SPIRE Integrated Module Test (IMT) Procedures for the CCS
S.D.Sidher & A.A Aramburu

Introduction

This document describes the Integrated Module Test (IMT) procedures to be executed on the *cold* SPIRE CQM at EADS Astrium in Ottobrunn in the presence of I-EGSE staff. This document gives step-by-step instructions on how to perform each test.

Change Record

Issue 1.0 – First version.

Applicable Documents

AD1 SPIRE Integrated Module Test (IMT) sequence for EQM testing, SPIRE-RAL-NOT-002284, Issue 2.1, 5/4/2005
AD2 SPIRE COOLER RECYCLING SCOS PROCEDURE - SPIRE-RAL-PRC-002267

Reference Documents

RD01 SPIRE Functional Test Specification - SPIRE-RAL-DOC-001652
RD02 SPIRE Short Functional Test (SFT) Procedures for the CCS, SPIRE-RAL-PRC-002494, Issue 1.1, 09/09/2005

General instructions for executing test procedures

- The procedures listed here are not necessarily in the order in which they are expected to be performed. For the exact order of the IMTs please refer to AD1. **Each procedure should only be executed in consultation with the I-EGSE staff.**

- **Each step in the procedure should only be executed after confirmation with the I-EGSE staff.**

- 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.

- Any text in **boldface** in the procedural steps generally indicates an action which may have to be performed manually by the CCS staff. Text in italics gives some background information about the step in progress.

Prerequisites for the IMT

FPU is integrated onto HOB
WE integrated with CCE
WE integrated with harness and FPU
Warm SFTs done in accordance with RD02

Cold SFTs done in accordance with RD02
Cold functional test done at “4K” and “1.7K” as per RD02
FPU is at nominal temperature and left in REDY mode – see transition diagram in AD1
FPU in OFF mode

Duration of IMTs

The total duration for IMTs is estimated to be ~ **5-6 days**, assuming that the tests proceed without any problems.

Procedure: SPIRE-IMT-SETUP-P
Version: 1.0
Date: 23rd Aug 2005
Purpose: Setup the DCU frame generation for a particular bias and sampling frequencies
Duration: ~ 15 minutes

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are on
- DCU PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in PHOTSTBY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute TCL script SPIRE-IMT-SETUP-P.tcl				
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: Unchanged

Procedure: SPIRE-IMT-START-P
Version: 1.0
Date: 23rd Aug 2005
Purpose: Start the DCU frame generation
Duration: ~ 15 minutes

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are on
- DCU PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in PHOTSTBY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute TCL script SPIRE-IMT-START-P.tcl	DCUFRAMESTAT	OFF	CONTINUOUS	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: SPIRE is in PHOTSTBY-TEST mode

Procedure: SPIRE-IMT-STOP-P
Version: 1.0
Date: 23rd Aug 2005
Purpose: Stop the DCU frame generation
Duration: ~ 15 minutes

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are on
- DCU PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in PHOTSTBY-TEST mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute TCL script SPIRE-IMT-STOP-P.tcl	DCUFRAMESTAT	CONTINUOUS	OFF	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: SPIRE is in PHOTSTBY mode

Procedure: SPIRE-IMT-NOMINAL-BIAS-P
Version: 1.0
Date: 23rd Aug 2005
Purpose: Set the nominal bias on the photometer detectors
Duration: ~ 15 minutes

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are on
- DCU PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in PHOTSTBY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute TCL script SPIRE-IMT-NOMINAL-BIAS-P.tcl				
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: SPIRE is in PHOTSTBY mode

Procedure: SPIRE-IMT-NOISE-P
Version: 1.0
Date: 23rd Aug 2005
Purpose: Check the noise in PLW JFETs with shorted inputs versus Vss (detectors at ~2K)
Duration: ~ 30 minutes

