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1.INTRODUCTION

This document contains the SPIRE Warm Functional Test Procedures to be executed during IST after electrical integration with the Herschel satellite.

1.1Purpose

The main purposes of this document are:

- To define a general pass fail criteria for overall test execution.
- To give detailed and comprehensive step-by-step instructions on how to perform each single test
- To estimate the duration of procedure based on individual test run times.

1.2Scope

This procedure is intended to be used for the checkout of the functionality of all SPIRE subsystems warm during the IST **but can also be used during the AVM campaign as a tool to verify all relevant CCS templates**. The same templates will be used for both the AVM and the IST.

- Where deviations from the behaviour of the real instrument are expected (AVM), this is clearly identified by separate sequences within the actual procedure, i.e., ***Procedure Steps for IST:*** and ***Procedure Steps for AVM:*** are available.
- This procedure is applicable to both PRIME and REDUNDANT instrument

1.3Change Record

Issue 2.0, 13/06/2006

- IST version

Issue 2.1, 16/08/2006

- Rearranged Section 1.
- Inserted Section 2.1 to specify a general Pass/Fail Criterion.
- Removed Functional Test FUNC-BSM-06 as this functionality check is already covered by FUNC-BSM-5b
- Removed Functional Test FUNC-SMEC-04b as there is no extra functionality checked by this test that is not covered by the rest SMEC tests.
- Corrected typo in Section 1.7: (CFT instead of WFT)
- Corrected several typos/mismatches in Section 2:
  - *Procedure 2.3.8* : FUNC-SCU-07 voltages from EVHSV and SPHSV were swapped Minor updated on the step procedures.
  - *Procedure 2.3.20*: Typo on BSM-05b for template to execute.
  - *Procedure 2.3.34*: FUNC-DCU-03 frame count parameter value corrected
  - *Procedure 2.3.35*: Typo on FUNC-DCU-11P

1.4Applicable Documents

AD01 SPIRE Functional Test Specification, Issue 1.4, SPIRE-RAL-DOC-001652, 22/07/2005
AD02 SPIRE ILT Warm Functional Test Procedure, Issue 1.2, SPIRE-RAL-PRC-002322, 27/01/2006

1.5Reference Documents

RD01 SPIRE Instrument User Manual, Issue 1.0, SPIRE-RAL-PRJ-002395, 08/04/2005

1.6Constrains

- Some procedures can only be run after integration of the SPIRE FPU with the Herschel Flight Cryostat– where appropriate this is clearly indicated in the preconditions section of each procedure
- For the SPIRE spectrometer mechanism (SMECm) tests it is assumed that the Herschel cryostat will be tilted (TBD).
- The converted TM parameter values are extracted from the MIB in use for PFM ILT. These values are subject to change for both prime and redundant operations.

1.7Open Issues

- Names of the Herschel Satellite procedures for powering on/off the SPIRE DPU and DRCU are to be filled in the next version. In this version they are marked as procedure XXXXXX.

1.8Duration

The estimated total duration for executing the entire WFT sequence of procedures, including switch off of the SPIRE instrument afterwards is about 4-5 hours.

2.WARM FUNCTIONAL TEST PROCEDURE

2.1General instructions for executing test procedures

- Before executing any of the procedures please always check with the I-EGSE staff
- Any text in **boldface** in the procedural steps generally indicates an action which has to be performed manually by the Instrument EGSE (I-EGSE) staff.
- The procedures are listed here in the order in which they are expected to be performed.
- For these functional tests the instrument will not always be in a pre-defined mode as listed in the IUM (**RD01**).
- The procedure tables include blank boxes where the actual values of parameters can be noted. Based on the comparison with the expected values the success or failure of a step should be recorded in the final column of the table.
- The last row in a procedure table should be used to record the overall Pass/Fail result of each test.

2.2General Pass/Fail criterion

Consecutive failure of 2 executions of the same procedure is enough to declare the overall test result as failed. If the repetition of the procedure is successful this one should be repeated once again as a 'health' check. **In case of overall failure** **see section 3** of the document which addresses the safe switch OFF of the instrument under different scenarios.

