1. INTRODUCTION

This document sets out the acceptance tests to be performed whenever a major new version of the OBS is released.

1.1 Scope

This report judges the success or failure of a functional test by checking that

- the commands were correctly received and executed by the instrument subsystem
- no error or exception reports were generated
- the appropriate telemetry parameters changed in an expected manner

No detailed analyses of the test data has been performed at this stage.

1.2 Reference Documents

RD01 SPIRE On-Board Software Verification and Validation Plan/Acceptance Test Plan

RD02 SPIRE Data ICD (SPIRE-RAL-PRJ-001078), Issue 1.1, 25th May2004

RD03 SPIRE OBS URD

RD04 SPIRE EGSE-ILT Startup Procedures (SPIRE-RAL-DOC-001630), Issue 0.7, 24th June 2003

1.3 Acceptance Test Configuration

1.3.1 SPIRE EGSE Setup

- CDMS Simulator
- SCOS 2000 2.3e Patch Level 5 + TOPE - running on a Linux SuSE 7.3 system with SPIRE MIB which is consistent with RD02
- Latest release of the OBS to be acceptance tested
- HCSS v0.2 (Latest build) – includes the EGSE router and gateway
- SPIRE MIB
- QLA – running on Salisbury
- EGSE Test Tool PacketDisplay running on Truro to display TC and TM packet contents

2. PRE-TEST PREPARATIONS

- The latest version of the OBS should be installed on the Q drive. A folder with the OBS version number (e.g. 1.2J) should normally be created in Q:\OBS\OBS_Source. Because of access restrictions the OBS test team has found it appropriate to install the latest version under Q:\ICC\OBS.

- Ensure that the pcss.jar file containing the PACS supplied OBS loader program is present in directory /home/sops23e/SPIRE/OBS/OBSLoader.

- To load the OBS using the Load Memory telecommands (service 6,2), the zipped file containing the commands will need to be placed in the SCOS 2000 account in a directory under /home/sops23e/SPIRE/OBS/OBSLoader. For example, the telecommands to be loaded for installing 1.2J would be placed in directory /home/sops23e/SPIRE/OBS/OBSLoader/OBSTCs_1.2J.

- The shell script to load the OBS may need to be modified to point to the location of the Load Memory telecommands.

2.1 Assumptions

Before the start of the OBS acceptance tests the remainder of the SPIRE EGSE is to be set up and configured using RD03 and RD04. For each set of tests the following minimum steps were also executed beforehand if they were not already activated.

Step #	Description	Status Parameter Values Before/After	Test Step Status/ Success/Fail
1	Start TM ingestion	TM ingestion process running	Success **Comment:** TM ingestion was started just after starting the OBS
2	Start Test Control Server running on Lincoln		Success
3	The DPU is switched on		Success

3. OBS ACCEPTANCE TESTS

3.1 Loading of the new OBS

3.1.1 Loading the new OBS using Load Memory Service (6,2)

- Execute the script to issue the Load Memory commands. For version 1.2J the script is called ObsLoader_1.2J. Typically four telecommands are sent per second; For version 1.2J it takes about 6 minutes to finish loading the new OBS.

- Once the script has stopped execution the LOAD_TC_AND_BOOT command can be sent from the SCOS 2000 Manual Stack to start running the new OBS.

3.1.2 Loading of the OBS using the JTAG probe

This should only be attempted if

- DPU and the Warm Electronics are not in the Cryo Lab
- JTAG probe is available and connected between the CPU board of the DPU and ISOPC1 computer
- All attempts to load the new OBS via the OBSLoader program and the LOAD_TC_AND_BOOT command have failed

The load procedure is described in RD04.

3.2 Housekeeping Generation and OBS Parameter Monitoring

Once the OBS is running HK reports should be generated automatically. The Telemetry Display page DPU AND OBS PARAMETERS on SCOS 2000 displays all the DPU and OBS specific parameters from the nominal HK report. The Telemetry Display page CRITICAL HK PARAMETERS displays the entire contents of the critical HK report.

3.2.1 HK Generation Rate

- On the DPU AND OBS PARAMETERS display page, is the nominal HK packet generation time, THSK, incrementing once every second?

  YES (Success) / NO (Failure)

- On the DPU AND OBS PARAMETERS display page, is the nominal HK packet source sequence count, TM2N, incrementing once every second?

  YES (Success) / NO (Failure)

- Is the time on the CRITICAL HK PARAMETERS display page (top right corner) updating once every two seconds?

  YES (Success) / NO (Failure)

COMMENTS:

16:42 4 event reports received EVENTID(s) : 0x509,0x50C were cleared within a second

3.2.2 DPU and OBS Parameter Monitoring

The following table lists some of the OBS parameters to be monitored from the DPU AND OBS PARAMETERS display page while the nominal HK reports are being generated.

