

Load STR OBS in EEPROM
File: H_FCP_OBS_2810.xls
Author: lstefanov-hp



Procedure Summary

Objectives

This Herschel OBSM nominal procedure is used to execute the STR1 or STR2 OBS full image upload in STR EEPROM. This procedure assumes that the OBS image covers both EAPPL and Star Catalogue EEPROM areas.

The loading of STR memory is carried out using a dedicated TC provided by the ACC ASW. The ACMS ASW provides a dedicated function for executing STR memory dumps. This function manages both the collection of data from the STR and the transmission to the ground through standard service 6 memory dump packets.

The memory load is commanded using TC(8,4,130,130). The memory dump is commanded using TC(8,4,130,125) and the memory locations content is received on ground in TM(6,6) packets.

This procedure is called by the Herschel ACMS procedures H_FCP_AOC_4S61 and H_FCP_AOC_4S62.

Summary of Constraints

- CDMU in Operational Mode
 - ACC in Operational Mode
 - STR in SW Maintenance Mode (SWM)
- STR memory load commands may be uplinked only in STR SW Maintenance Mode (SWM)
- A maximum of 14 32-bit words can be uploaded with a single STR memory load command (TBC)
- The maximum rate with which data can be sent to the STR by the ACC is 56 32-bit words in a single ACMS cycle, equivalent to 224 words/second.
- STR Main telemetry is part of the essential and mode telemetry packets. If the STR selected for patch and dump is not configured as MAIN, a diagnostic telemetry packet has to be enabled in order to verify the status of the physical unit.

Spacecraft Configuration

Start of Procedure

- CDMU in Operational Mode
 - ACC in Operational Mode
 - STR in SW Maintenance Mode (SWM)

End of Procedure

- Same as start except:
 - New STR OBS image loaded in STR1 or STR2 EEPROM

Reference File(s)

Input Command Sequences

Output Command Sequences

OFCP281A
OFCP281B

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Referenced Displays

ANDs GRDs SLDs
 AA01X109

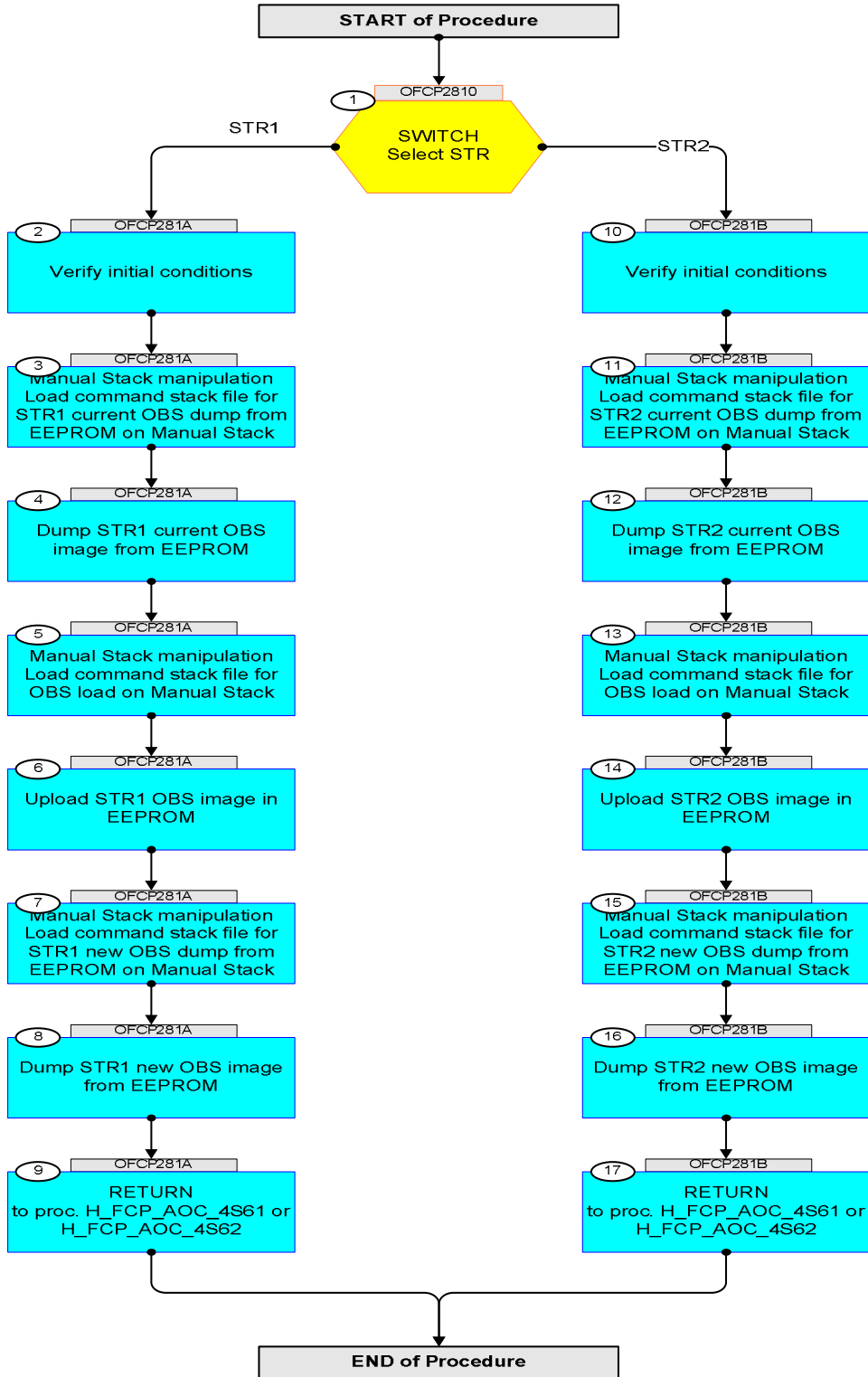
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
13/01/09	2	1	Created	lstefanov-hp	
13/04/09	2.3	2	1. corrected typo in steps 3, 5, 7, 11, 13 and 15: 'pmcsops' replaced by 'hmcops'	lstefanov-hp	

