IST_PackUp_Test6

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: SPUR00000500 Description: Peak_Up_Report

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: 1430 Type: 5 Subtype: 1 PI1: 1284 PI2: 20737

SPID: 190105500 TPSD: -1 HFA Counter: 5 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.30.31.192 Reception time: 2008.212.06.30.33.133

TM Packet Raw Data

SCOS-2000 Header:

0000:0000 0000 870A 9048 C3F1 0200 890A 9048 590B 0200 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 0500 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0005 9605 0501

Packet Raw Data:

0000:0D00 C596 001F 0005 0100 5F22 6907 3166 0504 5101 B000 0000 8000 0000 0025 0002
0020:0064 2774 6190

TP-0226 7.2.2.2 SPIRE_CSF_PeakUp_Test6

TM Packet Query Display
======================

TM Packet Details

Simulated: N

Mnemonic: TcContentRep Description: Telecommand Contents Report

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: 16 SSC: 7316 Type: 1 Subtype: 9 PI1: 0 PI2: 0

SPID: 40094180 TPSD: 40094180 HFA Counter: 20 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.32.16.045 Reception time: 2008.212.06.32.20.257

DE001180 TC

TM Packet Raw Data

SCOS-2000 Header:

0000:0000 0000 F00A 9048 2CB3 0000 F40A 9048 C3EF 0300 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 1400 0000 E4C9 6302 0000 0000 0000 0000 E4C9 6302 10FF 1000 941C 0109

Packet Raw Data:

0000:0810 DC94 0023 0001 0900 5F22 6970 0BBE 1A00 F007 0011 0908 0400 678D 0000 0100
0020:0002 2774 2774 4327 78E2

TP-0226 7.2.2.2 SPIRE-IST-PeakUp-Test 7

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: A18SEMCHK109 Description: TM_1_8_145 Semantic Check Failure

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: 512 SSC: 1420 Type: 1 Subtype: 8 PI1: 145 PI2: 0

SPID: 11678109 TPSD: -1 HFA Counter: 5 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.32.16.462 Reception time: 2008.212.06.32.20.259

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 F00A 9048 A10F 0700 F40A 9048 6DF4 0300 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 0500 0000 9D31 B200 0000 0000 0000 0000 FFFF FFFF 10FF 0002 8C05 0108

Packet Raw Data:
0000:0A00 C58C 0023 0001 0800 5F22 6970 7677 1A00 F007 0091 0804 678D 5F22 6970 7670
0020:0001 0011 00CD 003A DB5E

TP-0226 7.2.2.2 SPIRE_IST_PeakUp_Test 7

```
                          TM Packet Query Display
                          =======================

   TM Packet Details
   -----------------
                                                                              Simulated: N
Mnemonic: SPUR00000500   Description: Peak_Up_Report

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: 1486            Type: 5         Subtype: 1     PI1: 1284     PI2: 20737

SPID: 190105500          TPSD: -1             HFA Counter: 6           Filing: E  Distribution: E

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


   TM Packet Parameter Data
   ------------------------
Generation time: 2008.212.06.32.15.192    Reception time: 2008.212.06.32.20.256


   TM Packet Raw Data
   ------------------

SCOS-2000 Header:
0000:0000 0000 EF0A 9048 1BF1 0200 F40A 9048 56EB 0300 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 0600 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0005 CE05 0501

Packet Raw Data:
0000:0D00 C5CE 001F 0005 0100 5F22 696F 315B 0504 5101 B000 0000 8000 0000 0026 0002
0020:2774 2774 CAFD
```

TP-0226 7.2.2.2 SPIRE_IST_PeakUp_Test 7

TM Packet Query Display
======================

TM Packet Details

Simulated: N

Mnemonic: SPUR00000500 Description: Peak_Up_Report

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: 1670 Type: 5 Subtype: 1 PI1: 1284 PI2: 20737

SPID: 190105500 TPSD: -1 HFA Counter: 7 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.38.16.192 Reception time: 2008.212.06.38.20.275

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 580C 9048 D2F1 0200 5C0C 9048 C134 0400 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 0700 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0005 8606 0501

Packet Raw Data:
0000:0D00 C686 001F 0005 0100 5F22 6AD8 3167 0504 5101 B000 0000 8000 0000 0027 0002
0020:A774 0064 416A

TP-0226 7.2.2.7 SPIRE-IST-PeakUp-Test 8

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: A18SEMCHK109 Description: TM_1_8_145 Semantic Check Failure

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: 512 SSC: 1445 Type: 1 Subtype: 8 PI1: 145 PI2: 0

SPID: 11678109 TPSD: -1 HFA Counter: 6 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.38.17.462 Reception time: 2008.212.06.38.20.276

TM Packet Raw Data

SCOS-2000 Header:
```
0000:0000 0000 590C 9048 550F 0700 5C0C 9048 2137 0400 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 0600 0000 9D31 B200 0000 0000 0000 0000 FFFF FFFF 10FF 0002 A505 0108
```

Packet Raw Data:
```
0000:0A00 C5A5 0023 0001 0800 5F22 6AD9 7672 1A00 F008 0091 0804 678D 5F22 6AD9 766C
0020:0001 0011 00CD 003A F5C2
```

TP_0226 7.2.2.2 SPIRE_IST_PeakUp_Test 8

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: TcContentRep Description: Telecommand Contents Report

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: 16 SSC: 7423 Type: 1 Subtype: 9 PI1: 0 PI2: 0

SPID: 40094180 TPSD: 40094180 HFA Counter: 21 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.38.17.050 Reception time: 2008.212.06.38.20.275

DE001180 TC

TM Packet Raw Data

SCOS-2000 Header:

```
0000:0000 0000 590C 9048 B5C5 0000 5C0C 9048 A535 0400 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 1500 0000 E4C9 6302 0000 0000 0000 0000 E4C9 6302 10FF 1000 FF1C 0109
```

Packet Raw Data:

```
0000:0810 DCFF 0023 0001 0900 5F22 6AD9 0CF5 1A00 F008 0011 0908 0400 678D 0000 0100
0020:0002 A774 0064 B97E BD48
```

TTP-0226 7.2.2.2 SPIRE_IST_PeakUp_Test 8

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: SPUR00000500 Description: Peak_Up_Report

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: 1721 Type: 5 Subtype: 1 PI1: 1284 PI2: 20737

SPID: 190105500 TPSD: -1 HFA Counter: 8 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.39.49.193 Reception time: 2008.212.06.39.53.380

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 B50C 9048 FBF4 0200 B90C 9048 EDCD 0500 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 0800 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0005 B906 0501

Packet Raw Data:
0000:0D00 C6B9 001F 0005 0100 5F22 6B35 319C 0504 5101 B000 0000 8000 0000 0028 0002
0020:0064 A774 0C12

TP-0226 7.2.2.2 SPIRE-IST-PeakUp-Test 3

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: A18SEMCHK109 Description: TM_1_8_145 Semantic Check Failure

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: 512 SSC: 1452 Type: 1 Subtype: 8 PI1: 145 PI2: 0

SPID: 11678109 TPSD: -1 HFA Counter: 7 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.39.50.462 Reception time: 2008.212.06.39.53.382