Nominal HK parameter Name	Expected Value	Actual Value	Success /Failure	Comments
OBSVER	OBS version as specified in the release note 0x2004 for version 2.0.D	2.0.D	✓	
TMMODE	0 – Normal TM Mode	0	✓	
DPUP5V	~5.0 V	5.12 V	✓	
DPUP15V	~14.70 V	15.46V	✓	A bit higher than before
DPUM15V	~-14.98 V	-15.54 V	✓	A bit more negative than before
DPUTEMP	~304.68K	301.57 K	✓	A bit higher than before
DPUP2_5V	~2.48V	2.48V	✓	
CPULOAD	??	Switching between 0x1E and 0x27.	✓	
LSLOAD	??	Switching between 0x81650 and 0x86C40	✓	

3.3 Command Execution

Command (*Parameters)*	HK parameter name	Value before	Value after	Result Success /Failure	Comments
RESET_DRCU_ COUNTERS()	TRESET	2094.037.06.28.16 (undefined value)	Current Time 2005.314.16.53.21	Success	
SET_OBSID(*OBSERVATION_ID =0x30000000*)	OBSID BBID	0xd05 0	0x30000000 0	Success	The SET_OBSID command also sets the BBID to 0
SET_OBSID(*OBSERVATION_ID =0*)	OBSID	0x30000000 0	0 0	Success	The SET_OBSID command also sets the BBID to 0

Command (*Parameters)*	HK parameter name	Value before	Value after	Result Success /Failure	Comments
SET_BBID(*BUILDING_BLOCK_ID=0x80000000*)	BBID	0	0x80000000	Success	
SET_OBSID(*OBSERVATION_ID =0x30000000*)	OBSID BBID	0 0x80000000	0x30000000 0	Success	The SET_OBSID command also sets the BBID to 0
SET_BBID(*BUILDING_BLOCK_ID=0x8000000*)	BBID	0	0x80000000	Success	
SET_OBS_STEP(*OBSERVATION_ STEP=0xffff*)	STEP	0	0xffff	Success Step Report also checked - OK	A (5,1) New Step Report should be generated
SET_OBS_STEP(*OBSERVATION_ STEP=0*)	STEP	0xffff	0	Success	A (5,1) New Step Report should be generated
SET_OBS_MODE(*OBSERVING_ MODE=1*)	MODE	0	1	Success	
SET_OBS_MODE(*OBSERVING_ MODE=0*)	MODE	1	0	Success	
SET_OBS_MODE(*OBSERVING_ MODE=0xffff*)	MODE	0	0xffff	Success	
SET_OBS_MODE(*OBSERVING_ MODE=0*)	MODE	0xffff	0	Success	
clear_HK_report.tcl	Packet Ids 0x300 & 0x301			Success	Critical and nominal and HK reports should be cleared
define_new_HK_report.tcl	Packet Ids 0x300 & 0x301			Success	Default critical and nominal reports should start to be generated

3.4 Virtual Machine

Command (*Parameters)*	Action	Result Success/Failure
SET_TABLE(*TABLEID=0x67, TABLESIZE=0x100)*	Check for successful command execution on the SCOS 2000 TC History Display	Success
Execute TCL script UpdateTable3.1.tcl Input VM Table File: PTC_TC0.txt SCOS 2000 directory: tcl/TC/VMTables directory	Check for successful script execution on the TOPE command window and monitor command execution on the SCOS 2000 TC History Display	Success Command list is updated successfully
REPORT_TABLE(*TABLEID=0x67, INDEX=0, COUNT=0x100)*	Use PacketDisplay and/or QLA to examine the contents of the (21,4) Report Table Report. Do the packet contents agree with the contents of the VM Table file?	Success Sent command REPORT_TABLE(0x100,0,0x26) Command successful and a (21,4) packet is produced of length 188 bytes in total.
SET_TABLE(*TABLEID=0x46, TABLESIZE=0x100)*	Check for successful command execution on the SCOS 2000 TC History Display	Success
Execute TCL script UpdateTable3.1.tcl twice Input VM Table File: TC0.txt TC1.txt From VMTables/Table070-Flash/TC/ SCOS 2000 directory: tcl/TC/VMTables directory	Check for successful script execution on the TOPE command window and monitor command execution on the SCOS 2000 TC History Display **Executed PDET_ON**	Success Command list is updated successfully

Command (*Parameters)*	Action	Result Success/Failure
RUN_VM	**Executed CPS_P (PCAL Flash) RUN_VM(0x46,0,9,1719,15,4000000 ,0,34,57267,0,0)** Second run: (Obsid :0x3000C49C)	VM is executed successfully but only DCU frames are produced during the flash. When the flash ends 61 SCU frames are generated due to DRCU Simulator malfunction. The test should be regarded as successful though, as the actual command has been executed by the OBS. 63 frames are produced in the second run.

3.5 TC Verification Reports

Command (*Parameters)*	Action	Result Success/Failure
REPORT_TABLE(*TABLEID=0x50, INDEX=0, COUNT=0x25)*	Sent command	Failed as expected. Failure code 0x811 – table not defined.
REPORT_TABLE(*TABLEID=0x500, INDEX=0, COUNT=0x100)* REPORT_TABLE(*TABLEID=0x67, INDEX=0x100, COUNT=0x100)* *HALT_VM* *FLUSH_FIFO(FIFO_FLAGS=0)* *CLEAR_HK_REPORT(0x300)* *CLEAR_HK_REPORT(0x301)*	Sent command Sent command Sent command while no VM is actually running Sent this commands after the reports had been already cleared	Failed as expected. Failure code 0x805 – Illegal_Table_ID. Failed as expected. Failure code 0x806 – Illegal_Table_index. Failed as expected. Failure code 0x80A – VM Inactive. Failed as expected .Failure code 0x80F- Illegal_FIFOFlags Failed as expected .Failure code 0x829.- Unallocated HK packet ID