Herschel

SPIRE-AST-REP-002627

Title:

HIFI IMT

CI-No:

153100

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16/09/2005

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See Distribution List (last page)

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	2000			

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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 Occurrence 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 outof-limits for multiple times during the test:

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- o HM083194
- o HM089194
- o HM044194
- o HM228191

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The already existing ASED NCR 1261 will be updated the 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
 - o HC019289
 - o HC020289
 - o HC022289
 - o HC023289
 - o HC024289
 - o HC025289

This is a known ASED NCR 1262. 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. 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.

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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 OtherDocuments

N/A

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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

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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

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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	Responsible	Comment
	/Version		
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	1.4	Inst	
OBSW			

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

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-	ASP	Delivered on 28.06.2005
	scripts_28062005.zip		
TCL Scripts SPIRE	SPIRE-SFTs-09092005.tar.gz	ASP	Delivered on 09.09.2005
	+ adapted script: SFT-SPIRE-		(12.09.2005)
	CCS-DRCU-ON-STEP2.tcl		
CCS MIB Bridge	CCS_Her_PLM01_v1_2.zip	ASP	2005-09-08
files			
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	2.4.0.0	SSBV	Part of CDMU DFE Workstation
(IPC Handler			
P7001)			
CDMU DFE Pipe I/F	1.2.1.0	SSBV	Part of CDMU DFE Workstation
(IPC Handler Pipe P			

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7002)			
CDMU archive	2.2.2.72	SSBV	Part of CDMU DFE Workstation
Browser			
Mil-STD-1553b	1.11.1.87	SSBV	Part of CDMU DFE Workstation
BusMonitor			
CDMU DFE IPC	2.4.0.18	SSBV	Part of CDMU DFE Workstation
Handler object			
implementation			
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	2.2.1.70	SSBV	Part of PLM SCOE Workstation
browser			
PLM SCOE pipe I/F	1.3.0.0	SSBV	Part of PLM SCOE Workstation
PLM SCOE IPC	2.1.0.7	SSBV	Part of PLM SCOE Workstation
Handler object			
implementation			
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

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N/A

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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 allows 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 different definitions, (the following packet has the

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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 ASED 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 ASED 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.

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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	ок
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

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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.

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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.

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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		ок
2	28 V power is connected to CCS power supplies		OK
3	PACS OBT interface is connected to CCS OBT simulator		ок
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		ок
6	PACS+EGSE grounding has been verified against AD-7		ок
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_NonPrim e.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		ОК
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	
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1	Execute script: PACS POWER ON.tcl	PACS is sending regular non-Prime HK packets and essential HK packets	ок
	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"	ок
	, , , , , , , , , , , , , , , , , , ,	PM153390 = SPL_DMC_LINK = "LINK ON" PM039420 = DM_BOL_REC_PAC is incrementing Counters for TM(1,2), TM(1,8) and NACKs shall be 0: PM060380 = DP_1_8_Rejected = 0	ок
		PM061380 = DP_1_2_Rejected = 0 PM062380 = DP_COM_DMC_NACK= 0 PM064380 = DP_COM_SPL_NACK= 0 PM066380 = DP_COM_SPS_NACK= 0	
		28 V power is on for all 4 sub-systems	ок

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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)		ОК
4	DPU AND OBS PARAMETERS display is selected on the CCS		ОК

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: • Voltage: 27.85 V • Current: 0.46 A (5,2) packet received	ок
2	Execute TCL script SFT- SPIRE-CCS-DPU-ON.tcl		ок
3	Check that THSK parameter on the DPU AND OBS PARAMETERS display on SCOS is refreshing every second	THSK incrementing every second	ОК
4	Check that TM2N parameter on the DPU AND OBS PARAMETERS display on SCOS is incrementing every second	TM2N incrementing every second	ОК

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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 ASED NCR 1471	ок
2	Check that THSK parameter is not refreshing anymore		ОК
3	Check that TM2N parameter is not incrementing anymore		ок
4	Ensure the SPIRE Power Bench is connected to the mains – see Figure 2.		ок
	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	ОК
	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	ок
	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	ок
	Figure 6 shows the Power Bench display after switch on		ок
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	ок

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	STEP2.tcl	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 ASED NCR 1471 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.	
6	Manual Switch on of the DRCU by the CCS staff step 2: • Switch on all 5 remote DCU switches	This caused a series of SSC errors.	ОК
7	Check that THSK parameter is again refreshing every second	THSK incrementing every 4 second	ок
8	Check that TM2N parameter is again incrementing every second	TM2N incrementing every 4 second	ОК

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						ок
2	Wait for the parameter BBFULLTYPE to get set to SCU_DC_Therm					ок	
3	A few seconds later	Check if the follow	ing param	neters o	change valu	ıe:	
	record the value of parameter	Parameter	Start		During	End	
SCUTEMPSTAT	'	SCUTEMPSTAT Observed	0000000	0	FFFF 0000FF FF	FFFF 0000FF FF	ок
4	Record the RAW values	Parameter	•	Value	•		ок

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Issue: 1

of SCU temperatures	PUMPHTRTEMP	3.14
	PUMPHSTEMP	8.70
	EVAPHSTEMP	8.05
	SHUNTTEMP	1.68
	SOBTEMP	11.55
	SL0TEMP	2.06
	PLOTEMP	2.14
	OPTTEMP	10.99
	BAFTEMP	10.86
	BSMIFTEMP	10.19
	SCAL2TEMP	8.79
	SCAL4TEMP	13.08
	SCALTEMP	11.34
	SMECIFTEMP	11.24
	SMECTEMP	13.52
	BSMTEMP	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					ок
2	Wait for the parameter BBFULLTYPE to get set to SCU_AC_Therm					ок
3	3 A few seconds later	Check if the following parameters change value:				
	record the value of parameter	Parameter	Start	During	End	
	SUBKSTAT	SUBKSTAT	0	1	1	ок
		Observed values	0	1	1	
4	Record the RAW value of	Check if the following	g parame	eters change	e value:	
	SUBKTEMP	Parameter	Start	During	End	
		SUBKTEMP	?		?	ок

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

Final Configuration: Unchanged

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Issue: 1

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	ОК
3	Connect LSU simulator to 3A LO chain	HIFI Task	ок
4	Tune LSU simulator for 807 GHz LO	HIFI Task	ок

Objective: Perform chopper scan

Step #	Action	Comments	Check
1	Select FCU HK AND		ок
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	ок
extra	Execute: IST_HIFI_standby_internal _source_ON_Band0.confi g807wb2.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)	ок

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Issue:

		Parameter HM082194 went out of limits. Traced in ASED NCR 1261.	
extra	Execute (again): 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, HC024289, HC025289)	ок
		Parameter HM082194 went out of limits. Traced in ASED NCR 1261.	
3	Execute: IST_HIFI_integration_test_ chopscan_Band3cold.conf ig 33200807H.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)	ок
4	Execute: IST_HIFI_non_periodic_hk _FCU.tcl		ОК
5	HIFI checks results in HK and science data	Check FPU HK for chopper motion HIFI checked values	ок
		Check chopper status & set values in FCU non-periodic HK	ОК
		HIFI checked values	

Objective: Perform functional test pumped and set spectrometer attenuators

Step #	Action	Comments	Check
1	Select as appropriate FPU, HRS, LCU & WBS HK AND's		ОК
2	Execute: IST_WU_LCU3a_config_s afeBand3cold.config8 07.tcl		ок
3	Switch LSU simulator RF ON and afterwards OFF		ок
extra	Execute: IST_HIFI_standby_internal _source_ONBand0.confi g807wb2.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)	ок
extra	Execute: IST_HIFI_SFTBand3col d.configwb2H807.tc l	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)	ок

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Issue:

extra	Execute: IST_HIFI_LO_scanBand 3cold.config80712.	Parameter HM082194 went out of limits. Traced in ASED NCR 1261. This script is executed to prepare, test and configure HIFI again after being in STANDBY mode over lunch.	ОК
	0.1.tcl		
extra	Switch LSU simulator ON		OK
extra	Execute: IST_HIFI_LO_scanBand 3cold.config807120.1.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.config8071 00.tcl Instead of: IST_HIFI_SPT_LO_tune_ Band3cold.config8078 0.tcl	The script is changed from 100% to 80% since HIFI noticed that the voltages are far too high.	ОК
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_FTpumpedBand3cold.configwb2H807.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	Check LCU band 3A selected in HK	ОК
	and science data	Check LCU drain voltages and multiplier currents in HK	ОК
		Compare LCU HK with previous results	ОК
		Check FPU mixer pump level in HK	ОК
		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_s afeBand3cold.config8 07.tcl		OK
3	Switch LSU simulator RF OFF		OK
4	Execute: IST_HIFI_SPT_FTunpump ed_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

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Issue: 1

	2_H_	HC02589)	
	_807.tcl		
5	HIFI checks results in HK	Check FPU HK	OK
	and science data	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.config8071 00.tcl Instead of: IST_HIFI_SPT_LO_tune_ Band3cold.config8078 0.tcl	The script is changed from 100% to 80% since HIFI noticed that the voltages are far too high.	ОК
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.	ОК
4	Execute: IST_HIFI_integration_test_ diplexscan_Band3cold.con fig 2.242.240.82 0.82100807H.tcl	Zana communa as some to tune the total get	ОК
5	Execute: IST_HIFI_integration_test_ diplexscan_Band3cold.con fig_0.683 0.683 2.242.24100807V .tcl		ОК
6	HIFI checks results in HK	Check LCU band 3A selected in HK	OK
	and science data	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).

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Issue: 1

Step #	Action	Comments	Check
1	Select FPU & LCU HK AND		N/A
2	Execute: IST_HIFI_LO_scanBand 3cold.config807120.1.tcl		N/A
3	HIFI checks results in HK and science data	Check LCU drain voltages and multiplier currents in HK Monitor mixer current to identify optimum Vd2	N/A N/A

Step#	Action	Comments	Check
1	Execute: IST_WU_LCU3a_config_ safeBand3cold.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_intern al_source_ON_Band0.c onfig807wb2.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

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Issue: 1

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_s afeBand3cold.config9 01.584.tcl	Parameter HM044194 went out of limits. This is a known problem and is already traced by ASED NCR 1261.	ОК
3	Switch LSU simulator RF ON		OK
extra	Execute: IST_HIFI_LO_scanBand 3cold.config901.584120.1.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_SFTBand3col d.configwb2H901.5 84.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)	ок
extra	Execute: IST_HIFI_LO_scanBand 3cold.config901.584120.1.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

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extra	Execute: IST_HIFI_LO_scanBand 3cold.config901.584120.1.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.	ок
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.	ок
4	Execute: IST_HIFI_SPT_LO_tune_ Band3cold.config901.58 4100.tcl		N/A
5	Execute: IST_HIFI_SPT_FTpumpedBand3cold.configwb2H901.584.tcl		N/A
6	HIFI checks results in HK	Check LCU band 3B selected in HK	N/A
	and science data	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 afeBand3cold.config9 01.584.tcl		N/A
3	Switch LSU simulator RF OFF		N/A
4	Execute: IST_HIFI_SPT_FTunpump ed_Band3cold.configwb 2H901.584.tcl		N/A
5	HIFI checks results in HK	Check FPU HK	N/A
	and science data	Verify science TM packets received	N/A

Objective: Perform diplexer scan – H and V polarisations

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Issue: 1

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.config901.58 4100.tcl		N/A
4	Execute: IST_HIFI_integration_test_ diplexscan_Band3cold.con fig 2.242.241.036 1.036100901.584H.t		N/A
5	Execute: IST_HIFI_integration_test_ diplexscan_Band3cold.con fig0.73 0.73 2.242.24100901.584V.tcl		N/A
6	HIFI checks results in HK	Check LCU band 3B selected in HK	N/A
	and science data	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_scanBand 3cold.config901.584120.1.tcl		N/A
3	HIFI checks results in HK	Check LCU drain voltages and multiplier currents in HK	N/A
	and science data	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		ок

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Issue:

2	Switch LSU simulator RF OFF		ок
2	Execute: IST_HIFI_standby_internal _source_ON_Band0.confi g901.584wb2.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)	ок
3	HIFI checks results in HK and science data	Check FPU in standby (band 0), internal source state is ON	ок
		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.

