



SPIRE Document

FUNCTIONAL TEST PROCEDURE
A.A.Aramburu

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1. INTRODUCTION

This document specifies the necessary steps to execute a set of WARM or COLD SPIRE functional tests. It also assesses on the checks to do to verify the success or failure of these tests.

1.1 Scope

To judge the success or failure of a (warm/cold) functional test by checking that:

- Commands generated by the correspondent CUS script or saved manual stack and sent via SCOS2000 are correctly received and executed by the OBS.
- No error or exception reports were generated during the execution of the commands.
- The appropriate telemetry was generated and the correspondent parameters changed in an expected manner.
- The success criteria specified for each functional test in RD01 is met.

1.2 Reference Documents

- RD01 SPIRE Functional Tests Specification (SPIRE-RAL-DOC-001652), Issue 1.3, 14th Dec 2004
- RD02 SPIRE Data ICD (SPIRE-RAL-PRJ-001078), Issue 1.1, 25th May2004
- RD03 SPIRE EGSE-ILT Startup Procedures (SPIRE-RAL-DOC-001630), Issue 0.7, 24th June 2003
- RD04 SPIRE DRCU Swith ON Procedure (SPIRE-RAL-PRC-002222), Issue 0.1, 10th June 2004
- RD05 DRCU/DPU Interface Control Document (Sap-SPIRE-CCa-076-02 Issue 1.0 14th Feb 2003
- RD06 SPIRE DRCU Integration Test specification Issue1 (SPIRE-RAL-DOC-001799 5th Sep 2003
- RD07 EGSE TestControl User Guide Draft 5 (PICC-ME-MN-002 16th December 2003)

2. TEST LOG

The following table must be filled in when the test is performed

Date:	
Time:	
Test conductor:	
Machine:	



3. FUNCTIONAL TEST CONFIGURATION

3.1 SPIRE EGSE Setup

The following tasks must be running on SCOS2000. Check if they are already running just by going to the main window and checking that the correspondent buttons are surrounded by a green perimeter. If they are not, follow these steps in order to start them:

Step #	Action	Comments
1	In SCOS main window: select EXIF task and hit start (then hit continue). A new window appears. In this window select tasks EXIF_TMM, EXIF_CHM, EXIF_TM1, EXIF_CH1 and TOPE1 then hit start and continue after.	After a few seconds the TOPE environment appears.
2	In SCOS main window: select MSTK1 task and hit start (then hit continue). The manual stack window appears.	
3	In a console in Truro (as sg55) type : “tmingestion tee <dbname>_tmingestion.log “	
4	Open a console in Lincoln (as sop23e) type: “ssh sg55@lincoln” + hit return enter sg55 password In this console type: “setenv DISPLAY 130.246.32.24:0” + hit return Open a console in Lincoln (as sops23e) type : “xauth list” +hit return Select with the mouse the first line of the result In the first console (the one where you logged on as sg55@lincoln) type: “xauth add ” + hit middle button on mouse (this will paste the line) +hit return In the first console type : “tescontrol-server” +hit return	
5	In a console in Truro (as sg55) type: “PacketDisplay” + hit return	
	It is assumed that the EGSE router, gateway, CDMS simulator and SCOS are already started, refer to RD03 for this.	



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3.2 SPIRE EGSE Setup Checks

Before any functional test is to be executed, check that the following applications are running in the correspondent machines. Fill the blanks as appropriate when the test is performed:

SPIRE EGSE	Version	Status	EGSE Machine	Check	Comments
EGSE router	515	Running	Truro	<input type="checkbox"/>	
EGSE Gateway	515	Running	Truro	<input type="checkbox"/>	
CDMS Simulator	2.5	Running	Gordon	<input type="checkbox"/>	
SCOS2000	2.3 patch level 5	Running	Lincoln	<input type="checkbox"/>	
EXIF + TOPE environment	N/A	Running	Lincoln	<input type="checkbox"/>	
Packet Display	515	Running	Truro	<input type="checkbox"/>	
TM Ingestion	515	Running	Truro	<input type="checkbox"/>	
Test Control Server	0.4	Running	Lincoln	<input type="checkbox"/>	
Manual Stack	N/A	Running	Lincoln	<input type="checkbox"/>	



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Comments :

4. TEST PROCEDURE

The **general** steps to follow for a given functional tests are:

Step #	Action	Comments
1	Check the correct setup for the correspondent functional tests. In document RD01 check for the required initial configuration.	
2	Execute the correspondent QLA script on QLA (IF APPLICABLE)	
4	Execute a predefined TestControl script FROM THE HCSS PROCEDURES window in TOPE. Alternatively if a manual stack is needed for the test: Start MSTK1 task in SCOS. In the manual stack window change the display mode from the default BRIEF to FULL. In the top left hand corner : File ---> Load Stack	
4	Fill in correspondent test report in Annexel	



4.1 Test control scripts and manual stacks.

For the SCU, DCU and MCU functional tests, scripts have been written to invoke the correspondent CUS script from TOPE. This CUS scripts will generate the appropriate commands for the particular test.

For the mechanisms (BSM and SMECm) functional tests, manual stacks have been written which allow a bigger control over the entire command sequence.

Important Note: this is just a list of available scripts and manual stacks. It does **NOT** reflect the order in which the functional tests must be executed.

