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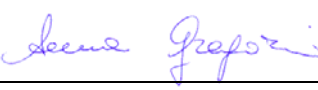
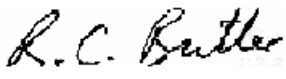
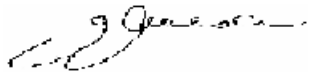
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1 INTRODUCTION

1.1 SCOPE

This document describe the procedure of the activities to be performed during the SOVT1 test. It is aimed to cover all the test specified in the SOVT1-Test plan.



2 APPLICABLE/REFERENCE DOCUMENTS

2.1 APPLICABLE DOCUMENTS

AD-01 Planck SOVT-1 Test Plan, PT-CMOS-OPS-PL-6206-OPS-OAP, latest Version

2.2 REFERENCE DOCUMENTS

RD-01 PT-CMOC-MDS-ICD-3107-OPS-GDS, latest version

RD-02 PT-CMOC-MDS-ICD-3101-OPS-GDS, latest version

RD-03 PT-CMOC-MDS-3108-OPS-GDS, latest version

RD-04 PL-LFI-OAT-IC-001, latest version



2.3 ACRONYMS LIST

AD	Applicable Document
ASI	Agenzia Spaziale Italiana (Italian Space Agency)
DDS	Data Disposition System
DMC	Data Management Component
DPC	Data Processing Centre (for Planck)
ESA	European Space Agency
ESOC	ESA Space Operations Center
H/W	Hardware
HFI	High Frequency Instrument
ICD	Interface Control Document
IOT	Instrument Operations Team
IW@MOC	Instrument WorkStation at MOC
LFI	Low Frequency Instrument
MIBs	Mission Information BaSe
MOC	Mission Operations Centre
OATs	Osservatorio Astronomico di Trieste
PGSSG	Planck Ground Segment System Group
PSO	Planck Science Office
QA	Quality Assurance
QLA	Quick-Look Analysis
RTA	Real-Time Assessment
TBC	To Be Confirmed
TBD	To Be Defined
TBW	To Be Written
TC	TeleCommands
TM	TeleMetry
TMH	Telemetry Handling
TOD	Time-Ordered Data
TOI	Time-Ordered Information
TQL	Telemetry Quick-Look



3 SOVT1 CONFIGURATION

3.1 HARDWARE AND SOFTWARE CONFIGURATION

The hardware to be used during the SOVT1 test is (dividing it for physical location) composed by:

- Hardware/Software at the PISA LAN
 1. LFI_1.esoc.ops.esa.int
 - Operating System: SuSe 9.3
 - SCOS2k version 3.1.2
 - RTSIClient version 1.1
 - MIB tables version 4.4.1:
 2. SCS_1.esoc.ops.esa.int
 - Operating System: SuSe 9.3
 - SCOS2k version 3.1.2
 - RTSIClient version 1.1
 - MIB tables version 4.4.1:
 3. LFI_2.esoc.ops.esa.int
 - Operating System: SuSe 10.3
 - LEVEL1 OM version 2.2
 - RTSILib 1.0
 - HPFTS version 2.0 i3r0
- Hardware/Software at the LFI DPC site
 1. edoras.oats.inaf.it
 - Operating System: SuSe 10.3
 - LEVEL1 OM version 2.2
 - PEGASO version 1.0 (DQR and WHR production)
 2. flick.oats.inaf.it
 - Operating System: SuSe 9.3
 - HPFTS version 2.0 i1r0



4 CONTACTS

During SOVT1 test the following list should be used for formal contacts (see also AD-01)

Operational e-mail:	lfi-operations@oats.inaf.it
LFI DPC Operation Room	+39 040 3199268
LFI Test Manager (A. Gregorio)	+39 040 3199151
LFI Test Manager (M. Frailis)	+39 040 3199266
LFI DPC Manager (A. Zacchei)	+39 040 3199185



5 IW@MOC PROCEDURES (REAL TIME DATA)

The two IW@MOC will be used to download/check the online telemetry for LFI and SCS.