TM Packet Raw Data

```
SCOS-2000 Header:
0000:0000 0000 B60C 9048 B10F 0700 B90C 9048 78D5 0500 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 0700 0000 9D31 B200 0000 0000 0000 0000 FFFF FFFF 10FF 0002 AC05 0108

Packet Raw Data:
0000:0A00 C5AC 0023 0001 0800 5F22 6B36 7678 1A00 F009 0091 0804 678D 5F22 6B36 7672
0020:0001 0011 00CD 003A 3DFB
```

TP-0226 2.2.2 SPIRE_IST-PickUp-Test 9

TM Packet Query Display
======================

TM Packet Details

Simulated: N

Mnemonic: TcContentRep   Description: Telecommand Contents Report

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: 16   SSC: 7452   Type: 1   Subtype: 9   PI1: 0   PI2: 0

SPID: 40094180   TPSD: 40094180   HFA Counter: 22   Filing: E   Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.39.50.040   Reception time: 2008.212.06.39.53.380

DE001180   TC

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 B60C 9048 19A0 0000 B90C 9048 67CE 0500 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 1600 0000 E4C9 6302 0000 0000 0000 0000 E4C9 6302 10FF 1000 1C1D 0109

Packet Raw Data:
0000:0810 DD1C 0023 0001 0900 5F22 6B36 0A7E 1A00 F009 0011 0908 0400 678D 0000 0100
0020:0002 0064 A774 0981 9693

TP-0226 7.2.2.2 SPIRE_IST_Peak Up_Test 9

TM Packet Query Display
=======================

TM Packet Details

```
                                                                                          Simulated: N
Mnemonic: SPUR00000500   Description: Peak_Up_Report

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: 1775            Type: 5         Subtype: 1     PI1: 1284     PI2: 20737

SPID: 190105500         TPSD: -1              HFA Counter: 9           Filing: E   Distribution: E

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

TM Packet Parameter Data

```
Generation time: 2008.212.06.41.29.193    Reception time: 2008.212.06.41.32.104
```

TM Packet Raw Data

```
SCOS-2000 Header:
0000:0000 0000 190D 9048 90F4 0200 1C0D 9048 DD96 0100 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 0900 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0005 EF06 0501

Packet Raw Data:
0000:0D00 C6EF 001F 0005 0100 5F22 6B99 3195 0504 5101 B000 0000 8000 0000 0029 0002
0020:A774 A774 1AE2
```

TP-0226 7.2.2.2 SPIRE-IST-PeakUp-Test 10

TM Packet Query Display
======================

TM Packet Details

Simulated: N

Mnemonic: A18SEMCHK109 Description: TM_1_8_145 Semantic Check Failure

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: 512 SSC: 1461 Type: 1 Subtype: 8 PI1: 145 PI2: 0

SPID: 11678109 TPSD: -1 HFA Counter: 8 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.41.30.462 Reception time: 2008.212.06.41.32.106

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 1A0D 9048 9E0E 0700 1C0D 9048 239E 0100 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 0800 0000 9D31 B200 0000 0000 0000 0000 FFFF FFFF 10FF 0002 B505 0108

Packet Raw Data:
0000:0A00 C5B5 0023 0001 0800 5F22 6B9A 7666 1A00 F00A 0091 0804 678D 5F22 6B9A 765F
0020:0001 0011 00CD 003A 1262

TP-0226 7.2.2.2 SPIRE_IST_Peak Up_Test 10

TM Packet Query Display

TM Packet Details

Mnemonic: TcContentRep Description: Telecommand Contents Report 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: 16 SSC: 7482 Type: 1 Subtype: 9 PI1: 0 PI2: 0

SPID: 40094180 TPSD: 40094180 HFA Counter: 23 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.41.30.042 Reception time: 2008.212.06.41.32.104

DE001180 TC

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 1A0D 9048 73A4 0000 1C0D 9048 3297 0100 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 1700 0000 E4C9 6302 0000 0000 0000 0000 E4C9 6302 10FF 1000 3A1D 0109

Packet Raw Data:
0000:0810 DD3A 0023 0001 0900 5F22 6B9A 0AC7 1A00 F00A 0011 0908 0400 678D 0000 0100
0020:0002 A774 A774 83B9 2FAE

TP-0226 7.222 SPIRE-IST-PeakUp-Test 10

TM Packet Query Display

TM Packet Details

Mnemonic: TcContentRep   Description: Telecommand Contents Report   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: 16   SSC: 7516   Type: 1   Subtype: 9   PI1: 0   PI2: 0

SPID: 40094180   TPSD: 40094180   HFA Counter: 24   Filing: E   Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.43.17.043   Reception time: 2008.212.06.43.20.234

DE001180   TC

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 850D 9048 28A9 0000 880D 9048 DA95 0300 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 1800 0000 E4C9 6302 0000 0000 0000 0000 E4C9 6302 10FF 1000 5C1D 0109

Packet Raw Data:
0000:0810 DD5C 0023 0001 0900 5F22 6C05 0B16 1A00 F00B 0011 0908 0400 678D 0000 0100
0020:0002 0000 0000 58CF 9033

TP-0226 7.2.2.2 SPIRE-IST-PeakUp-Test-11

TM Packet Query Display

TM Packet Details

Mnemonic: SPUR00000500 Description: Peak_Up_Report 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: 1832 Type: 5 Subtype: 1 PI1: 1284 PI2: 20737

SPID: 190105500 TPSD: -1 HFA Counter: 10 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.43.16.193 Reception time: 2008.212.06.43.20.233

TM Packet Raw Data

SCOS-2000 Header:

0000:0000 0000 840D 9048 9FF4 0200 880D 9048 4291 0300 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 0A00 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0005 2807 0501

Packet Raw Data:

0000:0D00 C728 001F 0005 0100 5F22 6C04 3196 0504 5101 B000 0000 8000 0000 002A 0002
0020:0000 0000 DEB0

TP_0226 7.2.2.2 SPIRE_IST_PeakUp_Test_M

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: A_TcExeComp Description: Telecommand Execution Report - Completed

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: 512 SSC: 1469 Type: 1 Subtype: 7 PI1: 0 PI2: 0

SPID: 10093070 TPSD: -1 HFA Counter: 162 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.06.43.17.462 Reception time: 2008.212.06.43.20.236

TM Packet Raw Data

SCOS-2000 Header:

```
0000:0000 0000 850D 9048 9510 0700 880D 9048 289B 0300 0100 0000 E601 0000 5600 0000
0020:1138 FFFF A200 0000 0E02 9A00 0000 0000 0000 0000 FFFF FFFF 10FF 0002 BD05 0107
```

Packet Raw Data:

```
0000:0A00 C5BD 000F 0001 0700 5F22 6C05 7687 1A00 F00B 402B
```

SPIRE - IST - 'WakeUp - Test - 11 7-2.2.2 TP-0226

Enter Start Date|Time:	30/07/08		

	Verify that the ACMS reports corresponding 8,6 packets with the correct content for the peak-up commands sent by SPIRE.	the peak-up event packet.	
4	Wait for the I-EGSE staff go-ahead before executing next step		ok

SPIRE remains in DPU ON mode after test execution

Enter Date/Time:	30/07/08	07:05.	Sign Off:	

Enter Start Date|Time:			

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.					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
	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: a) EVID 1313 No_MCU_Response_Error b) EVID 21773 ALARM_LSMCU_DEAD **However, be aware that if FDIR is enabled for SPIRE in the CDMU then this may trigger an OBCP**					
3.	On HPCCS when prompted: `"Check Telemetry No Longer Updating - OK to continue"` Check that parameters: THSK TM2N	 Not refreshing Not incrementing		**AND: SA_1_559**		
4.	Select OK to continue	OK				

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

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					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:	30. 07. 08	16:18	

7.2.3 *SPIRE Peak-up Mode Test – 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	OK		✓	
2.	From the HPCCS test conductor console start the test script to power on SPIRE Redundant: **S102999SCVT033_ASDCFTSPIR_PWR_ON_R**	OK	OK	AND: ZAD07999, ZAD14999 MIM: LCL_HERSCHEL	✓	

Enter Date/Time:	30. 07. 08	16:18	Sign Off:	

Enter Start Date|Time:	30.07.08		

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 HeI/HeII conditions only - Select NO to abort TS if not correct" **Select YES**	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**	✓	
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			✓	

Enter Date/Time:	30.07.08		Sign Off:	

Enter Start Date|Time:	30.07.08		

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: THSK TM2N Select OK to continue	 Not refreshing Not incrementing OK			✓	
7.	On HPCCS when prompted: "Check Telemetry Updating Correctly - OK to continue" Check that parameters: THSK TM2N Select OK to continue	 Refreshing @ 1Hz Incrementing by 1 @ 1Hz OK		**AND: SA_1_559**	✓	

Enter Date/Time:	30.07.08		Sign Off:	[signature]

Enter Start Date|Time:	30.07.08		

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	ok		✓	
10.	Verify HK TM packets are being received on APIDs 1281 & 1283	OK				
	SPIRE DPU & DRCU Redundant powered					

Enter Date/Time:	30.07.08	16:25	Sign Off:	Leo

Enter Start Date/Time:	30/07/08	16:38	

PVS4.

7.2.3.2 Peak-up Mode Procedure – Redundant

Step	Action(s)	Description	Comments
1	Execute TCL script SPIRE-IST-PeakUpTest-<n>.tcl Where n = 1 to 11.	If n=1 Wait for ~3 minutes, otherwise wait for 10 seconds (see table in section 2.2)	✓
2	Check event packet is issued with correct contents on the CCS See **Appendix A** for an example of a peak-up event packet dump	Event ID = 0x0504 SID = 0x5101 Instrument ID = 2 Yangle – see section 2.2 Zangle – see section 2.2 The I-EGSE staff will also check the contents of peak-up event packet.	1 OK 7 NoK 2 OK 8 NoK 3 ok 9 NoK 4 ok 10 NoK 5 NoK 11. ok ✓ 6 NoK
3	Check CDMS issues correct commands to AOCS	Post test check by AOCS experts to see if the command to move is in accordance with the peak-up event packet.	To be done offline
4	Wait for the I-EGSE staff go-ahead before executing next step		✓

Enter Date/Time:	30/7/08	17:39	Sign Off:	

TM Packet Query Display
======================

TM Packet Details

```
                                                                                           Simulated: N
Mnemonic: A86PEAPND002   Description: TM_8_6 for PeakUp - PeakUpPending

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: 512          SSC: 3818            Type: 8         Subtype: 6      PI1: 26509    PI2: 0

SPID: 11441002           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: 2008.212.17.06.00.462    Reception time: 2008.212.17.06.04.181
```

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 789F 9048 DB0E 0700 7C9F 9048 93C4 0200 0100 0000 E601 0000 6000 0000
0020:1138 FFFF 0100 0000 6A93 AE00 0000 0000 0000 0000 FFFF FFFF 10FF 0002 EA0E 0806

Packet Raw Data:
0000:0A00 CEEA 0019 0008 0600 5F22 FDF8 766A 678D 0000 8D00 0100 0002 01F4 01F4 EC89

TP-0226 Step 7.2.3.2 Peak. Up 1

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: SPUR00000500 Description: R_Peak_Up_Report

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: 1645 Type: 5 Subtype: 1 PI1: 1284 PI2: 20737

SPID: 190105500 TPSD: -1 HFA Counter: 13 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.17.05.59.195 Reception time: 2008.212.17.06.01.147

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 779F 9048 A4FA 0200 799F 9048 8841 0200 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 0D00 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0105 6D06 0501

Packet Raw Data:
0000:0D01 C66D 001F 0005 0100 5F22 FDF7 31FB 0504 5101 B000 0000 8000 0000 0020 0002
0020:01F4 01F4 693F

TP-0226 step 7.2.3.2 peak-up 1

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: TcContentRep Description: Telecommand Contents Report

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: 16 SSC: 2305 Type: 1 Subtype: 9 PI1: 0 PI2: 0

SPID: 40094180 TPSD: 40094180 HFA Counter: 27 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.17.06.00.041 Reception time: 2008.212.17.06.01.149

DE001180 TC

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 789F 9048 20A2 0000 799F 9048 2C48 0200 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 1B00 0000 E4C9 6302 0000 0000 0000 0000 E4C9 6302 10FF 1000 0109 0109

Packet Raw Data:
0000:0810 C901 0023 0001 0900 5F22 FDF8 0AA0 1A00 F00E 0011 0908 0400 678D 0000 0100
0020:0002 01F4 01F4 1B43 C18B

TP-0226 step 7.2.3.2 peak-up 1

TM Packet Query Display

TM Packet Details

```
Simulated: N
Mnemonic: SPUR00000500   Description: R_Peak_Up_Report

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: 1785          Type: 5         Subtype: 1     PI1: 1284     PI2: 20737

SPID: 190105500         TPSD: -1            HFA Counter: 14          Filing: E   Distribution: E

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

TM Packet Parameter Data

```
Generation time: 2008.212.17.10.30.193    Reception time: 2008.212.17.10.33.072
```

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 86A0 9048 62F4 0200 89A0 9048 651C 0100 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 0E00 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0105 F906 0501

Packet Raw Data:
0000:0D01 C6F9 001F 0005 0100 5F22 FF06 3192 0504 5101 B000 0000 8000 0000 0021 0002
0020:FE0C FE0C 358D

TP-0226 Step 7.2.3.2 PeakUp 2

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: A86PEAPND002 Description: TM_8_6 for PeakUp - PeakUpPending

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: 512 SSC: 3845 Type: 8 Subtype: 6 PI1: 26509 PI2: 0

SPID: 11441002 TPSD: -1 HFA Counter: 2 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.17.10.31.462 Reception time: 2008.212.17.10.33.074

TM Packet Raw Data

SCOS-2000 Header:

0000:0000 0000 87A0 9048 2B10 0700 89A0 9048 8E23 0100 0100 0000 E601 0000 6000 0000
0020:1138 FFFF 0200 0000 6A93 AE00 0000 0000 0000 0000 FFFF FFFF 10FF 0002 050F 0806

Packet Raw Data:

0000:0A00 CF05 0019 0008 0600 5F22 FF07 7680 678D 0000 8D00 0100 0002 FE0C FE0C D42B

TP_0226 Step 2.2.3.2 PeakUp2

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: TcContentRep Description: Telecommand Contents Report