FUNC-DCU-01 : procedure **FUNC-DCU-01**
FUNC-DCU-02 : procedure **FUNC-DCU-02**
FUNC-DCU-03 : procedure **FUNC-DCU-03**
FUNC-DCU-04P: procedure **FUNC-DCU-04-PHOT**
FUNC-DCU-04S: procedure **FUNC-DCU-04-SPEC**
FUNC-DCU-05P: procedure **FUNC-DCU-05-PHOT**
FUNC-DCU-05S: procedure **FUNC-DCU-05-SPEC**
FUNC-DCU-06P: procedure **FUNC-DCU-06-PHOT**
FUNC-DCU-06S: procedure **FUNC-DCU-06-SPEC**
FUNC-DCU-07P: procedure **FUNC-DCU-07-PHOT**
FUNC-DCU-07S: procedure **FUNC-DCU-07-SPEC**
FUNC-DCU-08P: procedure **FUNC-DCU-08-PHOT**
FUNC-DCU-08S: procedure **FUNC-DCU-08-SPEC**
FUNC-DCU-09P: procedure **FUNC-DCU-09-PHOT**
FUNC-DCU-09S: procedure **FUNC-DCU-09-SPEC**
FUNC-DCU-10P: procedure **FUNC-DCU-10-PHOT**
FUNC-DCU-10S: procedure **FUNC-DCU-10-SPEC**
FUNC-DCU-11P: procedure **FUNC-DCU-11-PHOT**
FUNC-DCU-11S: procedure **FUNC-DCU-11-SPEC**
FUNC-DCU-12P: procedure **FUNC-DCU-12-PHOT**
FUNC-DCU-12S: procedure **FUNC-DCU-12-SPEC**
FUNC-SCU-01 : procedure **FUNC-SCU-01**
FUNC-SCU-02 : procedure **FUNC-SCU-02**
FUNC-SCU-03 : procedure **FUNC-SCU-03**
FUNC-SCU-04 : procedure **FUNC-SCU-04**
FUNC-SCU-05 : procedure **FUNC-SCU-05**
FUNC-SCU-06 : procedure **FUNC-SCU-06**
FUNC-SCU-07 : procedure **FUNC-SCU-07**
FUNC-SCU-08 : procedure **FUNC-SCU-08**
FUNC-MCU-01 : MANUAL STACK **MCU_Power_ON_and_Boot.lincoln**
FUNC-MCU-02 : procedure **FUNC-MCU-02**
FUNC-MCU-03 : procedure **FUNC-MCU-03**
FUNC-MCU-04 : procedure **FUNC-MCU-04**
FUNC-PCAL-01: procedure **FUNC-PCAL-01**



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- FUNC-SCAL-01: procedure **FUNC-SCAL-01**
- FUNC-SCAL-02: procedure **FUNC-SCAL-02**
- FUNC-SMEC-01: MANUAL STACK **SMEC-WARM-SWITCH-ON.lincoln** or **SMEC-COLD-SWITCH-ON.lincoln**
- FUNC-SMEC-02: MANUAL STACK **PFM-FUNC-SMEC-02.lincoln**
- FUNC-SMEC-03: MANUAL STACK **PFM-FUNC-SMEC-03.lincoln**
- FUNC-SMEC-04: MANUAL STACK **PFM-FUNC-SMEC-04.lincoln**
- FUNC-SMEC-05: MANUAL STACK **PFM-FUNC-SMEC-05.lincoln**
- FUNC-SMEC-06: MANUAL STACK **PFM-FUNC-SMEC-06.lincoln**
- FUNC-SMEC-07: MANUAL STACK **PFM-FUNC-SMEC-07.lincoln**
- FUNC-SMEC-08: MANUAL STACK **PFM-FUNC-SMEC-08.lincoln**
- FUNC-SMEC-09: MANUAL STACK **PFM-FUNC-SMEC-09.lincoln**
- FUNC-BSM-01c: MANUAL STACK **PFM-FUNC-BSM-01c.lincoln**
- FUNC-BSM-01j: MANUAL STACK **PFM-FUNC-BSM-01j.lincoln**
- FUNC-BSM-02c: MANUAL STACK **PFM-FUNC-BSM-02c.lincoln**
- FUNC-BSM-02j: MANUAL STACK **PFM-FUNC-BSM-02j.lincoln**
- FUNC-BSM-03c: MANUAL STACK **PFM-FUNC-BSM-03c.lincoln**
- FUNC-BSM-03j: MANUAL STACK **PFM-FUNC-BSM-03j.lincoln**
- FUNC-BSM-04c: MANUAL STACK **PFM-FUNC-BSM-04c.lincoln**
- FUNC-BSM-04j: MANUAL STACK **PFM-FUNC-BSM-04j.lincoln**
- FUNC-BSM-05c: MANUAL STACK **PFM-FUNC-BSM-05c.lincoln**
- FUNC-BSM-05j: MANUAL STACK **PFM-FUNC-BSM-05j.lincoln**
- FUNC-BSM-06 : MANUAL STACK **PFM-FUNC-BSM-06.lincoln**

5. WARM/COLD FUNCTIONAL TESTS DETAILED PROCEDURE

This is a detailed explanation of the steps to follow for each warm/cold functional test.
The test flow **must** be as follows:

**If both DPU and DRCU are OFF:
From TOPE HCSS Test Procedures**

Step#	Action	Comments	Check
1	Run PROC-OPER-SPIRE-DPU-ON		<input type="checkbox"/>
2	Run PROC-OPER-SPIRE-DRCU-ON		<input type="checkbox"/>

**If DPU is ON and DRCU is OFF:
From TOPE HCSS Test Procedures**



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Step#	Action	Comments	Check
1	Run PROC-OPER-SPIRE-DRCU-ON		<input type="checkbox"/>

5.1 SCU FUNCTIONAL TESTS

Open the SCU PARAMETERS Alpha Numeric Display on SCOS

FUNC-SCU-01

Step#	Action	Comments	Check
1	Write down in Annexel the current value of SCUFRAMECNT located in SCU PARAMETERS AND		<input type="checkbox"/>
2	On Lincoln run FUNC-SCU-01 test procedure from the HCSS Test Procedure window on TOPE		<input type="checkbox"/>
3	Write down in Annexel the current value of SCUFRAMECNT located in SCU PARAMETERS AND.		<input type="checkbox"/>
4	Test passed if 2 telemetry packets (type,subtype) (21,1) ,APID 0x0A20, FRAMEID 20, were received in PacketDisplay and SCUFRAMECNT HK parameter incremented from 0 to 31 decimal.		<input type="checkbox"/>