2.3Detailed Test Procedures

2.3.1Procedure: SPIRE-IST-DPU-ON

Version: 1.0
Date: 12th June 2006
Purpose: To switch on the SPIRE DPU and start generating housekeeping
Duration: 2 minutes

Preconditions:

- Procedure to supply 28V Power Supply from the satellite to the SPIRE DPU is available
- SPIRE MIB is imported in the CCS database.
- CCS is up and running (SCOS, TOPE and the CDMU)
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS
- The I-EGSE is up and running

Initial Configuration: SPIRE Warm Electronics (DPU and DRCU) are switched off

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	**Using CCS procedure XXXXX Power on the SPIRE DPU 28V Power Supply**	—	—	—	
2	**Wait for instruction from I-EGSE staff to continue with the procedure**	—	—	—	
3	Execute TCL script SPIRE-IST-DPU-ON.tcl	—	—	—	
4	Check that THSK parameter is refreshing every second	—	—	—	
5	Check that TM2N parameter is incrementing every second	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: SPIRE DPU is on but the DRCU is still off

2.3.2Procedure: SPIRE-IST-DRCU-ON

Version: 1.1
Date: 22nd August 2006
Purpose: To switch on the SPIRE DRCU and start generating housekeeping
Duration: 4 minutes

Preconditions: SPIRE FM is electrically integrated with the Herschel Satellite

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched off
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps for IST ONLY:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Success/ Failure
1	Execute TCL script SPIRE-IST-DRCU-ON-STEP1.tcl	—	—	—	
2	Check that THSK parameter is not refreshing anymore	—	—	—	
3	Check that TM2N parameter is not incrementing anymore	—	—	—	
4	**When instructed by the I-EGSE staff Power on the SPIRE DRCU using the CCS procedure XXXXXX**	—	—	—	
5	Execute TCL script SPIRE-IST-DRCU-ON-STEP2.tcl	—	—	—	
6	Check that THSK parameter is again refreshing every 4 seconds	—	—	—	
7	Check that TM2N parameter is again incrementing every 4 seconds	—	—	—	
Test Result (Pass/Fail):					

Procedure Steps for AVM ONLY:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Success/ Failure
1	Execute TCL script SPIRE-IST-DRCU-ON-STEP1.tcl	—	—	—	
2	Check that THSK parameter is not refreshing anymore	—	—	—	
3	Check that TM2N parameter is not incrementing anymore	—	—	—	
4	Start DRCU simulator application software.	—	—	—	
5	Execute TCL script SPIRE-IST-DRCU-ON-STEP2.tcl **Note:** At this moment two HK parameters BIASTEMP and DAQTEMP will go Out Of limits (Hard Limits). This is an inherent feature of the DRCU simulator which cannot be avoided.	BIASTEMP DAQTEMP	—	**OOL**	
6	Check that THSK parameter is again refreshing every 4 seconds	—	—	—	
7	Check that TM2N parameter is again incrementing every 4 seconds	—	—	—	
Test Result (Pass/Fail):					

Final Configuration:

- SPIRE DPU and DRCU are both on
- HK generation is on

2.3.3Procedure: SPIRE-IST-FUNC-SCU-01

Version: 1.0
Date: 12th June 2006
Purpose: SCU science packet generation check
Duration: 2 minutes

Preconditions: None

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS
- DPU AND OBS PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
1	Execute TCL script SPIRE-IST-FUNC-SCU-01.tcl	SCUFRAMECNT TM5N	0/31 3FFF/1		
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.4Procedure: SPIRE-IST-FUNC-SCU-02

Version: 1.0
Date: 12th June 2006
Purpose: SCU science data check by the I-EGSE
Duration: 5 minutes

Preconditions: None

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS
- DPU AND OBS PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
1	Execute TCL script SPIRE-IST-FUNC-SCU-02.tcl	SCUFRAMECNT TM5N	31/62 1/3		
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.5Procedure: SPIRE-IST-FUNC-SCU-08

Version: 1.0
Date: 12th June 2006
Purpose: SCU test pattern test for check by the I-EGSE
Duration: 5 minutes

Preconditions: None

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS
- DPU AND OBS PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
1	Execute TCL script SPIRE-IST-FUNC-SCU-08.tcl	SCUFRAMECNT TM5N	62/93 3/5		
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.6Procedure: SPIRE-IST-FUNC-SCU-03

Version: 1.0
Date: 21st June 2006
Purpose: SCU DC thermometry check
Duration: 6 minutes

Preconditions: SPIRE FM is electrically integrated with the Herschel Satellite
Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-IST-FUNC-SCU-03.tcl	—	—	—	—
2	**Wait for the parameter BBFULLTYPE to get set to SCU_DC_Therm**				
3	A few seconds later record the value of parameter SCUTEMPSTAT	SCUTEMPSTAT	0/FFFF/FFFF		
4	Record the values of SCU DC thermometry channels. **Open Circuit Criterion:** **RAW reading in the range [0, -100]** **Short Circuit Criterion:** **RAW reading of -32768**	PUMPHTRTEMP PUMPHSTEMP EVAPHSTEMP SHUNTTEMP EMCFILTEMP SL0TEMP PL0TEMP OPTTEMP BAFTEMP BSMIFTEMP SCAL2TEMP SCAL4TEMP SCALTEMP SMECIFTEMP SMECTEMP BSMTEMP	For all channels operating normally the raw values should read -32768 (indicating minimum resistance)		
5	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: SCU DC thermometry is switched on.