<u>Important Remark:</u> 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	HIFI Task	OK
	is off		

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Issue:

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

Objective: Perform functional test pumped and set spectrometer attenuators

Step #	Action	Comments	Check
1	Select as appropriate FPU, HRS, LCU & WBS HK AND's		ОК
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.	ок
		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)	
extra	Execute: IST_HIFI_standby_internal _source_ON_Band0.confi g901.584wb2.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.	ок
		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)	
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.	ок
		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)	
extra	Execute: IST_WU_LCU3b_config_s	Since errors have been detected on the limits for parameter HM083194 and HM089194, the instrument is	ок

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	afe_Band3cold.config_9 01.584.tcl	switched to a safe state	
extra	Execute: IST_HIFI_standby_internal _source_ON_Band0.confi g901.584wb2.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)	ОК
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).	ОК
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. 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)	ок
3	Switch LSU simulator RF ON	11C023267)	ОК
4	Execute: IST_HIFI_SPT_LO_tune_ Band3cold.config901.58 487.tcl Instead of the planned: IST_HIFI_SPT_LO_tune_ Band3cold.config901.58 4100.tcl	The script is replaced by a similar script for tuning purposes.	ОК
extra	Execute: IST_HIFI_SPT_LO_tune_ Band3cold.config901.58 490.tcl	The script is executed for tuning purposes.	ок
5	Execute: IST_HIFI_SPT_FTpumped	Some commands failed the command completion. This is a known NCR: 1262. This does not mean however that	ок

Issue: 1

	Band3cold.configwb2 H901.584.tcl	the commands did not execute. (HC020289, HC023289, HC024289, HC025289)	
5	Execute (again): IST_HIFI_SPT_FTpumpedBand3cold.configwb2H901.584.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)	ок
6	HIFI checks results in HK	Check LCU band 3B selected in HK	ок
	and science data	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		ОК
2	Execute: IST_WU_LCU3b_config_s afeBand3cold.config9 01.584.tcl		OK
3	Switch LSU simulator RF OFF		OK
4	Execute: IST_HIFI_SPT_FTunpump ed_Band3cold.configwb 2_H901.584.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)	ОК
5	HIFI checks results in HK	Check FPU HK	OK
	and science data	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.config901.58 490.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

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	Band3cold.config901.58 4100.tcl		
4	Execute: IST_HIFI_SPT_diplexslowBand3cold.config0.331.131.0361.0369 _wb2901.584H.tcl		OK
5	HIFI checks results in HK	Check LCU drain voltages and multiplier currents in HK	OK
	and science data	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 ASED 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 waveBand3cold.config_ wb2H901.584.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 waveBand3cold.config_ wb2H901.584.tcl	OBS_ID ending in 232	OK
5	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK

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6	Execute:	OBS_ID ending in 233	ОК
	IST_HIFI_SPT_LO_stand		
	wave_Band3cold.config_ wb2_H_901.584.tcl		
7	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
8	Execute:	OBS_ID ending in 234	OK
	IST_HIFI_SPT_LO_stand		
	wave_Band3cold.config_		
9	wb2_H_901.584.tcl	HIFI task	OK
9	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
10	MHz; RF on Execute:	OBS_ID ending in 235	OK
10	IST_HIFI_SPT_LO_stand	ODS_ID ending in 255	OK
	wave_Band3cold.config_		
	wb2_H_901.584.tcl		
11	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
12	Execute:	OBS_ID ending in 236	OK
	IST_HIFI_SPT_LO_stand	_	
	wave_Band3cold.config_		
10	wb2_H_901.584.tcl	*****	OV
13	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
1.4	MHz; RF on	ODC ID anding in 227	OV
14	Execute: IST_HIFI_SPT_LO_stand	OBS_ID ending in 237	OK
	wave_Band3cold.config_		
	wb2_H_901.584.tcl		
15	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
16	Execute:	OBS_ID ending in 238	OK
	IST_HIFI_SPT_LO_stand		
	wave_Band3cold.config_		
17	wb2_H_901.584.tcl	TITIET 4 IL	OV
17	LSU sim: RF off;	HIFI task	ОК
	increment frequency by		
18	118MHz; RF on Execute:	OBS_ID ending in 239	OK
10	IST HIFI SPT LO stand	Obs_id thung in 239	UK
	waveBand3cold.config		
	wb2_H_901.584.tcl		
19	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
20	Execute:	OBS_ID ending in 240	OK
	IST_HIFI_SPT_LO_stand		
	wave_Band3cold.config_		
	wb2H901.584.tcl		

Issue: 1

21	LSU sim: RF off;	HIFI task	OK
21	increment frequency by 1	IIII I Wax	OK .
	MHz; RF on		
22	Execute:	OBS_ID ending in 241	OK
22	IST_HIFI_SPT_LO_stand	ODS_ID ending in 241	OK
	wave_Band3cold.config_		
	wb2_H_901.584.tcl		
23	LSU sim: RF off;	HIFI task	OK
23	increment frequency by 1		011
	MHz; RF on		
24	Execute:	OBS_ID ending in 242	OK
24	IST_HIFI_SPT_LO_stand	ODS_ID cliding in 242	OK
	wave_Band3cold.config_		
	wb2_H_901.584.tcl		
25	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		012
	MHz; RF on		
26	Execute:	OBS_ID ending in 243	ОК
20	IST_HIFI_SPT_LO_stand	ODS_ID ending in 243	OK
	wave_Band3cold.config_		
	wb2_H_901.584.tcl		
27	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		012
	MHz; RF on		
28	Execute:	OBS_ID ending in 244	OK
20	IST_HIFI_SPT_LO_stand	ODS_ID cliding in 244	O.K.
	wave_Band3cold.config		
	wb2_H_901.584.tcl		
29	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
30	Execute:	OBS_ID ending in 245	OK
	IST_HIFI_SPT_LO_stand	_ 0	
	waveBand3cold.config		
	wb2H901.584.tcl		
31	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
32	Execute:	OBS_ID ending in 246	OK
	IST_HIFI_SPT_LO_stand		
	waveBand3cold.config		
	wb2_H_901.584.tcl		
33	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
34	Execute:	OBS_ID ending in 247	OK
	IST_HIFI_SPT_LO_stand		
	wave_Band3cold.config		
25	wb2_H_901.584.tcl	TYTET 4IL	OV
35	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		

Issue: 1

36	Execute:	OBS_ID ending in 248	OK
30	IST_HIFI_SPT_LO_stand	ObS_ID ending in 246	UK
	wave_Band3cold.config		
	wb2_H_901.584.tcl		
37	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
38	Execute:	OBS_ID ending in 249	OK
	IST_HIFI_SPT_LO_stand		
	wave_Band3cold.config_		
39	wb2_H_901.584.tcl	HIFI task	OV
39	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
40	MHz; RF on Execute:	OBS_ID ending in 250	OK
40	IST_HIFI_SPT_LO_stand	OBS_ID ending in 250	UK.
	waveBand3cold.config		
	wb2_H_901.584.tcl		
41	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
42	Execute:	OBS_ID ending in 251	OK
	IST_HIFI_SPT_LO_stand		
	wave_Band3cold.config_		
12	wb2_H_901.584.tcl	******	OW
43	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
44	MHz; RF on	ODC ID anding in 252	OK
44	Execute: IST_HIFI_SPT_LO_stand	OBS_ID ending in 252	UK
	wave_Band3cold.config		
	wb2_H_901.584.tcl		
45	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
46	Execute:	OBS_ID ending in 253	OK
	IST_HIFI_SPT_LO_stand		
	wave_Band3cold.config		
47	wb2_H_901.584.tcl	TITIET A. al-	OV
47	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
48	MHz; RF on	OBS_ID ending in 254	OV
48	Execute: IST_HIFI_SPT_LO_stand	ODS_ID ending in 234	OK
	wave_Band3cold.config_		
	wb2_H_901.584.tcl		
49	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
50	Execute:	OBS_ID ending in 255	OK
	IST_HIFI_SPT_LO_stand	_	
	waveBand3cold.config		
	wb2H901.584.tcl		

Issue: 1

51	LSU sim: RF off;	HIFI task	ОК
	increment frequency by 1		
	MHz; RF on		
52	Execute:	OBS_ID ending in 256	OK
	IST_HIFI_SPT_LO_stand		
	wave_Band3cold.config		
~ 0	wb2_H_901.584.tcl		0.77
53	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
~ .	MHz; RF on	ODG TO U. A.F.	0.47
54	Execute:	OBS_ID ending in 257	OK
	IST_HIFI_SPT_LO_stand waveBand3cold.config		
	wb2_H_901.584.tcl		
55	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	022
	MHz; RF on		
56	Execute:	OBS_ID ending in 258	OK
	IST_HIFI_SPT_LO_stand		
	wave_Band3cold.config_		
	wb2H901.584.tcl		
57	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
58	Execute:	OBS_ID ending in 259	OK
	IST_HIFI_SPT_LO_stand		
	wave_Band3cold.config_ wb2_H_901.584.tcl		
59	LSU sim: RF off;	HIFI task	OK
37	increment frequency by 1	IIII I task	OK
	MHz; RF on		
60	Execute:	OBS_ID ending in 260	ОК
00	IST_HIFI_SPT_LO_stand	ODS_ID thang in 200	OK .
	wave_Band3cold.config_		
	wb2H901.584.tcl		
61	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
62	Execute:	OBS_ID ending in 261	OK
	IST_HIFI_SPT_LO_stand		
	wave_Band3cold.config_		
63	wb2_H_901.584.tcl	HIFI task	OK
0.5	LSU sim: RF off; increment frequency by 1	IIII I task	UK
	MHz; RF on		
64	Execute:	OBS_ID ending in 262	OK
0+	IST_HIFI_SPT_LO_stand	Obo_iD chang in 202	OK.
	wave_Band3cold.config		
	wb2_H_901.584.tcl		
65	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		

Issue: 1

66	Execute:	OBS_ID ending in 263	OK
	IST_HIFI_SPT_LO_stand		
	waveBand3cold.config		
	wb2H901.584.tcl		
67	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
68	HIFI checks results in HK	Check LCU drain voltages and multiplier currents in HK	OK
	and science data	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		ОК
2	Switch LSU simulator RF OFF		ок
3	Execute: IST_HIFI_standby_internal _source_ON_Band0.confi g901.584_wb2.tcl		ок
4	HIFI checks results in HK and science data	Check FPU in standby (band 0), internal source state is ON	ОК
		Check LCU in standby	ок

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) • HP146193 (HWH_Laser1_S) = ON (Eng) = 49	ОК

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Issue: 1

		HP143193 (HWH_ATT_Band_2) = 3	
		HP144193 (HWH_ATT_Band_3) = 3	
		HP145193 (HWH_ATT_Band_4) = 3	
		HP141193 (HWH_ATT_IN) = 7	
		HC078289 (HIFI_Signle_Cmd)	
		 HP198197 (HIFI_cmd) = HWH_ZERO_ON (Eng) 	
		= 3825205290 (Eng)	
		HC078289 (HIFI_Signle_Cmd)	
		 HP198197 (HIFI_cmd) = HWH_COMB_OFF 	
		(Eng) = 3825205260 (Eng)	
		HC074289 (HIFI_Spectr_Total_Power)	
2	Configure WBS [2]	Manual Stack Command:	OK
		HC024289 (HIFI_Configure_WBS_H)	
		• 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 	
		• III 141193 (IIWII_ATT_IIV) = 12	
		HC078289 (HIFI_Signle_Cmd)	
		• HP198197 (HIFI_cmd) = HWH_ZERO_ON (Eng)	
		= 3825205290 (Eng)	
		= 3023203270 (Eng)	
		HC078289 (HIFI_Signle_Cmd)	
		• HP198197 (HIFI_cmd) = HWH_COMB_ON (Eng)	
		The 190197 (this 1_chied) = 11 wit_Colvid_colv (Eng)	
		HC074289 (HIFI_Spectr_Total_Power)	
3	Configure WBS [3]	Manual Stack Command:	OK
	[2]	HC024289 (HIFI_Configure_WBS_H)	<u> </u>
		• 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	
		- 111 1711/3 (11 11 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
		HC078289 (HIFI_Signle_Cmd)	
		• HP198197 (HIFI_cmd) = HWH_ZERO_OFF (Eng)	
		- In 170177 (IIII Lenia) – IIWII ZERO_OFT (Elig)	
		HC078289 (HIFI_Signle_Cmd)	
		• HP198197 (HIFI_cmd) = HWH_COMB_OFF	
		(Eng)	
		(Ling)	
		HC074289 (HIFI_Spectr_Total_Power)	
		I II CO I I DO COMITO DO COMITO DE LA COMITO DEL COMITO DE LA COMITO DEL COMITO DE LA COMITO DEL COMITO DE LA COMITO DEL COMITO DE LA COMITO DEL COMITO DE LA COMITO DEL COMI	

