


SPIRE-AST-REP-002627

Title: **HIFI IMT**

CI-No: 153100

Prepared by: S. Ilisen  Date: 16/09/2005

Checked by: C. Schlosser  22.9.05

Product Assurance: R. Stritter  23/09/2005

Configuration Control: W. Wietbrock  28.09.05

Project Management: Dr. W. Fricke  28/09/05

Distribution: See Distribution List (last page)

Copying of this document, and giving it to others and the use or communication of the contents thereof, are forbidden without express authority. Offenders are liable to the payment of damages. All rights are reserved in the event of the grant of a patent or the registration of a utility model or design.

Issue	Date	Sheet	Description of Change	Release
1	16/09/ 2005		First Issue	

Table of Content

1	Scope	8
1.1	Objective	8
1.2	Summary	8
2	Documents/Drawings	10
2.1	Applicable Documents	10
2.2	Reference Documents	10
2.3	Other Documents	10
3	Configuration	11
3.1	PLM Configuration	11
3.2	Environment	11
4	Conditions	12
4.1	Personnel	12
4.2	Environmental	12
4.3	General Precautions and Safety	12
4.3.1	General Safety Requirements, Precautions	12
4.3.2	ESD constraints	12
4.3.3	Special QA Requirements	12
4.4	EGSE	12
4.4.1	Hardware: CCS, EGSE's and DFE's	13
4.4.2	Hardware: Prime Instrument	13
4.4.3	Software	13
4.4.4	Special Equipment	15
4.5	MIB	17
4.5.1	Version	17
4.5.2	Configuration & Manual changes	17
5	Step by Step Procedure: Configure CCS and EGSE	19
6	Step by Step Procedure: Power On Instruments	20
6.1	Power on HIFI to Prime Mode	21
6.2	Power on PACS to Standby Mode	22

6.3	Power on SPIRE to Standby Mode	24
6.3.1	SFT-SPIRE-CCS-DPU-ON	24
6.3.2	SFT-SPIRE-CCS-DRCU-ON	25
6.3.3	SFT-SPIRE-CCS-FUNC-SCU-03	26
6.3.4	SFT-SPIRE-CCS-FUNC-SCU-06	27
7	Step by Step Procedure: HIFI IMT results	29
7.1	Integrated Test 807GHz	29
7.2	Integrated Test 902GHz	33
7.3	IMT 902GHz	37
7.4	WBS Analysis	46
7.5	IMT 807GHz	48
7.6	Configure to Standby – long duration	57
8	Step by Step Procedure: Switch Off Instruments	59
8.1	Switch Off HIFI	59
8.2	Switch Off SPIRE	60
8.2.1	SFT-SPIRE-CCS-FUNC-THO	60
8.2.2	SFT-SPIRE-CCS-DRCU-OFF	61
8.2.3	SFT-SPIRE-CCS-DPU-OFF	62
8.3	Switch Off PACS	63
9	Step by Step Procedure: Set EGSE to OFFLINE	64
10	Summary Sheets	65
10.1	Procedure Variation Summary	65
10.2	Non Conformance Report (NCR) Summary	66
10.3	Sign-off Sheet	67
	Appendix 1: HIFI Nominal Bus Profile (HIFI_prime_inst.PST)	68
	Appendix 2: Log of PACS_POWER_ON_NonPrime_GUI.tcl (Used for PACS power on)	72
	Appendix 3: Log of INSTR_POWER_ON.tcl (Used for SPIRE power on)	76

Appendix 4: Log of INSTR_POWER_OFF.tcl (used for HIFI power down)	80
Appendix 5: Log of INSTR_POWER_OFF.tcl (used for SPIRE power down)	84
Appendix 6: Log of PACS_POWER_OFF_NonPrime_GUI.tcl (used for PACS power down)	88
Appendix 7: Log of EGSE_OFFLINE_AUTO.tcl	92
Appendix 8: HP-111000-ASED-NC-1261 - Not all limit values in MIB are correctly set	95
Appendix 9: HP-111000-ASED-NC-1262 - HIFI command completion confirmation not received	96
Appendix 10: HP-111000-ASED-NC-1455 - HIFI FCU power scoe computer not responding	97
Appendix 11: HP-141210-ASED-NC-1440 - Repeated Occurence TOPE CORBA error EXIF_TM1 crash on CCS	98
11 Distribution List	99

Table of Figures

Error! No table of figures entries found.

List of Tables

Table 10.1-1: Procedure Variation Sheet65
Table 10.2-1: Non-Conformance Record Sheet.....66

1 Scope

1.1 Objective

This test report describes the results of the IMT performed for the Herschel HIFI Instrument.

The test was performed at ASED in Ottobrunn from 13.09.2005 to 16.09.05

1.2 Summary

Detailed results are given in the as-run-procedure in Chapter 7

The following NCR's have been raised:

- HP-111000-ASED-NC-1455 - HIFI FCU power scoe computer not responding
- SPIRE NCR - NCR 1471: TC's send too fast in Power On to STANDBY procedure

The following NCR's have been altered:

- HP-111000-ASED-NC-1261 - Not all limit values in MIB are correctly set
- HP-111000-ASED-NC-1262 - HIFI command completion confirmation not received
- HP-141210-ASED-NC-1440 - Repeated Occurence TOPE CORBA error EXIF_TM1 crash on CCS

An overview can be found in chapter 10.2

Additional comments:

- During the IMT multiple out-of-limits were detected on HIFI parameters. Since these errors were very frequent also quickly disappeared, it was not always possible to record them all for each test that was run. After further analysis on the CCS, the following parameters could be identified. They all went out-of-limits for multiple times during the test:
 - HM083194
 - HM089194
 - HM044194
 - HM228191

The already existing ASED NCR 1261 will be updated to ensure these out of limits are traced and corrected.

- During the IMT it was seen that multiple commands do not receive a command completion confirmation. It concerns commands
 - HC019289
 - HC020289
 - HC022289
 - HC023289
 - HC024289
 - HC025289

This is a known ASED NCR 1262. During the IMT it was noticed that when these commands were sent the CCS reported a warning: "Received invalid TM sample: HM147192 inside verification window". This message might have something to do with the failed command completion verification. The NCR is updated with this information.

Conclusion:

The IMT was successful. All scripts could be executed and preliminary analysis of the received data showed no new problems.

During the IMT extra scripts were run to investigate problems with the WBS.

During the IMT PACS and SPIRE were in STANDBY mode and monitored regularly by the test operator. No problems were detected.

2 Documents/Drawings

2.1 Applicable Documents

INSTRUMENT PLM EQM LEVEL TEST PROCEDURE

HP-2-ASED-PR-0051, issue 1.1 from 24.06.2005

EGSE CONFIGURATION PROCEDURE

HP-2-ASED-PR-0035, Issue 4 from 03.08.2005

INSTRUMENT TEST PROCEDURE

SRON-G/HIFI/PR/2005-101, Issue 1.5 from 11.09.2005

2.2 Reference Documents

N/A

2.3 Other Documents

N/A

3 Configuration

3.1 PLM Configuration

SVM integrated with cryostat. Cryostat is at He II level (1.7 to 2.3 K).

3.2 Environment

Environmental	Actual
Clean Room Class	100.000
Temperature	~21 °C
Rel. Humidity	~52.10 %
Pressure	~857 mbar

4 Conditions

4.1 Personnel

Responsibility	Name / Organization
Test Manager	S. Idler
Test Engineer	S. Ilsen
EGSE Operator	S. Ilsen
Instrument Engineer	N. Whyborn / N. Bruning
PA Responsible	D. Hendry
ESA/Alcatel Representative	W. Pinter-Krainer / G. Doubrovik

4.2 Environmental

See chapter 3.2

4.3 General Precautions and Safety

N/A

4.3.1 General Safety Requirements, Precautions

N/A

4.3.2 ESD constraints

N/A

4.3.3 Special QA Requirements

N/A

4.4 EGSE

4.4.1 Hardware: CCS, EGSE's and DFE's

Item	Hardware Id	Serial No.
CCS	N/A	HPCCS 4
PLM SCOE	SE8426	03/001
CDMU DFE	SE8455	03/002
CRYO SCOE	EQM	N/A
IEGSE	N/A	N/A

4.4.2 Hardware: Prime Instrument

Item	Model	Remark
ICU	AVM	OBS version 2.22.
FCU	DM2	Connected to FPU
FPU	QM	At ~ 1.9 to 2.25K
IFH	dummy	
HRH	QM	
WEH	QM	
WOH	QM	
LCU	QM	
WIH	QM	
LOU	QM	LOA3 QM
EGSE	-	HIFI MIB 52, HCSS build 644, HIFI build 249
CDMS simulator		Not Used
CUS scripts		IST_CUS_0.7

4.4.3 Software**Prime Instrument: HIFI**

SW Ident	Issue /Version	Responsible	Comment
Inst ICU OBS	2.22	Inst	18.05.2005
Inst LCU OBS	17.0	Inst	01.10.2004

Standby Instrument: PACS

SW Ident	Issue /Version	Responsible	Comment
Inst OBS SPU	11.7	Inst	
Inst SPU boot OBSW	1.4	Inst	

Inst OBS DECMEC	5.0.25 Version for Mech control cold	Inst	V 5.0.24 Mech controller hot
Inst DECMEC boot OBSW	1.1	Inst	
Inst OBS DPU	7.65	Inst	
Inst DPU Boot OBSW	1.0	Inst	

Standby Instrument: SPIRE

SW Ident	Issue /Version	Responsible	Comment
Inst DPU OBS	2.0.A1	Inst	
Inst DRCU OBS	Boot SW June 2003	Inst	

IEGSE Configuration

SW Ident	Issue /Version	Responsible	Comment
MIB on I-EGSE	52	Inst	
HCSS Build Version	644	Inst	
HIFI Build	249	Inst	

CCS Configuration

SW Ident	Issue /Version	Responsible	Comment
TCL Scripts HIFI	ist_cus_0.7_tcl.zip	ASP	Delivered on 19.08.2005
TCL Scripts PACS	IMT_cus-shell-scripts_28062005.zip	ASP	Delivered on 28.06.2005
TCL Scripts SPIRE	SPIRE-SFTs-09092005.tar.gz + adapted script: SFT-SPIRE-CCS-DRCU-ON-STEP2.tcl	ASP	Delivered on 09.09.2005 (12.09.2005)
CCS MIB Bridge files	CCS_Her_PLM__01_v1_2.zip	ASP	2005-09-08
CCS S/W Release	2.0.614	Terma	

CDMU DFE Configuration

SW Ident	Issue /Version	Responsible	Comment
CDMU DFE CMS	2.3.0.0	SSBV	Part of CDMU DFE Workstation
CDMU DFE Pipe I/F (IPC Handler P7001)	2.4.0.0	SSBV	Part of CDMU DFE Workstation
CDMU DFE Pipe I/F (IPC Handler Pipe P	1.2.1.0	SSBV	Part of CDMU DFE Workstation

7002)			
CDMU archive Browser	2.2.2.72	SSBV	Part of CDMU DFE Workstation
Mil-STD-1553b BusMonitor	1.11.1.87	SSBV	Part of CDMU DFE Workstation
CDMU DFE IPC Handler object implementation	2.4.0.18	SSBV	Part of CDMU DFE Workstation
SimFE	1.5.0.0	SSBV	Part of CDMU DFE Platform
HLBC	1.07.00	SSBV	Part of CDMU DFE Platform

PLM SCOE Configuration

SW Ident	Issue /Version	Responsible	Comment
PLM SCOE CMS	1.5.0.0	SSBV	Part of PLM SCOE Workstation
PLM SCOE archive browser	2.2.1.70	SSBV	Part of PLM SCOE Workstation
PLM SCOE pipe I/F	1.3.0.0	SSBV	Part of PLM SCOE Workstation
PLM SCOE IPC Handler object implementation	2.1.0.7	SSBV	Part of PLM SCOE Workstation
PDU Controller	1.5.0.0	SSBV	Part of PLM SCOE Platform

Bus Profiles

The following bus profiles are loaded on the CDMU DFE. They are provided, checked and validated by Patrice Couzin (ASP). They were delivered by email on 01.09.2005

- PACS_prime_inst.PST
- SPIRE_prime_inst.PST
- HIFI_prime_inst.PST
- PACS_SPIRE_par.PST
- PACS_burst_mode.PST
- Inst_sdby.PST

The profiles allow one instrument in PRIME mode, while the other are in standby mode. This test will use only the following bus profile(s):

- HIFI_prime_inst.PST (see Appendix 1)

4.4.4 Special Equipment

N/A

4.5 MIB

4.5.1 Version

The used MIB has reference: CCS_Her_PLM__01_v1_2.zip

And reference date: 2005-09-08

The MIB was received by email from Sonia Dos-Santos (ASP) on 08/09/2005

4.5.2 Configuration & Manual changes

The following files have been manually changed by Alcatel after the generation process (taken from the configuration.txt file included in the MIB):

- CDF.DAT
HPSDB does not allow fixed counter flags (ie CDF_ELTYPR=F for counters)
HPSDB NCR 478
- CDF.DAT
Problem on the (PTC,PFC)=(7,0) Variable octect string (PP004380).
PACS has the following data:
PC010380 E 8 32 PP004380 R
On HPSDB this line is generated
PC010380 E 0 32 0 PP004380 R
For now has been manually replaced.
- DPC.DAT
Add the line
HA000289 HU035197 63 1 Y N
HPSDB NCR, not possible to add User parameters on an alphanumeric display (NCR 495)
Note: The parameter HU035197 can not be loaded via S2K files, because is not associated to a Packet (NCR created 475)
Error HPSDB Solution: The parameter as been loaded by the an XML file Add_Parameter_HU035197.xml, to correct this problem.
- PLF.DAT
(HPSDB NCR 474) error when loading/generating SCOS TM packets has fixed and variable but with diferent definitions, (the following packet has the

parameter repeated 16 times on plf.dat, and repeated 0 times (variable) on the vpd.dat table)

The vpd.dat is corrected generated but not the plf.dat

replace the line (manual)

HM057190 80044289 0 0 1 0 0 0

by

HM056190 80044289 16 0 1 0 0 0

HM057190 80044289 17 0 64 0 0 0

- TCD.DAT

Generated empty by HPSDB, NCR 497 replaced by the one used on the tests week 28

- SCO.DAT

replaced by the one used on the tests week 28. This file shall be discussed with S. Ilsen because of the SCOE's names, HPSDB generates the names of the real elements.

- TMD.DAT

Add packets sent by SPIRE team by email on 31/08/2005

- PCF.DAT

Change PCF_VALPAR=0 on the parameter HU035197 inside of the pcf.dat. This was ok on HIFI, but not done on the XML file loaded

Add_Parameter_HU035197.xml

- PLF.DAT

Change the field PLF_LOGCC from NULL to 32 bits (see email from Luc Dubbeldam- HIFI on 06/09/2005)

HM057190 80044289 17 0 64 32 0 0

The following files have been changed manually by ASSED OTN (Stijn Ilsen):

- CAP.DAT – The decimal separator for the EQM CRYO SCOE calibration is manually changed from “,” to “.”. This also to solve problems with the EQM CRYO SCOE calibrations. EQM CRYO SCOE MIB will be updated by ASSED to avoid this problem in the future.
- TMD.DAT – The EQM CRYO packets have been added to the tmd.dat file on the CCS to make sure all EQM CRYO SCOE packets are forwarded to the IEGSE.