2.3.7Procedure: SPIRE-IST-FUNC-SCU-06

Version: 1.0
Date: 12th June 2006
Purpose: SCU AC thermometry check
Duration: 2 minutes

Preconditions: SPIRE FM is electrically integrated with the Herschel Satellite

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-IST-FUNC-SCU-06.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	Record the value of the SCU AC thermometry channel **Open Circuit Criterion:** **RAW reading in the range 0 -100** **Short Circuit Criterion:** **RAW reading of -32768**	SUBKTEMP	~32740* if operating normally		
5	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

*** This value might need to be updated with the flight electronics results during PFM4 ILT test campaign.**
Final Configuration: SCU AC thermometry is switched on.

2.3.8Procedure: SPIRE-IST-FUNC-SCU-07

Version: 1.1
Date: 22nd August 2005
Purpose: SCU cooler heaters check
Duration: 3 minutes

Preconditions: SPIRE FM is electrically integrated with the Herschel Satellite

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-IST-FUNC-SCU-07.tcl	—	—	—	—
2	**Wait for the parameter BBFULLTYPE to get set to Cooler_Htr_Chk**	BBFULLTYPE	Cooler_Htr_Chk		
3	Record the value of parameter SPHSV – the Sorption Pump Heat Switch Voltage. *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		
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		
6	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.9Procedure: SPIRE-IST-FUNC-SCU-04

Version: 1.0
Date: 12th June 2006
Purpose: SCU Photometer PCAL check
Duration: 2 minutes

Preconditions: SPIRE FM is electrically integrated with the Herschel Satellite

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

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-FUNC-SCU-04.tcl **The expected values during the test should be monitored when parameter BBFULLTYPE in the FUNCTIONAL TEST PARAMETERS display is set to PCAL_Check This usually happens about 30 seconds from the start of test execution.**	PCALCURR - mA PCALV – V BBFULLTYPE	0.0/0.1/0.0 0.0/0.02/0.0 PCAL_Check		
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.10Procedure: SPIRE-IST-FUNC-SCU-05

Version: 1.0
Date: 21st June 2006
Purpose: SCU Spectrometer SCAL4 and SCAL2 check
Duration: 4 minutes

Preconditions: SPIRE FM is electrically integrated with the Herschel Satellite

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-IST-FUNC-SCU-05.tcl	—	—	—	
2	**Wait for the parameter BBFULLTYPE to get set to SCAL4_Check**	BBFULLTYPE	SCAL4_Check	—	
3	A few seconds later record the value of parameters SCAL4CURR and SCAL4V *These parameters are set back to 0 after ~30 seconds*	SCAL4CURR – mA SCAL4V – V	0.0/0.10/0.0 0.0/0.05/0.0	—	
4	**Wait for the parameter BBFULLTYPE to get set to SCAL2_Check**	BBFULLTYPE	SCAL2_Check	—	
5	A few seconds later record the values of parameters SCAL2CURR and SCAL2V *These parameters are set back to 0 after ~30 seconds*	SCAL2CURR – mA SCAL2V – V	0.0/0.10/0.0 0.0/0.05/0.0	—	
6	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.11Procedure: SPIRE-IST-FUNC-MCU-01

Version: 1.0
Date: 12th June 2006
Purpose: To boot up the MCU
Duration: 5 minutes

Preconditions: SPIRE FM is electrically integrated with the Herschel Satellite

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS
- MCU PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is DRCU_ON	MODE	DRCU_ON		
2	Execute TCL script SPIRE-IST-FUNC-MCU-01.tcl	—	—	—	
3	Check that the mode parameter is REDY	MODE	REDY	—	
4	On FUNCTIONAL TEST PARAMETERS display: Check that the MCU is booted up successfully	MCUBITSTAT	0/1/1	—	
5	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: MCU is switched on and booted up.