FUNC-SCU-03

Step#	Action	Comments	Check
1	Write down in Annexel the current value of SCUTEMPSTAT and the values of the 16 FPU temperatures located in SCU PARAMETERS AND		<input type="checkbox"/>
2	On Lincoln run FUNC-SCU-03 test procedure from the HCSS Test Procedure window on TOPE		<input type="checkbox"/>
3	When the test is finished write down in Annexel the current value of SCUTEMPSTAT and the values of the 16 FPU temperatures located in SCU PARAMETERS AND		<input type="checkbox"/>



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4	Test passed if SCUTEMPSTAT parameter goes from 0 to 0xffff.(IF WARM) If COLD, the SCU active temperature channels should show the same values as the TFCS display.	<input type="checkbox"/>
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FUNC-SCU-06

Step#	Action	Comments	Check
1	Write down in Annexel the current value of SUBKSTAT and SUBKTEMP located in SCU PARAMETERS AND		<input type="checkbox"/>
2	On Lincoln run FUNC-SCU-06 test procedure from the HCSS Test Procedure window on TOPE		<input type="checkbox"/>
3	When the test is finished write down in Annexel the current value of SUBKSTAT located in SCU PARAMETERS AND		<input type="checkbox"/>
4	Test passed if SUBKSTAT parameter went from 0 to 1.		<input type="checkbox"/>

FUNC-SCU-02

Step#	Action	Comments	Check
1	Write down in Annexel the current value of SCUFRAMECNT located in SCU PARAMETERS AND		<input type="checkbox"/>
2	On Salisbury run correspondent QLA script		<input type="checkbox"/>
3	On Lincoln run FUNC-SCU-02 test procedure from the HCSS Test Procedure window on TOPE		<input type="checkbox"/>
4	When the test is finished write down in Annexel the current value of SCUFRAMECNT located in SCU PARAMETERS AND		<input type="checkbox"/>
4	Test passed if QLA script triggered correctly and SCU HK parameters and nominal science parameters are similar. Check that SCUFRAMECNT went from 31 to 62 decimal.		<input type="checkbox"/>

FUNC-SCU-07



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Step#	Action	Comments	Check
1	Write down in Annexel the current values of SPHSV, EVHSV, SPHTRV located in SCU PARAMETERS AND		<input type="checkbox"/>
2	On Lincoln run FUNC-SCU-07 test procedure from the HCSS Test Procedure window on TOPE		<input type="checkbox"/>
3	While the test is running write down in Annexel the values of current values of SPHSV, EVHSV, SPHTRV located in SCU PARAMETERS AND (RAW and CONVERTED) If COLD also write down the values of EVAPHSTEMP, PUMPHSTEMP and PUMPHRTEMP after each bias setting is finished.		<input type="checkbox"/>
4	Test passed if SPHSV, EVHSV, PHTRV showed expected values of ~12715, ~12715, ~14390 RAW respectively.		<input type="checkbox"/>

FUNC-SCU-08

Step#	Action	Comments	Check
1	Write down in Annexel the current values of SCUFRAMECNT located in SCU PARAMETERS AND		<input type="checkbox"/>
2	On Lincoln run FUNC-SCU-08 test procedure from the HCSS Test Procedure window on TOPE		<input type="checkbox"/>
3	When the test is finished write down the current value of SCUFRAMCNT and check 2 telemetry packets (type, subtype) (21,1) ,APID 0x1121, FRAMEID 21 were received in PacketDisplay.		<input type="checkbox"/>
4	Test passed if test pattern generated by SCU is the same as test pattern from a previous run of this functional test. Check that SCUFRAMECNT goes from 62 to 93 decimal.		<input type="checkbox"/>

FUNC-SCU-04



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Step#	Action	Comments	Check
1	Write down in Annexel the current value of PCALV and PCALCURR located in SCU PARAMETERS AND		<input type="checkbox"/>
2	On Lincoln run FUNC-SCU-04 test procedure from the HCSS Test Procedure window on TOPE		<input type="checkbox"/>
3	While the test is running write down in Annexel the values of PCALV and PCALCURR located in SCU PARAMETERS AND		<input type="checkbox"/>
4	Test passed if PCALCURR shows input bias (0.1 mA)		<input type="checkbox"/>

FUNC-SCU-05

Step#	Action	Comments	Check
1	Write down in Annexel the current value of SCAL2V ,SCAL2CURR,SCAL4V,SCAL4CURR located in SCU PARAMETERS AND If COLD also write down the current values of SCAL2TEMP , SCAL4TEMP		<input type="checkbox"/>
2	On Lincoln run FUNC-SCU-05 test procedure from the HCSS Test Procedure window on TOPE		<input type="checkbox"/>
3	While the test is running write down in Annexel the values of SCAL2V ,SCAL2CURR,SCAL4V,SCAL4CURR located in SCU PARAMETERS AND If COLD also write down the current values of SCAL2TEMP , SCAL4TEMP after each bias setting is finished.		<input type="checkbox"/>
4	Test passed if SCAL2CURR and SCAL4CURR show input values 0.1 mA for both.		<input type="checkbox"/>



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5.2 MCU FUNCTIONAL TESTS

Open MCU PARAMETERS display on SCOS

FUNC-MCU-01

Step#	Action	Comments	Check
1	Load into the MANUAL STACK saved stack MCU_Power_ON_And_Boot.lincoln. File --- > Load Stack --> MCU_Power_ON_and_Boot.lincoln		<input type="checkbox"/>
2	After the first command is sent to power ON MCU, the over current limiter might trigger .In this case press the over current limiter reset button RED on the DRCU power bench. Write down the changes in the MCU HK parameters display after each command.		<input type="checkbox"/>
3	When procedure is finished write down the values of the MCU voltages.		<input type="checkbox"/>
4	Test passed if MCU boots and MCU voltages show expected values. Note: Check what is happening to SMECENCPWR.		<input type="checkbox"/>