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are off
- DPU and OBS PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in REDY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute TCL script SPIRE-IMT-PDET-ON-STEP1.tcl	SCUDCDCSTAT	0/1		
2	Execute TCL script SPIRE-IMT-PDET-ON-STEP2.tcl	MODE	REDY/ PHOTSTBY		
3	Execute TCL script SPIRE-IMT-NOISE-P.tcl	—	—	—	
4	Execute TCL script SPIRE-IMT-PDET-OFF.tcl	MODE SCUDCDCSTAT	PHOTSTBY/ REDY 1/0		
5	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: SPIRE mode REDY

Procedure: SPIRE-IMT-NOISEVBIAS-S
Version: 1.0
Date: 23rd Aug 2005
Purpose: Measure noise versus bias using Spectrometer side and STM JFETS
Duration: ~ 30 minutes

Preconditions:

- SCU AC and DC thermometry is on
- The STM JFETs are off
- DPU and OBS PARAMETERS display is selected on the CCS

Initial Configuration:

- **SPIRE is in REDY mode**

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute TCL script SPIRE-IMT-PDET-ON-STEP1.tcl *NOTE: There is no mistake in the name of the script to be executed!*	SCUDCDCSTAT	0/1		
2	Execute TCL script SPIRE-IMT-SDET-ON.tcl	MODE	REDY/ SPECSTBY		
3	Execute TCL script SPIRE-IMT-NOISEVBIAS-S.tcl	—	—	—	
4	Execute TCL script SPIRE-IMT-SDET-OFF.tcl	MODE	SPECSTBY/REDY		
5	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: SPIRE is in REDY mode

Procedure: SPIRE-IMT-PUMP-CHAR
Version: 1.0
Date: 23rd Aug 2005
Purpose: Cooler sorption pump characterisation test
Duration: ~ 1.5 hours

Preconditions:

- **SCU DC and AC thermometry is on**
- **Level 0 Detector Box and Pump are at 2 K and the Level 0 Evaporator is at 1.85 K**

Initial Configuration:

- SPIRE DPU is on and generating HK
- SCU PARAMETERS display is selected on the CCS
- SPIRE is in REDY mode

Procedure Steps:

Step	Description	Parameters	Expected Values	Actual Values	Success/ Failure
1	Execute TCL script SPIRE-IMT-PUMP-CHAR.tcl *40 mW power applied to Pump Heater & Evaporator Heat Switch turned on.*	SPHSV SPHTRV	~565 mV ~ 4 V		
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	PUMPHTRTEMP	—		
Test Result (Pass/Fail):					

Final Configuration: Unchanged

Procedure: SPIRE-IMT-CREC
Version: 1.0
Date: 23rd Aug 2005
Purpose: Cooler Recycle – same procedure to be run for all subsequent recycles. This procedure will be run manually from the CCS to determine the parameters needed to prepare an automated TCL script. This automated script can then be run overnight as necessary.

Duration: ~ 2 hours

Preconditions:

- **SCU DC and AC thermometry is on**
- **Level 0 Detector Box and Pump are at 2 K and the Level 0 Evaporator is at 1.85 K**

Initial Configuration:

- SPIRE DPU is on and generating HK
- SCU PARAMETERS display is selected on the CCS

Procedure Steps:

Step	Description	Parameters	Expected Values	Actual Values	Success/ Failure
1	Execute TCL script SPIRE-IMT-CREC.tcl • **Click on OK button to turn off Pump Heat Switch (whether it is on or off)** • **Apply 1.4 mA to the Evaporator Heat Switch**	STEP *Time (UT)* SPHSV PUMPHSTEMP EVAPHSTEMP	1 - ~ 565 mV - ~ 3.0 K		
2	**Wait for PUMPHSTEMP to go just below 12 K and then click on OK to apply 300 mW power to Pump Heater**	STEP *Time (UT)* *ΔTime (minutes)* SPHTRV	2 - ~ 10.8 V		
3	**Wait for PUMPHTRTEMP to increase to 45 K and then click on OK to reduce power to Pump Heater to 40mW**	STEP *Time (UT)* *ΔTime (minutes)* SPHTRV PUMPHTRTEMP	3 - ~ 4 V ~ 45 K		
4	**Wait for SUBKTEMP to fall below 2 K and then click on OK to switch off power to the Pump Heater and Evaporator Heat Switch.**	STEP *Time (UT)* *ΔTime (minutes)* SPHSV	4 - ~ 0 mV		