2.3.12Procedure: SPIRE-IST-FUNC-MCU-02

Version: 1.0
Date: 12th June 2006
Purpose: MCU science data generation check
Duration: 5 minutes

Preconditions:

- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	REDY		
2	Check the current value of MCU frames sent to the DPU	MCUFRAMECNT	0	—	
3	Execute TCL script SPIRE-IST-FUNC-MCU-02.tcl	—	—	—	
4	Check the current value of MCU frames sent to the DPU	MCUFRAMECNT	~ 3300	—	
5	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.13Procedure: SPIRE-IST-FUNC-MCU-03

Version: 1.0
Date: 12th June 2006
Purpose: MCU science data contents check
Duration: 5 minutes

Preconditions:

- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	REDY		
2	Check the current value of MCU frames sent to the DPU	MCUFRAMECNT	N (N ~ 3300)	—	
3	Execute TCL script SPIRE-IST-FUNC-MCU-03.tcl	—	—	—	
4	Check the current value of MCU frames sent to the DPU	MCUFRAMECNT	N + 300	—	
5	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.14Procedure: SPIRE-IST-FUNC-MCU-04

Version: 1.0
Date: 12th June 2006
Purpose: MCU test pattern check
Duration: 5 minutes

Preconditions:

- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	REDY		
2	Check the current value of MCU frames sent to the DPU	MCUFRAMECNT	N (N ~ 3600)	—	
3	Execute TCL script SPIRE-IST-FUNC-MCU-04.tcl	—	—	—	
4	Check the current value of MCU frames sent to the DPU	MCUFRAMECNT	N + 100	—	
5	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.15Procedure: SPIRE-IST-FUNC-BSM-01

Version: 1.0
Date: 12th June 2006
Purpose: BSM switch on check
Duration: 3 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- SPIRE FUNCTIONAL PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	REDY		
2	Execute TCL script SPIRE-IST-FUNC-BSM-01.tcl	—	—	—	
3	Check that the Chop and Jiggle sensors have switched on	CHOPSENSPWR JIGGSENSPWR	0/1/1 0/1/1		
4	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: BSM is switched on.

2.3.16Procedure: SPIRE-IST-FUNC-BSM-02c

Version: 1.0
Date: 12th June 2006
Purpose: BSM Chop Sensor Polarity Check
Duration: 3 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- SPIRE FUNCTIONAL PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	REDY		
2	Execute TCL script SPIRE-IST-FUNC-BSM-02c.tcl	—	—	—	
3	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.17Procedure: SPIRE-IST-FUNC-BSM-02j

Version: 1.0
Date: 12th June 2006
Purpose: BSM Jiggle Sensor Polarity Check
Duration: 3 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- SPIRE FUNCTIONAL PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	REDY		
2	Execute TCL script SPIRE-IST-FUNC-BSM-02j.tcl	—	—	—	—
3	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.18Procedure: SPIRE-IST-FUNC-BSM-03

Version: 1.0
Date: 12th June 2006
Purpose: BSM open loop dynamics check
Duration: 6 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- SPIRE FUNCTIONAL PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	REDY		
2	Execute TCL script SPIRE-IST-FUNC-BSM-03.tcl	—	—	—	
3	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.19Procedure: SPIRE-IST-FUNC-BSM-05a

Version: 1.0
Date: 12th June 2006
Purpose: BSM open loop chop test
Duration: 10 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- SPIRE FUNCTIONAL PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	REDY		
2	Execute TCL script SPIRE-IST-FUNC-BSM-05a.tcl	—	—	—	
3	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.20Procedure: SPIRE-IST-FUNC-BSM-05b

Version: 1.0
Date: 12th June 2006
Purpose: BSM closed loop chop test
Duration: 10 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- SPIRE FUNCTIONAL PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	REDY		
2	Execute SPIRE-IST-BSM-INIT.tcl	MODE	REDY/-/PHOTSTBY		
3	Execute TCL script SPIRE-IST-FUNC-BSM-05b.tcl	—	—	—	
4	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.21Procedure: SPIRE-IST-BSM-OFF

Version: 1.0
Date: 12th June 2006
Purpose: Switch off the BSM
Duration: 2 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE is in PHOTSTBY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- SPIRE FUNCTIONAL PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	PHOTSTBY		
2	Execute SPIRE-IST-BSM-OFF.tcl	MODE	PHOTSTBY/-/REDY		
3	Check that the power to the BSM sensors is switched off	CHOPSENSPWR JIGGSENSPWR	1/-/0 1/-/0		
4	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—			
Test Result (Pass/Fail):					

Final Configuration: BSM is switched off.