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Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
Beginning of Procedure					
OFCP2810 TC Seq. Name : OFCP2810 (LOAD STR OBS EEPROM) Load STR OBS in EEPROM TimeTag Type: Sub Schedule ID: <input type="checkbox"/>					
1		SWITCH Select STR type: [Switch]		Next Step: STR1 2 STR2 10	
End of Sequence					
OFCP281A TC Seq. Name : OFCP281A (LOAD STR1 OBS EEPROM) Load STR1 OBS in EEPROM and check image TimeTag Type: B Sub Schedule ID: <input type="checkbox"/>					
2		Verify initial conditions Check: - CDMU in Operational Mode - ACC in Operational Mode - STR1 in SWM CDMU SOE to confirm CDMU mode AOCS SOE to confirm ACC and STR mode Note: STR transition to SW Maintenance Mode and all associated TM checks are executed in calling procedure H_SVT_AOC_4S61 or H_SVT_AOC_4S62. Note: STR Main telemetry is part of the essential and mode telemetry packets. If not configured as MAIN, a diagnostic telemetry packet has to be enabled in order to verify the status of the physical unit. This is executed in calling procedure H_SVT_AOC_4S51 or H_SVT_AOC_4S52.		Next Step: 3	
		Verify Telemetry STRM Mode AEX04001 = SW Maintenance		AND=AA01X109	
		OR			
		Verify Telemetry Operating Mode AMX12074 = SW Maintenance		AND=AA01X109	
3		Manual Stack manipulation Load command stack file for STR1 current OBS dump from EEPROM on Manual Stack		Next Step: 4	
		NOTE: The current procedure assumes that the memory dump in Live mode is performed using commands with immediate execution.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Select the File -> LoadStack option from the main menu of the Manual Stack window			
		Select file STR1EEPG_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine from directory /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/STR1EEPG as indicated by the OBSM engineer			
		IMPORTANT: XXXXYYY = Image ID(X) and Version(Y) - depend on image used for stack generation YYYY_DDD hhmmss - depend on stack generation time machine - depends on the name of the machine used for stack generation			
		File name example : - No model associated to the memory image: STR1EEPG_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
3.1		Check memory dump command stack loaded			
		For STR OBS v.x.y : Start Address = 0400.0000 hex End Address = 0403.0A13 hex (TBC) Length = 30A14 hex (TBC) 32-bit words			
		Note : This procedure assumes that the OBS image covers both EAPPL and Star Catalogue EEPROM areas.			
3.1.1		Check number of memory dump commands in the stack			
		Note : A maximum of 1536 32-bit words can be dumped with a single STR memory dump command.			
		Check that loaded stack contains: 130 (TBC) TCs ACXD1001			
3.1.2		Check start address and length of the first dump command in the stack			
		With the Manual Stack in 'Full mode', check the Start Address (STRSw STR Mem parameter) and Length (STRSw Nr Words parameter) in the first ACXD1001 command: STRSw STR Mem = 0400.0000 hex STRSw Nr Words = 1536 dec			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment																											
		Execute Telecommand <p style="text-align: center;">Dump STR software</p> ACXD1001 <i>Command Parameter(s) :</i> <table style="width:100%; border: none;"> <tr><td style="width:40%;">ASW Function ID</td><td style="width:20%;">AHFUN001</td><td style="width:40%;">STRSwHandling</td></tr> <tr><td>STRSw AID Cmd</td><td>AHFXB001</td><td>(Def)</td></tr> <tr><td>STRSw DF86 Cmd</td><td>AH8U1001</td><td>Dumping (Def)</td></tr> <tr><td>STRSw DD86 Cmd</td><td>AH8U2001</td><td>Disable 86 (Def)</td></tr> <tr><td>STRSw STR ID</td><td>AHFXU001</td><td>Disable 86 (Def)</td></tr> <tr><td>STRSw STR Mem</td><td>AHFXM001</td><td>STR-1</td></tr> <tr><td>STRSw Nr Words</td><td>AHFXN001</td><td>04000000 <hex></td></tr> </table> <i>TC Control Flags :</i> <table style="width:100%; border: none;"> <tr><td style="width:40%;"></td><td style="width:20%;">GBM IL DSE</td><td style="width:40%;"></td></tr> <tr><td></td><td>--Y --</td><td>---</td></tr> </table> <i>Subsch. ID : 20</i> Det. descr. : TC_DUMP_STR_SOFTWARE This Telecommand will not be included in the export	ASW Function ID	AHFUN001	STRSwHandling	STRSw AID Cmd	AHFXB001	(Def)	STRSw DF86 Cmd	AH8U1001	Dumping (Def)	STRSw DD86 Cmd	AH8U2001	Disable 86 (Def)	STRSw STR ID	AHFXU001	Disable 86 (Def)	STRSw STR Mem	AHFXM001	STR-1	STRSw Nr Words	AHFXN001	04000000 <hex>		GBM IL DSE			--Y --	---	ACXD1001	TC	
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3.1.3		Check start address and length of the last dump command in the stack																														
		With the Manual Stack in 'Full mode', check the Start Address (STRSw STR Mem parameter) and Length (STRSw Nr Words parameter) in the last ACXD1001 command: STRSw STR Mem = 040x.xxxx hex STRSw Nr Words = TBC dec																														
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	GBM IL DSE																															
	--Y --	---																														
4		Dump STR1 current OBS image from EEPROM		Next Step: 5																												
		Note: The dump of the current OBS image should be executed in a DTCP preceding the DTCP selected for the new OBS image load.																														
4.1		MCS OBSM preparation for Image update in LIVE mode																														
		Note: It is assumed that the OBSM application is already running and the OBSM Desktop is displayed on the MCS client. Starting the OBSM application is not covered by the current procedure.																														