5.1 IW@MOC INSTALLATION PROCEDURE

5.1.1 PL_LFI_DPC_PR_SOVT1_001

Step	Action	Comment
1	<u>Intallation</u> • Install SUSE 9.3 Operating System • Download from LFI CVS the RTSILib library • Install RTSI Library • Download from the LFI CVS the addon-rtsiclient-rep • Compile the addon within the SCOS building environment and install the compiled RTSIClient program in the SCOS runtime environment • Install MIBs tables (after its download from the HPSDB)	Username and Password to retrieve the RTSI software from the LFI DPC CVS should be asked to LFI DPCM.
2	<u>Account</u> • UserName: emcsops2 • Password: XXXX	



5.2 IW@MOC START-UP PROCEDURE

5.2.1 PL_LFI_DPC_PR_SOVT1_002

Step	Action	Comment
1	<u>Near-real Time data retrieval startup</u> - Start all SCOS processes on LFI_1/SCS_1 - Login with the emcsops2 account - Verify in the MISCconfig file that the RTSI_MOC_NAMES_SERVERS variable is pointing to the correct MOC server - Verify that the rtf.dat file contains proper set of filtering rules for the Planck telemetry packets - Launch the s2k.start script and wait for all SCOS processes automatically started to be with green status - From the Task Manager, start the RTSI process	If new MIBs Table are ingested Check the IMPTprogram log for any Error.
2	Verify the status of the connection in the SCOS message log, start the Telemetry Packet History and check if gaps are reported	If support is needed contact M. Frailis (frailis@oats.inaf.it)



6 HPFTS PROCEDURE (AUXILIARY DATA)

The HPFTS system will be running (during the SOVT1) at the LFI DPC site and it will be used to receive/send auxiliary files (see RD-01).

6.1 HPFTS INSTALLATION PROCEDURE

6.1.1 PL_LFI_DPC_PR_SOVT1_010

Step	Action	Comments
1	<u>Intallation</u> • Download the HPFTS software from <code>ftp://hpmcs@ftp.terma.com/HPMCS/HPFTS/runtime</code> • Install the HPFTS software using the <code>install_fts.sh</code> script and update the <code>/home/pftsops/FTS/admin/PLAN_instances</code> with the one provided by MOC. • Create the correct instance (LFI, LFF or LPI) and ask MOC to update the routing tables for this installation	
2	<u>Account</u> • User Name: pftsops • Password: car0ta	

6.2 HPFTS DUMP PROCEDURE

6.2.1 PL_LFI_DPC_PR_SOVT1_011

Step	Action	Comment
1	<u>Auxiliary Data: HPFTS</u> • Login with the pftsops account to flick - o Username: pftsops - o Password: car0ta	



Step	Action	Comment
	• Run the command 'instance' to check the active FTS instance. If the active instance is not LFI, than - o Run 'activateInstance.sh PLAN LFI' from the FTS/admin directory and from the home dir run 'source .cshrc'	If the message "ZFTSE_MAIN is runnig" appears the client is running.
2	Check the status of the instance with the 'status' command and if the ZFTSE_MAIN process is stopped run the 'start' command (alias to ~/FTS/admin/FTSinit start) to start the HPFTS LFI instance. If the HPFTS is already running BUT need to be restarted, then run: <i>stop</i> <i>start</i>	If support is needed contact M. Frailis
3	Retrieve and verify HPFTS data: - o APPL and PPL (will be received once during SOVT1) - o AHF (will be received daily) - o SIAM (will be received once during SOVT1) - o HFI-DQR (will be receive daily)	Once the HPFTS is up the reception of the auxiliary files is done automatically.



7 TQL/TMH PROCEDURE (DATA RETRIVIAL FROM DDS)

The LEVEL1 Operational Model (OM), including a Telemetry Handler system (TMH) and a Telemetry Quick-Look system (TQL), will be used at the PISA LAN to display/store/check the scientific and HouseKeeping telemetry. It will also be used at the LFI DPC site to download the HouseKeeping and Scientific telemetry from the HPDDS, to calibrate it and store in the archive.

7.1 TQL/TMH INSTALLATION PROCEDURE

7.1.1 PL_LFI_DPC_PR_SOVT1_020

Step	Action	Comment
1	<u>Intallation</u> • Install SUSE 10.3 Operating System • Download from LFI CVS the RTSILib library (only for the TQL/TMH installed at PISA LAN) • Install RTSILib library (only for the TQL/TMH installed at PISA LAN) • Download from ESA CVS the TQL/TMH software (tag LFI_LEVEL1_2_2) • Install the TQL/TMH software with the following commands (launched from the source root): tools/makefiles/ac_stuff/configure make clean make global_install Then check the configuration files in \$ISDC_ENV/pfiles	
2	<u>Account</u> • Username: tql • Password: XXXXX	Password to be asked to LFIDPCM.