2.3.22Procedure: SPIRE-IST-FUNC-SMEC-02a

Version: 1.0
Date: 12th June 2006
Purpose: Open the SMECm launch latch
Duration: 5 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- SPIRE FUNCTIONAL PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	REDY		
2	Execute TCL script SPIRE-IST-FUNC-SMEC-02a.tcl	—	—	—	
3	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: SMECm is switched on.

2.3.23Procedure: SPIRE-IST-FUNC-SMEC-01

Version: 1.0
Date: 12th June 2006
Purpose: SMECm switch on check
Duration: 5 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- SPIRE FUNCTIONAL PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	REDY		
2	Execute TCL script SPIRE-IST-FUNC-SMEC-01.tcl	—	—	—	
3	Check that power to the SMEC LED and LVDT sensor is on	SMECENCPWR SMECLVDTPWR	0/-/6 0/1/1		
4	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: SMECm is switched on.

2.3.24Procedure: SPIRE-IST-FUNC-SMEC-03

Version: 1.0
Date: 12th June 2006
Purpose: SMEC LED Optical Encoder LED Check
Duration: 5 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- SPIRE FUNCTIONAL PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	REDY		
2	Execute TCL script SPIRE-IST-FUNC-SMEC-03.tcl	—	—	—	
3	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.25Procedure: SPIRE-IST-FUNC-SMEC-04a

Version: 1.0
Date: 12th June 2006
Purpose: SMECm open loop position test
Duration: 10 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- SPIRE FUNCTIONAL PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	REDY		
2	Execute TCL script SPIRE-IST-FUNC-SMEC-04a.tcl	—	—	—	
3	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.26Procedure: SPIRE-IST-FUNC-SMEC-09

Version: 1.0
Date: 12th June 2006
Purpose: SMECm open loop scan test
Duration: 10 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- SPIRE FUNCTIONAL PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	REDY		
2	Check the SMECm is in open loop	SMECLOOPMODE	6/6/6		
3	Execute TCL script SPIRE-IST-FUNC-SMEC-09 .tcl	—	—	—	
4	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.27Procedure: SPIRE-IST-FUNC-SMEC-04b

Version: 1.1
Date: 22nd August 2006
Purpose: SMECm closed loop position test
Duration: 10 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- SPIRE FUNCTIONAL PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	REDY		
2	Execute TCL script SPIRE-IST-FUNC-SMEC-INIT.tcl	SMECLOOPMODE MODE	6/1/1 REDY/-/SPECSTBY		
3	Execute TCL script SPIRE-IST-FUNC-SMEC-04B .tcl	—	—	—	
4	Check that SMECm is still in closed loop	SMECLOOPMODE	1		
5	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: The SMECm is in closed loop.

2.3.28Procedure: SPIRE-IST-FUNC-SMEC-07

Version: 1.1
Date: 22nd August 2006
Purpose: SMECm closed loop scan test
Duration: 10 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- SPIRE FUNCTIONAL PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	SPECSTBY		
2	Execute TCL script SPIRE-IST-FUNC-SMEC-INIT.tcl	SMECLOOPMODE	-/1/1		
3	Execute TCL script SPIRE-IST-FUNC-SMEC-07 .tcl	—	—	—	
4	Check that SMECm is still in closed loop	SMECLOOPMODE	1		
5	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.29Procedure: SPIRE-IST-FUNC-SMEC-06

Version: 1.1
Date: 22nd August 2006
Purpose: SMECm saw-tooth test
Duration: 10 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- SPIRE FUNCTIONAL PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	SPECSTBY		
2	Execute TCL script SPIRE-IST-FUNC-SMEC-INIT.tcl	SMECLOOPMODE	-/1/1		
3	Execute TCL script SPIRE-IST-FUNC-SMEC-06 .tcl	—	—	—	
4	Check that SMECm is still in closed loop	SMECLOOPMODE	1		
5	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.30Procedure: SPIRE-IST-SMEC-OFF

Version: 1.1
Date: 22nd August 2006
Purpose: Switch off the SMEC
Duration: 2 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- SPIRE FUNCTIONAL PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is SPECSTBY	MODE	SPECSTBY		
2	Execute SPIRE-IST-SMEC-OFF.tcl	—	—	—	
3	Check that the power to the SMEC sensors is switched off	SMECENCPWR SMECLVDTPWR	6(TBC)/-/0 1/-/0		
4	Check that the mode parameter is REDY	MODE	REDY		
5	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—			
Test Result (Pass/Fail):					

Final Configuration: SMECm is switched off.