Doc. No: HP-2-ASED-TR-0091

Issue: 1

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		ОК
2	Execute: IST_HIFI_SFTBand3col d.configwb2H807.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, HC024289, HC025289)	OK
3	Switch LSU simulator RF ON		OK
4	Execute: IST_HIFI_SPT_LO_tune_ Band3cold.config8076 3.tcl instead of: IST_HIFI_SPT_LO_tune_ Band3cold.config8071 00.tcl	The script is replaced by a similar script for tuning purposes.	ОК
5	Execute: IST_HIFI_SPT_FTpumpedBand3cold.configwb2H807.tcl		ОК
6	HIFI checks results in HK	Check LCU band 3A selected in HK	ОК
	and science data	Check LCU drain voltages and multiplier currents in HK	ок
		Compare LCU HK with previous results	ОК
		Check FPU mixer pump level in HK	OK

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Issue:

Verify science TM packet	received OK
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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_s afeBand3cold.config8 07.tcl		OK
3	Switch LSU simulator RF OFF		OK
4	Execute: IST_HIFI_SPT_FTunpump ed_Band3cold.configwb 2H807.tcl		OK
5	HIFI checks results in HK	Check FPU HK	OK
	and science data	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.config8076 3.tcl Instead of: IST_HIFI_SPT_LO_tune_ Band3cold.config8071 00.tcl		OK
4	Execute: IST_HIFI_SPT_diplexslowBand3cold.config0.28 31.0830.82 0.829wb2807H.tc 1	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, HC0222289, HC023289, HC024289, HC025289)	OK
5	HIFI checks results in HK	Check LCU drain voltages and multiplier currents in HK	OK
	and science data	Check for diplexer motion	OK
		Check FPU mixer pump level OK	OK

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Issue: 1

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_diplexslowBand3cold.config0.28 31.0830.82 0.829wb2807H.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 afeBand3cold.config8 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 ASED NCR 1262

Step #	Action	Comments	Check
1	Select as appropriate FPU & LCU HK AND's		OK
extra	Execute: IST_HIFI_SPT_LO_tune_ Band3cold.config8076 3.tcl		OK
2	Execute: IST_HIFI_SPT_LO_stand waveBand3cold.config wb2H807.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

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Issue: 1

	IST_HIFI_SPT_LO_stand waveBand3cold.config		
	wb2_H_807.tcl		
5	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
6	Execute:	OBS_ID ending in 277	OK
	IST_HIFI_SPT_LO_stand	_	
	waveBand3cold.config		
	wb2_H_807.tcl		
7	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
8	Execute:	OBS_ID ending in 278	OK
	IST_HIFI_SPT_LO_stand		
	wave_Band3cold.config_		
9	wb2_H_807.tcl	HIFI task	OK
9	LSU sim: RF off; increment frequency by 1	TITET CASK	UK
	1 7 7		
10	MHz; RF on Execute:	OBS_ID ending in 279	OK
10	IST_HIFI_SPT_LO_stand	OBS_ID ending in 279	OK
	wave_Band3cold.config		
	wb2_H_807.tcl		
11	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
12	Execute:	OBS_ID ending in 280	OK
	IST_HIFI_SPT_LO_stand	_	
	waveBand3cold.config		
	wb2H807.tcl		
13	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		0.77
14	Execute:	OBS_ID ending in 281	OK
	IST_HIFI_SPT_LO_stand waveBand3cold.config		
	wb2_H_807.tcl		
15	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
16	Execute:	OBS_ID ending in 282	OK
	IST_HIFI_SPT_LO_stand		
	wave_Band3cold.config_		
	wb2H807.tcl		
17	LSU sim: RF off;	HIFI task	OK
	increment frequency by		
	118MHz; RF on		
18	Execute:	OBS_ID ending in 283	OK
	IST_HIFI_SPT_LO_stand		
	wave_Band3cold.config		
19	wb2_H_807.tcl	HIFI task	OK
19	LSU sim: RF off;	IIII task	UK

Issue: 1

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	increment frequency by 1 MHz; RF on		
20	Execute: IST_HIFI_SPT_LO_stand waveBand3cold.config wb2H807.tcl	OBS_ID ending in 284	ОК
21	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	OK
22	Execute: IST_HIFI_SPT_LO_stand waveBand3cold.config wb2H807.tcl	OBS_ID ending in 285	ОК
23	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	ОК
24	Execute: IST_HIFI_SPT_LO_stand waveBand3cold.config wb2H807.tcl	OBS_ID ending in 286	ОК
25	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	ОК
26	Execute: IST_HIFI_SPT_LO_stand waveBand3cold.config wb2H807.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 waveBand3cold.config wb2H807.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 waveBand3cold.config_ wb2H807.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 waveBand3cold.config_ wb2H807.tcl	OBS_ID ending in 290	ОК
33	LSU sim: RF off; increment frequency by 1 MHz; RF on	HIFI task	ОК
34	Execute: IST_HIFI_SPT_LO_stand	OBS_ID ending in 291	OK

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	wave_Band3cold.config		
	wb2_H_807.tcl		
35	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
36	Execute:	OBS_ID ending in 292	OK
	IST_HIFI_SPT_LO_stand		
	waveBand3cold.config		
27	wb2_H_807.tcl	******	OV
37	LSU sim: RF off;	HIFI task	ОК
	increment frequency by 1		
20	MHz; RF on		077
38	Execute:	OBS_ID ending in 293	OK
	IST_HIFI_SPT_LO_stand		
	wave_Band3cold.config_ wb2_H_807.tcl		
39	LSU sim: RF off;	HIFI task	OK
37	increment frequency by 1	IIII I WAN	
	MHz; RF on		
40	Execute:	OBS_ID ending in 294	ОК
40	IST_HIFI_SPT_LO_stand	Obo_ib cliding in 254	
	wave_Band3cold.config_		
	wb2_H_807.tcl		
41	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
42	Execute:	OBS_ID ending in 295	OK
	IST_HIFI_SPT_LO_stand		
	wave_Band3cold.config_		
43	wb2_H_807.tcl	HIFI task	OK
43	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
44	MHz; RF on Execute:	ODS ID anding in 206	OK
44	IST_HIFI_SPT_LO_stand	OBS_ID ending in 296	OK
	wave_Band3cold.config		
	wb2_H_807.tcl		
45	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
46	Execute:	OBS_ID ending in 297	OK
	IST_HIFI_SPT_LO_stand	_ 0	
	waveBand3cold.config		
	wb2H807.tcl		
47	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
48	Execute:	OBS_ID ending in 298	OK
	IST_HIFI_SPT_LO_stand		
	wave_Band3cold.config_ wb2_H_807.tcl		
49	LSU sim: RF off;	HIFI task	OK
.,	increment frequency by 1	1 W4011	OK.
	increment frequency by I		

Issue: 1

	MHz; RF on		
50	Execute: IST_HIFI_SPT_LO_stand waveBand3cold.config wb2H807.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 waveBand3cold.config wb2H807.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 waveBand3cold.config wb2H807.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 waveBand3cold.config wb2H807.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 waveBand3cold.config wb2H807.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 waveBand3cold.config wb2H807.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 waveBand3cold.config	OBS_ID ending in 306	OK

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	wb2H807.tcl		
65	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
66	Execute:	OBS_ID ending in 307	OK
	IST_HIFI_SPT_LO_stand		
	waveBand3cold.config		
	wb2H807.tcl		
67	LSU sim: RF off;	HIFI task	OK
	increment frequency by 1		
	MHz; RF on		
68	HIFI checks results in HK	Check LCU drain voltages and multiplier currents in HK	
	and science data	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.confi g807wb2.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)	ОК

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

Step #	Action	Comments	Check
1	Select FPU & LCU HK AND		ок
extra	Execute: IST_HIFI_SFT_Band3col d.config_wb2_H_807.tc l	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.confi g807wb2.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)	ок

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		Parameters HM082194 went out of limits. This parameter will be added to ASED NCR 1261.	
extra	Execute: IST_HIFI_SFTBand3col d.configwb2H807.tc l	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)	OK
		Different from last time: Parameters HM082194 went NOT out of limits, ASED NCR 1261 will be updated.	
2	Execute: IST_HIFI_EMC_ConfigureBand3cold.confighr_e mcH807.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)	ок
3	Execute: IST_HIFI_SPT_LO_tune_ Band3cold.config8071 00.tcl		OK
4	Execute: IST_HIFI_EMC_Reference _SpecBand3cold.config2hr_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)	ок
5	HIFI checks results in HK	Check LCU in band 3A	ОК
	and science data	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		ОК
2	Execute: IST_HIFI_EMC_ON_SpecBand3cold.config125hr_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_SpecBand3cold.config125hr_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)	ок
3	Switch EMC source RF off		ОК
4	Execute: IST_HIFI_EMC_ON_SpecBand3cold.config875hr_emc.tcl	This step is skipped.	ок

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5	HIFI checks results in HK and science data	Check FPU in standby (band 0), internal source state is ON	ОК
		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		ОК
2	Switch LSU simulator RF OFF		ОК
3	Execute: IST_HIFI_standby_internal _source_ON_Band0.confi g807wb2.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_la ser_offBand3warm.confi g.tcl	This step is skipped.	ок
4	HIFI checks results in HK and science data	Check FPU in standby (band 0), internal source state is ON	ОК
		Check LCU in standby	ок
		Compare HK with previous results	ок

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)

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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.	OK
		Result: Check and 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.	ОК
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.	ОК
5	Switch off power to FCU manually (executed by HIFI)	Check voltage and current go to zero.	ОК
6	HIFI replaces the HIFI power SCOE		ОК

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

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Issue: 1

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.	ОК
6	Switch off power to FCU manually (executed by HIFI)	Check voltage and current go to zero.	OK

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Issue:

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					ок
2	A few seconds later	Check if the following	ng paramet	ters change	e value:	
	record the value of parameter SCUTEMPSTAT	Parameter	Start	During	End	
		SCUTEMPSTAT	FFFF	-	0	ок
3	A few seconds later record the value of parameter	Check if the following parameters change value:				
		Parameter	Start	During	End	
	SUBKSTAT	SUBKSTAT	1	-	0	ок
4	Note down the value of the MODE parameter on the DPU AND OBS	Check if the following	ng paramet	ters change	value:	
		Parameter	Start	During	End	
	PARAMETERS Display	MODE	REDY	-	ON	ОК

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Issue: 1

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		ок
2	Check that THSK parameter is not refreshing anymore		ОК
3	Check that TM2N parameter is not incrementing anymore		ок
4	Manual Switch off of the DRCU by the I-EGSE staff: 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)		ОК

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Issue: 1

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)	ОК

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Issue: 1

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 is sending no TM packets anymore	OK
	PACS_POWER_OFF_N onPrime.tcl (see Appendix 6)	28 V power is off	OK

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Issue: 1

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_PO WER_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 Check: CDMU DFE HK packets stopped	OK OK
3	Shut down PLM EGSE		ОК

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Issue: 1

10 Summary Sheets

10.1 Procedure Variation Summary

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

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Table 10.1-1: Procedure Variation Sheet

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Issue: 1

10.2 Non Conformance Report (NCR) Summary

NCR - No.	NCR - Title	Date	Open	PA
			Closed	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

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Issue: 1

10.3 Sign-off Sheet

	Name	Date	Signature	
Test Manager	SIDIRE	16-09.05	36	7
Operator	S.ILSEN	16.03.05		\
PA Responsible	D. HENDRY	16/9/05	AU/fendy.	
Maddithelia Mariana and an ang t ra accutace at a sea and a se		nontrium de la contraction de		-

Doc. No:

HP-2-ASED-TR-0091

Issue:

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Date: 16.09.05

File: HP-2-ASED-TR-0091 - HIFI IMT, doc

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=TMpol1,21
               ;TM poll from: SPIRE
2=RTaccessSA
[SubFrame5]
1=TMpacket,21 ;TM packet from: SPIRE
2=TMpol1,25
               ;TM poll from: PACS
3=RTaccessSA
[SubFrame6]
1=TMpacket, 25 ; TM packet from: PACS
               ;TM poll from: HIFI
2=TMpoll,16
3=RTaccessSA
[SubFrame7]
1=TMpacket,16 ;TM packet from: HIFI
2=TMpol1,21
              ;TM poll from: SPIRE
3=RTaccessSA
[SubFrame8]
1=TMpacket,21 ;TM packet from: SPIRE
2=TMpol1,25
              ;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
```

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```
[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]
            ;TC packet to: SPIRE
1=TCpacket
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
[SubFrame 20]
;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=TMpol1,21
              ;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=TMpol1,25
              ;TM poll from: PACS
```

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```
3=RTaccessSA
[SubFrame32]
1=TMpacket,25
              ;TM packet from: PACS
2=RTaccessSA
[SubFrame33]
1=TimeSync
               ;Time distribution broadcast
             ;TC packet to: HIFI
2=TCpacket
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]
               ;TM poll from: HIFI
1=TMpoll,16
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
```

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```
[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
1=RTreadSA,21,1 ;RT status from: SPIRE
2=TMpacket,16 ;TM packet from: HIFI
[SubFrame63]
1=RTreadSA,25,1 ;RT status from: PACS
```