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
4.1.1		Select 'Image MONITOR' from the menu			
		Select the Image menu of the <i>OBSM Desktop</i> . From the Image menu, select Monitor . The 'Image Catalog' window opens.			
4.1.2		Select image to be monitored			
		Select the image to be monitored for the memory device STR1EEPG . The 'Image MONITOR' window opens.			
4.1.3		Start dump TM processing			
		In LIVE mode, processing of incoming real-time telemetry starts automatically after the image selection.			
4.2		Upload commands to dump the STR1 current OBS image from EEPROM			
		Uplink the ACXD1001 memory dump commands with ARM-GO			
		After successful execution of each command, 2 TM(6,6) packets shall be received on ground.			
4.3		Verify reception of TM(6,6)			
		Note: 2 TM(6,6) packets will be received for each memory dump command uplinked.			
		Verify Packet Reception Memory Dump - Absolute Addresses - SAU 8 Packet Mnemonic : MemDmpAbsAdd APID : 512 Type : 6 Subtype : 6 PI1 : PI2 :			
4.4		Check OBSM dump packet processing			
		Check that the OBSM is processing the incoming memory dump packets.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
4.5		Check contents of memory dump packets			
		Verify that there are NO OBSM reported differences between the memory dump data and the ground image used for monitoring.			
		IF there are differences reported by OBSM between the dump data and the ground image, the merged image shall be saved for offline analysis.			
4.5.1		Save merged image			
		IF there are mismatches reported by OBSM, save merged image with new ID .			
		Conduct off-line analysis of the reported mismatches.			
5		Manual Stack manipulation Load command stack file for OBS load on Manual Stack		Next Step: 6	
		NOTE: The current procedure assumes that the memory load is performed using commands with immediate execution.			
		Select the File -> LoadStack option from the main menu of the Manual Stack window			
		Select file STR1EEPG_PI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine from directory /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/STR1EEPG as indicated by the OBSM engineer			
		IMPORTANT: XXXXYYY = Image ID(X) and Version(Y) - depend on image used for stack generation YYYY_DDD hhmmss - depend on stack generation time machine - depends on the name of the machine used for stack generation			
		File name example: - No model associated to the memory image: STR1EEPG_PI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			