2.3.31Procedure: SPIRE-IST-FUNC-SMEC-02b

Version: 1.0
Date: 12th June 2006
Purpose: Close the SMECm launch latch
Duration: 2 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- SPIRE FUNCTIONAL PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	REDY		
2	Execute TCL script SPIRE-IST-FUNC-SMEC-02b.tcl	—	—	—	
3	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: SMECm is latched.

2.3.32Procedure: SPIRE-IST-FUNC-DCU-01

Version: 1.1
Date: 22nd August 2006
Purpose: DCU science packet generation check for all Photometer and Spectrometer packet types (PF, PSW, PMW, PLW, SF, SSW and SLW)
Duration: 5 minutes

Preconditions:

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
1	Execute TCL script SPIRE-IST-FUNC-DCU-01.tcl	DCUFRAMECNT	n/n+700		
Test Result (Pass/Fail):					

Final Configuration: Unchanged

Remark:
n is an unknown number that depends on the execution of previous (BSM) sequences. The importance here is that actual difference before and after has to be 700 DCU frames

2.3.33Procedure: SPIRE-IST-FUNC-DCU-03

Version: 1.1
Date: 22nd August 2006
Purpose: DCU test pattern test for check by the I-EGSE (Full Photometer and Spectrometer)
Duration: 5 minutes

Preconditions:

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
1	Execute TCL script SPIRE-IST-FUNC-DCU-03.tcl	DCUFRAMECNT	m/m+200 m = n+700		
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

Remark:
m is an unknown number that depends on the execution of previous (BSM) sequences. The importance here is that actual difference before and after has to be 200 DCU frames

2.3.34Procedure: SPIRE-IST-FUNC-DCU-11-P

Version: 1.1
Date: 22nd August 2006
Purpose: Photometer detectors switch on
Duration: 10 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps for IST ONLY:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-IST-FUNC-DCU-11-P.tcl	—	—	—	—
2	Check that the Photometer detectors and LIAs are switched on	PSWJFETSTAT PMLWJFETSTAT PSWJFET1V PSWJFET2V PSWJFET3V PSWJFET4V PSWJFET5V PSWJFET6V PMWJFET1V PMWJFET2V PMWJFET3V PMWJFET4V PLWJFET1V PLWJFET2V TCJFETV PHOTHTRV PLIABITSTAT	0/0x3F/0x3F 0/-/0x7F -1.49V -1.49V -1.49V -1.49V -1.49V -1.49V -1.49V -1.49V -1.49V -1.49V -1.49V -1.49V -1.49V -1.49V 0. 0/-/1		
3	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Procedure Steps for AVM ONLY:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-IST-FUNC-DCU-11-P.tcl **Note:** When the command to switch ON Photometer LIAs is sent to the DRCU simulator ALL photometer LIA related HK parameters will go Out of Limits (Hard Limits). This is an inherent feature of the DRCU simulator which cannot be avoided.	PLIAP5V PLIAP9V PLIAM9V LIAP9TEMP LIAP8TEMP LIAP7TEMP LIAP6TEMP LIAP5TEMP LIAP4TEMP LIAP3TEMP LIAP2TEMP LIAP1TEMP	OOL OOL OOL OOL OOL OOL OOL OOL OOL OOL OOL OOL	OOL OOL OOL OOL OOL OOL OOL OOL OOL OOL OOL OOL	
2	Check that the Photometer detectors and LIAs are switched on	PSWJFETSTAT PMLWJFETSTAT PSWJFET1V PSWJFET2V PSWJFET3V PSWJFET4V PSWJFET5V PSWJFET6V PMWJFET1V PMWJFET2V PMWJFET3V PMWJFET4V PLWJFET1V PLWJFET2V TCJFETV PHOTHTRV PLIABITSTAT	0/0x3F/0x3F 0/-/0x7F -1.49V -1.49V -1.49V -1.49V -1.49V -1.49V -1.49V -1.49V -1.49V -1.49V -1.49V -1.49V -1.49V 0. 0/-/1		
3	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Photometer detectors are switched on.

2.3.35Procedure: SPIRE-IST-FUNC-DCU-13-P

Version: 1.0
Date: 12th June 2006
Purpose: Perform a Photometer Load Curve
Duration: 20 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **Procedure SPIRE-IST-FUNC-DCU-11-P has been executed**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- The Photometer detectors and the LIAs are on
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that Photometer LIAs are switched on	PLIABITSTAT	1		
2	Execute TCL script SPIRE-IST-FUNC-DCU-13-P.tcl	—	—	—	
3	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.36Procedure: SPIRE-IST-FUNC-DCU-05-P

Version: 1.0
Date: 12th June 2006
Purpose: Photometer Manual Offsets Check
Duration: 10 minutes