7.2 TMH START-UP PROCEDURE

The TMH system will be used ONLY at the LFI DPC to download from the HPDDS archive the stored consolidated telemetry in a chunk of one hour (baseline). It is made of three main pipelines:

- the **planckdr** pipeline (Data Receipt pipeline) controls the receipt of Planck data from the DDS at MOC and their preparation for actual processing by the subsequent planckl1 pipeline;



- the **planckl1** pipeline has the task to control the Level 1 processing of telemetry data sets made available by the Data Receipt pipeline. The output of the planckl1 are TOI, either in FITS or DMC format which are the input of the Planck LFI Level 2 processing.
- The **planckaux** pipeline controls the processing of auxiliary files (e.g. spacecraft attitude files) received from the MOC through the Herschel/Planck File Transfert System (HPFTS).

To actually start the pipelines just install the crontab file pipelines-crontab:

```
crontab ${ISDC_ENV}/crontab/pipelines-crontab
```

More details are given in the following procedures.

7.2.1 PL_LFI_DPC_PR_SOVT1_021

Step	Action	Comment
1	<u>Startup of the TMH system at the DPC</u> • Login to edoras.oats.inaf.it with the tql account • Check that the FTP_IP environment variable contains the IP of the correct DDS server • Use the command 'crontab -e' to edit the current crontab table	
2	To start the DDS telemetry retrieval uncomment the line of the crontab which launch the dr_start.pl every 10 minutes To start the telemetry processing pipeline uncomment the line of the crontab which launch the script l1_start.pl every 10 minutes To start the AHF processing uncomment the line of the crontab which starts the aux_start.pl script every 10 minutes	There is only one script to start all and it is executed in batch automatically.
3	Retrieval of TM packets is automatic. The TM retrieved include LFI SCS HFI 4k cooler Partial S/C telemetry To verify the status of the pipelines, check the log files in the \$L1_ARCHIVE/pipelines/ directory. Then start also the am_display to check the alarms raised.	Automatic, immediately after end of DTCP and consolidation.
4	Retrieval of CMDH packets: The retrieval of the CMDH packets is triggered by an additional pipeline, trig4tm_request.pl, to be uncommented in the crontab. To generate a command history file in ASCII format, launch the tc2ascii program on the retrieved file	Automatic
5	Retrieve TCO packets The Time Correlation Coefficient packets are automatically retrieved and processed by the TMH pipeline. No additional steps are required	Automatic



Step	Action	Comment
6	Retrieve OOL packets Not retrieved and processed	TBD

7.3 TQL START-UP PROCEDURE

The TQL software will display (at the LFI DPC site and at PISA LAN) graphically the HouseKeeping and Science Telemetry.

7.3.1 PL_LFI_DPC_PR_SOVT1_022

Step	Action	Comment
1	<u>Startup of the TQL displays</u> - To start the TQL system run the command: tql_desktop - To use the TQL system with the near real-time telemetry received through the RTSI run the command: tql_desktop localhost 37373	
2	Data Display / Check - Start the mod display to show the available science data for each detector - Start the monodimensional science data display to plot sky and load values - Start the housekeeping display to plot HK parameter values	Manual Operation aimed to verify the Data consistency.



7.4 TM_RECEIVE START-UP PROCEDURE

The tm_receive program is part of the TMH/TQL system of the LEVEL1 software. Its purpose is to connect to the MOC RTSI server and receive in near real-time the scientific and housekeeping telemetry. It creates TM fits files to be processed by the TMH pipeline in order to create TOI data and it forwards the TM packets to the TQL system. This program is installed at the IW@MOC.