5 Step by Step Procedure: Configure CCS and EGSE

According to Procedure(s):

- HP-2-ASED-PR-0035 (Chapter 3: Order of Execution - steps 1 to 9)

Remark: Steps 2 to 9 are not executed since equipment was still on line and configured from the SFT Cold He II yesterday (12/09/2005). The CCS is restarted between SFT Cold He II and IMT since the MIB needed to be changed (tmd.dat, see chapter 4.5)

Step #	Action	Comments	Check
1	Note Testsession	2005_09_13_07_13_ilsens_hpws42_REA LTIME_H_IMT_1	OK
2	Power on CDMU DFE platform		N/A
3	Power on PLM SCOE platform		N/A
4	Power on the CDMU DFE workstation and wait for the BIST to finish.	Check: BIST successful?	N/A
5	Power on the PLM SCOE workstation and wait for the BIST to finish.	Check: BIST successful?	N/A
6	Execute "EGSE_CONFIG_AUTO.tcl"	Check: PLM SCOE HK packets arriving	N/A
		Check: CDMU DFE HK packets arriving	N/A
		Check: Check name of bus profile (PST) in CDMU DFE HK or on CDMU DFE workstation	N/A
7	Execute "SubscribeParams.tcl"	Check: Wait until status of TCL file has changed to WAITING. This can take up to 10 minutes.	N/A
8	Execute "Connect HIEGSE"	Check with IEGSE operators if IEGSE is connected.	N/A
9	Execute "WARNING_LAMP_POWER_ON.tcl"	Check if lamp is ON	N/A

6 Step by Step Procedure: Power On Instruments

Philosophy:

Before power on of any instrument, the HIFI prime bus profile is loaded on the CDMU DFE. This means that PACS and SPIRE are considered to be in standby mode from the beginning.

After the CDMU DFE configuration, the instruments are powered on in the following order:

- HIFI (to PRIME mode)
- PACS (to STANDBY mode)
- SPIRE (to STANDBY mode)

Monitoring:

All data coming from the instruments will be stored on the CCS. No active monitoring will be done on the instruments in standby mode. Of course limits will be monitored and checked and if necessary the instrumenters will be contacted and corrective actions taken.

For SPIRE a check list ("Common Herschel Instrument Checkout Procedure for IMT") is available to monitor regularly the status of the instrument. It is confirmed by SPIRE that these checks shall not be done during night and only sporadically during the day.

6.1 Power on HIFI to Prime Mode

According to Procedure(s):

- HP-2-ASED-PR-0035 (Chapter 3: Order of Execution – Step 10)
- SRON-G/HIFI/PR/2005-101 chapter 2.4.1 & 2.4.5

Remark: This step is not executed, since HIFI was still on line and configured from the SFT Cold He II yesterday (12/09/2005). Please refer to HP-2-ASED-TR-0090 for more information.

6.2 Power on PACS to Standby Mode

According to Procedure(s):

- HP-2-ASED-PR-0035 (Chapter 3: Order of Execution – Step 10)
- PACS-ME-TP-026 (Issue 1.0 – 29/08/05)

Configuration Check:

Step #	Action	Comments	Check
1	PACS warm electronics is mounted on the SVM		OK
2	28 V power is connected to CCS power supplies		OK
3	PACS OBT interface is connected to CCS OBT simulator		OK
4	DPU 1553 interface is connected to CDMU DFE		OK
5	The CDMU is up and running a 1553 bus list which allows 2 PACS TC per sec		OK
6	PACS+EGSE grounding has been verified against AD-7		OK
7	Check that all required TOPE-Tcl scripts: PACS_POWER_ON.tcl and PACS_POWER_OFF.tcl are accessible via the CCS	The mentioned scripts will not be used. Instead the following will be used: PACS_POWER_ON_NonPrime.tcl and PACS_POWER_OFF_NonPrime.tcl This is done because a bus profile is used that considers PACS in non-prime condition. This has been discussed and agreed with PACS.	OK
8	IEGSE is on and connected to receive PACS telemetry		OK
9	MIB version on IEGSE is 7.18 compatible with DPU OBSW V7.65	The MIB in the IEGSE is a combined HIFI-SPIRE-PACS-CRYOSCOE MIB	NOK
10	SCOS 2.3e patch 5, sub-patch 3		OK

Step #	Action	Comments	Check
--------	--------	----------	-------

1	Execute script: PACS_POWER_ON.tcl	PACS is sending regular non-Prime HK packets and essential HK packets	OK
	This is changed to: PACS_POWER_ON_No nPrime.tcl (log see Appendix 2)	1355 links are on and communicating: PM020380 = DP_SPS_STATUS = "ON", PM021380 = DP_SPL_STATUS = "ON", PM022380 = DP_DMC_STATUS = "ON", PM170400 = SPS_DMC_LINK = "LINK ON" PM153390 = SPL_DMC_LINK = "LINK ON" PM039420 = DM_BOL_REC_PAC is incrementing	OK
		Counters for TM(1,2), TM(1,8) and NACKs shall be 0: PM060380 = DP_1_8_Rejected = 0 PM061380 = DP_1_2_Rejected = 0 PM062380 = DP_COM_DMC_NACK= 0 PM064380 = DP_COM_SPL_NACK= 0 PM066380 = DP_COM_SPS_NACK= 0	OK
		28 V power is on for all 4 sub-systems	OK

6.3 Power on SPIRE to Standby Mode

According to Procedure(s):

- HP-2-ASED-PR-0035 (Chapter 3: Order of Execution – Step 10)
- SPIRE-RAL-PRC-002494 (Issue 1.1 Appendix 1 – 09/09/05)

Step #	Action	Comments	Check
1	CCS 28V Power Supply to the DPU is available		OK
2	SPIRE MIB is imported in the CCS database.		OK
3	CCS is up and running (SCOS, TOPE and the CDMU Simulator)		OK
4	DPU AND OBS PARAMETERS display is selected on the CCS		OK

6.3.1 SFT-SPIRE-CCS-DPU-ON

Purpose: To switch on the SPIRE DPU and start generating housekeeping

Step #	Action	Comments	Check
1	Power on the SPIRE DPU using the CCS 28V Power Supply	This action is performed from INSTR_POWER_ON.tcl (see Appendix 3) Result: <ul style="list-style-type: none"> • Voltage: 27.85 V • Current: 0.46 A (5,2) packet received	OK
2	Execute TCL script SFT-SPIRE-CCS-DPU-ON.tcl		OK
3	Check that THSK parameter on the DPU AND OBS PARAMETERS display on SCOS is refreshing every second	THSK incrementing every second	OK
4	Check that TM2N parameter on the DPU AND OBS PARAMETERS display on SCOS is incrementing every second	TM2N incrementing every second	OK

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

6.3.2 SFT-SPIRE-CCS-DRCU-ON

Purpose: To switch on the SPIRE DRCU and start generating housekeeping

Step #	Action	Comments	Check
1	Execute TCL script SFT-SPIRE-CCS-DRCU-ON-STEP1.tcl	HK stopped as expected Remark: This script sends more then 2 TC's a second. The current bus profile (HIFI_prim_inst.pst) does not allow this and puts the TC's in a queue. This caused multiple SSC errors, although no packets or TC's are lost. This error is traced in a new ASSED NCR 1471	OK
2	Check that THSK parameter is not refreshing anymore		OK
3	Check that TM2N parameter is not incrementing anymore		OK
4	Ensure the SPIRE Power Bench is connected to the mains – see Figure 2.		OK
	Ensure all 5 remote DCU switches are in the off position – see Figures 3 & 4 below.	PLH was is the ON position. It is switched to OFF. All other 4 switched were in the OFF position	OK
	Switch on the Primary Power on the back of the SPIRE Power Bench (Figure 2).	Prime power led becomes orange Main power led becomes green	OK
	Switch on the Secondary Power on the front of the SPIRE Power Bench by pulling out and lifting up the switch (shown in yellow circle in Figure 5)	Secondary power led becomes red	OK
	Figure 6 shows the Power Bench display after switch on		OK
5	Execute TCL script SFT-SPIRE-CCS-DRCU-ON-	Remark: This script sends more then 2 TC's a second. The current bus profile (HIFI_prim_inst.pst) does not	OK

	STEP2.tcl	<p>allow this and puts the TC's in a queue. This caused multiple SSC errors, although no packets or TC's are lost. This error is traced in a new ASSED NCR 1471</p> <p>Since this script has a lot of TC's inside, the tie between sending the TC from the CCS and actual acceptance on the instrument went up to 35 seconds.</p> <p>This caused a series of SSC errors.</p>	
6	Manual Switch on of the DRCU by the CCS staff step 2: <ul style="list-style-type: none"> Switch on all 5 remote DCU switches 		OK
7	Check that THSK parameter is again refreshing every second	THSK incrementing every 4 second	OK
8	Check that TM2N parameter is again incrementing every second	TM2N incrementing every 4 second	OK

Final Configuration:

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

6.3.3 SFT-SPIRE-CCS-FUNC-SCU-03

Purpose: SCU DC thermometry check

Step #	Action	Comments				Check
1	Execute TCL script SFT-SPIRE-CCS-FUNC-SCU-03.tcl					OK
2	Wait for the parameter BBFULLTYPE to get set to SCU_DC_Therm					OK
3	A few seconds later record the value of parameter SCUTEMPSTAT	Check if the following parameters change value:				
		Parameter	Start	During	End	
		SCUTEMPSTAT Observed	0 000000	FFFF 0000FF FF	FFFF 0000FF FF	OK
4	Record the RAW values	Parameter	Value			OK

of SCU temperatures	PUMPHTRTEMP PUMPHSTEMP EVAPHSTEMP SHUNTTEMP SOBTEMP SL0TEMP PL0TEMP OPTTEMP BAFTEMP BSMIFTEMP SCAL2TEMP SCAL4TEMP SCALTEMP SMECIFTEMP SMECTEMP BSMTEMP	3.14 8.70 8.05 1.68 11.55 2.06 2.14 10.99 10.86 10.19 8.79 13.08 11.34 11.24 13.52 10.28	
---------------------	---	---	--

Final Configuration: Unchanged

6.3.4 SFT-SPIRE-CCS-FUNC-SCU-06

Purpose: SCU AC thermometry check

Preconditions: SPIRE CQM is electrically integrated with the Herschel EQM

Initial Configuration:

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

Step #	Action	Comments				Check
1	Execute TCL script SFT-SPIRE-CCS-FUNC-SCU-06.tcl					OK
2	Wait for the parameter BBFULLTYPE to get set to SCU_AC_Therm					OK
3	A few seconds later record the value of parameter SUBKSTAT	Check if the following parameters change value:				
		Parameter	Start	During	End	
		SUBKSTAT	0	1	1	OK
		Observed values	0	1	1	
4	Record the RAW value of SUBKTEMP	Check if the following parameters change value:				
		Parameter	Start	During	End	
		SUBKTEMP	?		?	OK

		Observed values	-	-	2.18	
5	Note down the value of the MODE parameter on the DPU AND OBS PARAMETERS display	Parameter	Start	During	End	OK
		MODE	-	-	REDY	
		Observed values	-	-	REDY	

Final Configuration: Unchanged

7 Step by Step Procedure: HIFI IMT results

According to Procedure(s):

- HP-2-ASED-PR-0035 (Chapter 3: Order of Execution – Step 11)
- SRON-G/HIFI/PR/2005-101

7.1 Integrated Test 807GHz

According to Procedure(s):

- SRON-G/HIFI/PR/2005-101 (Chapter 9.4.1 & 9.4.3)

Objective: Tune LSU simulator for 807 GHz

Step #	Action	Comments	Check
1	Check LSU simulator RF is off	HIFI Task	OK
2	Check EMC test source RF is off	HIFI Task	OK
3	Connect LSU simulator to 3A LO chain	HIFI Task	OK
4	Tune LSU simulator for 807 GHz LO	HIFI Task	OK

Objective: Perform chopper scan

Step #	Action	Comments	Check
1	Select FCU HK AND		OK
2	Execute: IST_HIFI_SFT_Band3col d.config_wb2_H_807.tc l	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC020289, HC022289, HC023289) Parameter HM082194 went out of limits. Globally this is a known ASED NCR 1261. The NCR will be updated to contain also parameter HM082194	OK
extra	Execute: IST_HIFI_standby_internal _source_ON_Band0.conf g_807_wb2.tcl	This script is executed on HIFI demand. Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC013289, HC024289, HC025289, HC019289, HC022289)	OK

		Parameter HM082194 went out of limits. Traced in ASED NCR 1261.	
extra	Execute (again): IST_HIFI_SFT_Band3cold.config_wb2_H_807.tcl	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC020289, HC022289, HC023289, HC024289, HC025289) Parameter HM082194 went out of limits. Traced in ASED NCR 1261.	OK
3	Execute: IST_HIFI_integration_test_chopscan_Band3cold.config_3_3_200_807_H.tcl	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289)	OK
4	Execute: IST_HIFI_non_periodic_hk_FCU.tcl		OK
5	HIFI checks results in HK and science data	Check FPU HK for chopper motion HIFI checked values	OK
		Check chopper status & set values in FCU non-periodic HK HIFI checked values	OK

Objective: Perform functional test pumped and set spectrometer attenuators

Step #	Action	Comments	Check
1	Select as appropriate FPU, HRS, LCU & WBS HK AND's		OK
2	Execute: IST_WU_LCU3a_config_safe_Band3cold.config_807.tcl		OK
3	Switch LSU simulator RF ON and afterwards OFF		OK
extra	Execute: IST_HIFI_standby_internal_source_ON_Band0.config_807_wb2.tcl	This is done to put the instrument in STANDBY mode during lunch. Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC022289, HC024289, HC025289)	OK
extra	Execute: IST_HIFI_SFT_Band3cold.config_wb2_H_807.tcl	This script is executed to prepare, test and configure HIFI again after being in STANDBY mode over lunch. Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC020289, HC022289, HC023289, HC024289, HC025289)	OK

		Parameter HM082194 went out of limits. Traced in ASED NCR 1261.	
extra	Execute: IST_HIFI_LO_scan_Band3cold.config_807_1_2_0.1.tcl	This script is executed to prepare, test and configure HIFI again after being in STANDBY mode over lunch.	OK
extra	Switch LSU simulator ON		OK
extra	Execute: IST_HIFI_LO_scan_Band3cold.config_807_1_2_0.1.tcl	This script is executed to prepare, test and configure HIFI again after being in STANDBY mode over lunch.	OK
4	Execute: IST_HIFI_SPT_LO_tune_Band3cold.config_807_100.tcl Instead of: IST_HIFI_SPT_LO_tune_Band3cold.config_807_80.tcl	The script is changed from 100% to 80% since HIFI noticed that the voltages are far too high.	OK
extra	Manual Stack Command: HC102289 (ILT_HL_Drain2_V)	Command Parameters: HP159194 (HL_Channel) = Channel_3a (Eng) = 5 (Raw) HP195194 (HL_Drain2_V) = 1.65 (Eng) = 422 (Raw) HP162194 (HL_Curlim2) = 1.5 (Eng) = 0 (Raw) This command is send to tune the voltage.	OK
5	Execute: IST_HIFI_SPT_FT pumped_Band3cold.config_wb2_H_807.tcl	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC019289, HC020289, HC022289, HC023289, HC024289, HC025289)	OK
6	HIFI checks results in HK and science data	Check LCU band 3A selected in HK	OK
		Check LCU drain voltages and multiplier currents in HK	OK
		Compare LCU HK with previous results	OK
		Check FPU mixer pump level in HK	OK
		Verify science TM packets received	OK

Objective: Perform functional test unpumped

Step #	Action	Comments	Check
1	Select as appropriate FPU, HRS & WBS HK AND's		OK
2	Execute: IST_WU_LCU3a_config_safe_Band3cold.config_807.tcl		OK
3	Switch LSU simulator RF OFF		OK
4	Execute: IST_HIFI_SPT_FTunpumped_Band3cold.config_wb	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC01789, HC02489,	OK

	2_H_ _807.tcl	HC02589)	
5	HIFI checks results in HK and science data	Check FPU HK	OK
		Verify science TM packets received	OK

Objective: Perform diplexer scan – H and V polarisations

Step #	Action	Comments	Check
1	Select as appropriate FPU, HRS, LCU & WBS HK AND's		OK
2	Switch LSU simulator RF ON		OK
3	Execute: IST_HIFI_SPT_LO_tune_ Band3cold.config__807__1 00.tcl Instead of: IST_HIFI_SPT_LO_tune_ Band3cold.config__807__8 0.tcl	The script is changed from 100% to 80% since HIFI noticed that the voltages are far too high.	OK
extra	Manual Stack Command: HC102289 (ILT_HL_Drain2_V)	Command Parameters: HP159194 (HL_Channel) = Channel_3a (Eng) = 5 (Raw) HP195194 (HL_Drain2_V) = 1.65 (Eng) = 422 (Raw) HP162194 (HL_Curlim2) = 1.5 (Eng) = 0 (Raw) This command is send to tune the voltage.	OK
4	Execute: IST_HIFI_integration_test_ diplexscan__Band3cold.con fig__- 2.24__2.24__-0.82__- 0.82__100__807__H.tcl		OK
5	Execute: IST_HIFI_integration_test_ diplexscan__Band3cold.con fig__0.683__ 0.683__- 2.24__2.24__100__807__V .tcl		OK
6	HIFI checks results in HK and science data	Check LCU band 3A selected in HK	OK
		Check LCU drain voltages and multiplier currents in HK	OK
		Check FPU HK for diplexer motion	OK
		Mixer current vs diplexer current	OK

Objective: Perform LO scan

Remark: This script is not executed since results from this test have already been obtained during previous tests. Instead another script is run (see below).