Preconditions: The Photometer LIAs are switched on

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
1	Execute TCL script SPIRE-IST-FUNC-DCU-05-P.tcl	—	—		
2	**Wait for instruction from the I-EGSE staff before proceeding with the next step**	—	—		
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.37Procedure: SPIRE-IST-PDET-OFF

Version: 1.0
Date: 12th June 2006
Purpose: Switch off Photometer detectors
Duration: 2 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE-IST-FUNC-DCU-11-P has been executed**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- The Photometer detectors and the LIAs are on
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-IST-PDET-OFF.tcl	—	—		
2	Check that the Photometer detectors are switched off	PSWJFETSTAT PMLWJFETSTAT PSWJFET1V PSWJFET2V PSWJFET3V PSWJFET4V PSWJFET5V PSWJFET6V PMWJFET1V PMWJFET2V PMWJFET3V PMWJFET4V PLWJFET1V PLWJFET2V TCJFETV PHOTHTRV	0x3F/-/0 0x7F/-/0 0.0V 0.0V 0.0V 0.0V 0.0V 0.0V 0.0V 0.0V 0.0V 0.0V 0.0V 0.0V 0.0V 0.0V 0.		
3	Check that the Photometer LIAs are switched off	PLIABITSTAT	1/-/0		
4	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Photometer detectors are switched off.

2.3.38Procedure: SPIRE-IST-FUNC-DCU-11-S

Version: 1.1
Date: 22nd August 2006
Purpose: Spectrometer detectors switch on
Duration: 10 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps for IST ONLY:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-IST-FUNC-DCU-11-S.tcl	—	—		
2	Check that the Spectrometer detectors are switched on	SPECJFETSTAT SSWJFET1V SSWJFET2V SLWJFET1V SPECHTRV SLIABITSTAT	0/7/7 -1.49V -1.49V -1.49V 0.0V 1		
4	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—		
Test Result (Pass/Fail):					

Final Configuration: Spectrometer detectors switched on.

Procedure Steps for AVM ONLY:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-IST-FUNC-DCU-11-S.tcl **Note:** When the command to switch ON Spectrometer LIAs is sent to the DRCU simulator ALL photometer LIA related HK parameters will go Out of Limits (Hard Limits). This is an inherent feature of the DRCU simulator which cannot be avoided.	SLIAP5V SLIAP9V SLIAM9V LIAS3TEMP LIAS2TEMP LIAS1TEMP	OOL OOL OOL OOL OOL OOL		
2	Check that the Spectrometer detectors are switched on	SPECJFETSTAT SSWJFET1V SSWJFET2V SLWJFET1V SPECHTRV SLIABITSTAT	0/7/7 -1.49V -1.49V -1.49V 0.0V 1		
3	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Spectrometer detectors switched on.

2.3.39Procedure: SPIRE-IST-FUNC-DCU-13-S

Version: 1.0
Date: 15th June 2006
Purpose: Perform a Spectrometer Load Curve
Duration: 20 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **Procedure SPIRE-IST-FUNC-DCU-11-S has been executed**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- The Spectrometer detectors and the LIAs are on
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps:

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

Final Configuration: Unchanged

2.3.40Procedure: SPIRE-IST-FUNC-DCU-05-S

Version: 1.0
Date: 12th June 2006
Purpose: Spectrometer Manual Offsets Check
Duration: 10 minutes

Preconditions: The Spectrometer LIAs are switched on

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter	Expected Values Before/ After	Actual Values Before /After	Success/ Failure
1	Execute TCL script SPIRE-IST-FUNC-DCU-05-S.tcl	—	—		
2	**Wait for instruction from the I-EGSE staff before proceeding with the next step**	—	—		
Test Result (Pass/Fail):					

Final Configuration: Unchanged

2.3.41Procedure: SPIRE-IST-SDET-OFF

Version: 1.0
Date: 12th June 2006
Purpose: Switch off Spectrometer detectors
Duration: 2 minutes

Preconditions:

- **SPIRE FM is electrically integrated with the Herschel Satellite**
- **SPIRE-IST-FUNC-DCU-11-S has been executed**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- The Spectrometer detectors and the LIAs are on
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-IST-SDET-OFF.tcl	—	—		
2	Check that the Spectrometer detectors are switched off	SPECJFETSTAT SSWJFET1V SSWJFET2V SLWJFET1V SPECHTRV	7/-/0 0.0V 0.0V 0.0V 0.0V		
3	Check that the Spectrometer LIAs are switched off	SLIABITSTAT	1/-/0		
4	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: Spectrometer detectors are switched off.