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: 16 SSC: 2389 Type: 1 Subtype: 9 PI1: 0 PI2: 0

SPID: 40094180 TPSD: 40094180 HFA Counter: 28 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.17.10.31.044 Reception time: 2008.212.17.10.33.073

DE001180 TC

TM Packet Raw Data

SCOS-2000 Header:


```
0000:0000 0000 87A0 9048 B4AE 0000 89A0 9048 C31D 0100 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 1C00 0000 E4C9 6302 0000 0000 0000 0000 E4C9 6302 10FF 1000 5509 0109
```


Packet Raw Data:


```
0000:0810 C955 0023 0001 0900 5F22 FF07 0B73 1A00 F00F 0011 0908 0400 678D 0000 0100
0020:0002 FE0C FE0C A9E4 F16A
```


TP-0226 Step 7.2.3.2 Peak Up 2

TM Packet Query Display
======================

TM Packet Details

Simulated: N

Mnemonic: SPUR00000500 Description: R_Peak_Up_Report

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: 1993 Type: 5 Subtype: 1 PI1: 1284 PI2: 20737

SPID: 190105500 TPSD: -1 HFA Counter: 15 Filing: E Distribution: E

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

TP-0226 Skp 2.2.32. Peak up 3

TM Packet Parameter Data

Generation time: 2008.212.17.17.19.193 Reception time: 2008.212.17.17.24.147

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 1FA2 9048 19F5 0200 24A2 9048 5E40 0200 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 0F00 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0105 C907 0501

Packet Raw Data:
0000:0D01 C7C9 001F 0005 0100 5F23 009F 319E 0504 5101 B000 0000 8000 0000 0022 0002
0020:00C8 FF38 FB68

```
                              TM Packet Query Display
                              =======================

  TM Packet Details
  -----------------
                                                                Simulated: N
Mnemonic: A86PEAPND002   Description: TM_8_6 for PeakUp - PeakUpPending

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: 512          SSC: 3882            Type: 8         Subtype: 6      PI1: 26509    PI2: 0

SPID: 11441002          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: 2008.212.17.17.20.463    Reception time: 2008.212.17.17.24.155


  TM Packet Raw Data
  ------------------

SCOS-2000 Header:
0000:0000 0000 20A2 9048 C310 0700 24A2 9048 0761 0200 0100 0000 E601 0000 6000 0000
0020:1138 FFFF 0300 0000 6A93 AE00 0000 0000 0000 0000 FFFF FFFF 10FF 0002 2A0F 0806

Packet Raw Data:
0000:0A00 CF2A 0019 0008 0600 5F23 00A0 768A 678D 0000 8D00 0100 0002 00C8 FF38 0B50
```

TP-0226 Step 7.2.3.2 Peak Up 3

TM Packet Query Display
======================

TM Packet Details

```
                                                                      Simulated: N
Mnemonic: TcContentRep   Description: Telecommand Contents Report

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: 16           SSC: 2513           Type: 1         Subtype: 9     PI1: 0        PI2: 0

SPID: 40094180           TPSD: 40094180      HFA Counter: 29          Filing: E   Distribution: E

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

TM Packet Parameter Data

```
Generation time: 2008.212.17.17.20.050    Reception time: 2008.212.17.17.24.155

 DE001180       TC
```

TM Packet Raw Data

```
SCOS-2000 Header:
0000:0000 0000 20A2 9048 84C4 0000 24A2 9048 0F60 0200 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 1D00 0000 E4C9 6302 0000 0000 0000 0000 E4C9 6302 10FF 1000 D109 0109

Packet Raw Data:
0000:0810 C9D1 0023 0001 0900 5F23 00A0 0CE1 1A00 F010 0011 0908 0400 678D 0000 0100
0020:0002 00C8 FF38 B15E 699D
```


TP-0266

Skp 7.2.3.2

peak up 3

TM Packet Query Display
======================

TM Packet Details

Simulated: N

Mnemonic: TcContentRep Description: Telecommand Contents Report

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: 16 SSC: 2654 Type: 1 Subtype: 9 PI1: 0 PI2: 0

SPID: 40094180 TPSD: 40094180 HFA Counter: 30 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.17.25.04.045 Reception time: 2008.212.17.25.11.286

DE001180 TC

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 F0A3 9048 22B0 0000 F7A3 9048 F75F 0400 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 1E00 0000 E4C9 6302 0000 0000 0000 0000 E4C9 6302 10FF 1000 5E0A 0109

Packet Raw Data:
0000:0810 CA5E 0023 0001 0900 5F23 0270 0B8B 1A00 F011 0011 0908 0400 678D 0000 0100
0020:0002 FF38 00C8 2B50 2E10

Peak Up 4

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: A86PEAPND002 Description: TM_8_6 for PeakUp - PeakUpPending

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: 512 SSC: 3922 Type: 8 Subtype: 6 PI1: 26509 PI2: 0

SPID: 11441002 TPSD: -1 HFA Counter: 4 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.17.25.04.462 Reception time: 2008.212.17.25.11.287

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 F0A3 9048 830F 0700 F7A3 9048 1062 0400 0100 0000 E601 0000 6000 0000
0020:1138 FFFF 0400 0000 6A93 AE00 0000 0000 0000 0000 FFFF FFFF 10FF 0002 520F 0806

Packet Raw Data:
0000:0A00 CF52 0019 0008 0600 5F23 0270 7675 678D 0000 8D00 0100 0002 FF38 00C8 B38E

Peak up 4

TM Packet Query Display
======================

TM Packet Details

Simulated: N

Mnemonic: SPUR00000500 Description: R_Peak_Up_Report

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: 2229 Type: 5 Subtype: 1 PI1: 1284 PI2: 20737

SPID: 190105500 TPSD: -1 HFA Counter: 16 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.17.25.03.193 Reception time: 2008.212.17.25.04.231

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 EFA3 9048 FBF4 0200 F0A3 9048 9586 0300 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 1000 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0105 B508 0501

Packet Raw Data:
0000:0D01 C8B5 001F 0005 0100 5F23 026F 319C 0504 5101 B000 0000 8000 0000 0023 0002
0020:FF38 00C8 2A3B

Peak up 4

```
                          TM Packet Query Display
                          =======================

   TM Packet Details
   -----------------
                                                                   Simulated: N
Mnemonic: A18SEMCHK109   Description: TM_1_8_145 Semantic Check Failure

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: 512          SSC: 3945             Type: 1         Subtype: 8     PI1: 145      PI2: 0

SPID: 11678109           TPSD: -1              HFA Counter: 9           Filing: E   Distribution: E

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


   TM Packet Parameter Data
   ------------------------
Generation time: 2008.212.17.28.21.462    Reception time: 2008.212.17.28.24.124


   TM Packet Raw Data
   ------------------

SCOS-2000 Header:
0000:0000 0000 B5A4 9048 C00F 0700 B8A4 9048 F7E4 0100 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 0900 0000 9D31 B200 0000 0000 0000 0000 FFFF FFFF 10FF 0002 690F 0108