FUNC-MCU-02

Step#	Action	Comments	Check
1	Write down in Annexel the current value of MCUFRAMECNT located in MCU PARAMETERS AND		<input type="checkbox"/>
2	On Lincoln run FUNC-MCU-02 test procedure from the HCSS Test Procedure window on TOPE		<input type="checkbox"/>
3	When test is finished write down the current value of MCUFRAMECNT. On packet display check that each type of science packets requested (MCU engineering, BSM and SMEC) were received and that they have the correct APID, FRAMEID and block length specified by the		<input type="checkbox"/>



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	SPIRE DATA ICD Issue 2.0.15 th Nov 2004 Pages 101 to 115.	
4	Test passed if MCU produces all types of frames requested and no events were generated. Check that the frames have the correct APID, FRAMEID.	<input type="checkbox"/>

FUNC-MCU-03

Step#	Action	Comments	Check
1	Write down in Annexel the current value of MCUFRAMECNT located in MCU PARAMETERS AND		<input type="checkbox"/>
2	On Salisbury run correspondent QLA script.		<input type="checkbox"/>
3	On Lincoln run FUNC-MCU-03 test procedure from the HCSS Test Procedure window on TOPE		<input type="checkbox"/>
4	When test is finished write down the current value of MCUFRAMECNT		<input type="checkbox"/>
5	Test passed if QLA script works correctly.		<input type="checkbox"/>

FUNC-MCU-04

Step#	Action	Comments	Check
1	Write down in Annexel the current value of MCUFRAMECNT located in MCU PARAMETERS AND		<input type="checkbox"/>
2	On Salisbury run correspondent QLA script.		<input type="checkbox"/>
3	On Lincoln run FUNC-MCU-04 test procedure from the HCSS Test Procedure window on TOPE		<input type="checkbox"/>
4	When test is finished write down the current value of MCUFRAMECNT		<input type="checkbox"/>
5	Test passed if MCU Test pattern produced is the same as the previous time this test was run.		<input type="checkbox"/>



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Open CHOP PARAMETERS display in SCOS

FUNC-BSM-01c

Step#	Action	Comments	Check
1	On Lincoln load saved stack PFM-FUNC-BSM01c.lincoln on MANUAL STACK		<input type="checkbox"/>
2	Execute the stack writing down the effect of each command sent to the BSM on the BSM HK parameters		<input type="checkbox"/>
3	Check for the successful criteria specified in Functional Test Specification doc.		<input type="checkbox"/>

FUNC-BSM-01j

Step#	Action	Comments	Check
1	On Lincoln load saved stack PFM-FUNC-BSM01j.lincoln on MANUAL STACK		<input type="checkbox"/>
2	Execute the stack writing down the effect of each command sent to the BSM on the BSM HK parameters		<input type="checkbox"/>
3	Check for the successful criteria specified in Functional Test Specification doc.		<input type="checkbox"/>

From TOPE HCSS Test Procedures

Step#	Action	Comments	Check
1	Run PROC-OPER-SPIRE-BSM-OFF		<input type="checkbox"/>

Open SMEC PARAMETERS display on SCOS

FUNC-SMEC-01

Step#	Action	Comments	Check
1	Check the current value of		<input type="checkbox"/>



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	SMECENCPWR		
2	Load into the MANUAL STACK saved stack SMEC-WARM-SWITCH-ON.lincoln File --- > Load Stack --→ SMEC-WARM-SWITCH-ON.lincoln		<input type="checkbox"/>
3	After each command is sent from the stack write down any change in the SMEC HK parameters display.		<input type="checkbox"/>
4	Write down in Annexe1 all the current values of the SMEC HK page.		<input type="checkbox"/>
5	Check for the successful criteria specified in Functional Test Specification doc.		<input type="checkbox"/>

FUNC-SMEC-03

Step#	Action	Comments	Check
1	Load into the MANUAL STACK saved stack PFM-FUNC-SMEC-03.lincoln File --- > Load Stack --→ PFM-FUNC-SMEC-03.lincoln		<input type="checkbox"/>
2	For each LED power level sent from manual stack ,check the SMECENCPWR parameter		<input type="checkbox"/>
3	Fill in Annexe1		<input type="checkbox"/>
4	Check for the successful criteria specified in Functional Test Specification doc.		<input type="checkbox"/>

FUNC-SMEC-04

Step #	Action	Comments	Check
1	Write down in Annexe1 all the current values of the SMEC HK page		<input type="checkbox"/>
2	Load into the MANUAL STACK saved stack PFM-FUNC-SMEC-04.lincoln File --- > Load Stack --→ PFM-FUNC-SMEC-04.lincoln		<input type="checkbox"/>
3	When test is finished write down in Annexe1 all the current values of the SMEC HK page		<input type="checkbox"/>



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4	Check for the successful criteria specified in Functional Test Specification doc.		<input type="checkbox"/>
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From TOPE HCSS Test Procedures

Step#	Action	Comments	Check
1	Run PROC-OPER-SPIRE-MCU-OFF		<input type="checkbox"/>

5.3 DCU FUNCTIONAL TESTS

Open DCU PARAMETERS Alpha Numeric Display

FUNC-DCU-01

Step#	Action	Comments	Check
1	Write down in Annex1 the current value of DCUFRAMECNT located d in DCU PARAMETERS AND		<input type="checkbox"/>
2	On Lincoln run FUNC-DCU-01 test procedure from the HCSS Test Procedure window on TOPE		<input type="checkbox"/>
3	Write down in Annex1 the current value of DCUFRAMECNT located d in DCU PARAMETERS AND		<input type="checkbox"/>
4	Test passed if DCUFRAMECNT goes from 0 to 700 and all the frames received have the correct APID, FRAMEID and block length specified by the SPIRE DATA ICD Issue 2.0.15 th Nov 2004 Pages 101 to 115.		<input type="checkbox"/>

FUNC-DCU-02

Step#	Action	Comments	Check
1	Write down in Annex1 the current value of		<input type="checkbox"/>