2.3.42Procedure: SPIRE-IST-MCU-OFF

Version: 1.0
Date: 12th June 2006
Purpose: Switch off the MCU

Preconditions:

- **SPIRE is in REDY mode**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- SPIRE FUNCTIONAL PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter – Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Check that the mode parameter is REDY	MODE	REDY		
2	Execute SPIRE-IST-MCU-OFF.tcl	—	—	—	
3	Check that the MCU is switched off	MCUBITSTAT	1/-/0		
4	Check that the mode parameter is DRCU_ON	MODE	DRCU_ON		
5	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—			
Test Result (Pass/Fail):					

Final Configuration: MCU switched off.

2.3.43Procedure: SPIRE-IST-SCU-OFF

Version: 1.1
Date: 12th June 2006
Purpose: Switch off SCU DC and AC thermometry – if necessary

Preconditions:

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-IST-SCU-OFF.tcl	—	—	—	
2	A few seconds later record the value of parameter SCUTEMPSTAT	SCUTEMPSTAT	FFFF/-/0		
3	A few seconds later record the value of parameter SUBKSTAT	SUBKSTAT	1/-/0		
4	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	—
Test Result (Pass/Fail):					

Final Configuration: SPIRE in DRCU_ON mode.

2.3.44Procedure: SPIRE-IST-DRCU-OFF

Version: 1.1
Date: 22nd August 2006
Purpose: Switch off the DRCU

Preconditions:

- **Procedure SPIRE-IST-SCU-OFF has been successfully executed**
- **SPIRE is electrically integrated with the Herschel FM.**

Initial Configuration:

- SPIRE DPU is on and generating HK
- DRCU is switched ON
- FUNCTIONAL TEST PARAMETERS display is selected on the CCS

Procedure Steps for IST ONLY:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-IST-DRCU-OFF.tcl	—	—	—	
2	Check that THSK parameter is not refreshing anymore	—	—	—	
3	Check that TM2N parameter is not incrementing anymore	—	—	—	
4	**When instructed by the I-EGSE staff Power off the SPIRE DRCU using CCS procedure XXXXXX**	—	—	—	
Test Result (Pass/Fail):					

Procedure Steps for AVM ONLY:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	Execute TCL script SPIRE-IST-DRCU-OFF.tcl	—	—	—	
2	Check that THSK parameter is not refreshing anymore	—	—	—	
3	Check that TM2N parameter is not incrementing anymore	—	—	—	
4	IEGSE staff: Stop DRCU Simulator application software	—	—	—	
Test Result (Pass/Fail):					

Final Configuration:

- DRCU is switched off
- SPIRE DPU is on but not generating HK

2.3.45Procedure: SPIRE-IST-DPU-OFF

Version: 1.0
Date: 12th June 2006
Purpose: Switch off the DPU

Preconditions: SPIRE-IST-DRCU-OFF has been successfully executed.

Initial Configuration:

- SPIRE DPU is on *but not* generating any HK
- DRCU is switched OFF

Procedure Steps:

Step	Description	Parameter - Unit	Expected Values Before/ During/ After	Actual Values Before/ During/ After	Success/ Failure
1	**When instructed by the I-EGSE staff Power off the SPIRE DRCU using the CCS procedure XXXXXX**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: SPIRE DPU is switched off and the SPIRE instrument is OFF.

3.Safe switch off

The following procedure describes the necessary steps to safely switch off SPIRE if an anomaly should occur.

Procedure: SPIRE-SAFE-SWITCH-OFF

Version: 1.0
Date: 21st August 2006
Purpose: Switch off SPIRE

Preconditions: DPU AND OBS PARAMETERS SCOS display on MON1 task must be selected

Initial Configuration: SPIRE can be in any instrument configuration.

Procedure Steps:

Step	Description	Parameter - Unit		Current value	Success/ Failure
1	Check the current instrument configuration	MODE			
2	Case MODE 1: PHOTSBY → Go to step 3 2: SPECSTBY → Go to step 4 3: REDY → Go to step 5 4: DRCU_ON → Go to step 6				
3	Execute Procedures: ▪ 2.3.21 ▪ 2.3.37 Go to step 5				
4	Execute Procedures: ▪ 2.3.30 ▪ 2.3.41 Go to step 5				
5	Execute Procedure: ▪ 2.3.42 Go to step 6				
6	Execute Procedure: ▪ 2.3.44 Go to step 7				
7	Execute Procedure: ▪ 2.3.45				

Final Configuration: SPIRE is OFF