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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 CDMUDFE
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 CDMUDFE 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
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
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
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)
```

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```
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
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
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
2005.256.07.47.39.224665 User Info>: Please check if the force boot has been executed
correctly and press OK.
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
```

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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 frequence 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
2005.256.07.51.49.617857 Status_PLM_LCL3_V is currently 27.9418182373 (extracted from TLM
YM260942)
```

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```
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
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
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
```

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Appendix 3: Log of INSTR_POWER_ON.tcl (Used for SPIRE power on)

```
2005.256.07.56.21.600224
2005.256.07.56.21.601157 Start of Instrument POWER ON sequence.
           *************
2005.256.07.56.21.601474
2005.256.07.56.21.601696 To run this script, the CDMU DFE and PLM SCOE should be
2005.256.07.56.21.601927 powered and configured. 2005.256.07.56.21.602150 To initiate, this script will connect and attach to the CDMUDFE
2005.256.07.56.21.602381 and PLM SCOE.
2005.256.07.56.21.602636
2005.256.07.56.21.602864 Connecting to CDMU DFE
2005.256.07.56.23.608185 Attaching to CMDU DFE
2005.256.07.56.24.615665
2005.256.07.56.24.616015 Connecting to PLM SCOE
2005.256.07.56.26.618930 Attaching to PLM SCOE
2005.256.07.56.27.622915 >>>>>> Reading out CDMUDFE Settings
2005.256.07.56.27.623746
2005.256.07.56.27.754750 Status_CDMU_OnLine is 1 (extracted from TLM YM777944)
2005.256.07.56.27.756514 Status_CDMU_TMpolling is 1 (extracted from TLM YM780944)
2005.256.07.56.27.758121 Status_CDMU_SAreadActive is 1 (extracted from TLM YM781944)
2005.256.07.56.27.759732 Status_CDMU_SAqueueActive is 1 (extracted from TLM YM782944)
2005.256.07.56.27.761366 Status_CDMU_TMqueueActive is 1 (extracted from TLM YM783944)
2005.256.07.56.27.763006 Status_CDMU_TCqueueActive is 1 (extracted from TLM YM784944)
2005.256.07.56.27.764542 Status_CDMU_PSTfileName is HIFI_prime_inst.... (extracted from TLM
YM809944)
2005.256.07.56.27.766209 Status_CDMU_PSTrunning is 1 (extracted from TLM YM829944)
2005.256.07.56.27.766765
2005.256.07.56.27.767779 >>>>>> Reading out PLM SCOE Settings
2005.256.07.56.27.768845
2005.256.07.56.27.936024 Status_PLM_OnLine is 1 (extracted from TLM YM018942)
2005.256.07.56.27.937877 Status_PLM_PSU1_Master is currently 1 (extracted from TLM YM129942)
2005.256.07.56.27.939605 Status_PLM_PSU1_Slave is currently 1 (extracted from TLM YM145942)
2005.256.07.56.27.941332 Status_PLM_PSU2_Master is currently 1 (extracted from TLM YM177942)
2005.256.07.56.27.943077 Status_PLM_PSU2_Slave is currently 1 (extracted from TLM YM193942)
2005.256.07.56.27.946122 Status_PLM_LCL1_V is currently 0.00697093131021 (extracted from TLM
YM228942)
2005.256.07.56.27.948801 Status_PLM_LCL1_I is currently 0.000917372351978 (extracted from TLM
YM232942)
2005.256.07.56.27.951845 Status_PLM_LCL2_V is currently 0.0650620236993 (extracted from TLM
YM244942)
2005.256.07.56.27.954493 Status_PLM_LCL2_I is currently 0.00607919460163 (extracted from TLM
YM248942)
2005.256.07.56.27.957604 Status_PLM_LCL3_V is currently 27.9441413879 (extracted from TLM
YM260942)
2005.256.07.56.27.960226 Status_PLM_LCL3_I is currently 0.487348765135 (extracted from TLM
YM264942)
2005.256.07.56.27.963331 Status_PLM_LCL4_V is currently 27.9418182373 (extracted from TLM
2005.256.07.56.27.965940 Status_PLM_LCL4_I is currently 0.70265352726 (extracted from TLM
YM280942)
2005.256.07.56.27.968998 Status_PLM_LCL5_V is currently 27.9394931793 (extracted from TLM
2005.256.07.56.27.971697 Status_PLM_LCL5_I is currently 0.957473099232 (extracted from TLM
YM296942)
2005.256.07.56.27.974775 Status_PLM_LCL6_V is currently 0.0766802430153 (extracted from TLM
2005.256.07.56.27.977421 Status_PLM_LCL6_I is currently 0.00379949645139 (extracted from TLM
YM312942)
2005.256.07.56.28.035007 Status_PLM_LCL7_V is currently 27.7187461853 (extracted from TLM
YM324942)
```

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```
2005.256.07.56.28.037989 Status_PLM_LCL7_I is currently 2.6049349308 (extracted from TLM
YM328942)
2005.256.07.56.28.041157 Status_PLM_LCL8_V is currently 0.00929457508028 (extracted from TLM
YM340942)
2005.256.07.56.28.043862 Status_PLM_LCL8_I is currently 0.0045593958348 (extracted from TLM
YM344942)
2005.256.07.56.28.047099 Status_PLM_LCL9_V is currently 0.00697093131021 (extracted from TLM
YM356942)
2005.256.07.56.28.049927 Status_PLM_LCL9_I is currently 0.00253299763426 (extracted from TLM
YM360942)
2005.256.07.56.28.053076 Status_PLM_LCL10_V is currently 0.00929457508028 (extracted from TLM
YM372942)
2005.256.07.56.28.055803 Status_PLM_LCL10_I is currently 0.00278629735112 (extracted from TLM
YM376942)
2005.256.07.56.28.058991 Status_PLM_LCL11_V is currently 27.9650535583 (extracted from TLM
YM388942)
2005.256.07.56.28.061779 Status_PLM_LCL11_I is currently 0.0448340587318 (extracted from TLM
YM392942)
2005.256.07.56.28.064968 Status_PLM_LCL12_V is currently 27.8906974792 (extracted from TLM
YM404942)
2005.256.07.56.28.067720 Status_PLM_LCL12_I is currently 0.761925697327 (extracted from TLM
YM408942)
2005.256.07.56.28.070917 Status_PLM_LCL13_V is currently 27.9511127472 (extracted from TLM
YM420942)
2005.256.07.56.28.073755 Status_PLM_LCL13_I is currently 0.432129412889 (extracted from TLM
YM424942)
2005.256.07.56.28.076995 Status_PLM_LCL14_V is currently 28.0231437683 (extracted from TLM
YM436942)
2005.256.07.56.28.079764 Status_PLM_LCL14_I is currently 0.744194746017 (extracted from TLM
YM440942)
2005.256.07.56.28.080462
2005.256.07.56.28.081102
                    *******************
2005.256.07.56.28.082119 Power On Instruments
2005.256.07.56.28.082831
2005.256.07.56.28.083479
2005.256.07.56.28.084091
2005.256.07.56.28.085357 >>>>>> Start Up Instruments
2005.256.07.56.28.086602
2005.256.07.56.28.121435 Which instrument needs to be Powered? PACS, SPIRE, HIFI, CCU?
2005.256.07.56.57.683953 You have selected to power SPIRE.
2005.256.07.56.57.684537
2005.256.07.56.57.685221 The current power on order is:
2005.256.07.56.57.685850
2005.256.07.56.57.687505 1. LCL 1 SPIRE HSDPU Primary Voltage: 0.00697093131021 V
Current: 0.000917372351978 A
2005.256.07.56.57.688282 2. LCL 0
                                  N/A
                                        Primary
                                                Voltage: N/A V
                                                                  Current: N/A A
2005.256.07.56.57.688963
2005.256.07.56.57.721970
                      Do you want to change this order? : Choose Yes or No
2005.256.07.57.00.666342 User has chosen NO
2005.256.07.57.02.669936
                      Do you want to enable the PSU(s)? : Choose Yes or No
2005.256.07.57.02.719014
2005.256.07.57.05.692888 User has chosen YES
2005.256.07.57.07.697543
                       Sending Telecommand YC036942
2005.256.07.57.07.764354
2005.256.07.57.07.764719 Synchronizing on SEV...
2005.256.07.57.07.765848 Synchronised on SEV for TC(s): YC036942
2005.256.07.57.07.766536
2005.256.07.57.07.767127
                      >>> Checking
2005.256.07.57.13.772510 PSU 1 Master status is currently 1 (from YM129942)
2005.256.07.57.13.772897
                       PSU 1 Slave status is currently 1 (from YM145942)
2005.256.07.57.13.773515
2005.256.07.57.13.865343 User Info>: Check Successful! PSU 1 has been enabled.
2005.256.07.57.15.578153
2005.256.07.57.15.578545 >>> Start Enabling LCL's
2005.256.07.57.15.579157
```

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2005.256.07.57.15.611534 Do you want to enable LCL 1? : Choose Yes or No
2005.256.07.57.20.360020 User has chosen YES
2005.256.07.57.22.364763
2005.256.07.57.22.460747
                       Sending Telecommand YC040942 to Enable Limiter
2005.256.07.57.22.461119
                       Synchronizing on SEV...
                       Synchronised on SEV for TC(s): YC040942
2005.256.07.57.22.462213
2005.256.07.57.22.462920
2005.256.07.57.22.527504 Sending Telecommand YC043942 to Set Limiter
2005.256.07.57.22.527869 Synchronizing on SEV...
2005.256.07.57.22.573981 Synchronised on SEV for TC(s): YC043942
2005.256.07.57.22.574363
2005.256.07.57.22.574930 >>> Checking
2005.256.07.57.28.580340
                       LCL 1 has currently a voltage of 27.858165741.(from YM228942)
2005.256.07.57.28.580738 LCL 1 has currently a current of 0.461336344481.(from YM232942)
2005.256.07.57.28.581431
2005.256.07.57.28.610337 User Info>: Check Successful! LCL 1 has been enabled.
2005.256.07.57.28.610934 ******************************
2005.256.07.58.03.052776
2005.256.07.58.03.102215 User Info>: No LCL is selected to be switched on as second
2005.256.07.58.03.102812 ******************
2005.256.07.58.03.786046
2005.256.07.58.03.786432
2005.256.07.58.03.787009 All selected LCL's for SPIRE are powered.
2005.256.07.58.03.787583
2005.256.07.58.03.870839 Do you want to power on another instrument? : Choose Yes or No
2005.256.07.58.05.263940 User has chosen NO
2005.256.07.58.07.268167
2005.256.07.58.07.269449 >>>>>> Reading out PLM SCOE Settings
2005.256.07.58.07.270597
2005.256.07.58.07.271774 Status_PLM_OnLine is 1 (extracted from TLM YM018942)
2005.256.07.58.07.272879 Status_PLM_PSU1_Master is currently 1 (extracted from TLM YM129942)
2005.256.07.58.07.273913~Status\_PLM\_PSU1\_Slave~is~currently~1~(extracted~from~TLM~YM145942)
2005.256.07.58.07.274938 Status_PLM_PSU2_Master is currently 1 (extracted from TLM YM177942)
2005.256.07.58.07.275972 Status_PLM_PSU2_Slave is currently 1 (extracted from TLM YM193942)
2005.256.07.58.07.277048 Status_PLM_LCL1_V is currently 27.8604888916 (extracted from TLM
YM228942)
2005.256.07.58.07.278134 Status_PLM_LCL1_I is currently 0.434834480286 (extracted from TLM
YM232942)
2005.256.07.58.07.279213 Status_PLM_LCL2_V is currently 0.0627383813262 (extracted from TLM
YM244942)
2005.256.07.58.07.280301 Status_PLM_LCL2_I is currently 0.00557259470224 (extracted from TLM
YM248942)
2005.256.07.58.07.281424 Status_PLM_LCL3_V is currently 27.9418182373 (extracted from TLM
YM260942)
2005.256.07.58.07.282547 Status_PLM_LCL3_I is currently 0.489375174046 (extracted from TLM
YM264942)
2005.256.07.58.07.283748 Status_PLM_LCL4_V is currently 27.9441413879 (extracted from TLM
YM276942)
2005.256.07.58.07.284843 Status_PLM_LCL4_I is currently 0.701640367508 (extracted from TLM
YM280942)
2005.256.07.58.07.285934 Status_PLM_LCL5_V is currently 27.9394931793 (extracted from TLM
YM292942)
2005.256.07.58.07.287023 Status_PLM_LCL5_I is currently 0.957726418972 (extracted from TLM
YM296942)
2005.256.07.58.07.288130 Status_PLM_LCL6_V is currently 0.0766802430153 (extracted from TLM
YM308942)
2005.256.07.58.07.289225 Status_PLM_LCL6_I is currently 0.00379949645139 (extracted from TLM
YM312942)
2005.256.07.58.07.290322 Status_PLM_LCL7_V is currently 27.7187461853 (extracted from TLM
YM324942)
2005.256.07.58.07.291411 Status_PLM_LCL7_I is currently 2.6049349308 (extracted from TLM
YM328942)
2005.256.07.58.07.292506 Status_PLM_LCL8_V is currently 0.00929457508028 (extracted from TLM
2005.256.07.58.07.293639 Status_PLM_LCL8_I is currently 0.0045593958348 (extracted from TLM
YM344942)
```