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	DCUFRAMECNT located d in DCU PARAMETERS AND		
2	On Salisbury run QLA script		<input type="checkbox"/>
3	On Lincoln run FUNC-DCU-02 test procedure from the HCSS Test Procedure window on TOPE		<input type="checkbox"/>
4	Write down in Annexel the current value of DCUFRAMECNT located d in DCU PARAMETERS AND		<input type="checkbox"/>
5	Wait for QLA analysis to determine if test is passed or not. Check success criteria in Functional Test Specification doc.		<input type="checkbox"/>

FUNC-DCU-03

Step#	Action	Comments	Check
1	Write down in Annexel the current value of DCUFRAMECNT located d in DCU PARAMETERS AND		<input type="checkbox"/>
2	On Salisbury run QLA script		<input type="checkbox"/>
3	On Lincoln run FUNC-DCU-03 test procedure from the HCSS Test Procedure window on TOPE		<input type="checkbox"/>
4	Write down in Annexel the current value of DCUFRAMECNT located d in DCU PARAMETERS AND		<input type="checkbox"/>
5	Test passed if QLA analysis shows that test pattern produced with this test is the same as the one produced last time this test was run.		<input type="checkbox"/>

FUNC-DCU-04-S

Step#	Action	Comments	Check
1	Write down in Annexel the current values of LIAS_P5,LIAS_P9,LIAS_N9 located d in DCU PARAMETERS AND		<input type="checkbox"/>
2	On Lincoln run FUNC-DCU-04-S test procedure from the HCSS Test Procedure window on TOPE		<input type="checkbox"/>
3	Write down in Annexel the current value of the current values of		<input type="checkbox"/>



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	LIAS_P5,LIAS_P9,LIAS_N9 located d in DCU PARAMETERS AND		
4	Test passed if SCUDCDCSTAT goes from 0 to 1.		<input type="checkbox"/>



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6. ANNEXE1

FUNC-SCU-01

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SCU-01	Refer to RD01	SCUFRAMECNT	0/31				



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Start time @:
End time @:
OBSID:
Commets:

FUNC-SCU-03

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SCU-03	Refer to RD01	SCUTEMPSTAT	0/0xFFFF				



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FUNC-SCU-06

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
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FUNC-SCU-06	Refer to RD01	SUBKSTAT	0/1				
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FUNC-SCU-02



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Test Name	Test Description	Key Parameter(s)	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SCU-02	Refer to RD01	SCUFRAMECNT	31/62				

Start time @:
End time @:
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FUNC-SCU-07

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SCU-07	Refer to RD01	SPHSV EVHSV SPHTRV	0/ 0/ 0/				

Start time @:
End time @:
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Comments:



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FUNC-SCU-08

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SCU-08	Refer to RD01	SCUFRAMECNT	92/133				

Start time @:
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FUNC-SCU-04

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SCU-04	Refer to RD01	PCALV PCALCURR	0/ 0/0.1mA		N/A		
Start time @: End time @: OBSID: Commets:							



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FUNC-SCU-05

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SCU-05	Refer to RD01	SCAL2V SCAL2CURR SCAL4V SCAL4CURR	0/ 0/0.1 mA 0/ 0/0.1mA		N/A		

Start time @:
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FUNC-MCU-01

Test Name	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-MCU-01	MCUBOOTSTAT MCUERR MCU5V MCU14V	0/0				



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FUNC-MCU-02

Test Name	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-MCU-02	MCUFRAMECNT	0/0				
<p>Start time @: End time @: OBSID: Commets:</p>						



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FUNC-MCU-03

Test Name	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-MCU-03	MCUFRAMECNT					
<p>Start time @: End time @: OBSID: Commets:</p>						



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FUNC-MCU-04

Test Name	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-MCU-04	MCUFRAMECNT					
Start time @: End time @: OBSID: Commets:						



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PFM-FUNC-BSM-01c

Test Name	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
PFM-FUNC-BSM-01c	CHOPENCPWR CHOPPOSN CHOPLOOPMODE CHOPFFGAIN CHOPDACVAL CHOPMOTORCURR	0/1				



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PFM-FUNC-BSM-01j

Test Name	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
PFM-FUNC-BSM-01j	JIGGENCPWR JIGGPOSN JIGGLOOPMODE JIGGFFGAIN JIGGDACVAL JIGGMOTORCURR	0/1				



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PFM-FUNC-SMEC-01

Test Name	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
PFM-FUNC-SMEC-01	SMECENCPCR	0/1				
Start time @: End time @: OBSID: Commets:						



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PFM-FUNC-SMEC-03

Test Name	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
PFM-FUNC-SMEC-03						
Start time @: End time @: OBSID: Commets:						



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PFM-FUNC-SMEC-04

Test Name	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
PFM-FUNC-SMEC-04						
Start time @: End time @: OBSID: Commets:						



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FUNC-DCU-01

Test Name	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-01	DCUFRAMECNT	0/700				
<p>Start time @: End time @: OBSID: Commets:</p>						



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FUNC-DCU-02

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-02	Refer to RD01	DCUFRAMECNT	700/1400				
Start time @: End time @: OBSID: Commets:							



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FUNC-DCU-03

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-03	Refer to RD01	DCUFRAMECNT	1400/2100				
Start time @: End time @: OBSID: Commets:							



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FUNC-DCU-04-PHOT

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-04P	Refer to RD01	SCUDCDCSTAT	0/1		N/A		

Start time @:
End time @:
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FUNC-DCU-4-SPEC

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-04S	Refer to RD01	SCUDCDSTAT	0/2		N/A		



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FUNC-PCAL-01

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Comments	Test Result Success/Fail
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FUNC-PCAL01	Refer to RD01	PCALV PCALCURR	0:(1mA) 1:(2.5mA) 2:(4mA) 3:(5.5mA) 4:(7 mA) 5:(0ma)			
Start time @: End time @: OBSID: Commets:						