Step	Description	Parameters	Expected Values	Actual Values	Success/ Failure
	IMPORTANT: This step should be executed even if SUBKTEMP is above 2 K but more than an hour has elapsed since the start of the recycle procedure.	SPHTRV PUMPHSTEMP EVAPHSTEMP	~ 0 V ~ 4.1 K ~ 19.3 K		
5	**Wait for EVAPHSTEMP to fall below ~ 16 K and then click on OK to switch on power to the Pump Heat Switch** *The TCL script ends after execution of this step*	STEP *Time (UT)* *ΔTime (minutes)* EVHSV SUBKTEMP PUMPHSTEMP	5 - ~565 mV ~1.9 K ~13 K		
6	**Monitor SUBKTEMP and PUMPHSTEMP.** *Cooler recycle procedure completes when SUBKTEMP reaches ~ 0.285 K and PUMPHSTEMP reaches ~16.5 K.*	*Time (UT)* *ΔTime (minutes)* SUBKTEMP PUMPHSTEMP	- ~ 0.285 K ~16.5 K		
Test Result (Pass/Fail):					
Actual Duration of SPIRE Cooler Recycle Procedure:					

Final Configuration: Cooler recycled

Procedure: SPIRE-IMT-PHOTSTBY
Version: 1.0
Date: 23rd Aug 2005
Purpose: Switch on the Photometer detectors and reset offsets.
Duration: ~ 10 minutes

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are off
- DPU and OBS PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in REDY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute TCL script SPIRE-IMT-PDET-ON-STEP1.tcl	SCUDCDCSTAT	0/1		
2	Execute TCL script SPIRE-IMT-PDET-ON-STEP2.tcl **Wait for I-EGSE staff to execute manual procedure to set equivalent power in BSM coils**	MODE	REDY/ PHOTSTBY		
3	**Wait for the I-EGSE staff to confirm the success or failure of step 2**	—	—	—	
4	If step 2 is a success, execute TCL script SPIRE-IMT-NOMINAL-BIAS-P.tcl				
	Contingency: If step 2 is a failure then execute steps 5 and then 6				
5	Execute TCL script SPIRE-IMT-JFET-OFF-P.tcl. (Consult with IEGSE staff)				
6	Execute TCL script SPIRE-IMT-PDET-ON-STEP2.tcl ***This requires the I-EGSE to switch on the JFET heater by updating CUS script input parameter.***	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: SPIRE mode PHOTSTBY

Procedure: SPIRE-IMT-DNA-P
Version: 1.0
Date: 23rd Aug 2005
Purpose: To determine Photometer noise versus bias level and frequency
Duration: ~ 4 hours maximum

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are on
- DPU and OBS PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in PHOTSTBY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	If required, execute TCL script SPIRE-IMT-BIAS-FREQ-P.tcl **Consult with IEGSE staff**				
2	Execute TCL script SPIRE-IMT-BIAS-AMPL-P.tcl				
3	Execute TCL script SPIRE-IMT-PHASEUP-P.tcl				
4	Execute TCL script SPIRE-IMT-GET-P.tcl	—	—	—	
5	**Note 1:** Repeat steps 2-4 for as many bias amplitudes as required. **Note 2:** Repeat steps 1-4 for as many bias frequencies as required				
6	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: Unchanged

Procedure: SPIRE-IMT-BIAS-FREQ-P
Version: 1.0
Date: 23rd Aug 2005
Purpose: Set up for clean bias level frequency and nominal bias level for Photometer
Duration: ~ 10 minutes

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are on
- DPU and OBS PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in PHOTSTBY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute TCL script SPIRE-IMT-BIAS-FREQ.tcl	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: Unchanged