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```
2005.256.07.58.07.294752 Status_PLM_LCL9_V is currently 0.00697093131021 (extracted from TLM
YM356942)
2005.256.07.58.07.295872 Status_PLM_LCL9_I is currently 0.00253299763426 (extracted from TLM
YM360942)
2005.256.07.58.07.296984 Status_PLM_LCL10_V is currently 0.00929457508028 (extracted from TLM
YM372942)
2005.256.07.58.07.298084 Status_PLM_LCL10_I is currently 0.00278629735112 (extracted from TLM
YM376942)
2005.256.07.58.07.299216 Status_PLM_LCL11_V is currently 27.9650535583 (extracted from TLM
YM388942)
2005.256.07.58.07.300333 Status_PLM_LCL11_I is currently 0.0448340587318 (extracted from TLM
2005.256.07.58.07.301472 Status_PLM_LCL12_V is currently 27.8883743286 (extracted from TLM
YM404942)
2005.256.07.58.07.303981 Status_PLM_LCL12_I is currently 0.762938916683 (extracted from TLM
YM408942)
2005.256.07.58.07.305357 Status_PLM_LCL13_V is currently 27.9534358978 (extracted from TLM
YM420942)
2005.256.07.58.07.306771 Status_PLM_LCL13_I is currently 0.432129412889 (extracted from TLM
YM424942)
2005.256.07.58.07.308718 Status_PLM_LCL14_V is currently 28.0254669189 (extracted from TLM
YM436942)
2005.256.07.58.07.320895 Status_PLM_LCL14_I is currently 0.743688166142 (extracted from TLM
YM440942)
```

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Appendix 4: Log of INSTR_POWER_OFF.tcl (used for HIFI power down)

```
2005.259.06.45.41.505043
2005.259.06.45.41.506666 Start of Instrument POWER OFF sequence.
           2005.259.06.45.41.507234
2005.259.06.45.41.509135 To run this script, the CDMU DFE and PLM SCOE should be
2005.259.06.45.41.509787 powered and configured. 2005.259.06.45.41.511949 To initiate, this script will connect and attach to the CDMUDFE
2005.259.06.45.41.513561 and PLM SCOE.
2005.259.06.45.41.520830
2005.259.06.45.41.521343 Connecting to CDMU DFE
2005.259.06.45.43.530395 Attaching to CMDU DFE
2005.259.06.45.44.541397
2005.259.06.45.44.541761 Connecting to PLM SCOE
2005.259.06.45.46.544689 Attaching to PLM SCOE
2005.259.06.45.47.548643 >>>>>> Reading out CDMUDFE Settings
2005.259.06.45.47.549475
2005.259.06.45.47.834175 Status_CDMU_OnLine is 1 (extracted from TLM YM777944)
2005.259.06.45.47.836468 Status_CDMU_TMpolling is 1 (extracted from TLM YM780944)
2005.259.06.45.47.838514 Status_CDMU_SAreadActive is 1 (extracted from TLM YM781944)
2005.259.06.45.47.840536 \ Status\_CDMU\_SAqueueActive is 1 (extracted from TLM YM782944)
2005.259.06.45.47.842550 Status_CDMU_TMqueueActive is 1 (extracted from TLM YM783944)
2005.259.06.45.47.844613 Status_CDMU_TCqueueActive is 1 (extracted from TLM YM784944)
2005.259.06.45.47.846510 Status_CDMU_PSTfileName is HIFI_prime_inst.... (extracted from TLM
YM809944)
2005.259.06.45.47.848636 Status_CDMU_PSTrunning is 1 (extracted from TLM YM829944)
2005.259.06.45.47.849193
2005.259.06.45.47.850209 >>>>>> Reading out PLM SCOE Settings
2005.259.06.45.47.851291
2005.259.06.45.47.949772 Status_PLM_OnLine is 1 (extracted from TLM YM018942)
2005.259.06.45.47.952066 Status_PLM_PSU1_Master is currently 1 (extracted from TLM YM129942)
2005.259.06.45.47.954233 Status_PLM_PSU1_Slave is currently 1 (extracted from TLM YM145942)
2005.259.06.45.47.956388 Status_PLM_PSU2_Master is currently 1 (extracted from TLM YM177942)
2005.259.06.45.47.958616 Status_PLM_PSU2_Slave is currently 1 (extracted from TLM YM193942)
2005.259.06.45.47.963288 Status_PLM_LCL1_V is currently 27.8628120422 (extracted from TLM
YM228942)
2005.259.06.45.47.966493 Status_PLM_LCL1_I is currently 0.435038357973 (extracted from TLM
YM232942)
2005.259.06.45.47.970728 Status_PLM_LCL2_V is currently 0.0627383813262 (extracted from TLM
YM244942)
2005.259.06.45.47.973869 Status_PLM_LCL2_I is currently 0.00607919460163 (extracted from TLM
YM248942)
2005.259.06.45.47.978120 Status_PLM_LCL3_V is currently 27.9418182373 (extracted from TLM
YM260942)
2005.259.06.45.47.981283 Status_PLM_LCL3_I is currently 0.484815746546 (extracted from TLM
YM264942)
2005.259.06.45.47.985612 Status_PLM_LCL4_V is currently 27.9418182373 (extracted from TLM
2005.259.06.45.47.988844 Status_PLM_LCL4_I is currently 0.753313541412 (extracted from TLM
YM280942)
2005.259.06.45.47.993214 Status_PLM_LCL5_V is currently 27.9418182373 (extracted from TLM
2005.259.06.45.47.996523 Status_PLM_LCL5_I is currently 0.957726418972 (extracted from TLM
YM296942)
2005.259.06.45.48.000860 Status_PLM_LCL6_V is currently 0.0766802430153 (extracted from TLM
2005.259.06.45.48.004727 Status_PLM_LCL6_I is currently 0.00379949645139 (extracted from TLM
YM312942)
2005.259.06.45.48.009277 Status_PLM_LCL7_V is currently 27.7187461853 (extracted from TLM
YM324942)
```

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```
2005.259.06.45.48.012478 Status_PLM_LCL7_I is currently 2.60544157028 (extracted from TLM
YM328942)
2005.259.06.45.48.016837 Status_PLM_LCL8_V is currently 0.00929457508028 (extracted from TLM
YM340942)
2005.259.06.45.48.020153 Status_PLM_LCL8_I is currently 0.0045593958348 (extracted from TLM
YM344942)
2005.259.06.45.48.024527 Status_PLM_LCL9_V is currently 0.00697093131021 (extracted from TLM
YM356942)
2005.259.06.45.48.027910 Status_PLM_LCL9_I is currently 0.00253299763426 (extracted from TLM
YM360942)
2005.259.06.45.48.032256 Status_PLM_LCL10_V is currently 0.00929457508028 (extracted from TLM
YM372942)
2005.259.06.45.48.035567 Status_PLM_LCL10_I is currently 0.00278629735112 (extracted from TLM
YM376942)
2005.259.06.45.48.040047 Status_PLM_LCL11_V is currently 27.967376709 (extracted from TLM
YM388942)
2005.259.06.45.48.043412 Status_PLM_LCL11_I is currently 0.0448340587318 (extracted from TLM
YM392942)
2005.259.06.45.48.048352 Status_PLM_LCL12_V is currently 27.8883743286 (extracted from TLM
YM404942)
2005.259.06.45.48.052135 Status_PLM_LCL12_I is currently 0.742168307304 (extracted from TLM
YM408942)
2005.259.06.45.48.056607 Status_PLM_LCL13_V is currently 27.9557590485 (extracted from TLM
YM420942)
2005.259.06.45.48.060075 Status_PLM_LCL13_I is currently 0.430609613657 (extracted from TLM
YM424942)
2005.259.06.45.48.064559 Status_PLM_LCL14_V is currently 28.0231437683 (extracted from TLM
YM436942)
2005.259.06.45.48.067929 Status_PLM_LCL14_I is currently 0.744194746017 (extracted from TLM
YM440942)
2005.259.06.45.48.068623
2005.259.06.45.48.069286
                      2005.259.06.45.48.070304 Power On Instruments
2005.259.06.45.48.071021
2005.259.06.45.48.071676
2005.259.06.45.48.072309
2005.259.06.45.48.073572 >>>>>> Start Up Instruments
2005.259.06.45.48.074850
2005.259.06.45.48.111559 Which instrument needs to be Powered down? PACS, SPIRE, HIFI, CCU?
2005.259.06.46.06.701180 You have selected to power down HIFI.
2005.259.06.46.06.701781
2005.259.06.46.06.702459 The current power down order is:
2005.259.06.46.06.703096
2005.259.06.46.06.704795 1. LCL 4 HIFI LCU
                                              Voltage: 27.9394931793 V
                                                                           Current:
0.753313541412 A
2005.259.06.46.06.706345 2. LCL 5
                                   HIFI WEH
                                               Voltage: 27.9418182373 V
                                                                           Current:
0.957219839096 A
2005.259.06.46.06.707876 3. LCL 7
                                   HIFI HRH
                                               Voltage: 27.7187461853 V
                                                                           Current:
2.60544157028 A
2005.259.06.46.06.709375 4. LCL 3
                                   HIFI ICU
                                               Voltage: 27.9418182373 V
                                                                           Current:
0.48430916667 A
                                                            Current: N/A A
2005.259.06.46.06.710216 5. LCL 0
                                   N/A
                                           Voltage: N/A V
2005.259.06.46.06.710915 6. LCL 0
                                 N/A
                                          Voltage: N/A V
                                                            Current: N/A A
2005.259.06.46.06.711601
2005.259.06.46.06.746634 Do you want to change this order? : Choose Yes or No
2005.259.06.47.32.203185
                       User has chosen NO
2005.259.06.47.34.205419
2005.259.06.47.34.205804 >>> Disable LCL's
2005.259.06.47.34.206438
2005.259.06.47.34.245630 Do you want to disable LCL 4? : Choose Yes or No
2005.259.06.47.40.481838 User has chosen YES
2005.259.06.47.42.485962
2005.259.06.47.42.565074 Sending Telecommand YC041942 to Disable Limiter
2005.259.06.47.42.565470
                        Synchronizing on SEV...
2005.259.06.47.42.583389
                       Synchronised on SEV for TC(s): YC041942
2005.259.06.47.42.584117
2005.259.06.47.42.584723 >>> Checking
```