Step #	Action	Comments	Check
1	Select FPU & LCU HK AND		N/A
2	Execute: IST_HIFI_LO_scan_Band3cold.config_807_1_2_0.1.tcl		N/A
3	HIFI checks results in HK and science data	Check LCU drain voltages and multiplier currents in HK	N/A
		Monitor mixer current to identify optimum Vd2	N/A

Step #	Action	Comments	Check
1	Execute: IST_WU_LCU3a_config_safe_Band3cold.config_807.tcl	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC022289, HC024289, HC025289)	OK

Objective: Configure HIFI to standby

Step #	Action	Comments	Check
1	Select FPU, HRS, WBS, LCU HK AND		OK
2	Switch LSU simulator RF OFF		OK
3	Execute: IST_HIFI_standby_internal_source_ON_Band0.config_807_wb2.tcl		OK
4	HIFI checks results in HK and science data	Check FPU in standby (band 0), internal source state is ON	OK
		Check LCU in standby	OK
		Compare HK with previous results	OK

7.2 Integrated Test 902GHz

According to Procedure(s):

- SRON-G/HIFI/PR/2005-101 (Chapter 9.4.4 & 9.4.5)

Objective: Tune LSU simulator for 901.584 GHz

Step #	Action	Comments	Check
1	Switch LSU simulator RF off	HIFI Task	OK
2	Disconnect LSU simulator from 3A LO chain	HIFI Task	OK
3	Connect LSU simulator to 3B LO chain	HIFI Task	OK
4	Tune LSU simulator for 901.584 GHz LO	HIFI Task	OK

Objective: Perform functional test pumped and set spectrometer attenuators

Remark: In the middle of this step, the test is stopped for today. The remaining scripts will not be executed, because they are repeated anyway in the actual IMT (chapter 10 of HIFI procedure).

Step #	Action	Comments	Check
1	Select as appropriate FPU, HRS, LCU & WBS HK AND's		OK
2	Execute: IST_WU_LCU3b_config_safe_Band3cold.config__901.584.tcl	Parameter HM044194 went out of limits. This is a known problem and is already traced by ASED NCR 1261.	OK
3	Switch LSU simulator RF ON		OK
extra	Execute: IST_HIFI_LO_scan_Band3cold.config__901.584__1.__2.__0.1.tcl	This script is executed to find the correct tuning. Parameters HM044194/HM089194 went out of limits. This is a known problem and is already traced by ASED NCR 1261. The NCR will be updated to contain also parameter HM089194.	OK
extra	Execute: IST_HIFI_SFT_Band3cold.config__wb2__H__901.584.tcl	This script is executed to find the correct tuning. Parameters HM044194 went out of limits. This is a known problem and is already traced by ASED NCR 1261. Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC019289, HC020289, HC022289, HC023289, HC024289, HC025289)	OK
extra	Execute: IST_HIFI_LO_scan_Band3cold.config__901.584__1.__2.__0.1.tcl	This script is executed to find the correct tuning. Parameters HM044194/HM089194 went out of limits. This is a known problem and is already traced by ASED NCR 1261.	OK

extra	Execute: IST_HIFI_LO_scan_Band 3cold.config__901.584__1. __2.__0.1.tcl	The RF is set to ON and the script is repeated. Parameters HM044194/HM089194 went out of limits. This is a known problem and is already traced by ASED NCR 1261.	OK
extra		At this point it is decided by HIFI personal to stop testing today. The instrument is put into a STANDBY mode (see final step of this sub-chapter.	OK
4	Execute: IST_HIFI_SPT_LO_tune__ Band3cold.config__901.58 4__100.tcl		N/A
5	Execute: IST_HIFI_SPT_FTpumped __Band3cold.config__wb2 __H__901.584.tcl		N/A
6	HIFI checks results in HK and science data	Check LCU band 3B selected in HK	N/A
		Check LCU drain voltages and multiplier currents in HK	N/A
		Compare LCU HK with previous results	N/A
		Check FPU mixer pump level in HK	N/A
		Verify science TM packets received	N/A

Objective: Perform functional test unpumped

Step #	Action	Comments	Check
1	Select as appropriate FPU, HRS & WBS HK AND's		N/A
2	Execute: IST_WU_LCU3b_config_s afe__Band3cold.config__9 01.584.tcl		N/A
3	Switch LSU simulator RF OFF		N/A
4	Execute: IST_HIFI_SPT_FTunpump ed__Band3cold.config__wb 2__H__ _901.584.tcl		N/A
5	HIFI checks results in HK and science data	Check FPU HK	N/A
		Verify science TM packets received	N/A

Objective: Perform diplexer scan – H and V polarisations

Step #	Action	Comments	Check
1	Select as appropriate FPU, HRS, LCU & WBS HK AND's		N/A
2	Switch LSU simulator RF ON		N/A
3	Execute: IST_HIFI_SPT_LO_tune__ Band3cold.config__901.58 4__100.tcl		N/A
4	Execute: IST_HIFI_integration_test_ diplexscan__Band3cold.con fig__- 2.24__2.24__-1.036__- 1.036__100__901.584__H.t cl		N/A
5	Execute: IST_HIFI_integration_test_ diplexscan__Band3cold.con fig__0.73__ 0.73__- 2.24__2.24__100__901.584 __V.tcl		N/A
6	HIFI checks results in HK and science data	Check LCU band 3B selected in HK	N/A
		Check LCU drain voltages and multiplier currents in HK	N/A
		Check FPU HK for diplexer motion	N/A
		Mixer current vs diplexer current	N/A

Objective: Perform LO scan

Step #	Action	Comments	Check
1	Select FPU & LCU HK AND		N/A
2	Execute: IST_HIFI_LO_scan__Band 3cold.config__901.584__1. __2__0.1.tcl		N/A
3	HIFI checks results in HK and science data	Check LCU drain voltages and multiplier currents in HK	N/A
		Monitor mixer current to identify optimum Vd2	N/A

Objective: Configure HIFI to standby

Step #	Action	Comments	Check
1	Select FPU, HRS, WBS, LCU HK AND		OK

2	Switch LSU simulator RF OFF		OK
2	Execute: IST_HIFI_standby_internal _source_ON__Band0.conf g__901.584__wb2.tcl	Parameters HM044194 went out of limits. This is a known problem and is already traced by ASED NCR 1261. Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC022289, HC024289, HC025289)	OK
3	HIFI checks results in HK and science data	Check FPU in standby (band 0), internal source state is ON	OK
		Check LCU in standby	OK
		Compare HK with previous results	OK

7.3 IMT 902GHz

According to Procedure(s):

- SRON-G/HIFI/PR/2005-101 (Chapter 10.4.1 & 10.4.3)

Important Remark: At this point the second day of IMT is starting (14/09/2005). PACS and SPIRE has been checked, no limits were crossed overnight and HK is coming in normally.

Important Remark: The following TCL scripts have been added to the environment. This was done to ease the tuning of the instrument.

- IST_HIFI_SPT_LO_tune__Band3cold.config__807__60.tcl
- IST_HIFI_SPT_LO_tune__Band3cold.config__807__63.tcl
- IST_HIFI_SPT_LO_tune__Band3cold.config__807__66.tcl
- IST_HIFI_SPT_LO_tune__Band3cold.config__807__69.tcl
- IST_HIFI_SPT_LO_tune__Band3cold.config__807__72.tcl
- IST_HIFI_SPT_LO_tune__Band3cold.config__901.584__87.tcl
- IST_HIFI_SPT_LO_tune__Band3cold.config__901.584__93.tcl

Objective: Tune LSU simulator for 901.584 GHz

Step #	Action	Comments	Check
1	Check LSU simulator RF is off	HIFI Task	OK

2	Check EMC test source RF is off	HIFI Task	OK
3	Connect LSU simulator to 3B LO chain according to [AD-04]	HIFI Task	OK
4	Tune LSU simulator for 901.584 GHz LO [AD-04]	HIFI Task	OK

Objective: Perform functional test pumped and set spectrometer attenuators

Step #	Action	Comments	Check
1	Select as appropriate FPU, HRS, LCU & WBS HK AND's		OK
2	Execute: IST_HIFI_SFT_Band3col d.config_wb2_H_901.5 84.tcl	Parameters HM044194/HM083194 went out of limits. This is a known problem and is already traced by ASED NCR 1261. The NCR will be updated to contain also parameter HM083194. Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC020289, HC022289, HC023289, HC024289, HC025289)	OK
extra	Execute: IST_HIFI_standby_internal _source_ON_Band0.conf g_901.584_wb2.tcl	This is done to since the instrument was in STANDBY mode and not generating all necessary housekeeping Parameters HM044194/HM089194 went out of limits. This is a known problem and is already traced by ASED NCR 1261. Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC020289, HC022289, HC023289, HC024289, HC025289)	OK
extra	Execute: IST_HIFI_SFT_Band3col d.config_wb2_H_901.5 84.tcl	This script is executed to prepare, test and configure HIFI again after being in STANDBY mode over lunch. Parameters HM044194/HM089194 went out of limits. This is a known problem and is already traced by ASED NCR 1261. Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC020289, HC022289, HC023289, HC024289, HC025289)	OK
extra	Execute: IST_WU_LCU3b_config_s	Since errors have been detected on the limits for parameter HM083194 and HM089194, the instrument is	OK

	afe__Band3cold.config__901.584.tcl	switched to a safe state	
extra	Execute: IST_HIFI_standby_internal_source_ON__Band0.config__901.584__wb2.tcl	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC020289, HC022289, HC023289, HC024289, HC025289)	OK
extra	Change limits and calibrations	A problem with the limits in the MIB has been detected by HIFI personal. The following limits have been manually changed: HM089194 (HL_M2_3B_C) LOW: -0.055 HIGH: 3.208 HM044194 (HL_M2_3B_V) LOW: -10 HIGH: 3.3 Also the calibration for parameter HM089194 has been changed (pointpair 32767 = -3.300 is changed to 32767 = -3.330) All this has been done on the CCS with a TOPE emergence window and the following commands: patchlimit HM089194 H 0 -0.055 3.208 patchlimit HM044194 H 0 -10 3.3 patchnumericalcurve H194526194 1 32767 -3.330 This should be followed up by HIFI and changed in the following MIB delivery. (ASED NCR 1261 is related to these and other out-of-limits).	OK
extra	Execute: IST_HIFI_SFT__Band3cold.config__wb2__H__901.584.tcl	This script is executed to prepare, test and configure HIFI again after being in STANDBY mode over lunch. Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC020289, HC022289, HC023289, HC024289, HC025289)	OK
3	Switch LSU simulator RF ON		OK
4	Execute: IST_HIFI_SPT_LO_tune__Band3cold.config__901.584__87.tcl Instead of the planned: IST_HIFI_SPT_LO_tune__Band3cold.config__901.584__100.tcl	The script is replaced by a similar script for tuning purposes.	OK
extra	Execute: IST_HIFI_SPT_LO_tune__Band3cold.config__901.584__90.tcl	The script is executed for tuning purposes.	OK
5	Execute: IST_HIFI_SPT_FTpumped	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that	OK

	__Band3cold.config__wb2__H__901.584.tcl	the commands did not execute. (HC020289, HC023289, HC024289, HC025289)	
5	Execute (again): IST_HIFI_SPT_FTpumped__Band3cold.config__wb2__H__901.584.tcl	This TCL script was repeated to tune the instrument. Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC020289, HC023289, HC024289, HC025289)	OK
6	HIFI checks results in HK and science data	Check LCU band 3B selected in HK	OK
		Check LCU drain voltages and multiplier currents in HK	OK
		Compare LCU HK with previous results	OK
		Check FPU mixer pump level in HK	OK
		Verify science TM packets received	OK

Objective: Perform functional test unpumped

Step #	Action	Comments	Check
1	Select as appropriate FPU, HRS & WBS HK AND's		OK
2	Execute: IST_WU_LCU3b_config_safe__Band3cold.config__901.584.tcl		OK
3	Switch LSU simulator RF OFF		OK
4	Execute: IST_HIFI_SPT_FTunpumped__Band3cold.config__wb2__H__901.584.tcl	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC024289, HC025289)	OK
5	HIFI checks results in HK and science data	Check FPU HK	OK
		Verify science TM packets received	OK

Objective: Diplexer slow scan

Step #	Action	Comments	Check
1	Select FPU & LCU HK AND		OK
2	Switch LSU simulator RF ON		OK
3	Execute: IST_HIFI_SPT_LO_tune__Band3cold.config__901.584__90.tcl Instead of the planned: IST_HIFI_SPT_LO_tune__	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC024289, HC025289)	OK

	Band3cold.config__901.584__100.tcl		
4	Execute: IST_HIFI_SPT_diplexslow__Band3cold.config__0.33__1.13__1.036__1.036__9__wb2__901.584__H.tcl		OK
5	HIFI checks results in HK and science data	Check LCU drain voltages and multiplier currents in HK	OK
		Check for diplexer motion	OK
		Check FPU mixer pump level OK	OK

Objective: LO standing wave test

Remark: In the following step, the tcl script is repeated > 30 times. Each time the CCS reported multiple command completion problems for the following commands:

- **HC017289**
- **HC019289**
- **HC020289**
- **HC022289**
- **HC023289**
- **HC024289**
- **HC025289**

This is a known ASSED NCR 1262.