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5.1.3		Check start address and length of the last load command in the stack																																
		With the Manual Stack in 'Full mode', check the Start Address (STRSw STR Mem parameter) and Length (STRSw Nr Words parameter) in the last ACXL1001 command: STRSw STR Mem = 040x.xxxx hex STRSw Nr Words = TBC hex																																
		Execute Telecommand <div style="text-align: center;">Load STR software</div> Command Parameter(s) : <table style="margin-left: 40px; border: none;"> <tr> <td>ASW Function ID</td> <td>AHFUN001</td> <td>STRSwHandling (Def)</td> </tr> <tr> <td>STRSw AID Cmd</td> <td>AHFXB001</td> <td>Loading (Def)</td> </tr> <tr> <td>STRSw DF86 Cmd</td> <td>AH8U1001</td> <td>Disable 86 (Def)</td> </tr> <tr> <td>STRSw DD86 Cmd</td> <td>AH8U2001</td> <td>Disable 86 (Def)</td> </tr> <tr> <td>STRSw STR ID</td> <td>AHFXU001</td> <td>STR-1</td> </tr> <tr> <td>STRSw STR Mem</td> <td>AHFXM001</td> <td><hex> (Def)</td> </tr> <tr> <td>STRSw Checksum</td> <td>AHFXK001</td> <td>calculated by OBSM</td> </tr> <tr> <td>STRSw Nr Words</td> <td>AHFXN001</td> <td>1 <dec> (Def)</td> </tr> <tr> <td>STRSw Data Word</td> <td>AHFXD001</td> <td><dec> (Def)</td> </tr> </table> TC Control Flags : <table style="margin-left: 40px; border: none;"> <tr> <td>GEM IL DSE</td> <td>--Y -- ---</td> </tr> </table> Subsch. ID : 20 Det. descr. : TC_LOAD_STR_SOFTWARE This Telecommand will not be included in the export	ASW Function ID	AHFUN001	STRSwHandling (Def)	STRSw AID Cmd	AHFXB001	Loading (Def)	STRSw DF86 Cmd	AH8U1001	Disable 86 (Def)	STRSw DD86 Cmd	AH8U2001	Disable 86 (Def)	STRSw STR ID	AHFXU001	STR-1	STRSw STR Mem	AHFXM001	<hex> (Def)	STRSw Checksum	AHFXK001	calculated by OBSM	STRSw Nr Words	AHFXN001	1 <dec> (Def)	STRSw Data Word	AHFXD001	<dec> (Def)	GEM IL DSE	--Y -- ---	ACXL1001	TC	
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6		Upload STR1 OBS image in EEPROM		Next Step: 7																														
		Uplink the ACXL1001 memory load commands with ARM-GO																																
		For each TC ACXL1001 successfully executed on-board, a TM(1,1) and TM(1,7) packet shall be received on ground.																																
		Verify Packet Reception Telecommand Acceptance Report - Success Packet Mnemonic : A_TcAccSucc APID : 512 Type : 1 Subtype : 1 PI1 : PI2 :																																
		Verify Packet Reception Telecommand Execution Report - Completed Packet Mnemonic : A_TcExeComp APID : 512 Type : 1 Subtype : 7 PI1 : PI2 :																																