Packet Raw Data:
0000:0A00 CF69 0023 0001 0800 5F23 0335 7679 1A00 F012 0091 0804 678D 5F23 0335 7673
0020:0001 0011 00CD 003A 2392
```

Peak up 5

TM Packet Query Display
======================

TM Packet Details

Simulated: N

Mnemonic: SPUR00000500 Description: R_Peak_Up_Report

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: 2332 Type: 5 Subtype: 1 PI1: 1284 PI2: 20737

SPID: 190105500 TPSD: -1 HFA Counter: 17 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.17.28.20.193 Reception time: 2008.212.17.28.24.121

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 B4A4 9048 4FF3 0200 B8A4 9048 DAD9 0100 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 1100 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0105 1C09 0501

Packet Raw Data:
0000:0D01 C91C 001F 0005 0100 5F23 0334 3180 0504 5101 B000 0000 8000 0000 0024 0002
0020:2774 0064 1591

Peak up 5

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: A18SEMCHK109 Description: TM_1_8_145 Semantic Check Failure

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: 512 SSC: 3955 Type: 1 Subtype: 8 PI1: 145 PI2: 0

SPID: 11678109 TPSD: -1 HFA Counter: 10 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.17.30.25.462 Reception time: 2008.212.17.30.32.261

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 31A5 9048 CF0F 0700 38A5 9048 06FE 0300 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 0A00 0000 9D31 B200 0000 0000 0000 0000 FFFF FFFF 10FF 0002 730F 0108

Packet Raw Data:
0000:0A00 CF73 0023 0001 0800 5F23 03B1 767A 1A00 F013 0091 0804 678D 5F23 03B1 7674
0020:0001 0011 00CD 003A 897B

Reel 9p 6

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: SPUR00000500 Description: R_Peak_Up_Report

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: 2398 Type: 5 Subtype: 1 PI1: 1284 PI2: 20737

SPID: 190105500 TPSD: -1 HFA Counter: 18 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.17.30.24.192 Reception time: 2008.212.17.30.26.258

TM Packet Raw Data

SCOS-2000 Header:

0000:0000 0000 30A5 9048 D2F1 0200 32A5 9048 9AF1 0300 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 1200 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0105 5E09 0501

Packet Raw Data:

0000:0D01 C95E 001F 0005 0100 5F23 03B0 3167 0504 5101 B000 0000 8000 0000 0025 0002
0020:0064 2774 5315

Peak up 6

```
                    TM Packet Query Display
                    =======================

   TM Packet Details
   -----------------
                                                                              Simulated: N
Mnemonic: A18SEMCHK109   Description: TM_1_8_145 Semantic Check Failure

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: 512          SSC: 3962           Type: 1         Subtype: 8     PI1: 145      PI2: 0

SPID: 11678109           TPSD: -1            HFA Counter: 11          Filing: E   Distribution: E

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


   TM Packet Parameter Data
   ------------------------
Generation time: 2008.212.17.31.46.462    Reception time: 2008.212.17.31.47.964


   TM Packet Raw Data
   ------------------

SCOS-2000 Header:
0000:0000 0000 82A5 9048 CC0E 0700 83A5 9048 EDB7 0E00 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 0B00 0000 9D31 B200 0000 0000 0000 0000 FFFF FFFF 10FF 0002 7A0F 0108

Packet Raw Data:
0000:0A00 CF7A 0023 0001 0800 5F23 0402 7669 1A00 F014 0091 0804 678D 5F23 0402 7662
0020:0001 0011 00CD 003A 64F2
```

Peak Up 7

```
                              TM Packet Query Display
                              =======================

  TM Packet Details
  -----------------
                                                                 Simulated: N
Mnemonic: SPUR00000500   Description: R_Peak_Up_Report

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: 2442           Type: 5         Subtype: 1     PI1: 1284     PI2: 20737

SPID: 190105500          TPSD: -1            HFA Counter: 19          Filing: E   Distribution: E

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


  TM Packet Parameter Data
  ------------------------
Generation time: 2008.212.17.31.45.193    Reception time: 2008.212.17.31.47.962


  TM Packet Raw Data
  ------------------

SCOS-2000 Header:
0000:0000 0000 81A5 9048 0FF2 0200 83A5 9048 57B1 0E00 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 1300 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0105 8A09 0501

Packet Raw Data:
0000:0D01 C98A 001F 0005 0100 5F23 0401 316B 0504 5101 B000 0000 8000 0000 0026 0002
0020:2774 2774 CBAA
```

Peak up #

TM Packet Query Display

TM Packet Details

```
                                                                               Simulated: N
Mnemonic: A18SEMCHK109   Description: TM_1_8_145 Semantic Check Failure

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: 512          SSC: 3969          Type: 1        Subtype: 8    PI1: 145     PI2: 0

SPID: 11678109          TPSD: -1           HFA Counter: 12         Filing: E   Distribution: E

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

TM Packet Parameter Data

```
Generation time: 2008.212.17.33.09.462    Reception time: 2008.212.17.33.13.060
```

TM Packet Raw Data


```
SCOS-2000 Header:
0000:0000 0000 D5A5 9048 740F 0700 D9A5 9048 4EED 0000 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 0C00 0000 9D31 B200 0000 0000 0000 0000 FFFF FFFF 10FF 0002 810F 0108

Packet Raw Data:
0000:0A00 CF81 0023 0001 0800 5F23 0455 7674 1A00 F015 0091 0804 678D 5F23 0455 766D
0020:0001 0011 00CD 003A 7FD0
```


Peal op 8

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: SPUR00000500 Description: R_Peak_Up_Report

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: 2488 Type: 5 Subtype: 1 PI1: 1284 PI2: 20737

SPID: 190105500 TPSD: -1 HFA Counter: 20 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.17.33.08.193 Reception time: 2008.212.17.33.13.059

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 D4A5 9048 6AF2 0200 D9A5 9048 B6E8 0000 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 1400 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0105 B809 0501

Packet Raw Data:
0000:0D01 C9B8 001F 0005 0100 5F23 0454 3171 0504 5101 B000 0000 8000 0000 0027 0002
0020:D88C 0064 FBC4

Peak Up 8

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: A18SEMCHK109 Description: TM_1_8_145 Semantic Check Failure

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: 512 SSC: 3975 Type: 1 Subtype: 8 PI1: 145 PI2: 0

SPID: 11678109 TPSD: -1 HFA Counter: 13 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.17.34.12.462 Reception time: 2008.212.17.34.16.135

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 14A6 9048 3A10 0700 18A6 9048 2913 0200 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 0D00 0000 9D31 B200 0000 0000 0000 0000 FFFF FFFF 10FF 0002 870F 0108

Packet Raw Data:
0000:0A00 CF87 0023 0001 0800 5F23 0494 7681 1A00 F016 0091 0804 678D 5F23 0494 767B
0020:0001 0011 00CD 003A C463

Peak op 9

TM Packet Query Display
======================

TM Packet Details

Simulated: N

Mnemonic: SPUR00000500 Description: R_Peak_Up_Report

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: 2523 Type: 5 Subtype: 1 PI1: 1284 PI2: 20737

SPID: 190105500 TPSD: -1 HFA Counter: 21 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.17.34.11.192 Reception time: 2008.212.17.34.16.133

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 13A6 9048 C3F1 0200 18A6 9048 0E09 0200 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 1500 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0105 DB09 0501