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```
2005.259.06.47.48.590266 LCL 4 has currently a voltage of 0.034854657948.(from YM276942)
2005.259.06.47.48.590667 LCL 4 has currently a current of 0.00607919460163.(from YM280942)
2005.259.06.47.48.591306
2005.259.06.47.48.667108 User Info>: Check Successful! LCL 4 has been disabled.
2005.259.06.49.57.634893
2005.259.06.49.57.674090 Do you want to disable LCL 5? : Choose Yes or No
2005.259.06.49.59.130770 User has chosen YES
2005.259.06.50.01.134666
2005.259.06.50.01.190696 Sending Telecommand YC041942 to Disable Limiter
2005.259.06.50.01.191072 Synchronizing on SEV...
2005.259.06.50.01.197422 Synchronised on SEV for TC(s): YC041942
2005.259.06.50.01.197896
2005.259.06.50.01.198492 >>> Checking
2005.259.06.50.07.204826 LCL 5 has currently a voltage of 0.0325310118496.(from YM292942)
2005.259.06.50.07.205231 LCL 5 has currently a current of 0.000759899325203.(from YM296942)
2005.259.06.50.07.205885
2005.259.06.50.07.259196 User Info>: Check Successful! LCL 5 has been disabled.
2005.259.06.50.09.269575
2005.259.06.50.09.324238 Do you want to disable LCL 7? : Choose Yes or No
2005.259.06.50.11.371681
                   User has chosen YES
2005.259.06.50.13.374840
                   Sending Telecommand YC041942 to Disable Limiter
2005.259.06.50.13.403667
2005.259.06.50.13.404038 Synchronizing on SEV...
2005.259.06.50.13.447917 Synchronised on SEV for TC(s): YC041942
2005.259.06.50.13.448300
2005.259.06.50.13.448907 >>> Checking
2005.259.06.50.19.451876 LCL 7 has currently a voltage of 0.034854657948.(from YM324942)
2005.259.06.50.19.452278 LCL 7 has currently a current of 0.00506599526852.(from YM328942)
2005.259.06.50.19.452904
2005.259.06.50.19.522001 User Info>: Check Successful! LCL 7 has been disabled.
2005.259.06.50.21.696263
2005.259.06.50.21.745857 Do you want to disable LCL 3? : Choose Yes or No
2005.259.06.50.29.752749 User has chosen NO
2005.259.06.50.31.757681
2005.259.06.50.31.793303 User Info>: No LCL is selected to be switched on as fifth
2005.259.06.50.32.676199
2005.259.06.50.32.711992 User Info>: No LCL is selected to be switched on as sixth
2005.259.06.50.33.106578
2005.259.06.50.33.140565 Do you want to disable PSU(s)? : Choose Yes or No
2005.259.06.50.34.495075 User has chosen NO
2005.259.06.50.36.498228
2005.259.06.50.36.499525 PSU 1 Master status is currently 1 (from YM129942)
2005.259.06.50.36.500193 PSU 1 Slave status is currently 1 (from YM145942)
2005.259.06.50.36.501574 PSU 2 Master status is currently 1 (from YM177942)
2005.259.06.50.36.502413 PSU 2 Slave status is currently 1 (from YM193942)
2005.259.06.50.36.503057
2005.259.06.50.36.503653 Power down of HIFI is done.
2005.259.06.50.36.504238
2005.259.06.50.36.553026 Do you want to power down another instrument? : Choose Yes or No
2005.259.06.50.40.890332
                   User has chosen NO
2005.259.06.50.42.894650
2005.259.06.50.42.895961 >>>>>> Reading out PLM SCOE Settings
2005.259.06.50.42.897404
2005.259.06.50.42.899155 Status_PLM_OnLine is 1 (extracted from TLM YM018942)
2005.259.06.50.42.900340 Status_PLM_PSU1_Master is currently 1 (extracted from TLM YM129942)
2005.259.06.50.42.901398 Status_PLM_PSU1_Slave is currently 1 (extracted from TLM YM145942)
2005.259.06.50.42.902494 Status_PLM_PSU2_Master is currently 1 (extracted from TLM YM177942)
2005.259.06.50.42.903555 Status_PLM_PSU2_Slave is currently 1 (extracted from TLM YM193942)
```

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```
2005.259.06.50.42.904678 Status_PLM_LCL1_V is currently 27.8604888916 (extracted from TLM
YM228942)
2005.259.06.50.42.905770 Status_PLM_LCL1_I is currently 0.434120982885 (extracted from TLM
YM232942)
2005.259.06.50.42.906877 Status_PLM_LCL2_V is currently 0.0627383813262 (extracted from TLM
YM244942)
2005.259.06.50.42.908076 Status_PLM_LCL2_I is currently 0.00607919460163 (extracted from TLM
YM248942)
2005.259.06.50.42.909268 Status_PLM_LCL3_V is currently 27.9418182373 (extracted from TLM
YM260942)
2005.259.06.50.42.910501 Status_PLM_LCL3_I is currently 0.485322386026 (extracted from TLM
2005.259.06.50.42.911694 Status_PLM_LCL4_V is currently 0.0371783003211 (extracted from TLM
YM276942)
2005.259.06.50.42.912836 Status_PLM_LCL4_I is currently 0.00607919460163 (extracted from TLM
YM280942)
2005.259.06.50.42.913955 Status_PLM_LCL5_V is currently 0.0325310118496 (extracted from TLM
YM292942)
2005.259.06.50.42.915063 Status_PLM_LCL5_I is currently 0.000759899325203 (extracted from TLM
YM296942)
2005.259.06.50.42.916231 Status_PLM_LCL6_V is currently 0.079003892839 (extracted from TLM
YM308942)
2005.259.06.50.42.917333 Status_PLM_LCL6_I is currently 0.00379949645139 (extracted from TLM
YM312942)
2005.259.06.50.42.918461 Status_PLM_LCL7_V is currently 0.034854657948 (extracted from TLM
YM324942)
2005.259.06.50.42.919567 Status_PLM_LCL7_I is currently 0.00506599526852 (extracted from TLM
YM328942)
2005.259.06.50.42.920664 Status_PLM_LCL8_V is currently 0.00929457508028 (extracted from TLM
YM340942)
2005.259.06.50.42.921990 Status_PLM_LCL8_I is currently 0.0045593958348 (extracted from TLM
YM344942)
2005.259.06.50.42.923856 Status_PLM_LCL9_V is currently 0.00697093131021 (extracted from TLM
YM356942)
2005.259.06.50.42.925045 Status PLM LCL9 I is currently 0.00253299763426 (extracted from TLM
YM360942)
2005.259.06.50.42.926170 Status_PLM_LCL10_V is currently 0.00929457508028 (extracted from TLM
YM372942)
2005.259.06.50.42.927280 Status_PLM_LCL10_I is currently 0.00303959730081 (extracted from TLM
YM376942)
2005.259.06.50.42.928403 Status_PLM_LCL11_V is currently 27.9650535583 (extracted from TLM)
YM388942)
2005.259.06.50.42.929540 Status_PLM_LCL11_I is currently 0.0448340587318 (extracted from TLM
YM392942)
2005.259.06.50.42.930649 Status_PLM_LCL12_V is currently 27.8906974792 (extracted from TLM
YM404942)
2005.259.06.50.42.931830 Status_PLM_LCL12_I is currently 0.748754143715 (extracted from TLM
YM408942)
2005.259.06.50.42.932957 Status_PLM_LCL13_V is currently 27.9557590485 (extracted from TLM
YM420942)
2005.259.06.50.42.934101 Status_PLM_LCL13_I is currently 0.42782330513 (extracted from TLM
YM424942)
2005.259.06.50.42.935245 Status PLM LCL14 V is currently 28.0254669189 (extracted from TLM
YM436942)
2005.259.06.50.42.936390 Status_PLM_LCL14_I is currently 0.742421627045 (extracted from TLM
YM440942)
```

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Appendix 5: Log of INSTR_POWER_OFF.tcl (used for SPIRE power down)

```
2005.259.12.15.06.097960 Start of Instrument POWER OFF sequence.
          2005.259.12.15.06.098271
2005.259.12.15.06.098499 To run this script, the CDMU DFE and PLM SCOE should be
2005.259.12.15.06.098732 powered and configured. 2005.259.12.15.06.098956 To initiate, this script will connect and attach to the CDMUDFE
2005.259.12.15.06.099195 and PLM SCOE.
2005.259.12.15.06.099441
2005.259.12.15.06.099668 Connecting to CDMU DFE
2005.259.12.15.08.106879 Attaching to CMDU DFE
2005.259.12.15.09.114384
2005.259.12.15.09.114746 Connecting to PLM SCOE
2005.259.12.15.11.117632 Attaching to PLM SCOE
2005.259.12.15.12.121594 >>>>>> Reading out CDMUDFE Settings
2005.259.12.15.12.122432
2005.259.12.15.12.320252 Status_CDMU_OnLine is 1 (extracted from TLM YM777944)
2005.259.12.15.12.323151 Status_CDMU_TMpolling is 1 (extracted from TLM YM780944)
2005.259.12.15.12.325893 Status_CDMU_SAreadActive is 1 (extracted from TLM YM781944)
2005.259.12.15.12.328531 \ {\tt Status\_CDMU\_SAqueueActive} \ {\tt is} \ 1 \ ({\tt extracted from} \ {\tt TLM} \ {\tt YM782944})
2005.259.12.15.12.330932 Status_CDMU_TMqueueActive is 1 (extracted from TLM YM783944)
2005.259.12.15.12.333437 Status_CDMU_TCqueueActive is 1 (extracted from TLM YM784944)
2005.259.12.15.12.335708 Status_CDMU_PSTfileName is HIFI_prime_inst.... (extracted from TLM
YM809944)
2005.259.12.15.12.338257 \ {\tt Status\_CDMU\_PSTrunning is 1 (extracted from TLM YM829944)}
2005.259.12.15.12.338864
2005.259.12.15.12.339933 >>>>>> Reading out PLM SCOE Settings
2005.259.12.15.12.340998
2005.259.12.15.12.485221 Status_PLM_OnLine is 1 (extracted from TLM YM018942)
2005.259.12.15.12.487846 Status_PLM_PSU1_Master is currently 1 (extracted from TLM YM129942)
2005.259.12.15.12.490359 Status_PLM_PSU1_Slave is currently 1 (extracted from TLM YM145942)
2005.259.12.15.12.492902 Status_PLM_PSU2_Master is currently 1 (extracted from TLM YM177942)
2005.259.12.15.12.495514 Status_PLM_PSU2_Slave is currently 1 (extracted from TLM YM193942)
2005.259.12.15.12.500576 Status_PLM_LCL1_V is currently 27.8604888916 (extracted from TLM
YM228942)
2005.259.12.15.12.504117 Status_PLM_LCL1_I is currently 0.433509409428 (extracted from TLM
YM232942)
2005.259.12.15.12.508719 Status_PLM_LCL2_V is currently 0.0650620236993 (extracted from TLM
YM244942)
2005.259.12.15.12.512243 Status_PLM_LCL2_I is currently 0.00557259470224 (extracted from TLM
YM248942)
2005.259.12.15.12.516838 Status_PLM_LCL3_V is currently 0.00929457508028 (extracted from TLM
YM260942)
2005.259.12.15.12.520349 Status_PLM_LCL3_I is currently 0.00709239346907 (extracted from TLM
YM264942)
2005.259.12.15.12.524983 Status_PLM_LCL4_V is currently 0.0371783003211 (extracted from TLM
2005.259.12.15.12.528655 Status_PLM_LCL4_I is currently 0.00607919460163 (extracted from TLM
YM280942)
2005.259.12.15.12.533297 Status_PLM_LCL5_V is currently 0.0302073694766 (extracted from TLM
2005.259.12.15.12.536895 Status_PLM_LCL5_I is currently 0.000759899325203 (extracted from TLM
YM296942)
2005.259.12.15.12.541575 Status_PLM_LCL6_V is currently 0.0766802430153 (extracted from TLM
2005.259.12.15.12.545297 Status_PLM_LCL6_I is currently 0.00379949645139 (extracted from TLM
YM312942)
2005.259.12.15.12.550010 Status_PLM_LCL7_V is currently 0.034854657948 (extracted from TLM
YM324942)
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2005.259.12.15.06.097027