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
7		Manual Stack manipulation Load command stack file for STR1 new OBS dump from EEPROM on Manual Stack		Next Step: 8	
		NOTE: The current procedure assumes that the memory dump in Live mode is performed using commands with immediate execution.			
		Select the File -> LoadStack option from the main menu of the Manual Stack window			
		Select file STR1EEPG_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine from directory /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/STR1EEPG as indicated by the OBSM engineer			
		IMPORTANT: XXXXYYY = Image ID(X) and Version(Y) - depend on image used for stack generation YYYY_DDD hhmmss - depend on stack generation time machine - depends on the name of the machine used for stack generation			
		File name example: - No model associated to the memory image: STR1EEPG_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
7.1		Check memory dump command stack loaded			
		For STR OBS v.x.y : Start Address = 0400.0000 hex End Address = 0403.0A13 hex (TBC) Length = 30A14 hex (TBC) 32-bit words			
		Note: This procedure assumes that the OBS image covers both EAPPL and Star Catalogue EEPROM areas.			
7.1.1		Check number of memory dump commands in the stack			
		Note: A maximum of 1536 32-bit words can be dumped with a single STR memory dump command.			
		Check that loaded stack contains: 130 (TBC) TCs ACXD1001			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment																					
7.1.2		Check start address and length of the first dump command in the stack																								
		With the Manual Stack in 'Full mode', check the Start Address (STRSw STR Mem parameter) and Length (STRSw Nr Words parameter) in the first ACXD1001 command: STRSw STR Mem = 0400.0000 hex STRSw Nr Words = 1536 dec																								
		Execute Telecommand <div style="text-align: right; margin-right: 20px;">Dump STR software</div> Command Parameter(s) : <table style="width:100%; border: none;"> <tr> <td style="width:40%;">ASW Function ID</td> <td style="width:20%;">AHFUN001</td> <td style="width:40%;">STRSwHandling (Def)</td> </tr> <tr> <td>STRSw AID Cmd</td> <td>AHFXB001</td> <td>Dumping (Def)</td> </tr> <tr> <td>STRSw DF86 Cmd</td> <td>AH8U1001</td> <td>Disable 86 (Def)</td> </tr> <tr> <td>STRSw DD86 Cmd</td> <td>AH8U2001</td> <td>Disable 86 (Def)</td> </tr> <tr> <td>STRSw STR ID</td> <td>AHFXU001</td> <td>STR-1</td> </tr> <tr> <td>STRSw STR Mem</td> <td>AHFXM001</td> <td>04000000 <hex></td> </tr> <tr> <td>STRSw Nr Words</td> <td>AHFXN001</td> <td>1536 <dec></td> </tr> </table> TC Control Flags : <div style="text-align: right; margin-right: 20px;">GBM IL DSE --Y -- ---</div> Subsch. ID : 20 Det. descr. : TC_DUMP_STR_SOFTWARE This Telecommand will not be included in the export	ASW Function ID	AHFUN001	STRSwHandling (Def)	STRSw AID Cmd	AHFXB001	Dumping (Def)	STRSw DF86 Cmd	AH8U1001	Disable 86 (Def)	STRSw DD86 Cmd	AH8U2001	Disable 86 (Def)	STRSw STR ID	AHFXU001	STR-1	STRSw STR Mem	AHFXM001	04000000 <hex>	STRSw Nr Words	AHFXN001	1536 <dec>	ACXD1001	TC	
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8		Dump STR1 new OBS image from EEPROM		Next Step: 9																						