Step #	Action	Comments	Check
1	Select as appropriate FPU & LCU HK AND's		OK
2	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__wb2__H__901.584.tcl		OK
extra	Execute (again): IST_HIFI_SPT_LO_stand wave__Band3cold.config__wb2__H__901.584.tcl	OBS_ID ending in 231	OK
3	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
4	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__wb2__H__901.584.tcl	OBS_ID ending in 232	OK
5	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK

6	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 233	OK
7	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
8	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 234	OK
9	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
10	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 235	OK
11	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
12	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 236	OK
13	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
14	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 237	OK
15	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
16	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 238	OK
17	LSU sim: RF off; increment frequency by 118MHz; RF on	HIFI task	OK
18	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 239	OK
19	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
20	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 240	OK

21	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
22	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 241	OK
23	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
24	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 242	OK
25	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
26	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 243	OK
27	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
28	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 244	OK
29	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
30	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 245	OK
31	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
32	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 246	OK
33	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
34	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 247	OK
35	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK

36	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 248	OK
37	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
38	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 249	OK
39	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
40	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 250	OK
41	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
42	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 251	OK
43	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
44	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 252	OK
45	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
46	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 253	OK
47	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
48	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 254	OK
49	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
50	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 255	OK

51	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
52	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 256	OK
53	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
54	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 257	OK
55	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
56	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 258	OK
57	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
58	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 259	OK
59	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
60	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 260	OK
61	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
62	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 261	OK
63	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
64	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 262	OK
65	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK

66	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__901.584.tcl	OBS_ID ending in 263	OK
67	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
68	HIFI checks results in HK and science data	Check LCU drain voltages and multiplier currents in HK	OK
		Check FPU mixer pump level in HK	OK

Objective: Configure HIFI to standby

Step #	Action	Comments	Check
1	Select FPU, HRS, WBS, LCU HK AND		OK
2	Switch LSU simulator RF OFF		OK
3	Execute: IST_HIFI_standby_internal _source_ON__Band0.conf g__901.584__wb2.tcl		OK
4	HIFI checks results in HK and science data	Check FPU in standby (band 0), internal source state is ON	OK
		Check LCU in standby	OK

Remark: This concludes the second day of the IMT (14/09/05). The instrument is now in standby.

7.4 WBS Analysis

Remark: This is the start of the 3rd day of the HIFI IMT (15/09/05). First further analysis is done to gather more data of the WBS. This is a procedure variation.

Step #	Action	Comments	Check
1	Configure WBS [1]	Manual Stack Command: HC024289 (HIFI_Configure_WBS_H) <ul style="list-style-type: none"> • HP146193 (HWH_Laser1_S) = ON (Eng) = 49 (Raw) • HP149193 (HWH_Latchup_S) = Level1 (Eng) = 55 (Raw) • HP142193 (HWH_ATT_Band_1) = 3 	OK

		<ul style="list-style-type: none"> HP143193 (HWH_ATT_Band_2) = 3 HP144193 (HWH_ATT_Band_3) = 3 HP145193 (HWH_ATT_Band_4) = 3 HP141193 (HWH_ATT_IN) = 7 <p>HC078289 (HIFI_Signle_Cmd)</p> <ul style="list-style-type: none"> HP198197 (HIFI_cmd) = HWH_ZERO_ON (Eng) = 3825205290 (Eng) <p>HC078289 (HIFI_Signle_Cmd)</p> <ul style="list-style-type: none"> HP198197 (HIFI_cmd) = HWH_COMB_OFF (Eng) = 3825205260 (Eng) <p>HC074289 (HIFI_Spectr_Total_Power)</p>	
2	Configure WBS [2]	<p>Manual Stack Command:</p> <p>HC024289 (HIFI_Configure_WBS_H)</p> <ul style="list-style-type: none"> HP146193 (HWH_Laser1_S) = ON (Eng) = 49 (Raw) HP149193 (HWH_Latchup_S) = Level1 (Eng) = 55 (Raw) HP142193 (HWH_ATT_Band_1) = 3 HP143193 (HWH_ATT_Band_2) = 3 HP144193 (HWH_ATT_Band_3) = 3 HP145193 (HWH_ATT_Band_4) = 3 HP141193 (HWH_ATT_IN) = 12 <p>HC078289 (HIFI_Signle_Cmd)</p> <ul style="list-style-type: none"> HP198197 (HIFI_cmd) = HWH_ZERO_ON (Eng) = 3825205290 (Eng) <p>HC078289 (HIFI_Signle_Cmd)</p> <ul style="list-style-type: none"> HP198197 (HIFI_cmd) = HWH_COMB_ON (Eng) <p>HC074289 (HIFI_Spectr_Total_Power)</p>	OK
3	Configure WBS [3]	<p>Manual Stack Command:</p> <p>HC024289 (HIFI_Configure_WBS_H)</p> <ul style="list-style-type: none"> HP146193 (HWH_Laser1_S) = ON (Eng) = 49 (Raw) HP149193 (HWH_Latchup_S) = Level1 (Eng) = 55 (Raw) HP142193 (HWH_ATT_Band_1) = 3 HP143193 (HWH_ATT_Band_2) = 3 HP144193 (HWH_ATT_Band_3) = 3 HP145193 (HWH_ATT_Band_4) = 3 HP141193 (HWH_ATT_IN) = 7 <p>HC078289 (HIFI_Signle_Cmd)</p> <ul style="list-style-type: none"> HP198197 (HIFI_cmd) = HWH_ZERO_OFF (Eng) <p>HC078289 (HIFI_Signle_Cmd)</p> <ul style="list-style-type: none"> HP198197 (HIFI_cmd) = HWH_COMB_OFF (Eng) <p>HC074289 (HIFI_Spectr_Total_Power)</p>	OK

7.5 IMT 807GHz

According to Procedure(s):

- SRON-G/HIFI/PR/2005-101 (Chapter 10.4.4 & 10.4.5)

Objective: Tune LSU simulator for 807 GHz

Step #	Action	Comments	Check
1	Turn LSU simulator RF off	HIFI Task	OK
2	Disconnect LSU simulator from 3B LO chain	HIFI Task	OK
3	Connect LSU simulator to 3A LO chain	HIFI Task	OK
4	Tune LSU simulator for 807 GHz LO	HIFI Task	OK

Objective: Perform functional test pumped and set spectrometer attenuators

Step #	Action	Comments	Check
1	Select as appropriate FPU, HRS, LCU & WBS HK AND's		OK
2	Execute: IST_HIFI_SFT_Band3cold.config_wb2_H_807.tcl	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC020289, HC022289, HC023289, HC024289, HC025289)	OK
3	Switch LSU simulator RF ON		OK
4	Execute: IST_HIFI_SPT_LO_tune_Band3cold.config_807_63.tcl instead of: IST_HIFI_SPT_LO_tune_Band3cold.config_807_100.tcl	The script is replaced by a similar script for tuning purposes.	OK
5	Execute: IST_HIFI_SPT_FTpumped_Band3cold.config_wb2_H_807.tcl		OK
6	HIFI checks results in HK and science data	Check LCU band 3A selected in HK	OK
		Check LCU drain voltages and multiplier currents in HK	OK
		Compare LCU HK with previous results	OK
		Check FPU mixer pump level in HK	OK

		Verify science TM packets received	OK
--	--	------------------------------------	----

Objective: Perform functional test unpumped

Step #	Action	Comments	Check
1	Select as appropriate FPU, HRS & WBS HK AND's		OK
2	Execute: IST_WU_LCU3a_config_safe_Band3cold.config__807.tcl		OK
3	Switch LSU simulator RF OFF		OK
4	Execute: IST_HIFI_SPT_FTunpumped_Band3cold.config__wb2_H_807.tcl		OK
5	HIFI checks results in HK and science data	Check FPU HK	OK
		Verify science TM packets received	OK

Objective: Diplexer slow scan

Step #	Action	Comments	Check
1	Select as appropriate FPU, HRS, LCU & WBS HK AND's		OK
2	Switch LSU simulator RF ON		OK
3	Execute: IST_HIFI_SPT_LO_tune__Band3cold.config__807__63.tcl Instead of: IST_HIFI_SPT_LO_tune__Band3cold.config__807__100.tcl		OK
4	Execute: IST_HIFI_SPT_diplexslow__Band3cold.config__0.283__1.083__-0.82__-0.82__9__wb2__807__H.tcl	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC020289, HC022289, HC023289, HC024289, HC025289)	OK
5	HIFI checks results in HK and science data	Check LCU drain voltages and multiplier currents in HK	OK
		Check for diplexer motion	OK
		Check FPU mixer pump level OK	OK

Remark: This test was optional in the IMT procedure and is executed since sufficient time was available.

Step #	Action	Comments	Check
1	Execute: IST_HIFI_SPT_diplexslow __Band3cold.config__0.28 3__1.083__-0.82__- 0.82__9__wb2_807__H.tcl	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC020289, HC022289, HC023289, HC024289, HC025289)	OK
2	Execute: IST_WU_LCU3a_config_s afe__Band3cold.config__8 07.tcl		OK

Objective: LO standing wave test

Remark: In the following step, the tcl script is repeated > 30 times. Each time the CCS reported multiple command completion problems for the following commands:

- **HC017289**
- **HC019289**
- **HC020289**
- **HC022289**
- **HC023289**
- **HC024289**
- **HC025289**

This is a known ASSED NCR 1262

Step #	Action	Comments	Check
1	Select as appropriate FPU & LCU HK AND's		OK
extra	Execute: IST_HIFI_SPT_LO_tune__ Band3cold.config__807__6 3.tcl		OK
2	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 275	OK
3	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
4	Execute:	OBS_ID ending in 276	OK

	IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl		
5	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
6	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 277	OK
7	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
8	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 278	OK
9	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
10	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 279	OK
11	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
12	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 280	OK
13	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
14	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 281	OK
15	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
16	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 282	OK
17	LSU sim: RF off; increment frequency by 118MHz; RF on	HIFI task	OK
18	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 283	OK
19	LSU sim: RF off;	HIFI task	OK

	increment frequency by 1 MHz; RF on		
20	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 284	OK
21	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
22	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 285	OK
23	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
24	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 286	OK
25	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
26	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 287	OK
27	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
28	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 288	OK
29	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
30	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 289	OK
31	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
32	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 290	OK
33	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
34	Execute: IST_HIFI_SPT_LO_stand	OBS_ID ending in 291	OK

	wave__Band3cold.config__ wb2__H__807.tcl		
35	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
36	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 292	OK
37	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
38	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 293	OK
39	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
40	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 294	OK
41	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
42	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 295	OK
43	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
44	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 296	OK
45	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
46	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 297	OK
47	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
48	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 298	OK
49	LSU sim: RF off; increment frequency by 1	HIFI task	OK

	MHz; RF on		
50	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 299	OK
51	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
52	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 300	OK
53	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
54	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 301	OK
55	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
56	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 302	OK
57	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
58	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 303	OK
59	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
60	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 304	OK
61	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
62	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__ wb2__H__807.tcl	OBS_ID ending in 305	OK
63	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
64	Execute: IST_HIFI_SPT_LO_stand wave__Band3cold.config__	OBS_ID ending in 306	OK

	wb2_H_807.tcl		
65	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
66	Execute: IST_HIFI_SPT_LO_stand wave_Band3cold.config_ wb2_H_807.tcl	OBS_ID ending in 307	OK
67	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
68	HIFI checks results in HK and science data	Check LCU drain voltages and multiplier currents in HK	
		Check FPU mixer pump level in HK	

Remark: The instrument is now put in STANDBY mode, since no further tests are planned in the next hour.

Step #	Action	Comments	Check
1	Execute: IST_HIFI_standby_internal _source_ON_Band0.conf g_807_wb2.tcl	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC020289, HC022289, HC023289, HC024289, HC025289)	OK

Objective: EMC test dry run to check source operation and level

Step #	Action	Comments	Check
1	Select FPU & LCU HK AND		OK
extra	Execute: IST_HIFI_SFT_Band3col d.config_wb2_H_807.t cl	This script is needed since HIFI was in STANDBY mode before this step. Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC020289, HC022289, HC023289, HC024289, HC025289) Parameters HM082194 went out of limits. This parameter will be added to ASED NCR 1261.	OK
extra	Execute: IST_HIFI_standby_internal _source_ON_Band0.conf g_807_wb2.tcl	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC020289, HC022289, HC023289, HC024289, HC025289)	OK

		Parameters HM082194 went out of limits. This parameter will be added to ASED NCR 1261.	
extra	Execute: IST_HIFI_SFT_Band3cold.config_wb2_H_807.tcl	This script is needed since HIFI was in STANDBY mode before this step. Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC020289, HC022289, HC023289, HC024289, HC025289) Different from last time: Parameters HM082194 went NOT out of limits. ASED NCR 1261 will be updated.	OK
2	Execute: IST_HIFI EMC_Configure_Band3cold.config_hr_emc_H_807.tcl	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC020289, HC022289, HC023289, HC024289, HC025289)	OK
3	Execute: IST_HIFI_SPT_LO_tune_Band3cold.config_807_100.tcl		OK
4	Execute: IST_HIFI EMC_Reference_Spec_Band3cold.config_2_hr_emc.tcl	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC020289, HC023289, HC024289, HC025289)	OK
5	HIFI checks results in HK and science data	Check LCU in band 3A	OK
		Check FPU mixer pump level OK	OK
		Compare HK with previous results	OK

Objective: Stability Test

Step #	Action	Comments	Check
1	Select FPU & LCU HK AND		OK
2	Execute: IST_HIFI EMC_ON_Spec_Band3cold.config_125_hr_emc.tcl	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC024289, HC025289)	OK
extra	Execute (again): IST_HIFI EMC_ON_Spec_Band3cold.config_125_hr_emc.tcl	HIFI requested to repeat this script. Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC024289, HC025289)	OK
3	Switch EMC source RF off		OK
4	Execute: IST_HIFI EMC_ON_Spec_Band3cold.config_875_hr_emc.tcl	This step is skipped.	OK

5	HIFI checks results in HK and science data	Check FPU in standby (band 0), internal source state is ON	OK
		Check LCU in standby	OK
		Compare HK with previous results	OK

7.6 Configure to Standby – long duration

According to Procedure(s):

- SRON-G/HIFI/PR/2005-101 (Chapter 10.4.6)

Objective: Configure HIFI to standby for a period of > 1 week

Step #	Action	Comments	Check
1	Select FPU, HRS, WBS, LCU HK AND		OK
2	Switch LSU simulator RF OFF		OK
3	Execute: IST_HIFI_standby_internal_source_ON__Band0.config__807__wb2.tcl	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that the commands did not execute. (HC017289, HC019289, HC020289, HC022289, HC023289, HC024289, HC025289)	OK
3	Execute: IST_WU_WBS_standby_laser_off__Band3warm.config.tcl	This step is skipped.	OK
4	HIFI checks results in HK and science data	Check FPU in standby (band 0), internal source state is ON	OK
		Check LCU in standby	OK
		Compare HK with previous results	OK

At this point day 3 of IMT testing is stopped (15/09/05).

The following steps are not part of the IMT, but are executed to install and test the new HIFI power SCOE computer. This is the start of day 4 (16/0905).

To install the new HIFI power SCOE computer, the LCU, WEH and HRH are powered down from the CCS (INSTR_POWER_OFF.TCL). The FCU is powered down manually from the HIFI power SCOE. Only the ICU is left ON in this case.

During the INSTR_POWER_OFF.TCL (see Appendix 4), the CCS showed a TOPE CORBA error. This is a known NCR and the CCS can recover from this error quite easily (restarting the EXIF_TM1 module). After restarting the EXIF_TM1 module, the script is repeated and the problem did not occur anymore. (HP-141210-ASED-NC-1440)

During the power down of HIFI, multiple hard out-of-limits were detected on the CCS (HM003194, HM196191 to HM233191 etc). These limits could be avoided if the the following script would be run before power down IST_HIFI_notify_PDU_status_off.tcl. This is normally done, but was forgotten this time. This does not endanger the instrument, the limits are caused by the fact that the ICU is still polling for HK from the FCU, while the FCU is off.