```
2005.259.12.15.12.553589 Status_PLM_LCL7_I is currently 0.00506599526852 (extracted from TLM
YM328942)
2005.259.12.15.12.558368 Status_PLM_LCL8_V is currently 0.00929457508028 (extracted from TLM
YM340942)
2005.259.12.15.12.562011 Status_PLM_LCL8_I is currently 0.0045593958348 (extracted from TLM
YM344942)
2005.259.12.15.12.566743 Status_PLM_LCL9_V is currently 0.00697093131021 (extracted from TLM
YM356942)
2005.259.12.15.12.570483 Status_PLM_LCL9_I is currently 0.00253299763426 (extracted from TLM
YM360942)
2005.259.12.15.12.575235 Status_PLM_LCL10_V is currently 0.00929457508028 (extracted from TLM
YM372942)
2005.259.12.15.12.578943 Status_PLM_LCL10_I is currently 0.00278629735112 (extracted from TLM
YM376942)
2005.259.12.15.12.583764 Status_PLM_LCL11_V is currently 27.967376709 (extracted from TLM
YM388942)
2005.259.12.15.12.587637 Status_PLM_LCL11_I is currently 0.0448340587318 (extracted from TLM
YM392942)
2005.259.12.15.12.592502 Status_PLM_LCL12_V is currently 27.8906974792 (extracted from TLM
YM404942)
2005.259.12.15.12.596210 Status_PLM_LCL12_I is currently 0.760912537575 (extracted from TLM
YM408942)
2005.259.12.15.12.601092 Status_PLM_LCL13_V is currently 27.9557590485 (extracted from TLM
YM420942)
2005.259.12.15.12.604812 Status_PLM_LCL13_I is currently 0.42782330513 (extracted from TLM
YM424942)
2005.259.12.15.12.609671 Status_PLM_LCL14_V is currently 28.0254669189 (extracted from TLM
YM436942)
2005.259.12.15.12.613442 Status_PLM_LCL14_I is currently 0.743181526661 (extracted from TLM
YM440942)
2005.259.12.15.12.614192
2005.259.12.15.12.614816
     ******************
2005.259.12.15.12.615795 Power On Instruments
2005.259.12.15.12.616603
2005.259.12.15.12.617225
2005.259.12.15.12.617829
2005.259.12.15.12.619062 >>>>>> Start Up Instruments
2005.259.12.15.12.620310
2005.259.12.15.12.659251 Which instrument needs to be Powered down? PACS, SPIRE, HIFI, CCU?
2005.259.12.15.16.329278 You have selected to power down SPIRE.
2005.259.12.15.16.329861
2005.259.12.15.16.330510 The current power down order is:
2005.259.12.15.16.331132
2005.259.12.15.16.332770 1. LCL 1 SPIRE HSDPU Voltage: 27.8604888916 V
                                                                          Current:
0.433509409428 A
2005.259.12.15.16.333520 2. LCL 0
                                  N/A
                                         Voltage: N/A V
                                                           Current: N/A A
2005.259.12.15.16.334180
2005.259.12.15.16.380144
                       Do you want to change this order? : Choose Yes or No
2005.259.12.15.17.542237
                       User has chosen NO
2005.259.12.15.19.546727
2005.259.12.15.19.547114
                       >>> Disable LCL's
2005.259.12.15.19.547750
2005.259.12.15.19.597975 Do you want to disable LCL 1? : Choose Yes or No
2005.259.12.15.21.231418
                       User has chosen YES
2005.259.12.15.23.234955
                       Sending Telecommand YC041942 to Disable Limiter
2005.259.12.15.23.309611
2005.259.12.15.23.309977
                       Synchronizing on SEV...
2005.259.12.15.23.314431
                       Synchronised on SEV for TC(s): YC041942
2005.259.12.15.23.314802
2005.259.12.15.23.315407
                       >>> Checking
2005.259.12.15.29.317866
                       LCL 1 has currently a voltage of 0.00697093131021.(from YM228942)
2005.259.12.15.29.318273 LCL 1 has currently a current of 0.00101930263918.(from YM232942)
2005.259.12.15.29.318962
2005.259.12.15.29.352612 User Info>: Check Successful! LCL 1 has been disabled.
2005.259.12.15.29.353287 ***********************************
2005.259.12.15.30.888777
```

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2005.259.12.15.30.939138 User Info>: No LCL is selected to be switched on as second
2005.259.12.15.31.759743
2005.259.12.15.31.859333 Do you want to disable PSU(s)? : Choose Yes or No
2005.259.12.15.34.127889
                       User has chosen NO
2005.259.12.15.36.131246
2005.259.12.15.36.132556 PSU 1 Master status is currently 1 (from YM129942)
2005.259.12.15.36.133286 PSU 1 Slave status is currently 1 (from YM145942)
2005.259.12.15.36.134608 PSU 2 Master status is currently 1 (from YM177942)
2005.259.12.15.36.135230
                       PSU 2 Slave status is currently 1 (from YM193942)
2005.259.12.15.36.135877
2005.259.12.15.36.136443 Power down of SPIRE is done.
2005.259.12.15.36.136998
2005.259.12.15.36.210090 Do you want to power down another instrument? : Choose Yes or No
2005.259.12.15.46.671797
                       User has chosen NO
2005.259.12.15.48.675991
2005.259.12.15.48.677263 >>>>>> Reading out PLM SCOE Settings
2005.259.12.15.48.678410
2005.259.12.15.48.679601~Status\_PLM\_OnLine~is~1~(extracted~from~TLM~YM018942)
2005.259.12.15.48.680659 Status_PLM_PSU1_Master is currently 1 (extracted from TLM YM129942)
2005.259.12.15.48.681732 Status_PLM_PSU1_Slave is currently 1 (extracted from TLM YM145942)
2005.259.12.15.48.682777 Status_PLM_PSU2_Master is currently 1 (extracted from TLM YM177942)
2005.259.12.15.48.683821 \ Status\_PLM\_PSU2\_Slave \ is \ currently \ 1 \ (extracted from \ TLM \ YM193942)
2005.259.12.15.48.684902 Status_PLM_LCL1_V is currently 0.00697093131021 (extracted from TLM
YM228942)
2005.259.12.15.48.685997 Status_PLM_LCL1_I is currently 0.00101930263918 (extracted from TLM
YM232942)
2005.259.12.15.48.687088 Status PLM LCL2 V is currently 0.0627383813262 (extracted from TLM
YM244942)
2005.259.12.15.48.688196 Status_PLM_LCL2_I is currently 0.00557259470224 (extracted from TLM
YM248942)
2005.259.12.15.48.689281 Status PLM LCL3 V is currently 0.00929457508028 (extracted from TLM
YM260942)
2005.259.12.15.48.690384 Status_PLM_LCL3_I is currently 0.00709239346907 (extracted from TLM
2005.259.12.15.48.691492 Status_PLM_LCL4_V is currently 0.0371783003211 (extracted from TLM
YM276942)
2005.259.12.15.48.692595 Status_PLM_LCL4_I is currently 0.00607919460163 (extracted from TLM
YM280942)
2005.259.12.15.48.693700 Status_PLM_LCL5_V is currently 0.0302073694766 (extracted from TLM
YM292942)
2005.259.12.15.48.694806 Status_PLM_LCL5_I is currently 0.000759899325203 (extracted from TLM
YM296942)
2005.259.12.15.48.695924 Status_PLM_LCL6_V is currently 0.0766802430153 (extracted from TLM
YM308942)
2005.259.12.15.48.697036 Status_PLM_LCL6_I is currently 0.00379949645139 (extracted from TLM
YM312942)
2005.259.12.15.48.698151 Status_PLM_LCL7_V is currently 0.034854657948 (extracted from TLM
YM324942)
2005.259.12.15.48.699359 Status_PLM_LCL7_I is currently 0.00506599526852 (extracted from TLM
YM328942)
2005.259.12.15.48.700488 Status_PLM_LCL8_V is currently 0.00929457508028 (extracted from TLM
YM340942)
2005.259.12.15.48.701641 Status_PLM_LCL8_I is currently 0.0045593958348 (extracted from TLM
YM344942)
2005.259.12.15.48.702773 Status_PLM_LCL9_V is currently 0.00697093131021 (extracted from TLM
YM356942)
2005.259.12.15.48.703887 Status_PLM_LCL9_I is currently 0.00253299763426 (extracted from TLM
YM360942)
2005.259.12.15.48.705004 Status_PLM_LCL10_V is currently 0.00929457508028 (extracted from TLM
YM372942)
2005.259.12.15.48.706165 Status_PLM_LCL10_I is currently 0.00278629735112 (extracted from TLM
YM376942)
2005.259.12.15.48.707328 Status_PLM_LCL11_V is currently 27.967376709 (extracted from TLM
2005.259.12.15.48.708446 Status_PLM_LCL11_I is currently 0.0448340587318 (extracted from TLM
YM392942)
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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
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
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)
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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
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
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 \ \text{LCL} \ 12 \ \text{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)
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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~{\tt 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
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
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
```

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2005.259.12.17.07.983174

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Appendix 7: Log of EGSE_OFFLINE_AUTO.tcl

```
2005.259.12.19.30.154700 EGSE OFFLINE Sequence
*****************
2005.259.12.19.30.155160
        *******************
2005.259.12.19.30.155820 Connect and attach to CDMU DFE and PLM SCOE
          ******************
2005.259.12.19.30.156127
2005.259.12.19.30.156349
2005.259.12.19.30.156573 Connecting to CDMU DFE
2005.259.12.19.32.163034 Attaching to CMDU DFE
2005.259.12.19.33.170621
2005.259.12.19.33.171363 Connecting to PLM SCOE
2005.259.12.19.35.173715 Attaching to PLM SCOE
2005.259.12.19.36.177276
2005.259.12.19.36.177643
2005.259.12.19.36.178459 >>>>> Reading out CDMUDFE Settings
2005.259.12.19.36.179331
2005.259.12.19.36.273779 Status_CDMU_OnLine is 1 (extracted from TLM YM777944)
2005.259.12.19.36.276013 Status_CDMU_TMpolling is 1 (extracted from TLM YM780944)
2005.259.12.19.36.277926 Status_CDMU_SAreadActive is 1 (extracted from TLM YM781944)
2005.259.12.19.36.279585 Status_CDMU_SAqueueActive is 1 (extracted from TLM YM782944)
2005.259.12.19.36.281209 Status_CDMU_TMqueueActive is 1 (extracted from TLM YM783944)
2005.259.12.19.36.282865 Status_CDMU_TCqueueActive is 1 (extracted from TLM YM784944)
2005.259.12.19.36.284426 Status_CDMU_PSTfileName is HIFI_prime_inst.... (extracted from TLM
YM809944)
2005.259.12.19.36.286098 Status_CDMU_PSTrunning is 1 (extracted from TLM YM829944)
2005.259.12.19.36.286683
2005.259.12.19.36.287741 >>>>>> Reading out PLM SCOE Settings
2005.259.12.19.36.288837
2005.259.12.19.36.469599 Status_PLM_OnLine is 1 (extracted from TLM YM018942)
2005.259.12.19.36.471559 Status_PLM_PSU1_Master is currently 1 (extracted from TLM YM129942)
2005.259.12.19.36.473390 Status_PLM_PSU1_Slave is currently 1 (extracted from TLM YM145942)
2005.259.12.19.36.475157 Status_PLM_PSU2_Master is currently 1 (extracted from TLM YM177942)
2005.259.12.19.36.476969 Status_PLM_PSU2_Slave is currently 1 (extracted from TLM YM193942)
2005.259.12.19.36.480023 Status_PLM_LCL1_V is currently 0.00697093131021 (extracted from TLM
YM228942
2005.259.12.19.36.482647 Status_PLM_LCL1_I is currently 0.000917372351978 (extracted from TLM
YM232942)
2005.259.12.19.36.485648 Status_PLM_LCL2_V is currently 0.0650620236993 (extracted from TLM
YM244942)
2005.259.12.19.36.488215 Status_PLM_LCL2_I is currently 0.00607919460163 (extracted from TLM
YM248942)
2005.259.12.19.36.491214 Status_PLM_LCL3_V is currently 0.00929457508028 (extracted from TLM
YM260942)
2005.259.12.19.36.493808 Status_PLM_LCL3_I is currently 0.00709239346907 (extracted from TLM
YM264942)
2005.259.12.19.36.496824 Status_PLM_LCL4_V is currently 0.034854657948 (extracted from TLM
YM276942)
2005.259.12.19.36.499432 Status_PLM_LCL4_I is currently 0.00607919460163 (extracted from TLM
2005.259.12.19.36.502473 Status_PLM_LCL5_V is currently 0.0302073694766 (extracted from TLM
YM292942)
2005.259.12.19.36.505098 Status_PLM_LCL5_I is currently 0.000759899325203 (extracted from TLM
YM296942)
2005.259.12.19.36.508242 Status_PLM_LCL6_V is currently 0.0766802430153 (extracted from TLM
YM308942)
2005.259.12.19.36.510978 Status_PLM_LCL6_I is currently 0.00379949645139 (extracted from TLM
2005.259.12.19.36.514031 Status_PLM_LCL7_V is currently 0.034854657948 (extracted from TLM
YM324942)
2005.259.12.19.36.516694 Status_PLM_LCL7_I is currently 0.00506599526852 (extracted from TLM
YM328942)
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2005.259.12.19.36.519804 Status_PLM_LCL8_V is currently 0.00929457508028 (extracted from TLM
2005.259.12.19.36.522484 Status_PLM_LCL8_I is currently 0.0045593958348 (extracted from TLM
YM344942)
2005.259.12.19.36.525680 Status PLM LCL9 V is currently 0.00697093131021 (extracted from TLM
YM356942)
2005.259.12.19.36.528357 Status_PLM_LCL9_I is currently 0.00253299763426 (extracted from TLM
2005.259.12.19.36.531478 Status_PLM_LCL10_V is currently 0.00929457508028 (extracted from TLM
YM372942)
2005.259.12.19.36.534151 Status_PLM_LCL10_I is currently 0.00278629735112 (extracted from TLM
2005.259.12.19.36.537303 Status_PLM_LCL11_V is currently 0.00929457508028 (extracted from TLM
YM388942)
2005.259.12.19.36.540004 Status_PLM_LCL11_I is currently 0.00354619673453 (extracted from TLM
YM392942)
2005.259.12.19.36.543192 Status_PLM_LCL12_V is currently 0.00697093131021 (extracted from TLM
YM404942)
2005.259.12.19.36.545911 Status_PLM_LCL12_I is currently 0.0116517897695 (extracted from TLM
YM408942)
2005.259.12.19.36.549055 Status_PLM_LCL13_V is currently 0.0185891501606 (extracted from TLM
YM420942)
2005.259.12.19.36.551857 Status PLM LCL13 I is currently 0.00151979865041 (extracted from TLM
YM424942)
2005.259.12.19.36.555073 Status_PLM_LCL14_V is currently 0.092945754528 (extracted from TLM
YM436942)
2005.259.12.19.36.557819 Status_PLM_LCL14_I is currently 0.00430609611794 (extracted from TLM
*****************
2005.259.12.19.36.558916 Switch Off PLM SCOE
    *************************
2005.259.12.19.36.559657
2005.259.12.19.36.561750 Checking current PLM SCOE status
2005.259.12.19.38.565158
2005.259.12.19.38.565670
2005.259.12.19.38.602339 >>> One (or both) PSU's is still powered. Are you sure to power down
the PLM SCOE? : Choose Yes or No
2005.259.12.19.41.231283 User has chosen YES
2005.259.12.19.43.233663
2005 259 12 19 43 234060
2005.259.12.19.43.234707 Switching PLM SCOE to OFFLINE mode.
2005.259.12.19.46.377492 Switch Off PLM SCOE
2005.259.12.19.47.380668
2005.259.12.19.47.381035 Switching CDMU DFE to OFFLINE mode.
2005.259.12.19.50.479279
2005.259.12.19.50.480292 >>>>> Reading out CDMUDFE Settings
2005.259.12.19.50.481538
2005.259.12.19.50.482760 Status_CDMU_OnLine is 0 (extracted from TLM YM777944)
2005.259.12.19.50.483864 Status_CDMU_TMpolling is 0 (extracted from TLM YM780944)
2005.259.12.19.50.484954 Status_CDMU_SAreadActive is 0 (extracted from TLM YM781944)
2005.259.12.19.50.486042 Status_CDMU_SAqueueActive is 0 (extracted from TLM YM782944)
2005.259.12.19.50.487124 Status_CDMU_TMqueueActive is 0 (extracted from TLM YM783944)
2005.259.12.19.50.488197 Status_CDMU_TCqueueActive is 0 (extracted from TLM YM784944)
2005.259.12.19.50.489320 Status_CDMU_PSTfileName is Empty.PST (extracted from TLM YM809944)
2005.259.12.19.50.490403 Status_CDMU_PSTrunning is 0 (extracted from TLM YM829944)
2005.259.12.19.50.491071
2005.259.12.19.50.492276 >>>>>> Reading out PLM SCOE Settings
2005.259.12.19.50.493513
2005.259.12.19.50.494527 Status_PLM_OnLine is 0 (extracted from TLM YM018942)
2005.259.12.19.50.495589 Status_PLM_PSU1_Master is currently 0 (extracted from TLM YM129942)
2005.259.12.19.50.496654 Status_PLM_PSU1_Slave is currently 0 (extracted from TLM YM145942)
2005.259.12.19.50.497722 Status_PLM_PSU2_Master is currently 0 (extracted from TLM YM177942)
2005.259.12.19.50.498850 Status_PLM_PSU2_Slave is currently 0 (extracted from TLM YM193942)
2005.259.12.19.50.499976 Status_PLM_LCL1_V is currently 0.00697093131021 (extracted from TLM
YM228942)
```