Packet Raw Data:
0000:0D01 C9DB 001F 0005 0100 5F23 0493 3166 0504 5101 B000 0000 8000 0000 0028 0002
0020:0064 D88C 1715

Peak Up 9

```
                              TM Packet Query Display
                              =======================

  TM Packet Details
  -----------------
                                                                  Simulated: N
Mnemonic: A18SEMCHK109   Description: TM_1_8_145 Semantic Check Failure

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: 512          SSC: 3981            Type: 1         Subtype: 8     PI1: 145      PI2: 0

SPID: 11678109           TPSD: -1             HFA Counter: 14          Filing: E   Distribution: E

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


  TM Packet Parameter Data
  ------------------------
Generation time: 2008.212.17.35.16.462    Reception time: 2008.212.17.35.21.201


  TM Packet Raw Data
  ------------------

SCOS-2000 Header:
0000:0000 0000 54A6 9048 EA0E 0700 59A6 9048 A413 0300 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 0E00 0000 9D31 B200 0000 0000 0000 0000 FFFF FFFF 10FF 0002 8D0F 0108

Packet Raw Data:
0000:0A00 CF8D 0023 0001 0800 5F23 04D4 766B 1A00 F017 0091 0804 678D 5F23 04D4 7664
0020:0001 0011 00CD 003A BDF5
```

Peak up 16

```
                                          TM Packet Query Display
                                          =======================

   TM Packet Details
   -----------------
                                                                                           Simulated: N
Mnemonic: SPUR00000500   Description: R_Peak_Up_Report

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: 2559            Type: 5         Subtype: 1     PI1: 1284     PI2: 20737

SPID: 190105500          TPSD: -1             HFA Counter: 22          Filing: E   Distribution: E

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


   TM Packet Parameter Data
   ------------------------
Generation time: 2008.212.17.35.15.193    Reception time: 2008.212.17.35.16.197


   TM Packet Raw Data
   ------------------

SCOS-2000 Header:
0000:0000 0000 53A6 9048 EBF4 0200 54A6 9048 5904 0300 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 1600 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0105 FF09 0501

Packet Raw Data:
0000:0D01 C9FF 001F 0005 0100 5F23 04D3 319B 0504 5101 B000 0000 8000 0000 0029 0002
0020:D88C D88C 3789
```

Peak up 20

TM Packet Query Display

TM Packet Details

Simulated: N

Mnemonic: TcContentRep Description: Telecommand Contents Report

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: 16 SSC: 2867 Type: 1 Subtype: 9 PI1: 0 PI2: 0

SPID: 40094180 TPSD: 40094180 HFA Counter: 37 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.17.36.15.043 Reception time: 2008.212.17.36.22.270

DE001180 TC

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 8FA6 9048 53A8 0000 96A6 9048 D81E 0400 0100 0000 E601 0000 6A00 0000
0020:1138 FFFF 2500 0000 E4C9 6302 0000 0000 0000 0000 E4C9 6302 10FF 1000 330B 0109

Packet Raw Data:
0000:0810 CB33 0023 0001 0900 5F23 050F 0B08 1A00 F018 0011 0908 0400 678D 0000 0100
0020:0002 0000 0000 1A92 6F65

Peak op 1

TM Packet Query Display
======================

TM Packet Details

Simulated: N

Mnemonic: A86PEAPND002 Description: TM_8_6 for PeakUp - PeakUpPending

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: 512 SSC: 3987 Type: 8 Subtype: 6 PI1: 26509 PI2: 0

SPID: 11441002 TPSD: -1 HFA Counter: 5 Filing: E Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.17.36.15.462 Reception time: 2008.212.17.36.22.271

TM Packet Raw Data

```
SCOS-2000 Header:
0000:0000 0000 8FA6 9048 360F 0700 96A6 9048 4223 0400 0100 0000 E601 0000 6000 0000
0020:1138 FFFF 0500 0000 6A93 AE00 0000 0000 0000 0000 FFFF FFFF 10FF 0002 930F 0806

Packet Raw Data:
0000:0A00 CF93 0019 0008 0600 5F23 050F 7670 678D 0000 8D00 0100 0002 0000 0000 A846
```

Peak up 11

TM Packet Query Display
======================

TM Packet Details

Simulated: N

Mnemonic: SPUR00000500   Description: R_Peak_Up_Report

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: 2593   Type: 5   Subtype: 1   PI1: 1284   PI2: 20737

SPID: 190105500   TPSD: -1   HFA Counter: 23   Filing: E   Distribution: E

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

TM Packet Parameter Data

Generation time: 2008.212.17.36.14.193   Reception time: 2008.212.17.36.16.265

TM Packet Raw Data

SCOS-2000 Header:
0000:0000 0000 8EA6 9048 25F4 0200 90A6 9048 F50B 0400 0100 0000 E601 0000 6600 0000
0020:1138 FFFF 1700 0000 9CC7 540B 0000 0000 0000 0000 FFFF FFFF 10FF 0105 210A 0501

Packet Raw Data:
0000:0D01 CA21 001F 0005 0100 5F23 050E 318E 0504 5101 B000 0000 8000 0000 002A 0002
0020:0000 0000 AFB1

Peak up 1/1

Enter Start Date|Time:			

7.2.3.3 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.					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step-No.	Test-Step-Description	Nominal Value	Actual Value	Remarks	P	N
	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: c) EVID 1313 No_MCU_Response_Error d) EVID 21773 ALARM_LSMCU_DEAD However, be aware that if FDIR is enabled for SPIRE in the CDMU then this may trigger an OBCP					
3.	On HPCCS when prompted: `"Check Telemetry No Longer Updating - OK to continue"` Check that parameters: THSK TM2N	 Not refreshing Not incrementing		AND: SA_1_559		
4.	Select OK to continue	OK				

Enter Start Date|Time:			

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"					
6.	Select OK to continue	OK				
7.	On HPCCS stop Packet History displays for the following APIDs:1281,1283	OK				
	SPIRE REDUNDANT OFF					

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.4 Satellite & EGSE Switch Off After Peak-up Mode Test

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 HPCCS 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	Switch off Satellite/SVM, HPCCS and SCOEs i.a.w. procedure AD11 Section 7.4 continuing from step 42, then return to lead procedure AD10 section 7.4 to complete the switch-off	OK					
6	Confirm both Satellite and EGSE powered down	OK					
	End Conditions: Satellite and EGSE OFF						
	END OF SPIRE Peak-up Mode TEST						

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

7.2.5 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	2.4
Date	6th December 2007
Purpose	To switch OFF the SPIRE instrument if an anomaly should occur
Initial configuration	SPIRE can be in ANY configuration as specified in the test sequence in section 4.1
Final configuration	SPIRE is OFF
Preconditions	• SPIRE FM DPU is electrically integrated with the Herschel Satellite • SPIRE MIB 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.