7.4.1 PL_LFI_DPC_PR_SOVT1_023

Step	Action	Comment
1	<u>Startup of the tm_receive program</u> • Login to the LFI_2 workstation with the tql account • Check that the \$ISDC_ENV/pfiles/tm_receive.par configuration file contains the IP of the correct RTSI server and that the list of APIDs includes at least LFI and SCS telemetry • Run the tm_receive program	Automatically start after one hour of data were downloaded
2	<u>Telemetry processing and checking</u> • Run the command 'crontab -e' and verify that just the line running the script l1_start.pl every 10 minutes is uncommented • Launch the TQL system using the following command: tql_desktop localhost 37373 and then open the mode display, the mono-dimensional scientific data display and the HK display	Manually Check if data were stored correctly



7.5 FITS2DMC START-UP PROCEDURE

The fits2dmc program is part of the LEVEL1 pipeline and stores the TOIs created in FITS format by TMH system in the DPC Level1 archive through the MPA-DMC.

7.5.1 PL_LFI_DPC_PR_SOVT1_024

Step	Action	Comment
1	<u>Startup of the fits2dmc program</u> - This program is run only by the LEVEL1 software installed at the LFI DPC. Connect to edoras with the tql account to check the program status - The program is launched automatically by the l1_start.pl script as soon as one hour of scientific or HK data has been retrieved from the DDS	Automatically Starts after one hour of data were downloaded.
2	Check - Check the log files in the \$L1_ARCHIVE/pipelines/ directory to verify the correct ingestion of the TOI in the DMC - Use the 'make gui' in the /opt/toodi directory to start-up the DMC GUI and check that the data is available in the Level 1 archive	



8 DQR & WHR GENERATION

The DQR and WHR will be generated during the SOVT1 test. Its generation will be automatic and the results will be discussed at the daily meeting before its delivery. Note that the DQR and WHR modules need the AHF to be executed jointly with the telemetry stored in the MPA-DMC.

8.1 DQR INSTALLATION PROCEDURE

8.1.1 PL_LFI_DPC_PR_SOVT1_030

Step	Action	Comment
1	<u>Intallation</u> • Install IDL 7.0 • Install QT ≥ 4.3 • Download from the IDIS CVS the TOODI version 2.5 • Install TOODI version 2.5 • Install the cfitsio library version 3.5 • Download from the LFI DPC CVS LIFE_OM version 1.0 • Install the LIFE_OM Software	

8.2 DQR START-UP PROCEDURE

8.2.1 PL_LFI_DPC_PR_SOVT1_031

Step	Action	Comment
1	Start Life Software • Open PEGASO session • Run script <i>create DQR</i>	User should select the OD. Note that data are automatically selected based on the AHF information.
2	Transfer the DQR to <i>flick</i>	
3	Organize the Daily meeting to discuss the DQR Report	
4	Run the script to send through HPFTS the file with a wrapper name following the predefined convention.	
5	Check with PSO the reception and ingestion of DQR	



8.3 WHR INSTALLATION PROCEDURE

The WHR is based on the pre-created DQR files.

8.3.1 PL_LFI_DPC_PR_SOVT1_032

Step	Action	Comment
1	<u>Intallation</u> • Install IDL 7.0 • Install QT >= 4.3 • Download from the IDIS CVS the TOODI version 2.5 • Install TOODI version 2.5 • Install the cfitsio library version 3.5 • Download from the LFI DPC CVS LIFE_OM version 1.0 • Install the LIFE Software	

8.4 WHR START-UP PROCEDURE

8.4.1 PL_LFI_DPC_PR_SOVT1_033

Step	Action	Comment
1	Start Life Software • Open PEGASO session • Run script <i>create WHR</i>	User should select the DQRs referred to this period. Note that DQRs should be generated first.
2	Transfer the WHR to <i>flick</i>	
3	Organize the Weekly meeting to discuss the WHR Report	
4	Run the script to send through HPFITS the file with a wrapper name following the predefined convention.	
5	Check with PSO the reception and ingestion of WHR	



9 ICR PROCEDURES

The following table describes the procedure to be applied in case of commanding requests.