FUNC-SCAL-01



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Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Test Result Success/Fail
FUNC-SCAL-01	Refer to RD01	SCAL4V SCAL4CURR SCAL2V SCAL2CURR	0:(1mA) 1:(2.5mA) 2:(4mA) 3:(5.5mA) 4:(7 mA) 5:(0ma) 0:(1mA) 1:(2.5mA) 2:(4mA) 3:(5.5mA) 4:(7 mA) 5:(0ma)		

Start time @:
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FUNC-SCAL-02

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SCAL-02	Refer to RD01						
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FUNC-DCU-05-PHOT

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-05P	Refer to RD01	N/A			N/A		



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FUNC-DCU-05-SPEC

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
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FUNC-DCU-05S	Refer to RD01	N/A			N/A		
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End time @:
OBSID:
Commets:

FUNC-DCU-06-PHOT



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Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-06P	Refer to RD01	PHOTHTRV	Sequence : 0V,-1V,-2V,-3V,-4V,-5V,0V		N/A		

Start time @:
End time @:
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FUNC-DCU-06-SPEC

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-06S	Refer to RD01	SPECTHTRV	Sequence : 0V,-1V,-2V,-3V,-4V,-5V,0V		N/A		
<p>Start time @: End time @: OBSID: Comments:</p>							



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FUNC-DCU-07-PHOT

Test Name	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-07P	PSWJFET1V,PSWJFET2V,PSWJFET3V,PSWJFET4V,PSWJFET5V,PSWJFET6V PMWJFET1V,PMWJFET2V,PMWJFET3V,PMWJFET4V,PLWJFET1V,PLWJFET2V	Sequence : 0V,-1V,-2V,-3V,-4V,-5V,0V		N/A		
Start time @: End time @: OBSID: Commets:						



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FUNC-DCU-07-SPEC

Test Name	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-07S	SSWJFET1V,SSWJFET2V,SLWJFET1V	Sequence : 0V,-1V,-2V,-3V,-4V,-5V,0V		N/A		
Start time @: End time @: OBSID: Commets:						



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FUNC-DCU-08-PHOT

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-08.P	Refer to RD01	PSWPHASE PMWPHASE PLWPHASE	Sequence depending on input parameters to test		N/A		



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FUNC-DCU-08-SPEC

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
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FUNC-DCU-08S	Refer to RD01	SSWPHASE SLWPHASE	Sequence depending on input parameters to test.		N/A		
Start time @: End time @: OBSID: Comments:							

FUNC-DCU-09-PHOT



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Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Comments	Test Result Success/Fail
FUNC-DCU-09P	Refer to RD01	PHOTMCLKDIV PHOTBIASDIV	Sequence 0:(0x163) 1:(0x96) 2:(0x66) Sequence 0:(0xc) 1:(0xc) 2:(0xc)			

Start time @:
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FUNC-DCU-09-SPEC

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Comments	Test Result Success/Fail
FUNC-DCU-09S	Refer to RD01	SPECMCLKDIV SPECBIASDIV	Sequence 0:(0x163) 1:(0x96) 2:(0x66) Sequence 0:(1) 1:(1) 2:(1)			

Start time @:
End time @:
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FUNC-DCU-10-PHOT

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Comments	Test Result Success/Fail
FUNC-DCU-10P	Refer to RD01	PSWBIAS PMWBIAS PLWBIAS	0:(0x33) 1:(0x66) 2:(0x99) 3:(0xcc) 4:(0xff) 5:(0x0) 0:(0x33) 1:(0x66) 2:(0x99) 3:(0xcc) 4:(0xff) 5:(0x0) 0:(0x33) 1:(0x66) 2:(0x99) 3:(0xcc) 4:(0xff) 5:(0x0)			
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FUNC-DCU-10-SPEC

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Comments	Test Result Success/Fail
FUNC-DCU-10S	Refer to RD01	SSWBIAS SLWBIAS	0:(0x33) 1:(0x66) 2:(0x99) 3:(0xcc) 4:(0xff) 5:(0x0) 0:(0x33) 1:(0x66) 2:(0x99) 3:(0xcc) 4:(0xff) 5:(0x0)			
Start time @: End time @: OBSID: Commets:						



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FUNC-DCU-11-PHOT

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Comments	Test Result Success/Fail
FUNC-DCU-11P	Refer to RD01					
Start time @: End time @: OBSID: Commets:						



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FUNC-DCU-11-SPEC

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Comments	Test Result Success/Fail
FUNC-DCU-11S	Refer to RD01					
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FUNC-DCU-12-PHOT

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Comments	Test Result Success/Fail
FUNC-DCU-12P	Refer to RD01					
Start time @: End time @: OBSID: Commets:						



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FUNC-DCU-12-SPEC

Test Name	Test Description	Key Parameter(s)	Expected value Before/After	Actual Value Before/After	Comments	Test Result Success/Fail
FUNC-DCU-12S	Refer to RD01					
Start time @: End time @: OBSID: Commets:						



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FUNC-SCU-01

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SCU-01	Refer to RD01	SCUFRAMECNT	0/31				

Start time @:
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FUNC-SCU-02

Test Name	Test Description	Key Parameter(s)	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SCU-02	Refer to RD01	SCUFRAMECNT	31/62				



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FUNC-SCU-03

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
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FUNC-SCU-03	Refer to RD01	SCUFRAMECNT	62/93				
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FUNC-SCU-04



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Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SCU-04	Refer to RD01	PCALV PCALCURR	0/ 0/2.25mA		N/A		

Start time @:
End time @:
OBSID:
Commets:



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FUNC-SCU-05

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SCU-05	Refer to RD01	SCAL2V SCAL2CURR SCAL4V SCAL4CURR	0/ 0/2.5 mA 0/ 0/2.5mA		N/A		

Start time @:
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FUNC-SCU-06

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SCU-06	Refer to RD01	SUBKSTAT	0/1				
Start time @: End time @: OBSID: Comments:							



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FUNC-SCU-07

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SCU-07	Refer to RD01	SPHSV EVHSV SPHTRV	0/ 0/ 0/				
Start time @: End time @: OBSID: Commets:							