Step #	Action	Comments	Check
1	Select LCU_status AND	Verify LCU is in standby mode. Do not continue if this is not so! Result: Check and OK	OK
2	Switch off power to LCU	Check voltage and current go to zero.	OK
3	Switch off power to WEH	Check voltage and current go to zero.	OK
4	Switch off power to HRH	Check voltage and current go to zero.	OK
		Normally at this point, the ICU would be powered down. This is not done at the moment since after changing the HIFI power SCOE computer, this computer will be tested and for this the ICU should be on.	OK
5	Switch off power to FCU manually (executed by HIFI)	Check voltage and current go to zero.	OK
6	HIFI replaces the HIFI power SCOE		OK

After this step HIFI personnel showed how to use the FCU power scoe. The FCU is switched off in this step.

8 Step by Step Procedure: Switch Off Instruments

8.1 Switch Off HIFI

According to Procedure(s):

- HP-2-ASED-PR-0035 (Chapter 3: Order of Execution – Step 12)
- SRON-G/HIFI/PR/2005-101 chapter 2.4.3

Step #	Action	Comments	Check
1	Select LCU_status AND	Verify LCU is in standby mode. Do not continue if this is not so!	N/A
2	Switch off power to LCU	Check voltage and current go to zero.	N/A
3	Switch off power to WEH	Check voltage and current go to zero.	N/A
4	Switch off power to HRH	Check voltage and current go to zero.	N/A
5	Switch off power to ICU	Check voltage and current go to zero.	OK
6	Switch off power to FCU manually (executed by HIFI)	Check voltage and current go to zero.	OK

8.2 Switch Off SPIRE

According to Procedure(s):

- HP-2-ASED-PR-0035 (Chapter 3: Order of Execution – Step 10)
- SPIRE-RAL-PRC-002494 (Issue 1.1 Appendix 2 – 09/09/05)

8.2.1 SFT-SPIRE-CCS-FUNC-THO

Purpose: Switch off SCU DC and AC thermometry – if necessary

Step #	Action	Comments	Check								
1	Execute TCL script SFT-SPIRE-CCS-FUNC-THO.tcl		OK								
2	A few seconds later record the value of parameter SCUTEMPSTAT	Check if the following parameters change value:									
		<table border="1"> <thead> <tr> <th>Parameter</th> <th>Start</th> <th>During</th> <th>End</th> </tr> </thead> <tbody> <tr> <td>SCUTEMPSTAT</td> <td>FFFF</td> <td>-</td> <td>0</td> </tr> </tbody> </table>	Parameter	Start	During	End	SCUTEMPSTAT	FFFF	-	0	OK
		Parameter	Start	During	End						
SCUTEMPSTAT	FFFF	-	0								
3	A few seconds later record the value of parameter SUBKSTAT	Check if the following parameters change value:									
		<table border="1"> <thead> <tr> <th>Parameter</th> <th>Start</th> <th>During</th> <th>End</th> </tr> </thead> <tbody> <tr> <td>SUBKSTAT</td> <td>1</td> <td>-</td> <td>0</td> </tr> </tbody> </table>	Parameter	Start	During	End	SUBKSTAT	1	-	0	OK
		Parameter	Start	During	End						
SUBKSTAT	1	-	0								
4	Note down the value of the MODE parameter on the DPU AND OBS PARAMETERS Display	Check if the following parameters change value:									
		<table border="1"> <thead> <tr> <th>Parameter</th> <th>Start</th> <th>During</th> <th>End</th> </tr> </thead> <tbody> <tr> <td>MODE</td> <td>REDY</td> <td>-</td> <td>ON</td> </tr> </tbody> </table>	Parameter	Start	During	End	MODE	REDY	-	ON	OK
		Parameter	Start	During	End						
MODE	REDY	-	ON								

8.2.2 SFT-SPIRE-CCS-DRCU-OFF**Purpose: Switch off the DRCU**

Step #	Action	Comments	Check
1	Execute TCL script SFT-SPIRE-CCS-DRCU-ON-STEP1.tcl		OK
2	Check that THSK parameter is not refreshing anymore		OK
3	Check that TM2N parameter is not incrementing anymore		OK
4	Manual Switch off of the DRCU by the I-EGSE staff: <ul style="list-style-type: none"> • Switch off all 5 remote DCU switches in ANY order (see Figure 4) • Switch off secondary power to the SPIRE Power Bench (see Figure 5) • Switch off primary power to the SPIRE Power Bench (see Figure 2) 		OK

8.2.3 SFT-SPIRE-CCS-DPU-OFF**Purpose: Switch off the DPU**

Step #	Action	Comments	Check
1	Request the CCS staff to power off the SPIRE DPU using the CCS 28V Power Supply	This action is performed from INST_POWER_OFF.tcl (see Appendix 5)	OK

8.3 Switch Off PACS

According to Procedure(s):

- HP-2-ASED-PR-0035 (Chapter 3: Order of Execution – Step 10)
- PACS-ME-TP-026 (Issue 1.0 – 29/08/05)

Step #	Action	Comments	Check
1	Execute: PACS_POWER_OFF_N onPrime.tcl (see Appendix 6)	PACS is sending no TM packets anymore	OK
		28 V power is off	OK

9 Step by Step Procedure: Set EGSE to OFFLINE

According to Procedure(s):

- HP-2-ASED-PR-0035 (Chapter 3: Order of Execution – Step 13 to 15)

Step #	Action	Comments	Check
1	Execute: "WARNING_LAMP_POWER_OFF.tcl"	Warning lamp is broken.	N/A
2	Execute: "EGSE_OFFLINE_AUTO.tcl" The log of this script can be found in Appendix 7.	Check: PLM SCOE HK packets stopped	OK
		Check: CDMU DFE HK packets stopped	OK
3	Shut down PLM EGSE		OK

10 Summary Sheets

10.1 Procedure Variation Summary

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



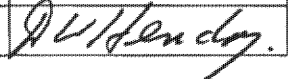
Table 10.1-1: Procedure Variation Sheet

10.2 Non Conformance Report (NCR) Summary

NCR - No.	NCR - Title	Date	Open Closed	PA sig.
Modified HIFI NCR's				
HP-111000-ASED-NC-1261	Not all limit values in MIB are correctly set	14/07/05	Open	
HP-111000-ASED-NC-1262	HIFI command completion confirmation not received	14/07/05	Open	
HP-111000-ASED-NC-1455	HIFI FCU power scoe computer not responding	16/07/05	Open	
New SPIRE NCR's				
NCR: HP-112000-ASED-NC-1471	TC's send too fast in Power On to STANDBY procedure	15/09/2005	Open	

Table 10.2-1: Non-Conformance Record Sheet

10.3 Sign-off Sheet

	Name	Date	Signature
Test Manager	S. ILLER	16.09.05	
Operator	S. ILSÉN	16.09.05	
PA Responsible	D. HENDRY	16/9/05.	

Appendix 1: HIFI Nominal Bus Profile (HIFI_prime_inst.PST)

```
;Nominal HERSCHEL bus profile
;CCU A is RT 7:
;CCU B is RT 8:
;HIFI is RT 16: 27TM, 2TC
;SPIRE is RT 21: 2TM, 1TC
;PACS is RT 25: 2TM, 1TC

[Config]
NumberOfSubFrames=64

[SubFrame1]
1=RTaccessSA

[SubFrame2]
1=RTaccessSA

[SubFrame3]
1=RTaccessSA

[SubFrame4]
1=TMpoll,21 ;TM poll from: SPIRE
2=RTaccessSA

[SubFrame5]
1=TMpacket,21 ;TM packet from: SPIRE
2=TMpoll,25 ;TM poll from: PACS
3=RTaccessSA

[SubFrame6]
1=TMpacket,25 ;TM packet from: PACS
2=TMpoll,16 ;TM poll from: HIFI
3=RTaccessSA

[SubFrame7]
1=TMpacket,16 ;TM packet from: HIFI
2=TMpoll,21 ;TM poll from: SPIRE
3=RTaccessSA

[SubFrame8]
1=TMpacket,21 ;TM packet from: SPIRE
2=TMpoll,25 ;TM poll from: PACS
3=RTaccessSA

[SubFrame9]
1=TMpacket,25 ;TM packet from: PACS
2=TMpoll,16 ;TM poll from: HIFI
3=RTaccessSA

[SubFrame10]
;1=RTreadSA,7,0 ;RT status from: CCU A
1=TMpacket,16 ;TM packet from: HIFI

[SubFrame11]
;1=RTreadSA,8,0 ;RT status from: CCU B
1=TMpoll,16 ;TM poll from: HIFI

[SubFrame12]
;1=RTreadSA,7,1 ;RT status from: CCU A
1=TMpacket,16 ;TM packet from: HIFI

[SubFrame13]
;1=RTreadSA,8,1 ;RT status from: CCU B
1=TMpoll,16 ;TM poll from: HIFI

[SubFrame14]
;1=RTreadSA,7,8 ;RT status from: CCU A
1=TMpacket,16 ;TM packet from: HIFI
```

```
[SubFrame15]
;1=RTreadSA,8,8 ;RT status from: CCU B
1=TMpoll,16 ;TM poll from: HIFI

[SubFrame16]
;1=RTreadSA,7,11 ;RT status from: CCU A
1=TMpacket,16 ;TM packet from: HIFI

[SubFrame17]
;1=RTreadSA,8,11 ;RT status from: CCU B
1=TCpacket ;TC packet to: HIFI

[SubFrame18]
1=TCpacket ;TC packet to: SPIRE
2=TMpoll,16 ;TM poll from: HIFI
3=RTaccessSA

[SubFrame19]
;1=RTreadSA,7,12 ;RT status from: CCU A
1=TMpacket,16 ;TM packet from: HIFI

[SubFrame20]
;1=RTreadSA,8,12 ;RT status from: CCU B
1=TMpoll,16 ;TM poll from: HIFI

[SubFrame21]
;1=RTreadSA,7,13 ;RT status from: CCU A
1=TMpacket,16 ;TM packet from: HIFI

[SubFrame22]
;1=RTreadSA,8,13 ;RT status from: CCU B
1=TMpoll,16 ;TM poll from: HIFI

[SubFrame23]
;1=RTreadSA,7,16 ;RT status from: CCU A
1=TMpacket,16 ;TM packet from: HIFI

[SubFrame24]
;1=RTreadSA,8,16 ;RT status from: CCU B
1=TMpoll,16 ;TM poll from: HIFI

[SubFrame25]
;1=RTreadSA,7,30 ;RT status from: CCU A
1=TMpacket,16 ;TM packet from: HIFI

[SubFrame26]
;1=RTreadSA,8,30 ;RT status from: CCU B
1=TMpoll,16 ;TM poll from: HIFI

[SubFrame27]
1=TMpacket,16 ;TM packet from: HIFI
2=TMpoll,21 ;TM poll from: SPIRE
3=RTaccessSA

[SubFrame28]
1=TMpacket,21 ;TM packet from: SPIRE
2=TMpoll,16 ;TM poll from: HIFI
3=RTaccessSA

[SubFrame29]
;1=RTreadSA,7,31 ;RT status from: CCU A
1=TMpacket,16 ;TM packet from: HIFI

[SubFrame30]
;1=RTreadSA,8,31 ;RT status from: CCU B
1=TMpoll,16 ;TM poll from: HIFI

[SubFrame31]
1=TMpacket,16 ;TM packet from: HIFI
2=TMpoll,25 ;TM poll from: PACS
```

3=RTaccessSA

[SubFrame32]
1=TMpacket,25 ;TM packet from: PACS
2=RTaccessSA

[SubFrame33]
1=TimeSync ;Time distribution broadcast
2=TCpacket ;TC packet to: HIFI
3=TMPoll,16 ;TM poll from: HIFI
4=RTaccessSA

[SubFrame34]
1=TMpacket,16 ;TM packet from: HIFI
2=RTaccessSA

[SubFrame35]
1=TMPoll,16 ;TM poll from: HIFI
2=RTaccessSA

[SubFrame36]
1=TMpacket,16 ;TM packet from: HIFI
2=RTaccessSA

[SubFrame37]
1=TMPoll,16 ;TM poll from: HIFI
2=RTaccessSA

[SubFrame38]
1=TMpacket,16 ;TM packet from: HIFI
2=RTaccessSA

[SubFrame39]
1=TMPoll,16 ;TM poll from: HIFI
2=RTaccessSA

[SubFrame40]
1=TMpacket,16 ;TM packet from: HIFI
2=RTaccessSA

[SubFrame41]
1=TMPoll,16 ;TM poll from: HIFI
2=RTaccessSA

[SubFrame42]
1=TMpacket,16 ;TM packet from: HIFI
2=RTaccessSA

[SubFrame43]
1=TMPoll,16 ;TM poll from: HIFI
2=RTaccessSA

[SubFrame44]
1=TMpacket,16 ;TM packet from: HIFI
2=RTaccessSA

[SubFrame45]
1=TMPoll,16 ;TM poll from: HIFI
2=RTaccessSA

[SubFrame46]
1=TMpacket,16 ;TM packet from: HIFI
2=RTaccessSA

[SubFrame47]
1=TMPoll,16 ;TM poll from: HIFI
2=RTaccessSA

[SubFrame48]
1=TMpacket,16 ;TM packet from: HIFI
2=RTaccessSA

```
[SubFrame49]
1=TCpacket ;TC packet to: PACS
2=TMpoll,16 ;TM poll from: HIFI
3=RTaccessSA

[SubFrame50]
1=TMpacket,16 ;TM packet from: HIFI
2=RTaccessSA

[SubFrame51]
1=TMpoll,16 ;TM poll from: HIFI
2=RTaccessSA

[SubFrame52]
1=TMpacket,16 ;TM packet from: HIFI
2=RTaccessSA

[SubFrame53]
1=TMpoll,16 ;TM poll from: HIFI
2=RTaccessSA

[SubFrame54]
1=TMpacket,16 ;TM packet from: HIFI
2=RTaccessSA

[SubFrame55]
1=TMpoll,16 ;TM poll from: HIFI
2=RTaccessSA

[SubFrame56]
1=TMpacket,16 ;TM packet from: HIFI
2=RTaccessSA

[SubFrame57]
1=TMpoll,16 ;TM poll from: HIFI
2=RTaccessSA

[SubFrame58]
1=TMpacket,16 ;TM packet from: HIFI
2=RTaccessSA

[SubFrame59]
1=TMpoll,16 ;TM poll from: HIFI
2=RTaccessSA

[SubFrame60]
1=TMpacket,16 ;TM packet from: HIFI
2=RTaccessSA

[SubFrame61]
1=RTreadSA,16,1 ;RT status from: HIFI
2=TMpoll,16 ;TM poll from: HIFI

[SubFrame62]
1=RTreadSA,21,1 ;RT status from: SPIRE
2=TMpacket,16 ;TM packet from: HIFI

[SubFrame63]
1=RTreadSA,25,1 ;RT status from: PACS
```