Enter Date/Time:			Sign Off:	

Enter Start Date|Time:			

Step	Description	Parameter - Unit	Expected value before/after	Actual value before/after
1.	Execute Procedures: ▪ SPIRE-IST-COLD-PDET-OFF-P/R ▪ SPIRE-IST-COLD-BSM-OFF-P/R	PLIABITSAT PSWJFETSTAT PMLWJFETSTAT CHOPSENSPWR JIGGSENSPWR	- / 0 - / 0 - / 0 - / 0 - / 0	
2.	Execute Procedures: ▪ SPIRE-IST-COLD-SDET-OFF-P/R ▪ SPIRE-IST-COLD-SMEC-OFF-P/R	SLIABITSAT SPECJFETSTAT SMECENCPWR SMECLVDTPWR	- / 0 - / 0 - / 0 - / 0	
3.	Execute Procedures: ▪ SPIRE-IST-COLD-MCU-OFF-P/R ▪ SPIRE-IST-COLD-SCU-OFF-P/R	MCUBITSTAT SCUTEMPSTAT SUBKSTAT	- / 0 - / 0 - / 0	

Enter Date/Time:			Sign Off:	

8 Summary Sheets

8.1 Procedure Variation Summary

	Test Change		Curr. No.: Date Page of	
Test designation		Test Procedure	Issue	Rev.
Test step changed		Reason for Change		
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 Director		
Operator		
PA Responsible		
ESA Representative		

APPENDIX 1

Actual SCOE cable connection (to be confirmed by AIT)

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	BS SCOE Cable Plugged	
	BS Red Power	SK01BJ10	PCDU	BS SCOE Cable Plugged	
	BDR1 AIT	SK01BJ11	PCDU	LPS SCOE Cable Plugged	
	BDR2 AIT	SK01BJ12	PCDU	LPS SCOE Cable Plugged	
	SA Nom Power	SK01AJ01	PCDU	POWER SCOE Cable Plugged	
	SA Nom Power	SK01AJ02	PCDU	POWER SCOE Cable Plugged	
	SA Nom Power	SK01AJ03	PCDU	POWER SCOE Cable Plugged	
	SA Nom Power	SK01AJ04	Battery	EMC Dust Cap	
	SA Red Power	SK01AJ05	PCDU	POWER SCOE Cable Plugged	
	SA Red Power	SK01AJ06	PCDU	POWER SCOE Cable Plugged	
	SA Red Power	SK01AJ07	PCDU	POWER SCOE Cable Plugged	
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	Bus Monitor Cable Plugged	
SKIN-02	DMS 1553 Bus_B	J02	CDMU	Bus Monitor Cable Plugged	
SKIN-02	ACMS 1553 Bus_A	J03	ACC	ACMS SCOE Cable Plugged	
SKIN-02	ACMS 1553 Bus_B	J04	ACC	ACMS SCOE Cable Plugged	
SKIN-02	LV1/FCV 20N CMD S/A M	J05	ACC/RCS	ACMS SCOE Cable Plugged	

SKIN-02	LV2/FCV 20N CMD S/A R	J06	ACC/RCS	ACMS SCOE Cable Plugged	
SKIN-02	RCS Press/Tank Temp/PT Pwr	J07	ACC/PT&TH	ACMS SCOE Cable Plugged	
SKIN-02	Thruster Temp M/LV1 Sts	J08	ACC/RCS	ACMS SCOE Cable Plugged	
SKIN-02	CDMU and ACC EEPROM reprogramming input	J09	ACC/CDMU		Flight Plug SK02P09 Plugged
SKIN-02	CDMU and ACC EEPROM reprogramming input	J10	ACC/CDMU		Flight Plug SK02P10 Plugged
SKIN-02	Thruster Temp R/LV2 Sts	J11	ACC/RCS	ACMS SCOE Cable Plugged	
SKIN-02	Thruster C/B Heaters M	J12	ACC/CBH	ACMS SCOE Cable Plugged	
SKIN-02	Thruster C/B Heaters R	J13	ACC/CBH	ACMS SCOE Cable Plugged	
SKIN-02	Str1/2 On/Off Cmd M/Str1 Sts	J14	ACC/STR-1		ACMS Flight Plug SK02P14 Plugged
SKIN-02	Str1/2 On/Off Cmd R/Str2 Sts	J15	ACC/STR-2		ACMS Flight Plug SK02P15 Plugged
SKIN-02	Gyro A On/Off Cmd	J16	ACC/GYRO-E1		ACMS Flight Plug SK02P16 Plugged
SKIN-02	Gyro B On/Off Cmd	J17	ACC/GYRO-E2		ACMS Flight Plug SK02P17 Plugged
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		Plastic cap
SKIN-03	Test point TC + protection jumper EPC2	SK03J02	XPND2/EPC2		Plastic cap
	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
	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	ACMS SCOE Cable Plugged	
SKIN-05	CRS 1/2 Stimuli	J04	CRS-1,2	ACMS SCOE Cable Plugged	
SKIN-05	AAD Sgn M	J05	AAD/ACC	ACMS SCOE Cable Plugged	
SKIN-05	SAS1/2 Sgn M	J06	SAS/ACC	ACMS SCOE Cable Plugged	
SKIN-05	SAS1/2 Sgn R	J07	SAS/ACC	ACMS SCOE Cable Plugged	
SKIN-05	AAD Sgn R	J08	AAD/ACC	ACMS SCOE Cable Plugged	
SKIN-06	STR Panel				
	Connector Function	Skin Connector	S/C unit	SCOE CABLE	Flight Connector
SKIN-06	STR1 Stimuli	J01	STR1	ACMS SCOE Cable Plugged	
SKIN-06	STR2 Stimuli	J02	STR2	ACMS SCOE Cable Plugged	
	UMBILICAL				
	Connector Function	Connector	S/C unit	SCOE CABLE	
	Power/Data	HU1J01	SYSTEM	SCOEs cable Plugged	
	Power/Data	HU2J01	SYSTEM	SCOEs cable Plugged	

4.3.2 SCOE cable connection for " Nominal Launch", " Satellite Commissioning",,"Instrument Commissioning "ACMS Commissioning", "Mode Transitions", S/C Reconfiguration", "CDMS management", DTCP Worst Case Scenario", "Launch Mode Robustness",."NOM Mode Robustness" and "Instrument FDIR"

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	BS SCOE Cable Plugged	✓	
	BS Red Power	SK01BJ10	PCDU	BS SCOE Cable Plugged	✓	
	BDR1 AIT	SK01BJ11	PCDU	LPS SCOE Cable Plugged	✓	
	BDR2 AIT	SK01BJ12	PCDU	LPS SCOE Cable Plugged	✓	
	SA Nom Power	SK01AJ01	PCDU	POWER SCOE Cable Plugged	✓	
	SA Nom Power	SK01AJ02	PCDU	POWER SCOE Cable Plugged	✓	
	SA Nom Power	SK01AJ03	PCDU	POWER SCOE Cable Plugged	✓	
	SA Red Power	SK01AJ04	PCDU	Connector Cover	✓	
	SA Red Power	SK01AJ05	PCDU	POWER SCOE Cable Plugged	✓	
	SA Red Power	SK01AJ06	PCDU	POWER SCOE Cable Plugged	✓	
	SA Red Power	SK01AJ07	PCDU	POWER SCOE Cable Plugged	✓	
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	Bus Monitor Cable Plugged	✓	
SKIN-02	DMS 1553 Bus_B	J02	CDMU	Bus Monitor Cable Plugged	✓	
SKIN-02	ACMS 1553 Bus_A	J03	ACC	ACMS SCOE Cable Plugged	✓	
SKIN-02	ACMS 1553 Bus_B	J04	ACC	ACMS SCOE Cable Plugged	✓	
SKIN-02	LV1/FCV 20N CMD S/A M	J05	ACC/RCS	ACMS SCOE	✓	

As compared with DTCP- WCS previous days testing no change.