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FUNC-SCU-08

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SCU-08	Refer to RD01	SCUFRAMECNT	92/133				

Start time @:
End time @:
OBSID:
Commets:



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FUNC-PCAL-01

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Comments	Test Result Success/Fail
FUNC-PCAL01	Refer to RD01	PCALV PCALCURR	0:(1mA) 1:(2.5mA) 2:(4mA) 3:(5.5mA) 4:(7 mA) 5:(0ma)			



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FUNC-SCAL-01

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Test Result Success/Fail
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FUNC-SCAL-01	Refer to RD01	SCAL4V SCAL4CURR SCAL2V SCAL2CURR	0:(1mA) 1:(2.5mA) 2:(4mA) 3:(5.5mA) 4:(7 mA) 5:(0ma) 0:(1mA) 1:(2.5mA) 2:(4mA) 3:(5.5mA) 4:(7 mA) 5:(0ma)		
Start time @: End time @: OBSID: Comments:					

FUNC-SCAL-02



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Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SCAL-02	Refer to RD01						

Start time @:
End time @:
OBSID:
Commets:



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FUNC-MCU-01

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-MCU-01	Refer to RD01				N/A		
Start time @: End time @: OBSID: Commets:							



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FUNC-MCU-02

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-MCU-02	Refer to RD01						
Start time @: End time @: OBSID: Commets:							



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FUNC-MCU-03

Test Name	Test Description	Key Parameter(s)	Expected Value Before/After	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-MCU-03	Refer to RD01						
Start time @: End time @: OBSID: Commets:							



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FUNC-MCU-04

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-MCU-04	Refer to RD01						
Start time @: End time @: OBSID: Commets:							



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FUNC-SMEC-01

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-04P	Refer to RD01						

Start time @:
End time @:
OBSID:
Commets:



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FUNC-SMEC-02

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SMEC-02	Refer to RD01						



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Start time @:
End time @:
OBSID:
Commets:

FUNC-SMEC-03

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
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FUNC-SMEC-03	Refer to RD01						
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FUNC-SMEC-04



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Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SMEC-04	Refer to RD01						

Start time @:
End time @:
OBSID:
Commets:



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FUNC-SMEC-05

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SMEC-05	Refer to RD01						
<p>Start time @: End time @: OBSID: Commets:</p>							



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FUNC-SMEC-06

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SMEC-06	Refer to RD01						
Start time @: End time @: OBSID: Commets:							



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FUNC-SMEC-07

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SMEC-08	Refer to RD01						
Start time @: End time @: OBSID: Commets:							



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FUNC-SMEC-08

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SMEC-08	Refer to RD01						
Start time @: End time @: OBSID: Commets:							



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FUNC-SMEC-09

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-SMEC-09	Refer to RD01						

Start time @:
End time @:
OBSID:
Commets:



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FUNC-BSM-01c

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-04P	Refer to RD01						



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FUNC-BSM-01j

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
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FUNC-DCU-04P	Refer to RD01						
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Start time @:
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Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-04P	Refer to RD01						

Start time @:
End time @:
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FUNC-BSM-02j

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-04P	Refer to RD01						
Start time @: End time @: OBSID: Commets:							



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FUNC-BSM-03c

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-04P	Refer to RD01						
Start time @: End time @: OBSID: Commets:							



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FUNC-BSM-03j

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-04P	Refer to RD01						
Start time @: End time @: OBSID: Commets:							



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FUNC-BSM-04c

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-04P	Refer to RD01						
Start time @: End time @: OBSID: Commets:							



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FUNC-BSM-04j

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-04P	Refer to RD01						

Start time @:
End time @:
OBSID:
Commets:



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FUNC-BSM-05c

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-04P	Refer to RD01						



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FUNC-BSM-05j

Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
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FUNC-DCU-04P	Refer to RD01						
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Test Name	Test Description	HK Key Parameter	Number of frames expected	Actual Value Before/After	Number of frames received	Comments	Test Result Success/Fail
FUNC-DCU-04P	Refer to RD01						

Start time @:
End time @:
OBSID:
Commets:



7. ANNEXE2

The CCS templates are provided separately as they are too long to be included in this document.

8. ANNEXE3

Cus scripts for warm electronics integration tests

```
mode SPIRE_WEIT01 {
    double photbiasfreq = 200.0; //Default Master Clock divisor for PhotBiasFreq 199.9 Hz
    double photosampfreq = 15.34; //Default Sampling divisor for PhotSamplingFreq 15.38 Hz
    double specbiasfreq = 160.0; //Default Master Clock divisor for SpecBiasFreq Hz
    double specsampfreq = 80.0; //Default Sampling divisor for SpecSamplingFreq 80 Hz
    int frames = 0x0; //Number of frames to request
}
IST_ClearObs();
delay(1);
IST_StartObs();
delay(1);
double phase = 0.0;
//Phase to 0 degrees
int ftime = 60;
//Time for the generation
string[] modes =
["PF_Data", "SF_Data", "PSW_Data", "PMW_Data", "PLW_Data", "SSW_Data", "SLW_Data"];
for(int i = 0 .. length(modes) - 1) {

DCU_PhotSpec_QLA_NEW(modes[i], photbiasfreq, photosampfreq, specbiasfreq, specsampfreq, frames, p
hase, ftime);
    delay(1);
}
IST_EndObs();
}

mode SPIRE_WEIT02 {
    double photbiasfreq = 200.0; //Default Master Clock divisor for PhotBiasFreq 199.9 Hz
    double photosampfreq = 15.34; //Default Sampling divisor for PhotSamplingFreq 15.38 Hz
    double specbiasfreq = 160.0; //Default Master Clock divisor for SpecBiasFreq Hz
    double specsampfreq = 80.0; //Default Sampling divisor for SpecSamplingFreq 80 Hz
    int frames = 0x0; //Number of frames to request
}
IST_ClearObs();
delay(1);
IST_StartObs();
delay(1);
double phase = 0.0;
```