Appendix 2: Log of PACS_POWER_ON_NonPrime_GUI.tcl (Used for PACS power on)

```
2005.256.07.46.53.622201
*****
2005.256.07.46.53.623116 Start of PACS POWER ON sequence.
*****
2005.256.07.46.53.623432
2005.256.07.46.53.623660 To run this script, the CDMU DFE and PLM SCOE should be
2005.256.07.46.53.623892 powered and configured.
2005.256.07.46.53.624116 To initiate, this script will connect and attach to the CDMU DFE
2005.256.07.46.53.624361 and PLM SCOE.
2005.256.07.46.53.624579
2005.256.07.46.53.624801 >>> Connecting to CDMU DFE.
2005.256.07.46.56.629470 >>> Attaching to CDMU DFE.
2005.256.07.46.59.636318
2005.256.07.46.59.636674 >>> Connecting to PLM SCOE.
2005.256.07.47.02.639273 >>> Attaching to PLM SCOE.
2005.256.07.47.05.641825
2005.256.07.47.05.642189 >>> Reading out CDMU DFE Settings
2005.256.07.47.05.642602
2005.256.07.47.05.904978 Status_CDMU_OnLine is 1 (extracted from TLM YM777944)
2005.256.07.47.05.908079 Status_CDMU_TMPolling is 1 (extracted from TLM YM780944)
2005.256.07.47.05.910776 Status_CDMU_SAReadActive is 1 (extracted from TLM YM781944)
2005.256.07.47.05.913583 Status_CDMU_SAQueueActive is 1 (extracted from TLM YM782944)
2005.256.07.47.06.120877 Status_CDMU_TMQueueActive is 1 (extracted from TLM YM783944)
2005.256.07.47.06.124035 Status_CDMU_TCQueueActive is 1 (extracted from TLM YM784944)
2005.256.07.47.06.126348 Status_CDMU_PSTfileName is HIFI_prime_inst... (extracted from TLM
YM809944)
2005.256.07.47.06.129230 Status_CDMU_PSTRunning is 1 (extracted from TLM YM829944)
2005.256.07.47.06.130099
2005.256.07.47.06.130889 >>> Reading out PLM SCOE Settings
2005.256.07.47.06.131554
2005.256.07.47.06.504189 Status_PLM_OnLine is 1 (extracted from TLM YM018942)
2005.256.07.47.06.558514 Status_PLM_PSU1_Master is currently 1 (extracted from TLM YM129942)
2005.256.07.47.06.561394 Status_PLM_PSU1_Slave is currently 1 (extracted from TLM YM145942)
2005.256.07.47.06.564174 Status_PLM_PSU2_Master is currently 1 (extracted from TLM YM177942)
2005.256.07.47.06.567024 Status_PLM_PSU2_Slave is currently 1 (extracted from TLM YM193942)
2005.256.07.47.06.812895 Status_PLM_LCL1_V is currently 0.00697093131021 (extracted from TLM
YM228942)
2005.256.07.47.06.817687 Status_PLM_LCL1_I is currently 0.000917372351978 (extracted from TLM
YM232942)
2005.256.07.47.06.822994 Status_PLM_LCL2_V is currently 0.0650620236993 (extracted from TLM
YM244942)
2005.256.07.47.06.827272 Status_PLM_LCL2_I is currently 0.00607919460163 (extracted from TLM
YM248942)
2005.256.07.47.07.072257 Status_PLM_LCL3_V is currently 27.9418182373 (extracted from TLM
YM260942)
2005.256.07.47.07.127252 Status_PLM_LCL3_I is currently 0.484815746546 (extracted from TLM
YM264942)
2005.256.07.47.07.132102 Status_PLM_LCL4_V is currently 27.9418182373 (extracted from TLM
YM276942)
2005.256.07.47.07.136006 Status_PLM_LCL4_I is currently 0.700627148151 (extracted from TLM
YM280942)
2005.256.07.47.07.141013 Status_PLM_LCL5_V is currently 27.9394931793 (extracted from TLM
YM292942)
2005.256.07.47.07.386549 Status_PLM_LCL5_I is currently 0.957473099232 (extracted from TLM
YM296942)
2005.256.07.47.07.442427 Status_PLM_LCL6_V is currently 0.079003892839 (extracted from TLM
YM308942)
2005.256.07.47.07.446372 Status_PLM_LCL6_I is currently 0.00379949645139 (extracted from TLM
YM312942)
2005.256.07.47.07.451837 Status_PLM_LCL7_V is currently 27.7187461853 (extracted from TLM
YM324942)
2005.256.07.47.07.699216 Status_PLM_LCL7_I is currently 2.6049349308 (extracted from TLM
YM328942)
2005.256.07.47.07.704360 Status_PLM_LCL8_V is currently 0.00929457508028 (extracted from TLM
YM340942)
```



```
2005.256.07.47.07.708208 Status_PLM_LCL8_I is currently 0.00405279640108 (extracted from TLM
YM344942)
2005.256.07.47.07.713072 Status_PLM_LCL9_V is currently 0.00697093131021 (extracted from TLM
YM356942)
2005.256.07.47.07.958657 Status_PLM_LCL9_I is currently 0.00253299763426 (extracted from TLM
YM360942)
2005.256.07.47.07.963749 Status_PLM_LCL10_V is currently 0.00929457508028 (extracted from TLM
YM372942)
2005.256.07.47.07.967528 Status_PLM_LCL10_I is currently 0.00278629735112 (extracted from TLM
YM376942)
2005.256.07.47.07.972710 Status_PLM_LCL11_V is currently 0.00929457508028 (extracted from TLM
YM388942)
2005.256.07.47.08.276136 Status_PLM_LCL11_I is currently 0.00354619673453 (extracted from TLM
YM392942)
2005.256.07.47.08.281429 Status_PLM_LCL12_V is currently 0.00697093131021 (extracted from TLM
YM404942)
2005.256.07.47.08.285375 Status_PLM_LCL12_I is currently 0.0116517897695 (extracted from TLM
YM408942)
2005.256.07.47.08.290867 Status_PLM_LCL13_V is currently 0.0185891501606 (extracted from TLM
YM420942)
2005.256.07.47.08.536789 Status_PLM_LCL13_I is currently 0.00151979865041 (extracted from TLM
YM424942)
2005.256.07.47.08.593675 Status_PLM_LCL14_V is currently 0.090622112155 (extracted from TLM
YM436942)
2005.256.07.47.08.597874 Status_PLM_LCL14_I is currently 0.00430609611794 (extracted from TLM
YM440942)
2005.256.07.47.08.598650
2005.256.07.47.08.599274 >>> Switch ON PSU(s)
2005.256.07.47.08.599911
2005.256.07.47.08.694118 >>> Sending Telecommand YC036942
2005.256.07.47.08.694487
2005.256.07.47.08.695123 >>> Checking
2005.256.07.47.14.800728 PSU 2 Master status is currently 1 (from YM177942)
2005.256.07.47.14.801121 PSU 2 Slave status is currently 1 (from YM193942)
2005.256.07.47.14.801790
2005.256.07.47.14.802412 >>> Switch ON DPU
2005.256.07.47.14.803110
2005.256.07.47.14.904911 >>> Sending Telecommand YC040942 to Enable Limiter 13 -> PACS DPU
2005.256.07.47.14.905291
2005.256.07.47.14.974313 >>> Sending Telecommand YC043942 to Set Limiter 13 -> PACS DPU
2005.256.07.47.14.974727
2005.256.07.47.14.975348 >>> Checking
2005.256.07.47.21.112984 LCL 13 has currently a voltage of 27.9511127472.(from YM420942)
2005.256.07.47.21.113393 LCL 13 has currently a current of 0.480256348848.(from YM424942)
2005.256.07.47.21.114035
2005.256.07.47.38.121603 Force Boot DPU
2005.256.07.47.39.224216 ***** USER INFORMATION *****
2005.256.07.47.39.224665 User Info>: Please check if the force boot has been executed
correctly and press OK.
2005.256.07.47.39.225349 *****
2005.256.07.48.59.667458
2005.256.07.48.59.667802
2005.256.07.48.59.668414 >>> Switch ON DEC/MEC
2005.256.07.48.59.669009
2005.256.07.48.59.732455 >>> Sending Telecommand YC040942 to Enable Limiter 12 -> PACS DEC/MEC
2005.256.07.48.59.732833
2005.256.07.48.59.799458 >>> Sending Telecommand YC043942 to Set Limiter 12 -> PACS DEC/MEC
2005.256.07.48.59.799900
2005.256.07.48.59.800493 >>> Checking
2005.256.07.49.05.805154 LCL 12 has currently a voltage of 27.909286499.(from YM404942)
2005.256.07.49.05.805553 LCL 12 has currently a current of 0.550673723221.(from YM408942)
2005.256.07.49.05.806156
2005.256.07.49.25.815273 DPU reset of 1355
2005.256.07.49.27.916211 Establish DPU --> DMC connection (DPU-START-OBCP, n=19)
2005.256.07.49.31.948156 Copy DMC SW from EEPROM to RAM
2005.256.07.49.33.986524 DMC_LLSW_LOAD_EEPROM
2005.256.07.49.36.058092 Start DMC HLSW
2005.256.07.49.47.128799 DPU starts link with DMC with DPU as slave
2005.256.07.49.50.237143
2005.256.07.49.50.237577
2005.256.07.49.50.238167 >>> Switch ON BOLC
```

```
2005.256.07.49.50.238737
2005.256.07.49.50.300953 >>> Sending Telecommand YC040942 to Enable Limiter 11 -> PACS BOLC
2005.256.07.49.50.301330
2005.256.07.49.50.406316 >>> Sending Telecommand YC043942 to Set Limiter 11 -> PACS BOLC
2005.256.07.49.50.406691
2005.256.07.49.50.407264 >>> Checking
2005.256.07.49.56.409952 LCL 11 has currently a voltage of 27.967376709.(from YM388942)
2005.256.07.49.56.410345 LCL 11 has currently a current of 0.044580757618.(from YM392942)
2005.256.07.49.56.410936
2005.256.07.50.11.419709 DMC_RESET_SMCS_CHIP_2
2005.256.07.50.15.557062 Execute BOLC initialisation including frequency setting
2005.256.07.50.22.802898 set image frequency to 20 Hz
2005.256.07.50.23.902032
2005.256.07.50.23.902396
2005.256.07.50.23.902963 >>> Switch ON SPU
2005.256.07.50.23.903539
2005.256.07.50.23.934524 >>> Sending Telecommand YC040942 to Enable Limiter 14 -> PACS SPU
2005.256.07.50.23.934975
2005.256.07.50.24.040063 >>> Sending Telecommand YC043942 to Set Limiter 14 -> PACS SPU
2005.256.07.50.24.040486
2005.256.07.50.24.041048 >>> Checking
2005.256.07.50.30.043705 LCL 14 has currently a voltage of 28.0463829041.(from YM436942)
2005.256.07.50.30.044098 LCL 14 has currently a current of 0.447327405214.(from YM440942)
2005.256.07.50.30.044726
2005.256.07.50.50.053717 DPU reset of 1355
2005.256.07.50.54.157855 DPU starts link with DMC with DPU as slave
2005.256.07.51.04.297184 DPU starts link with (blue) SPUS with DPU as master
2005.256.07.51.08.438426 DPU starts link with (red) SPUL with DPU as master
2005.256.07.51.12.540619 LOAD SPU RED HLSW FROM EEPROM TO RAM
2005.256.07.51.18.716456 LOAD SPU BLUE HLSW FROM EEPROM TO RAM
2005.256.07.51.26.926607 Start SPUS HLSW
2005.256.07.51.29.997892 DPU starts link with (blue) SPUS with DPU as slave
2005.256.07.51.34.064911 Start SPUL HLSW
2005.256.07.51.37.138227 DPU starts link with (red) SPUL with DPU as slave
2005.256.07.51.42.204890 Establish connection SPUL-DMC, DMC as master
2005.256.07.51.43.278660 Establish connection SPUS-DMC, DMC as master
2005.256.07.51.45.316424 Establish connection DMC-SPURS DMC Master
2005.256.07.51.46.418351 Establish connection DMC-SPURL DMC Master
2005.256.07.51.49.591159 FPU T-sensors are activated
2005.256.07.51.49.591535
2005.256.07.51.49.592109
2005.256.07.51.49.592678 >>> Reading out CDMUDFE Settings
2005.256.07.51.49.593248
2005.256.07.51.49.594465 Status_CDMU_OnLine is 1 (extracted from TLM YM777944)
2005.256.07.51.49.595726 Status_CDMU_Tmpolling is 1 (extracted from TLM YM780944)
2005.256.07.51.49.596953 Status_CDMU_SAReadActive is 1 (extracted from TLM YM781944)
2005.256.07.51.49.598188 Status_CDMU_SAqueueActive is 1 (extracted from TLM YM782944)
2005.256.07.51.49.599484 Status_CDMU_TMqueueActive is 1 (extracted from TLM YM783944)
2005.256.07.51.49.600734 Status_CDMU_TCqueueActive is 1 (extracted from TLM YM784944)
2005.256.07.51.49.602014 Status_CDMU_PSTfileName is HIFI_prime_inst... (extracted from TLM
YM809944)
2005.256.07.51.49.603282 Status_CDMU_PSTrunning is 1 (extracted from TLM YM829944)
2005.256.07.51.49.603934
2005.256.07.51.49.604510 >>> Reading out PLM SCOE Settings
2005.256.07.51.49.605095
2005.256.07.51.49.606309 Status_PLM_OnLine is 1 (extracted from TLM YM018942)
2005.256.07.51.49.607592 Status_PLM_PSU1_Master is currently 1 (extracted from TLM YM129942)
2005.256.07.51.49.608829 Status_PLM_PSU1_Slave is currently 1 (extracted from TLM YM145942)
2005.256.07.51.49.610074 Status_PLM_PSU2_Master is currently 1 (extracted from TLM YM177942)
2005.256.07.51.49.611352 Status_PLM_PSU2_Slave is currently 1 (extracted from TLM YM193942)
2005.256.07.51.49.612620 Status_PLM_LCL1_V is currently 0.00697093131021 (extracted from TLM
YM228942)
2005.256.07.51.49.613899 Status_PLM_LCL1_I is currently 0.000917372351978 (extracted from TLM
YM232942)
2005.256.07.51.49.615252 Status_PLM_LCL2_V is currently 0.0650620236993 (extracted from TLM
YM244942)
2005.256.07.51.49.616574 Status_PLM_LCL2_I is currently 0.00557259470224 (extracted from TLM
YM248942)
2005.256.07.51.49.617857 Status_PLM_LCL3_V is currently 27.9418182373 (extracted from TLM
YM260942)
```

2005.256.07.51.49.619175 Status_PLM_LCL3_I is currently 0.485828965902 (extracted from TLM YM264942)
2005.256.07.51.49.620464 Status_PLM_LCL4_V is currently 27.9418182373 (extracted from TLM YM276942)
2005.256.07.51.49.621757 Status_PLM_LCL4_I is currently 0.702146947384 (extracted from TLM YM280942)
2005.256.07.51.49.623162 Status_PLM_LCL5_V is currently 27.9418182373 (extracted from TLM YM292942)
2005.256.07.51.49.624653 Status_PLM_LCL5_I is currently 0.957473099232 (extracted from TLM YM296942)
2005.256.07.51.49.626008 Status_PLM_LCL6_V is currently 0.0766802430153 (extracted from TLM YM308942)
2005.256.07.51.49.627324 Status_PLM_LCL6_I is currently 0.00379949645139 (extracted from TLM YM312942)
2005.256.07.51.49.628616 Status_PLM_LCL7_V is currently 27.7187461853 (extracted from TLM YM324942)
2005.256.07.51.49.629934 Status_PLM_LCL7_I is currently 2.60544157028 (extracted from TLM YM328942)
2005.256.07.51.49.631335 Status_PLM_LCL8_V is currently 0.00929457508028 (extracted from TLM YM340942)
2005.256.07.51.49.632718 Status_PLM_LCL8_I is currently 0.0045593958348 (extracted from TLM YM344942)
2005.256.07.51.49.634079 Status_PLM_LCL9_V is currently 0.00697093131021 (extracted from TLM YM356942)
2005.256.07.51.49.635402 Status_PLM_LCL9_I is currently 0.00253299763426 (extracted from TLM YM360942)
2005.256.07.51.49.636719 Status_PLM_LCL10_V is currently 0.00929457508028 (extracted from TLM YM372942)
2005.256.07.51.49.638038 Status_PLM_LCL10_I is currently 0.00278629735112 (extracted from TLM YM376942)
2005.256.07.51.49.639347 Status_PLM_LCL11_V is currently 27.967376709 (extracted from TLM YM388942)
2005.256.07.51.49.640726 Status_PLM_LCL11_I is currently 0.044580757618 (extracted from TLM YM392942)
2005.256.07.51.49.642038 Status_PLM_LCL12_V is currently 27.8906974792 (extracted from TLM YM404942)
2005.256.07.51.49.643348 Status_PLM_LCL12_I is currently 0.747740924358 (extracted from TLM YM408942)
2005.256.07.51.49.644690 Status_PLM_LCL13_V is currently 27.9557590485 (extracted from TLM YM420942)
2005.256.07.51.49.646032 Status_PLM_LCL13_I is currently 0.436688810587 (extracted from TLM YM424942)
2005.256.07.51.49.647353 Status_PLM_LCL14_V is currently 28.0208206177 (extracted from TLM YM436942)
2005.256.07.51.49.648670 Status_PLM_LCL14_I is currently 0.749260723591 (extracted from TLM YM440942)
2005.256.07.51.49.649380
2005.256.07.51.49.650043