9.1 CONTROVERSIAL ICR CHECK PROCEDURE

9.1.1 PL_LFI_DPC_PR_SOVT1_050

Step	Action	Comment
1	<u>Executing Commanding request (controversial)</u>	
2	Generate the controversial commanding request • P_FCP_LFI_CSCC_CSDC	
3	Submit the ICR to approval loop Send it by e-mail to: • psa_icr@sciops.esa.int • hfi-operations@ias.u-psud.fr • and for information to esoc_planck@esa.int	
4	Wait for approval	
5	After approval was received, send the request by e-mail to • esoc_planck@esa.int	
6	Generate the associated TPF	
7	Connect to flick to send the TPF using the HPFTS • Username: pftsops • Password: XXXX	
8	Run the script to wrapper the TPF and send it	
9	Check the TCH packet for correct upload	Manual Check
10	Generate the controversial commanding request • P_FCP_LFI_CSWA	
11	Submit the ICR to approval loop Send it by e-mail to: • psa_icr@sciops.esa.int • hfi-operations@ias.u-psud.fr • and for information to esoc_planck@esa.int	
12	Wait for approval	
13	After approval was received, send the request by e-mail to • esoc_planck@esa.int	
14	Check the TCH packet for correct upload	Manual Check



Step	Action	Comment
15	Generate the controversial commanding request • P_FCP_LFI_CSOP	
16	Submit the ICR to approval loop Send it by e-mail to: • psocr@sciops.esa.int • hfi-operations@ias.u-psud.fr • and for information to esoc_planck@esa.int	
17	Wait for approval	
18	After approval was received, send the request by e-mail to • esoc_planck@esa.int	
19	Generate the associated TPF	
20	Connect to flick to send the TPF using the HPFTS • Username: pftsops • Password: XXXX	
21	Run the script to wrapper the TPF and send it	
22	Check the TCH packet for correct upload	Manual Check
23	<u>Approval HFI Controversial ICR</u>	
24	Analyze the CRAT for HFI controversial ICRs	
25	Send Back with Approval / Not Approval	

9.2 NON CONTROVERSIAL ICR PROCEDURE

9.2.1 PL_LFI_DPC_PR_SOVT1_051

Step	Action	Comment
1	<u>Executing Commanding request</u>	
2	Generate the controversial commanding request • P_FCP_LFI_CSCC_CSOC	
3	Generate the associated TPF	
4	Connect to flick to send the TPF using the HPFTS • Username: pftsops • Password: XXXX	
5	Run the script (TBD) to wrapper the TPF and send it	
6	Send the request by e-mail to esoc_planck_proc@esa.int	
7	Check the TCH packet for correct upload	Manual Check



10 TIMELINES EXCHANGE

During SOVT1 the daily exchange of timelines in chunk of one OD will be tested (see RD-04).

10.1 TIMELINES EXCHANGE PROCEDURE

10.1.1 PL_LFI_DPC_PR_SOVT1_060

Step	Action	Comment
1	<u>Generate and make available LFI timelines</u> • Extract data from MPA-DMC • Generates FITS Files following the EFDD	
2	Put the timelines on ftp server at LFI DPC • UserName: XXXX • Password: XXXX	Username and Password to be asked to LFI DPCM
3	Advise HFI of timelines availability (TBC for timelines, a priori no advise should be sent for daily timelines availability)	
4	<u>Import HFI timelines</u> • Verify the availability of HFI timelines	
5	Connect to HFI ftp site from LFI dedicated machine • UserName: XXXX • Password: XXXX	Username and Password to be asked to HFI DPCM
6	Download the available timelines • Check the timelines with KST script	



11 SOVT1 PROCEDURES SUMMARY

The following table reports all the procedures to be applied during the SOVT1 test. It is not in time order as some steps can be executed in parallel.

Step	PROCEDURE NAME	Comments
1	PL_LFI_DPC_PR_SOVT1_002	This procedure should be applied to both LFI IW@MOC and SCS IW@MOC
2	PL_LFI_DPC_PR_SOVT1_011	
3	PL_LFI_DPC_PR_SOVT1_021	
4	PL_LFI_DPC_PR_SOVT1_022	
5	PL_LFI_DPC_PR_SOVT1_023	
6	PL_LFI_DPC_PR_SOVT1_024	
7	PL_LFI_DPC_PR_SOVT1_031	
8	PL-LFI_DPC_PR_SOVT1_060	
	Repeat steps 2 to 8 for each OD	
9	PL_LFI_DPC_PR_SOVT1_050	Controversial ICR
10	PL_LFI_DPC_PR_SOVT1_051	NON controversial ICR
11	PL_LFI_DPC_PR_SOVT1_033	WHR will be created on 5 days instead of 7 as should be during operations



12 ACKNOWLEDGEMENT

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