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```
//Phase to 0 degrees
int ftime = 60;
//Time for the generation
string[] modes =
["PFTest_Data","SFTest_Data","PSWTest_Data","PMWTest_Data","PLWTest_Data","SSWTest_Dat
a","SLWTest_Data"];
for(int i = 0 .. length(modes) - 1) {

DCU_PhotSpec_QLA_NEW(modes[i],photbiasfreq,photosampfreq,specbiasfreq,specsampfreq,frames,p
hase,ftime);
    delay(1);
}
IST_EndObs();
}

mode SPIRE_WEIT03 {
    double photbiasfreq = 200.0; //Default Master Clock divisor for PhotBiasFreq 199.9 Hz
    double photosampfreq = 15.34; //Default Sampling divisor for PhotSamplingFreq 15.38 Hz
    double specbiasfreq = 160.0; //Default Master Clock divisor for SpecBiasFreq Hz
    double specsampfreq = 80.0; //Default Sampling divisor for SpecSamplingFreq 80 Hz
    int ftime = 60; //Time for the generation
}
IST_ClearObs();
delay(1);
IST_StartObs();
delay(1);
double phase = 0.0;
//Phase to 0 degrees
int frames = 0x0;
//Number of frames to request
string[] modes =
["PF_Data","SF_Data","PSW_Data","PMW_Data","PLW_Data","SSW_Data","SLW_Data"];
for(int i = 0 .. length(modes) - 1) {

DCU_PhotSpec_QLA_NEW(modes[i],photbiasfreq,photosampfreq,specbiasfreq,specsampfreq,frames,p
hase,ftime);
    delay(1);
}
IST_EndObs();
}

mode SPIRE_WEIT04 {
    int scuframes = 0x1f; //Number of scu frames
    int framerate = 0; // f(hz)=80/(1+framerate)
}
int ftime = 1;
//Data generation time If conitnuous
IST_ClearObs();
```



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```
delay(1);
IST_StartObs();
delay(1);
SCU_Nom_Data(framerate,scuframes,ftime);
delay(1);
IST_EndObs();
}

mode SPIRE_WEIT05 {
    int scuframes = 0x1f; //Number of scu frames
    int framerate = 0; // f(hz)=80/(1+framerate)
}
{
    int ftime = 1;
    //Data generation time If conitnuous
    IST_ClearObs();
    delay(1);
    IST_StartObs();
    delay(1);
    SCUTest_Patt(framerate,scuframes,ftime);
    delay(1);
    IST_EndObs();
}

mode SPIRE_WEIT06 {
    int framerate = 0; // f(hz)=80/(1+framerate)
    int ftime = 1; //Data generation time If conitnuous
}
{
    int scuframes = 0;
    //Number of scu frames
    IST_ClearObs();
    delay(1);
    IST_StartObs();
    delay(1);
    SCU_Nom_Data(framerate,scuframes,ftime);
    delay(1);
    IST_EndObs();
}

mode SPIRE_WEIT07 {
    int ftime = 36000; //Time for the generation in sec (10 hours)
}
{
    //Set Bias frequency
    double photbiasfreq = 200.0;
    //Default Master Clock divisor for PhotBiasFreq 200.0 Hz
    //Convert into RAW Bias frequency
    int raw_biasf = iround(1.0E7 / (512.0 * photbiasfreq));
    //Set Sampling frequency
    double photosampfreq = 25.0;
```



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```
//Default Sampling divisor for PhotSamplingFreq 25.00 Hz
//Convert to RAW Sampling frequency
int raw_sampf = iround(photbiasfreq / photosampfreq - 1.0);
//Set RAW Bias amplitude
int biasamplitude = 0;
//Set RAW Phase to 0 degrees
int phase = 0;
//START TEST
IST_ClearObs();
delay(1);
IST_StartObs();
delay(1);
Setup_PF_Data(raw_biasf,raw_sampf,biasamplitude,phase);
delay(1);
PF_Data_QLA(ftime);
delay(1);
IST_EndObs();
}

mode SPIRE_WEIT08 {
  int ftime = 1800; //Time for the generation in sec (1/2 hours)
}
//Set Bias frequency
double photbiasfreq = 200.0;
//Default Master Clock divisor for PhotBiasFreq 200.0 Hz
//Convert into RAW Bias frequency
int raw_biasf = iround(1.0E7 / (512.0 * photbiasfreq));
//Set Sampling frequency
double photosampfreq = 25.0;
//Default Sampling divisor for PhotSamplingFreq 25.00 Hz
//Convert to RAW Sampling frequency
int raw_sampf = iround(photbiasfreq / photosampfreq - 1.0);
//Set RAW Bias amplitude
int biasamplitude = 0;
//Set RAW Phase to 0 degrees
int phase = 0;
//START TEST
IST_ClearObs();
delay(1);
IST_StartObs();
delay(1);
Setup_PF_Data(raw_biasf,raw_sampf,biasamplitude,phase);
delay(1);
PF_Data_QLA(ftime);
delay(1);
IST_EndObs();
}
```



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```
mode SPIRE_WEIT09 {
  int ftime = 1800; //Time for the generation in sec (1/2 hours)
}
//Set Bias frequency
double specbiasfreq = 280.0;
//Default Master Clock divisor for SpecBiasFreq 280.0 Hz
//Convert into RAW Bias frequency
int raw_biasf = iround(1.0E7 / (512.0 * specbiasfreq));
//Set Sampling frequency
double specsampfreq = 140.0;
//Default Sampling divisor for SpecSamplingFreq 140.0 Hz
//Convert to RAW Sampling frequency
int raw_sampf = iround(specbiasfreq / specsampfreq - 1.0);
//Set RAW Bias amplitude
int biasamplitude = 0;
//Set RAW Phase to 0 degrees
int phase = 0;
//START TEST
IST_ClearObs();
delay(1);
IST_StartObs();
delay(1);
Setup_SF_Data(raw_biasf,raw_sampf,biasamplitude,phase);
delay(1);
SF_Data_QLA(ftime);
delay(1);
IST_EndObs();
}
```