2005.256.07.51.49.651057 PACS Power On Sequence has ended

2005.256.07.51.49.651786

Appendix 6: Log of PACS_POWER_OFF_NonPrime_GUI.tcl (used for PACS power down)

```

2005.259.12.16.00.990263
*****
2005.259.12.16.00.991559 Start of PACS POWER ON sequence.
*****
2005.259.12.16.00.991876
2005.259.12.16.00.992102 To run this script, the CDMU DFE and PLM SCOE should be
2005.259.12.16.00.992336 powered and configured.
2005.259.12.16.00.992561 To initiate, this script will connect and attach to the CDMUDFE
2005.259.12.16.00.992792 and PLM SCOE.
2005.259.12.16.00.993017
2005.259.12.16.00.993244 >>> Connecting to CDMU DFE.
2005.259.12.16.03.997206 >>> Attaching to CDMU DFE.
2005.259.12.16.07.004009
2005.259.12.16.07.004372 >>> Connecting to PLM SCOE.
2005.259.12.16.10.006965 >>> Attaching to PLM SCOE.
2005.259.12.16.13.009912
2005.259.12.16.13.010270 >>> Reading out CDMUDFE Settings
2005.259.12.16.13.010680
2005.259.12.16.13.105058 Status_CDMU_OnLine is 1 (extracted from TLM YM777944)
2005.259.12.16.13.108605 Status_CDMU_TMpolling is 1 (extracted from TLM YM780944)
2005.259.12.16.13.110244 Status_CDMU_SAreadActive is 1 (extracted from TLM YM781944)
2005.259.12.16.13.111846 Status_CDMU_SAQueueActive is 1 (extracted from TLM YM782944)
2005.259.12.16.13.113759 Status_CDMU_TMqueueActive is 1 (extracted from TLM YM783944)
2005.259.12.16.13.116091 Status_CDMU_TCQueueActive is 1 (extracted from TLM YM784944)
2005.259.12.16.13.117678 Status_CDMU_PSTfileName is HIFI_prime_inst... (extracted from TLM
YM809944)
2005.259.12.16.13.119317 Status_CDMU_PSTrunning is 1 (extracted from TLM YM829944)
2005.259.12.16.13.119848
2005.259.12.16.13.120326 >>> Reading out PLM SCOE Settings
2005.259.12.16.13.120846
2005.259.12.16.13.251628 Status_PLM_OnLine is 1 (extracted from TLM YM018942)
2005.259.12.16.13.253425 Status_PLM_PSU1_Master is currently 1 (extracted from TLM YM129942)
2005.259.12.16.13.255182 Status_PLM_PSU1_Slave is currently 1 (extracted from TLM YM145942)
2005.259.12.16.13.256901 Status_PLM_PSU2_Master is currently 1 (extracted from TLM YM177942)
2005.259.12.16.13.258609 Status_PLM_PSU2_Slave is currently 1 (extracted from TLM YM193942)
2005.259.12.16.13.261622 Status_PLM_LCL1_V is currently 0.00697093131021 (extracted from TLM
YM228942)
2005.259.12.16.13.264201 Status_PLM_LCL1_I is currently 0.00101930263918 (extracted from TLM
YM232942)
2005.259.12.16.13.267162 Status_PLM_LCL2_V is currently 0.0673856735229 (extracted from TLM
YM244942)
2005.259.12.16.13.269893 Status_PLM_LCL2_I is currently 0.00607919460163 (extracted from TLM
YM248942)
2005.259.12.16.13.273008 Status_PLM_LCL3_V is currently 0.00929457508028 (extracted from TLM
YM260942)
2005.259.12.16.13.275608 Status_PLM_LCL3_I is currently 0.00709239346907 (extracted from TLM
YM264942)
2005.259.12.16.13.278659 Status_PLM_LCL4_V is currently 0.034854657948 (extracted from TLM
YM276942)
2005.259.12.16.13.281355 Status_PLM_LCL4_I is currently 0.00607919460163 (extracted from TLM
YM280942)
2005.259.12.16.13.284396 Status_PLM_LCL5_V is currently 0.0325310118496 (extracted from TLM
YM292942)
2005.259.12.16.13.287057 Status_PLM_LCL5_I is currently 0.000759899325203 (extracted from TLM
YM296942)
2005.259.12.16.13.290147 Status_PLM_LCL6_V is currently 0.0766802430153 (extracted from TLM
YM308942)
2005.259.12.16.13.292843 Status_PLM_LCL6_I is currently 0.00379949645139 (extracted from TLM
YM312942)
2005.259.12.16.13.296026 Status_PLM_LCL7_V is currently 0.034854657948 (extracted from TLM
YM324942)
2005.259.12.16.13.300172 Status_PLM_LCL7_I is currently 0.00506599526852 (extracted from TLM
YM328942)
2005.259.12.16.13.303732 Status_PLM_LCL8_V is currently 0.00929457508028 (extracted from TLM
YM340942)

```


2005.259.12.16.13.306884 Status_PLM_LCL8_I is currently 0.0045593958348 (extracted from TLM YM344942)
2005.259.12.16.13.310407 Status_PLM_LCL9_V is currently 0.00697093131021 (extracted from TLM YM356942)
2005.259.12.16.13.313371 Status_PLM_LCL9_I is currently 0.00253299763426 (extracted from TLM YM360942)
2005.259.12.16.13.316640 Status_PLM_LCL10_V is currently 0.00929457508028 (extracted from TLM YM372942)
2005.259.12.16.13.319805 Status_PLM_LCL10_I is currently 0.00278629735112 (extracted from TLM YM376942)
2005.259.12.16.13.323070 Status_PLM_LCL11_V is currently 27.967376709 (extracted from TLM YM388942)
2005.259.12.16.13.325837 Status_PLM_LCL11_I is currently 0.0448340587318 (extracted from TLM YM392942)
2005.259.12.16.13.329085 Status_PLM_LCL12_V is currently 27.8930225372 (extracted from TLM YM404942)
2005.259.12.16.13.331987 Status_PLM_LCL12_I is currently 0.776617109776 (extracted from TLM YM408942)
2005.259.12.16.13.335187 Status_PLM_LCL13_V is currently 27.9557590485 (extracted from TLM YM420942)
2005.259.12.16.13.337954 Status_PLM_LCL13_I is currently 0.427316725254 (extracted from TLM YM424942)
2005.259.12.16.13.342121 Status_PLM_LCL14_V is currently 28.0231437683 (extracted from TLM YM436942)
2005.259.12.16.13.344981 Status_PLM_LCL14_I is currently 0.744194746017 (extracted from TLM YM440942)
2005.259.12.16.13.345679
2005.259.12.16.13.346297 Reset bias for all groups sequentially
2005.259.12.16.38.482285 BOL biases are set to zero
2005.259.12.16.38.482666 Now BOLC is prepared for switch-off
2005.259.12.16.38.483310 Set temperature probes off
2005.259.12.16.39.517056 Set all groups to OFF
2005.259.12.16.41.551876 >>> Switch OFF SPU
2005.259.12.16.41.552247
2005.259.12.16.41.655525 Sending Telecommand YC041942 to Disable Limiter 14 PACS SPU
2005.259.12.16.41.655901
2005.259.12.16.41.656521 >>> Checking
2005.259.12.16.47.659984 LCL 14 has currently a voltage of 0.090622112155.(from YM436942)
2005.259.12.16.47.660389 LCL 14 has currently a current of 0.00430609611794.(from YM440942)
2005.259.12.16.47.661059
2005.259.12.16.48.164667 >>> Switch OFF BOLC
2005.259.12.16.48.165031
2005.259.12.16.48.242054 Sending Telecommand YC041942 to Disable Limiter 11 PACS BOLC
2005.259.12.16.48.242669
2005.259.12.16.48.243281 >>> Checking
2005.259.12.16.54.245702 LCL 11 has currently a voltage of 0.00929457508028.(from YM388942)
2005.259.12.16.54.246102 LCL 11 has currently a current of 0.00379949645139.(from YM392942)
2005.259.12.16.54.246769
2005.259.12.16.54.750409 >>> Switch OFF DECMEC
2005.259.12.16.54.750771
2005.259.12.16.54.797800 Sending Telecommand YC041942 to Disable Limiter 12 PACS DECMEC
2005.259.12.16.54.798181
2005.259.12.16.54.798789 >>> Checking
2005.259.12.17.00.802266 LCL 12 has currently a voltage of 0.00697093131021.(from YM404942)
2005.259.12.17.00.802663 LCL 12 has currently a current of 0.0116517897695.(from YM408942)
2005.259.12.17.00.803280
2005.259.12.17.01.306950 >>> Switch OFF DPU
2005.259.12.17.01.307321
2005.259.12.17.01.422574 Sending Telecommand YC041942 to Disable Limiter 13 PACS DPU
2005.259.12.17.01.422949
2005.259.12.17.01.423514 >>> Checking
2005.259.12.17.07.427049 LCL 13 has currently a voltage of 0.0185891501606.(from YM420942)
2005.259.12.17.07.427443 LCL 13 has currently a current of 0.00151979865041.(from YM424942)
2005.259.12.17.07.428057
2005.259.12.17.07.931751 PACS is off
2005.259.12.17.07.932116 >>> Reading out CDMUDFE Settings
2005.259.12.17.07.932697
2005.259.12.17.07.933892 Status_CDMU_OnLine is 1 (extracted from TLM YM777944)
2005.259.12.17.07.934931 Status_CDMU_Tmpolling is 1 (extracted from TLM YM780944)
2005.259.12.17.07.936001 Status_CDMU_SAReadActive is 1 (extracted from TLM YM781944)
2005.259.12.17.07.937047 Status_CDMU_SAqueueActive is 1 (extracted from TLM YM782944)

2005.259.12.17.07.938091 Status_CDMU_TMqueueActive is 1 (extracted from TLM YM783944)
2005.259.12.17.07.939123 Status_CDMU_TCqueueActive is 1 (extracted from TLM YM784944)
2005.259.12.17.07.940249 Status_CDMU_PSTfileName is HIFI_prime_inst.... (extracted from TLM YM809944)
2005.259.12.17.07.941289 Status_CDMU_PSTrunning is 1 (extracted from TLM YM829944)
2005.259.12.17.07.941928
2005.259.12.17.07.942490 >>> Reading out PLM SCOE Settings
2005.259.12.17.07.943071
2005.259.12.17.07.944079 Status_PLM_OnLine is 1 (extracted from TLM YM018942)
2005.259.12.17.07.945113 Status_PLM_PSU1_Master is currently 1 (extracted from TLM YM129942)
2005.259.12.17.07.946144 Status_PLM_PSU1_Slave is currently 1 (extracted from TLM YM145942)
2005.259.12.17.07.947290 Status_PLM_PSU2_Master is currently 1 (extracted from TLM YM177942)
2005.259.12.17.07.948401 Status_PLM_PSU2_Slave is currently 1 (extracted from TLM YM193942)
2005.259.12.17.07.949498 Status_PLM_LCL1_V is currently 0.00697093131021 (extracted from TLM YM228942)
2005.259.12.17.07.950574 Status_PLM_LCL1_I is currently 0.000917372351978 (extracted from TLM YM232942)
2005.259.12.17.07.951675 Status_PLM_LCL2_V is currently 0.0673856735229 (extracted from TLM YM244942)
2005.259.12.17.07.952753 Status_PLM_LCL2_I is currently 0.00557259470224 (extracted from TLM YM248942)
2005.259.12.17.07.953835 Status_PLM_LCL3_V is currently 0.00929457508028 (extracted from TLM YM260942)
2005.259.12.17.07.954933 Status_PLM_LCL3_I is currently 0.00759899290279 (extracted from TLM YM264942)
2005.259.12.17.07.956035 Status_PLM_LCL4_V is currently 0.0325310118496 (extracted from TLM YM276942)
2005.259.12.17.07.957162 Status_PLM_LCL4_I is currently 0.00607919460163 (extracted from TLM YM280942)
2005.259.12.17.07.958276 Status_PLM_LCL5_V is currently 0.0325310118496 (extracted from TLM YM292942)
2005.259.12.17.07.959393 Status_PLM_LCL5_I is currently 0.000759899325203 (extracted from TLM YM296942)
2005.259.12.17.07.960498 Status_PLM_LCL6_V is currently 0.0766802430153 (extracted from TLM YM308942)
2005.259.12.17.07.961636 Status_PLM_LCL6_I is currently 0.00379949645139 (extracted from TLM YM312942)
2005.259.12.17.07.962807 Status_PLM_LCL7_V is currently 0.034854657948 (extracted from TLM YM324942)
2005.259.12.17.07.963934 Status_PLM_LCL7_I is currently 0.00506599526852 (extracted from TLM YM328942)
2005.259.12.17.07.965038 Status_PLM_LCL8_V is currently 0.00929457508028 (extracted from TLM YM340942)
2005.259.12.17.07.966146 Status_PLM_LCL8_I is currently 0.00405279640108 (extracted from TLM YM344942)
2005.259.12.17.07.967291 Status_PLM_LCL9_V is currently 0.00697093131021 (extracted from TLM YM356942)
2005.259.12.17.07.968406 Status_PLM_LCL9_I is currently 0.00253299763426 (extracted from TLM YM360942)
2005.259.12.17.07.969563 Status_PLM_LCL10_V is currently 0.00929457508028 (extracted from TLM YM372942)
2005.259.12.17.07.970730 Status_PLM_LCL10_I is currently 0.00278629735112 (extracted from TLM YM376942)
2005.259.12.17.07.971908 Status_PLM_LCL11_V is currently 0.00929457508028 (extracted from TLM YM388942)
2005.259.12.17.07.973107 Status_PLM_LCL11_I is currently 0.00354619673453 (extracted from TLM YM392942)
2005.259.12.17.07.974234 Status_PLM_LCL12_V is currently 0.00697093131021 (extracted from TLM YM404942)
2005.259.12.17.07.975379 Status_PLM_LCL12_I is currently 0.0116517897695 (extracted from TLM YM408942)
2005.259.12.17.07.976500 Status_PLM_LCL13_V is currently 0.0185891501606 (extracted from TLM YM420942)
2005.259.12.17.07.977633 Status_PLM_LCL13_I is currently 0.00151979865041 (extracted from TLM YM424942)
2005.259.12.17.07.978829 Status_PLM_LCL14_V is currently 0.090622112155 (extracted from TLM YM436942)
2005.259.12.17.07.979999 Status_PLM_LCL14_I is currently 0.00430609611794 (extracted from TLM YM440942)
2005.259.12.17.07.980742
2005.259.12.17.07.981366

```
*****  
2005.259.12.17.07.982390 PACS Power Off Sequence has ended  
*****  
2005.259.12.17.07.983174
```