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				Cable Plugged	
SKIN-02	LV2/FCV 20N CMD S/A R	J06	ACC/RCS	ACMS SCOE Cable Plugged	
SKIN-02	RCS Press/Tank Temp/PT Pwr	J07	ACC/PT&TH	ACMS SCOE Cable Plugged	
SKIN-02	Thruster Temp M/LV1 Sts	J08	ACC/RCS	ACMS SCOE Cable Plugged	
SKIN-02	CDMU and ACC EEPROM reprogramming input	J09	ACC/CDMU		Flight Cap SK02P09 Plugged
SKIN-02	CDMU and ACC EEPROM reprogramming input	J10	ACC/CDMU		Flight Cap SK02P10 Plugged
SKIN-02	Thruster Temp R/LV2 Sts	J11	ACC/RCS	ACMS SCOE Cable Plugged	
SKIN-02	Thruster C/B Heaters M	J12	ACC/CBH	ACMS SCOE Cable Plugged	
SKIN-02	Thruster C/B Heaters R	J13	ACC/CBH	ACMS SCOE Cable Plugged	
SKIN-02	Str1/2 On/Off Cmd M/Str1 Sts	J14	ACC/STR-1		ACMS Flight Cap SK02P14 Plugged
SKIN-02	Str1/2 On/Off Cmd R/Str2 Sts	J15	ACC/STR-2		ACMS Flight Cap SK02P15 Plugged
SKIN-02	Gyro A On/Off Cmd	J16	ACC/GYRO-E1		ACMS Flight Cap SK02P16 Plugged
SKIN-02	Gyro B On/Off Cmd	J17	ACC/GYRO-E2		ACMS Flight Cap SK02P17 Plugged
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		Plastic cap (See note1)
SKIN-03	Test point TC + protection jumper EPC2	SK03J02	XPND2/EPC2		Plastic cap (See note1)
	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
	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 Cap SK04P01 Plugged
SKIN-04	RWL2 Sgn	J02	ACC/RWL-2		ACMS Flight Cap

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					SK04P02 Plugged ✓
SKIN-04	RWL3 Sgn	J03	ACC/RWL-3		ACMS Flight Cap SK04P03 Plugged ✓
SKIN-04	RWL4 Sgn	J04	ACC/RWL-4		ACMS Flight Cap 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 Cap ✓
SKIN-05	CRS2 AOCS Sgn	J02	CRS-2/ACC		ACMS Flight Cap ✓
SKIN-05	GYRO RS422 / Test	J03	GYRO	ACMS SCOE Cable Plugged ✓	
SKIN-05	CRS 1/2 Stimuli	J04	CRS-1,2	ACMS SCOE Cable Plugged ✓	
SKIN-05	AAD Sgn M	J05	AAD/ACC	ACMS SCOE Cable Plugged ✓	
SKIN-05	SAS1/2 Sgn M	J06	SAS/ACC	ACMS SCOE Cable Plugged ✓	
SKIN-05	SAS1/2 Sgn R	J07	SAS/ACC	ACMS SCOE Cable Plugged ✓	
SKIN-05	AAD Sgn R	J08	AAD/ACC	ACMS SCOE Cable Plugged ✓	
SKIN-06	STR Panel				
	Connector Function	Skin Connector	S/C unit	SCOE CABLE	Flight Connector
SKIN-06	STR1 Stimuli	J01	STR1	ACMS SCOE Cable Plugged ✓	
SKIN-06	STR2 Stimuli	J02	STR2	ACMS SCOE Cable Plugged ✓	
	UMBILICAL				
	Connector Function	Connector	S/C unit	SCOE CABLE	
	Power/Data	HU1 J01	SYSTEM	SCOEs cable Plugged ✓	
	Power/Data	HU2 J01	SYSTEM	SCOEs cable Plugged ✓	

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01:04

END OF DOCUMENT

	Name	Dep./Comp.		Name	Dep./Comp.
	Baldock Richard	FAE12		Schink Dietmar	AED321
	Barlage Bernhard	AED13		Schmidt Thomas	AED15
	Bayer Thomas	ASA42		Schweickert Gunn	ASG23
	Brune Holger	ASA45		Sonn Nico	ASG51
	Chen Bing	HE Space		Steininger Eric	AED321
	Davis William	Captec		Stritter Rene	AED11
	Edelhoff Dirk	AED21		Suess Rudi	OTN/ASA44
	Fehringer Alexander	ASG15		Theunissen Martijn	DSSA
	Fricke Wolfgang Dr.	AED 65		Vascotto Riccardo	HE Space
	Geiger Hermann	ASA42		Wagner Klaus	ASG23
	Grasl Andreas	OTN/ASA44		Wietbrock Walter	AET12
	Grasshoff Brigitte	AET12		Wöhler Hans	ASG23
	Hamer Simon	Terma		Wössner Ulrich	ASE252
	Hanka, Erhard	FI522		Zumstein Armin	AED15
	Hendrikse Jeffrey	HE Space			
	Hendry David	Terma			
	Hengstler Reinhold	ASA42			
	Hinger Jürgen	ASG23			
	Hohn Rüdiger	AED65			
	Hopfgarten Michael	AET32			
	Huber Johann	ASA42			
	Hund Walter	ASE252			
	Idler Siegmund	AED312		ESA/ESTEC	ESA
	Ivády von András	FAE12		Thales Alenia Space Cannes	TAS-F
	Jahn Gerd Dr.	ASG23		Thales Alenia Space Torino	TAS-I
	Jolk Matthias	AET1			
	Klenke Uwe	ASG72			
	Kölle Markus	ASA43		**Instruments:**	
	König Werner	AET32		MPE (PACS)	MPE
	Koppe Axel	AED312		RAL (SPIRE)	RAL
	Kroeker Jürgen	AED65		SRON (HIFI)	SRON
	La Gioia Valentina	Terma			
	Lang Jürgen	ASE252			
	Langenstein Rolf	AED15		**Subcontractors:**	
	Langfermann Michael	ASA41		Austrian Aerospace	AAE
	Leitermann Stefan	AET12		Austrian Aerospace	AAEM
	Liberatore Danilo	Rhea		BOC Edwards	BOCE
	Martin Olivier	Altec		Dutch Space Solar Arrays	DSSA
	Maukisch Jan	ASA43		EADS Astrium Sub-Subsyst. & Equipment	ASSE
	Much Christoph	ASA43		EADS CASA Espacio	CASA
	Müller Martin	ASA43		EADS CASA Espacio	ECAS
	Pietroboni Karin	AED65		European Test Services	ETS
	Reichle Konrad	ASA42		Patria New Technologies Oy	PANT
	Runge Axel	OTN/ASA44		SENER Ingenieria SA	SEN
	Saal Christoph	External		Thales Alenia Space, Antwerp	TAS-ETCA