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		Note: The dump of the current OBS image should be executed in a DTCP preceding the DTCP selected for the new OBS image load.			
8.1		MCS OBSM preparation for Image update in LIVE mode			
		Note: It is assumed that the OBSM application is already running and the OBSM Desktop is displayed on the MCS client. Starting the OBSM application is not covered by the current procedure.			
8.1.1		Select 'Image MONITOR' from the menu			
		Select the Image menu of the <i>OBSM Desktop</i> . From the Image menu, select Monitor . The 'Image Catalog' window opens.			
8.1.2		Select image to be monitored			
		Select the image to be monitored for the memory device STR1LEPG . The 'Image MONITOR' window opens.			
8.1.3		Start dump TM processing			
		In LIVE mode, processing of incoming real-time telemetry starts automatically after the image selection.			
8.2		Upload commands to dump the STR1 new OBS image from EEPROM			
		Uplink the ACXD1001 memory dump commands with ARM-GO			
		After successful execution of each command, 2 TM(6,6) packets shall be received on ground.			
8.3		Verify reception of TM(6,6)			
		Note: 2 TM(6,6) packets will be received for each memory dump command uplinked.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify Packet Reception Memory Dump - Absolute Addresses - SAU 8 Packet Mnemonic : MemDmpAbsAdd APID : 512 Type : 6 Subtype : 6 PI1 : PI2 :			
8.4		Check OBSM dump packet processing			
		Check that the OBSM is processing the incoming memory dump packets.			
8.5		Check contents of memory dump packets			
		Verify that there are NO OBSM reported differences between the memory dump data and the ground image used for monitoring.			
		IF there are differences reported by OBSM between the dump data and the ground image, the merged image shall be saved for offline analysis.			
8.5.1		Save merged image			
		IF there are mismatches reported by OBSM, save merged image with new ID .			
		Conduct off-line analysis of the reported mismatches.			
9		RETURN to proc. H_FCP_AOC_4S61 or H_FCP_AOC_4S62		Next Step: END	
End of Sequence OFCP281B TC Seq. Name : OFCP281B (LOAD STR2 OBS EEPROM) Load STR2 OBS in EEPROM and check image TimeTag Type: B Sub Schedule ID: <input type="checkbox"/>					
10		Verify initial conditions		Next Step: 11	
		Check: - CDMU in Operational Mode - ACC in Operational Mode - STR2 in SWM			
		CDMU SOE to confirm CDMU mode			
		AOCS SOE to confirm ACC and STR mode			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Note: STR transition to SW Maintenance Mode and all associated TM checks are executed in calling procedure H_SVT_AOC_4S61 or H_SVT_AOC_4S62.			
		Note: STR Main telemetry is part of the essential and mode telemetry packets. If not configured as MAIN, a diagnostic telemetry packet has to be enabled in order to verify the status of the physical unit. This is executed in calling procedure H_SVT_AOC_4S51 or H_SVT_AOC_4S52.			
		Verify Telemetry STRM Mode AEX04001	= SW Maintenance	AND=AA01X109	
		OR			
		Verify Telemetry STR2 Mode AMX12075	<> Initialisation	AND=AA01X109	
11		Manual Stack manipulation Load command stack file for STR2 current OBS dump from EEPROM on Manual Stack		Next Step: 12	
		NOTE: The current procedure assumes that the memory dump in Live mode is performed using commands with immediate execution.			
		Select the File -> LoadStack option from the main menu of the Manual Stack window			
		Select file STR2EEPG_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine from directory /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/STR2EEPG as indicated by the OBSM engineer			
		IMPORTANT: XXXXYYY = Image ID(X) and Version(Y) - depend on image used for stack generation YYYY_DDD hhmmss - depend on stack generation time machine - depends on the name of the machine used for stack generation			
		File name example: - No model associated to the memory image: STR2EEPG_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
11.1		Check memory dump command stack loaded			