Procedure: SPIRE-IMT-PHASEUP-P
Version: 1.0
Date: 23rd Aug 2005
Purpose: Phase up to maximise signal. Note that this test will probably have to be repeated 2-3 times in succession to optimise the phase.
Duration: ~ 30 minutes

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are on
- DPU and OBS PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in PHOTSTBY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute TCL script SPIRE-IMT-PHASEUP-P.tcl	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: Unchanged

Procedure: SPIRE-IMT-LC-P
Version: 1.0
Date: 23rd Aug 2005
Purpose: Load curve at fixed frequency and phase
Duration: ~ 15 minutes (TBC)

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are on
- DPU and OBS PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in PHOTSTBY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute TCL script SPIRE-IMT-LC-P.tcl	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: Unchanged

Procedure: SPIRE-IMT-LC-PLUS90-P
Version: 1.0
Date: 23rd Aug 2005
Purpose: Load curve at fixed frequency and phase + 90°
Duration: ~ 15 minutes (TBC)

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are on
- DPU and OBS PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in PHOTSTBY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute TCL script SPIRE-IMT-LC-P.tcl	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: Unchanged

Procedure: SPIRE-IMT-LC-MINUS90-P
Version: 1.0
Date: 23rd Aug 2005
Purpose: Load curve at fixed frequency and phase - 90°
Duration: ~ 15 minutes (TBC)

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are on
- DPU and OBS PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in PHOTSTBY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute TCL script SPIRE-IMT-LC-P.tcl	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: Unchanged

Procedure: SPIRE-IMT-SET-BIAS-AMPL-P
Version: 1.0
Date: 23rd Aug 2005
Purpose: Set optimum bias for Photometer detectors and reset offsets
Duration: ~ 5 minutes

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are on
- DPU and OBS PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in PHOTSTBY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute TCL script SPIRE-IMT-SET-BIAS-AMPL-P.tcl	PLWBIAS	-/~16.5 mV		
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: Unchanged

Procedure: SPIRE-IMT-PHASEUP-P
Version: 1.0
Date: 23rd Aug 2005
Purpose: Phase up to maximum signal for optimum bias settings. Note that it may be necessary to repeat this test.
Duration: ~ 10 minutes

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are on
- DPU and OBS PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in PHOTSTBY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute TCL script SPIRE-IMT-PHASEUP-P.tcl	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: Unchanged

Procedure: SPIRE-IMT-PCAL-LEVEL
Version: 1.0
Date: 23rd Aug 2005
Purpose: Run PCAL static test to check calibration
Duration: ~ 15 minutes

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are on
- DPU and OBS PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in PHOTSTBY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute TCL script SPIRE-IMT-PCAL-LEVEL.tcl *CUS observing mode : Mode_ILT_PERF_CPC_P* *TestControl script: ILT_PERF_CPC_P.tcl*	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: Unchanged

Procedure: SPIRE-IMT-PCAL-FLASH
Version: 1.0
Date: 23rd Aug 2005
Purpose: Run PCAL Flash
Duration: ~ 15 minutes

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are on
- DPU and OBS PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in PHOTSTBY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute TCL script SPIRE-IMT-PCAL-FLASH.tcl	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: Unchanged

Procedure: SPIRE-IMT-SCAN-MODE-P
Version: 1.0
Date: 23rd Aug 2005
Purpose: Thermal test case to switch to Photometer scan mode
Duration: ~ 60 minutes?

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are on
- DPU and OBS PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in PHOTSTBY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	No script necessary. **Wait for the I-EGSE staff to signal start of this test.**	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: Unchanged

Procedure: SPIRE-IMT-CHOP-MODE-P
Version: 1.0
Date: 23rd Aug 2005
Purpose: Thermal test case to switch to Photometer chop mode
Duration: ~ 60 minutes?