2005.259.12.19.50.501101 Status_PLM_LCL1_I is currently 0.000101930265373 (extracted from TLM YM232942)
2005.259.12.19.50.502211 Status_PLM_LCL2_V is currently 0.0627383813262 (extracted from TLM YM244942)
2005.259.12.19.50.503424 Status_PLM_LCL2_I is currently 0.000506599550135 (extracted from TLM YM248942)
2005.259.12.19.50.504558 Status_PLM_LCL3_V is currently 0.00929457508028 (extracted from TLM YM260942)
2005.259.12.19.50.505679 Status_PLM_LCL3_I is currently 0.000506599550135 (extracted from TLM YM264942)
2005.259.12.19.50.506824 Status_PLM_LCL4_V is currently 0.034854657948 (extracted from TLM YM276942)
2005.259.12.19.50.507948 Status_PLM_LCL4_I is currently 0.000506599550135 (extracted from TLM YM280942)
2005.259.12.19.50.509115 Status_PLM_LCL5_V is currently 0.0302073694766 (extracted from TLM YM292942)
2005.259.12.19.50.510262 Status_PLM_LCL5_I is currently 0.000253299775068 (extracted from TLM YM296942)
2005.259.12.19.50.511403 Status_PLM_LCL6_V is currently 0.0766802430153 (extracted from TLM YM308942)
2005.259.12.19.50.512530 Status_PLM_LCL6_I is currently 0.000253299775068 (extracted from TLM YM312942)
2005.259.12.19.50.513663 Status_PLM_LCL7_V is currently 0.034854657948 (extracted from TLM YM324942)
2005.259.12.19.50.514814 Status_PLM_LCL7_I is currently 0.00101319910027 (extracted from TLM YM328942)
2005.259.12.19.50.515939 Status_PLM_LCL8_V is currently 0.00929457508028 (extracted from TLM YM340942)
2005.259.12.19.50.517063 Status_PLM_LCL8_I is currently 0.000506599550135 (extracted from TLM YM344942)
2005.259.12.19.50.518205 Status_PLM_LCL9_V is currently 0.00697093131021 (extracted from TLM YM356942)
2005.259.12.19.50.519334 Status_PLM_LCL9_I is currently 0.00101319910027 (extracted from TLM YM360942)
2005.259.12.19.50.520515 Status_PLM_LCL10_V is currently 0.00929457508028 (extracted from TLM YM372942)
2005.259.12.19.50.521629 Status_PLM_LCL10_I is currently 0.000253299775068 (extracted from TLM YM376942)
2005.259.12.19.50.523030 Status_PLM_LCL11_V is currently 0.00929457508028 (extracted from TLM YM388942)
2005.259.12.19.50.524207 Status_PLM_LCL11_I is currently 0.000506599550135 (extracted from TLM YM392942)
2005.259.12.19.50.525339 Status_PLM_LCL12_V is currently 0.00697093131021 (extracted from TLM YM404942)
2005.259.12.19.50.526486 Status_PLM_LCL12_I is currently 0.000506599550135 (extracted from TLM YM408942)
2005.259.12.19.50.527618 Status_PLM_LCL13_V is currently 0.0185891501606 (extracted from TLM YM420942)
2005.259.12.19.50.528765 Status_PLM_LCL13_I is currently 0.000506599550135 (extracted from TLM YM424942)
2005.259.12.19.50.529901 Status_PLM_LCL14_V is currently 0.092945754528 (extracted from TLM YM436942)
2005.259.12.19.50.531067 Status_PLM_LCL14_I is currently 0.000253299775068 (extracted from TLM YM440942)

2005.259.12.19.50.532167 Disconnect and detach from CDMU DFE and PLM SCOE

2005.259.12.19.50.532910
2005.259.12.19.50.533565
2005.259.12.19.50.534213 Disconnecting from CDMU DFE
2005.259.12.19.52.537294 Detaching from CMDU DFE
2005.259.12.19.53.540778
2005.259.12.19.53.541157 Disconnecting from PLM SCOE
2005.259.12.19.55.544131 Detaching from PLM SCOE
2005.259.12.19.56.547640

Appendix 8: HP-111000-ASED-NC-1261 - Not all limit values in MIB are correctly set

Thursday September 15 2005 5:24 PM

Company SRON	Project Name HERSCHEL-PLANCK	NCR-No: HP-111000-ASED-NC-1261 Related internal NCR-No: Critical Item: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Revision: 0 Page 1 of 3
Nonconformance Report		
NCR Title: Not all limit values in MIB are correctly set		
NC Item Identification: HIFI		
Next Higher Assembly: HERSCHEL INSTRUMENTS AND TELESCOPE (CFE)		
Drawing No:	Sr No:	EQM
Procedure No:		
Supplier: SRON	Purchase Order:	
Subsystem:	Model:	EQM
NC Observation Date: 14-JUL-05 Location: ASEDTN		NC Detected During Test:
Description of Nonconformance:		Requirements Violated:
<p>Multiple HARD and SOFT limit violation were detected:</p> <p>SOFT: *Temperature on parameters HM075192 and HM076192 (HIFI indicates that this is due a faulty calibration)</p> <p>HARD: *parameter HM055192. This parameter wobbles around the set hard limit. This results in an alarm on the CCS every 5 seconds. Because of this overflow of alarms other (critical) alarms could be missed. *Parameter HM077194. The value is -5.129 and the set limits are 0 to 3.4</p> <p>-> Calibrations and limits should be corrected and new MIB should be delivered</p>		
Extra input made by S ILSEN on 12/09/2005		
During the SFT cold He II, the following parameters went out of limits: HM044194 HM228191 (traced with HIFI SPR 378)		
Extra input made by S ILSEN on 15/09/2005		
The following parameters show out-of-limits: HM075192 (SOFT) HM076192 (SOFT) HM055192 (SOFT) HM044194 (HARD) -> Limits patched during IMT HM228191 (HARD) HM077194 (HARD) HM081194 (HARD) HM082194 (HARD) HM083194 (HARD) HM089194 (HARD) -> Calibration + Limits patched during IMT		
Initiator: Date, Name and Signature: 15-JUL-05 Stijn Ilsen		

Appendix 9: HP-111000-ASED-NC-1262 - HIFI command completion confirmation not received

Thursday September 15 2005 5:31 PM

Company SRON	Project Name HERSCHEL-PANCK	NCR-No: HP-111000-ASED-NC-1262	
		Related internal NCR-No:	
		Critical Item: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Revision 0
		Page 1 of 3:	
Nonconformance Report			
NCR Title HIFI command completion confirmation not received.			
NC Item Identification HIFI			
Next Higher Assembly HERSCHEL INSTRUMENTS AND TELESCOPE (CFE)			
Drawing No	Sr No.	EQM	
Procedure No			
Supplier SRON	Purchase Order		
Subsystem	Model	EQM	
NC Observation Date: 14-JUL-05 Location: ASED OTN		NC Detected During Test	
Description of Nonconformance		Requirements Violated	
<p>The following commands are defined in the MIB to get a command completion confirmation but no confirmation was received:</p> <p>* HCD17289 (confirmation failed)</p> <p>* for commands HCD22289 and HCD19289 the completion status was still unknown 10 minutes after sending the command</p> <p>ADDED on 20/07/2005: HCD20289 and HCD23289 do not get completion status</p> <p>The MIB definition should be checked and corrected.</p>			
<p>Comments added by S IJSEN on 15/09/2005</p> <p>During the IMT it was seen that multiple command do not receive a command completion confirmation. It concerns commands</p> <ul style="list-style-type: none"> o HCD19289 o HCD20289 o HCD22289 o HCD23289 o HCD24289 o HCD25289 <p>During the IMT it was noticed that when these commands were send the CCS reported a warning: ?Received Invalid TM sample: HM147192 inside verification window?. This message might have something to do with the failed command completion verification.</p>			
Initiator: Date, Name and Signature 15-JUL-05 Stijn IJSEN			
Internal NRB Dispositions:		Classification:	
NRB telecon 22.07.05 ESA,ASP,HIFI,ASED and PTR ASED-MN-1040 23.08.05		Major <input checked="" type="checkbox"/> Minor <input type="checkbox"/>	
ASED to provide additional information, sent by E-mail S.IJSEN to N Whyborn 23.07.05		Customer Notification:	
HIFI to investigate and provide response.		25-AUG-05	
Ref. to MoMs ASE-MN-1040			
Cause of NC	Corrective/Preventative Actions	Verification	
Ref to Failure Report			
Date:			
Name:			
Signature:			

Appendix 10: HP-111000-ASED-NC-1455 - HIFI FCU power scoe computer not responding

Friday September 16, 2005 2:8 PM

Company SRON	Project Name HERSCHEL-PLANCK	NCR-No: HP-111000-ASED-NC-1455 Related internal NCR-No: Critical Item: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Revision 0 Page 1 of 1
Nonconformance Report		
NCR Title: HIFI FCU power scoe computer not responding		
NC Item Identification: HIFI		
Next Higher Assembly: HERSCHEL INSTRUMENTS AND TELESCOPE (CFE)		
Drawing No:		Sr No:
Procedure No:		
Supplier: SRON		Purchase Order:
Subsystem:		Model: EQM
NC Observation Date: 12-SEP-05 Location: ASED OTN		NC Detected During Test:
Description of Nonconformance The HIFI FCU is powered by a dedicated power scoe. This power scoe is controlled from a power scoe computer. This computer appears to be broken. The screen was exchanged, but this did not solve the problem. The cause of the computer failure is not known. To overcome this problem, a manual HIFI procedure is used by HIFI personnel. This problem means that HIFI personnel should always be present when powering on/off the HIFI instrument.		Requirements Violated
Initiator: Date, Name and Signature: 13-SEP-05 S ILSEN		
Date: Name: Signature:		

Appendix 11: HP-141210-ASED-NC-1440 - Repeated Occurrence TOPE CORBA error EXIF_TM1 crash on CCS

Friday September 16 2005 2:46 PM

Company ASTRIUM	Project Name HERSCHEL-PLANCK	NCR-No: HP-141210-ASED-NC-1440 Related internal NCR-No: Critical Item: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Revision: 0 Page 1 of 1
Nonconformance Report		
NCR Title Repeated Occurrence TOPE CORBA error / EXIF_TM1 crash on CCS		
NC Item Identification S-C Central Checkout System		
Next Higher Assembly HERSCHELS-C EGSE		
Drawing No		Sr No.
Procedure No		
Supplier Terma		Purchase Order
Subsystem		Model EQM
NC Observation Date: 08-SEP-05 Location: ASED OTN		NC Detected During Test
Description of Nonconformance		Requirements Violated
<p>During 2 HIFI tests (1/9/05 and 8/9/05), a TOPE CORBA error occurred. This error resulted/was caused by and EXIF_TM1 failure. Restarting this module solved the problem and the running TCL script could be re-run without any problems.</p> <p>The test was not special and had been run for 4 times already without problems.</p> <p>During this test a special TCL script was run that subscribed to 4000 parameters. This to ensure a correct IEGSE-CCS communication.</p> <p>The 2 errors occurred in the first 2 tests after a CCS SW update (2.0.577 to 2.0.614). This might have something to do with it.</p> <p>The problem has been reported to Terma (after the first occurrence) and they are working on it. The bug is tracked in the Terma Bugzilla system as BUG 2115.</p> <p>Added on 16/09/05 by S ILSSEN Bug seen 2 times at the end of the HIFI IMT. This is communicated to Terma</p>		
Initiator: Date, Name and Signature 08-SEP-05 S. Ilsen		
Date: Name: Signature:		

11 Distribution List

	Name	Dep./Comp.		Name	Dep./Comp.
	Alberti von Mathias Dr.	AOE22		Sonn Nico	AOE51
	Barlage Bernhard	AED11		Steininger Eric	AED44
	Bayer Thomas	AOA52	X	Stritter Rene	AED11
	Brune Holger	AOA55		Thörmer Klaus-Horst Dr.	OTN/AED65
	Fehringer Alexander	AOE13		Wagner Klaus	AOE22
X	Fricke Wolfgang Dr.	AED 65	X	Wietbrock Walter	AET12
	Geiger Hermann	AOA52		Wöhler Hans	AOE22
	Gerner Willi	AED11		Wössner Ulrich	ASE442
X	Grasl Andreas	OTN/AOA54			
	Grasshoff Brigitte	AET12			
	Hauser Armin	AOE22			
X	Hendry David	Terma Resid.			
	Hengstler Reinhold	AOA 5			
	Hinger Jürgen	AOE22	X	Alcatel	ASP
	Hofmann Rolf	ASE442	X	ESA/ESTEC	ESA
X	Hohn Rüdiger	AED65		Instruments:	
	Huber Johann	AOA52	X	MPE (PACS)	MPE
	Hund Walter	ASE442	X	RAL (SPIRE)	RAL
X	Idler Siegmund	AED432	X	SRON (HIFI)	SRON
X	Ilsen Stijn	Terma Resid.		Subcontractors:	
	Ivány von András	FAE22		Air Liquide, Space Department	AIR
	Jahn Gerd Dr.	AOE22		Air Liquide, Space Department	AIRS
	Kalde Clemens	APE3		Air Liquide, Orbital System	AIRT
	Kameter Rudolf	OTN/AOA54		Alcatel Bell Space	ABSP
	Kettner Bernhard	AET42		Astrium Sub-Subsyst. & Equipment	ASSE
X	Knoblauch August	AET32		Austrian Aerospace	AAE
X	Koelle Markus	AOA53		Austrian Aerospace	AAEM
X	Kroeker Jürgen	AED65		APCO Technologies S. A.	APCO
	Kunz Oliver Dr.	AOE22		Bieri Engineering B. V.	BIER
X	Lamprecht Ernst	OTN/ASI21		BOC Edwards	BOCE
	Lang Jürgen	ASE442		Dutch Space Solar Arrays	DSSA
	Langenstein Rolf	AED15		EADS CASA Espacio	CASA
	Langfermann Michael	AOA51		EADS CASA Espacio	ECAS
X	Mack Paul	OTN/AOA54		EADS Space Transportation	ASIP
	Müller Jörg	AOA52		Eurocopter	ECD
	Müller Ralf	FAE22		European Test Services	ETS
	Peltz Heinz-Willi	AOE13		HTS AG Zürich	HTSZ
	Pietroboni Karin	AED65		Linde	LIND
	Platzer Wilhelm	AED22		Patria New Technologies Oy	PANT
	Reichle Konrad	AOA52		Phoenix, Volkmarsen	PHOE
	Reuß Friedhelm	AED62		Prototech AS	PROT
X	Rühe Wolfgang	AED65		QMC Instruments Ltd.	QMC
	Runge Axel	OTN/AOA54		Rembe, Brilon	REMB
	Sachsse Bernt	AED21		Rosemount Aerospace GmbH	ROSE
	Schink Dietmar	AED44		RYMSA, Radiación y Microondas	RYM

	Name	Dep./Comp.		Name	Dep./Comp.
X	Schlosser Christian	OTN/AOA54		SENER Ingenieria SA	SEN
	Schmidt Rudolf	FAE22		Stöhr, Königsbrunn	STOE
	Schweickert Gunn	AOE22		Terma A/S, Herlev	TER

END OF DOCUMENT