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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
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
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
```

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

Company		Thursday September 15 2005 5			
	Project Name	NSR-No: HP-111000-ASED-NG-1201 Related internal NCR-No:			
SRON	HERSCHEL-PLANCK				
		Critical Item: Yes No X Page 1 of 3	Revision 0		
	Nonconfor	mance Report			
NCR Title Not all limit values in MI	B are correctly set				
NC Item Identification HIFI	_				
Next Higher Assembly HERSCHE	L INSTRUMENTS AND TELESCO	PE (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			
SOFT: 'Temperature on parameters HM075	192 and HM076192 (HIEI Indicates	that this is due a faulty palibration?			
HARD: "parameter HM055192. This parame CCS every 5 seconds. Because of this over Parameter HM077194. The value is Calibrations and limits should be over the Extra input made by Sillsen on 12/10 During the SFT cold He II, the follow HM044194 HM223191 (traced with HIF) SPR 37	ser wobbles around the set hard time erflow of alarms other (critical) alarn -5.129 and the set limits are 0 to 3. crrected and new MiB should be de 09/2005 ing parameters went out of limits:	it. This results in an alarm on the ns could be missed. 4			

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

LUMP CANADAGA PROCESS		MARIT - STEEL STEEL STEEL		
Company	Project Name	NCR-No: HP-	111000-ASED-NC-	1262
SRON	HERSCHEL-PLANCK	Related intern	al NCR-No:	
		Critical Item: Y	es 🔝 No 🗵	Revision 0
		Page 1 of 3		
	Nonconfor	mance Repo	rt	
CR Title HIFI command completion	on confirmation not received.			
C Item Identification HIFI				
ext Higher Assembly HERSCHEI	L INSTRUMENTS AND TELESCO	PE (CFE)		
rawing No		Sr No.	EQM	
rocedure No				
upplier SRON		Purchase Ord	er	
ubsystem		Model	EQM	
IC Observation Date: 14-JUL-05 Location: ASED	OTN	NC Detected I	During Test	
escription of Nonconformance		-1	Re	quirements Violated
ending the ommand DDED on 20/07/2005; HC020289 a	ind HC023289 do not get completic		les after	
ending the ommand DDED on 20/07/2005: HC020289 at he MIB definition should be checked comments added by S ILSEN on 15/ kuring the IMT it was seen that multiporteems commands HC019289 HC022289 HC022289 HC022289 HC022289 HC024289 HC02489 H	and HC023289 do not get completic d and corrected.	on status mand completion co e CCS reported a wa	infirmation. It aming:	
ending the ormand DDED on 20/07/2005; HC020289 at the MIB definition should be checked formands added by S ILSEN on 15/euring the IMT it was seen that multiporcerns commands HC019289 HC020289 HC022289 HC024289 HC024289 HC025289 HC0264289 HC026448 HC02648 HC02648 HC02648 HC02648 HC02648 HC02648 HC02648 HC02648 HC0	and HC023289 do not get completic d and corrected. 	on status mand completion co e CCS reported a wa	infirmation. It aming:	
ending the ommand	and HC023289 do not get completic d and corrected. 	on status mand completion co e CCS reported a wa	infirmation. It aming:	Y
ending the ommand	and HC023289 do not get completic d and corrected. 109/2005 ple command do not receive a com nen these commands were send the everification window? This messag on. 15-JUL-05: Stijn lisen	on status mand completion co e CCS reported a wa ge might have somet	infirmation. It aming:	Classification: Major X Minor
ending the ormand DDED on 20/07/2005: HC020289 at the MIB definition should be checked from the MIB definition should be checked from the MIB definition should be checked from the MIB definition of	and HC023289 do not get completion of and corrected.	on status mand completion co e CCS reported a wa ge might have somet	infirmation. It aming:	Major ☒ Minor ☐ Customer Notification
for commands HC022289 and HC0 ending the ommand hDDED on 20/07/2005; HC020289 a The MIB definition should be checker comments added by S ILSEN on 15/ huring the IMT if was seen that multip oncems commands HC019289 HC022289 HC022289 HC022289 HC022289 HC022289 HC025289 HC025289 HC015289 hring the IMT if was noticed that wh Received realied command completion verification initiator: Date, Name and Signature internal NRB Dispositions IRB telecon 22.07 05 ESA,ASP,HIF ISED to provide additional information IFB telecon 22.07 05 ESA,ASP,HIF ISED to provide additional information IFB to investigate and provide responses.	ind HC023289 do not get completion of and corrected. 109/2005 pile command do not receive a comment these commands were send the exertication window? This messagon. 15-JUL-05: Stijn lisen 1,ASED and PTR ASED-MN-1040 pro, sent by E-mail S lisen to N Why	on status mand completion co e CCS reported a way ge might have somet 23.08.05 /born 23.07,05	infirmation. It aming:	Major ⊠ Minor □
ending the ommand in DDED on 20/07/2005; HC020289 at the MIB definition should be checked formments added by S ILSEN on 15/07/2005; HC020289 at the MIB definition should be checked formments added by S ILSEN on 15/07/2009; HC019289 at the MID added formments added by S ILSEN on 15/07/2009; HC020289 at HC0202009; HC020209 at HC02000 at the MID added formment at	ind HC023289 do not get completion of and corrected. 109/2005 pile command do not receive a comment these commands were send the exertication window? This messagon. 15-JUL-05: Stijn lisen 1,ASED and PTR ASED-MN-1040 pro, sent by E-mail S lisen to N Why	on status mand completion co e CCS reported a wa ge might have somet	infirmation. It aming:	Major ☒ Minor ☐ Customer Notification

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Issue:

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

	3: 3: E000			
Company SRON	Project Name HERSCHEL-PLANCK	NGR-No: HP-111080-ASED-NC-1455 Related internal NCR-No:		
		Critical Item: Yes No X Page 1 of 1	Revision 0	
,	Nonconfor	mance Report		
NCR Title HIFI FCU power scoe or	omputer not responding			
NC Item Identification HIFI				
Next Higher Assembly HERSCHE	L INSTRUMENTS AND TELESCO	PE (CFE)		
Drawing No		Sr No.		
Procedure No		<u> </u>		
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 dedic computer. This computer appears to be broken cause of the computer failure is not known. To overcome this problem, a manual HIFI	. The screen was exchanged, but th	s controlled from a power scoe us did not solve the problem. The sconnel. This problem means that	ements Violated	
becapities attorio a wake he bieseur	13-SEP-05 SILSEN	1115-11112-		

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

Y		Friday Se	ptember 16 2005 2:46 PM	
Company	Project Name	NCR-No: HP-141210-ASED-NC-1440		
ASTRIUM	HERSCHEL-PLANCK	Related internal NCR-No:		
		Critical Item: Yes ☐ No ☒ Page 1 of 1	Revision 0	
	Nonconfor	mance Report		
NCR Title Repeated Occurence TC	DPE CORBA error / EXIF_TM1 cras	sh on CCS		
NC Item Identification S-C Central	Checkout System			
Next Higher Assembly HERSCHEL	S-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		Require	ements Violated	
During 2 HIFI tests (1/9/05 and 8/9/05 resulted/was caused by and EXIF_TM problem and the running TCL script c	/i1 failure. Restarting this module s	olved the		
The test was not special and had bee	n run for 4 times already without p	roblems.		
During this test a special TCL script was parameters. This to ensure a correct				
The 2 errors occured in the first 2 test something to do with it.	ts after a CCS SW update (2.0.577	to 2.0.614). This might have		
The problem has been reported to Te tracked in the Terma Bugzilla system	rma (after the first occurence) and as BUG 2115.	they are working on it. The bug is		
Added on 16/09/05 by S ILSEN Bug seen 2 times at the end of the HI	FI IMT. This is cummunicated to To	erma		
Initiator: Date, Name and Signature	08-SEP-05 S. Ilsen			
Date: Name: Signature:				

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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	Х	Stritter Rene	AED11
	Brune Holger	AOA55		Thörmer Klaus-Horst Dr.	OTN/AED65
	Fehringer Alexander	AOE13		Wagner Klaus	AOE22
Χ	Fricke Wolfgang Dr.	AED 65	Χ	Wietbrock Walter	AET12
	Geiger Hermann	AOA52		Wöhler Hans	AOE22
	Gerner Willi	AED11		Wössner Ulrich	ASE442
Х	Grasl Andreas	OTN/AOA54			
	Grasshoff Brigitte	AET12			
	Hauser Armin	AOE22			
Х	Hendry David	Terma Resid.			
	Hengstler Reinhold	AOA 5			
	Hinger Jürgen	AOE22	Χ	Alcatel	ASP
	Hofmann Rolf	ASE442	Χ	ESA/ESTEC	ESA
Χ	Hohn Rüdiger	AED65		Instruments:	
	Huber Johann	AOA52	Χ	MPE (PACS)	MPE
	Hund Walter	ASE442	Χ	RAL (SPIRE)	RAL
Χ	Idler Siegmund	AED432	Χ	SRON (HIFI)	SRON
Χ	Ilsen Stijn	Terma Resid.		Subcontractors:	
	Ivády 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
Х	Knoblauch August	AET32		Austrian Aerospace	AAE
Х	Koelle Markus	AOA53		Austrian Aerospace	AAEM
Χ	Kroeker Jürgen	AED65		APCO Technologies S. A.	APCO
	Kunz Oliver Dr.	AOE22		Bieri Engineering B. V.	BIER
Х	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
Χ	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
Χ	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

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

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