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are on
- DPU and OBS PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in PHOTSTBY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	No script necessary. **Wait for the I-EGSE staff to manually apply power to BSM using external (GSE) supply.**	—	—	—	
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: Unchanged

Procedure: SPIRE-IMT-PHOT2SPEC
Version: 1.0
Date: 23rd Aug 2005
Purpose: Thermal test case to switch from PHOTSTBY to SPECSTBY mode
Duration: ~ 10 minutes

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are on
- DPU and OBS PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in PHOTSTBY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute script SPIRE-IMT-PDET-OFF.tcl	MODE	PHOTSTBY/ REDY		
2	Execute script SPIRE-IMT-SDET-ON.tcl	MODE	REDY/ SPECSTBY		
3	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: SPIRE is in SPECSTBY mode.

Procedure: SPIRE-IMT-SPEC-MODE
Version: 1.0
Date: 23rd Aug 2005
Purpose: Thermal test case for Spectrometer mode
Duration: ~ 60 minutes?

Preconditions:

- SCU AC and DC thermometry is on
- The Photometer detectors are on
- DPU and OBS PARAMETERS display is selected on the CCS

Initial Configuration: SPIRE is in PHOTSTBY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	No script necessary	—	—	—	
2	**Wait for the I-EGSE staff to manually apply power to SMEC using external (GSE) supply.**	—	—	—	
3	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: SPIRE is in SPECSTBY mode.

Procedure: SPIRE-IMT-CREC-PARALLEL
Version: 1.0
Date: 23rd Aug 2005
Purpose: Recycle SPIRE cooler for SPIRE/PACS parallel mode test
Duration: ~ 2.5 hours

Preconditions:

- SCU AC and DC thermometry is on
- DPU and OBS PARAMETERS display is selected on the CCS
- SCU PARAMETERS display is selected on the CCS
- Wait for SPIRE Cooler exhaustion (~ 30-32 hours after last recycle)
- Start this test ~ 25 minutes after PACS recycle

Initial Configuration: SPIRE is in SPECSTBY mode and the cooler is discharged.

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute script SPIRE-IMT-SDET-OFF.tcl	MODE	SPECSTBY/ REDY		
2	Follow Procedure SPIRE-IMT-CREC	—	—	—	
3	Follow Procedure SPIRE-IMT-PHOTSTBY to switch SPIRE into PHOTSTBY mode	MODE	REDY/ PHOTSTBY		
4	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: SPIRE cooler is recycled in parallel with the PACS cooler

Procedure: SPIRE-IMT-PARALLEL-SCAN
Version: 1.0
Date: 23rd Aug 2005
Purpose: To switch to SPIRE parallel mode for scan observations
Duration: ~ 2 minutes

Preconditions:

- SCU AC and DC thermometry is on
- DPU and OBS PARAMETERS display is selected on the CCS
- Procedure SPIRE-IMT-CREC-PARALLEL has been completed successfully
- Photometer detectors are switched on

Initial Configuration: SPIRE is in PHOTSTBY mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute script SPIRE-IMT-PARALLEL-SCAN.tcl	MODE	PHOTSTBY/ PARALLEL		
2	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: SPIRE is in PARALLEL mode

Procedure: SPIRE-IMT-PARALLEL-CHOP
Version: 1.0
Date: 23rd Aug 2005
Purpose: To switch to SPIRE parallel mode for chop observations
Duration: ~ 2 minutes

Preconditions:

- SCU AC and DC thermometry is on
- DPU and OBS PARAMETERS display is selected on the CCS
- Procedure SPIRE-IMT-CREC-PARALLEL has been completed successfully
- Photometer detectors are switched on
- Wait until temperatures have stabilised

Initial Configuration: SPIRE is in PARALLEL mode

Procedure Steps:

Step	Description	Parameter	Expected Values Before/After	Actual Values Before/After	Pass/ Fail
1	Execute script SPIRE-IMT-PARALLEL-CHOP.tcl	—	—	—	
2	**Wait for I-EGSE staff to execute manual procedure to set equivalent power in BSM coils**	—	—	—	
3	**Wait for the I-EGSE staff to confirm the success or failure of this test**	—	—	—	
Test Result (Pass/Fail):					

Final Configuration: Unchanged