Load STR OBS in EEPROM
 File: H_FCP_OBS_2810.xls
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment																												
		For STR OBS v.x.y: Start Address = 0400.0000 hex End Address = 0403.0A13 hex (TBC) Length = 30A14 hex (TBC) 32-bit words																															
		Note: This procedure assumes that the OBS image covers both EAPPL and Star Catalogue EEPROM areas.																															
11.1.1		Check number of memory dump commands in the stack																															
		Note: A maximum of 1536 32-bit words can be dumped with a single STR memory dump command.																															
		Check that loaded stack contains: 130 (TBC) TCs ACXD1001																															
11.1.2		Check start address and length of the first dump command in the stack																															
		With the Manual Stack in 'Full mode', check the Start Address (STRSw STR Mem parameter) and Length (STRSw Nr Words parameter) in the first ACXD1001 command: STRSw STR Mem = 0400.0000 hex STRSw Nr Words = 1536 dec																															
		Execute Telecommand <p style="text-align: center;">Dump STR software</p> ACXD1001 <i>Command Parameter(s) :</i> <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">ASW Function ID</td> <td>AHFUN001</td> <td>STRSwHandling</td> </tr> <tr> <td>STRSw AID Cmd</td> <td>AHFXB001</td> <td>(Def)</td> </tr> <tr> <td>STRSw DF86 Cmd</td> <td>AH8U1001</td> <td>Dumping (Def)</td> </tr> <tr> <td>STRSw DD86 Cmd</td> <td>AH8U2001</td> <td>Disable 86 (Def)</td> </tr> <tr> <td>STRSw STR ID</td> <td>AHFXU001</td> <td>Disable 86 (Def)</td> </tr> <tr> <td>STRSw STR Mem</td> <td>AHFXM001</td> <td>STR-2</td> </tr> <tr> <td>STRSw Nr Words</td> <td>AHFXN001</td> <td>04000000 <hex></td> </tr> <tr> <td></td> <td></td> <td>1536 <dec></td> </tr> </table> <i>TC Control Flags :</i> <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">GBM IL DSE</td> <td></td> </tr> <tr> <td>--Y -- ---</td> <td></td> </tr> </table> <i>Subsch. ID : 20</i> <i>Det. descr. : TC_DUMP_STR_SOFTWARE</i> This Telecommand will not be included in the export	ASW Function ID	AHFUN001	STRSwHandling	STRSw AID Cmd	AHFXB001	(Def)	STRSw DF86 Cmd	AH8U1001	Dumping (Def)	STRSw DD86 Cmd	AH8U2001	Disable 86 (Def)	STRSw STR ID	AHFXU001	Disable 86 (Def)	STRSw STR Mem	AHFXM001	STR-2	STRSw Nr Words	AHFXN001	04000000 <hex>			1536 <dec>	GBM IL DSE		--Y -- ---			TC	
ASW Function ID	AHFUN001	STRSwHandling																															
STRSw AID Cmd	AHFXB001	(Def)																															
STRSw DF86 Cmd	AH8U1001	Dumping (Def)																															
STRSw DD86 Cmd	AH8U2001	Disable 86 (Def)																															
STRSw STR ID	AHFXU001	Disable 86 (Def)																															
STRSw STR Mem	AHFXM001	STR-2																															
STRSw Nr Words	AHFXN001	04000000 <hex>																															
		1536 <dec>																															
GBM IL DSE																																	
--Y -- ---																																	
11.1.3		Check start address and length of the last dump command in the stack																															
		With the Manual Stack in 'Full mode', check the Start Address (STRSw STR Mem parameter) and Length (STRSw Nr Words parameter) in the last ACXD1001 command: STRSw STR Mem = 040x.xxxx hex STRSw Nr Words = TBC dec																															

Load STR OBS in EEPROM File: H_FCP_OBS_2810.xls Author: lstefanov-hp	
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment																										
		Execute Telecommand <p style="text-align: center;">Dump STR software</p> <i>Command Parameter(s) :</i> <table style="width: 100%; border: none;"> <tr> <td style="width: 40%;">ASW Function ID</td> <td style="width: 20%;">AHFUN001</td> <td style="width: 40%;">STRSwHandling</td> </tr> <tr> <td>STRSw AID Cmd</td> <td>AHFXB001</td> <td>(Def)</td> </tr> <tr> <td>STRSw DF86 Cmd</td> <td>AH8U1001</td> <td>Dumping (Def)</td> </tr> <tr> <td>STRSw DD86 Cmd</td> <td>AH8U2001</td> <td>Disable 86 (Def)</td> </tr> <tr> <td>STRSw STR ID</td> <td>AHFXU001</td> <td>Disable 86 (Def)</td> </tr> <tr> <td>STRSw STR Mem</td> <td>AHFXM001</td> <td>STR-2</td> </tr> <tr> <td>STRSw Nr Words</td> <td>AHFXN001</td> <td><hex> (Def)</td> </tr> <tr> <td></td> <td></td> <td><dec> (Def)</td> </tr> </table> <i>TC Control Flags :</i> <table style="width: 100%; border: none;"> <tr> <td style="width: 40%;">GBM IL DSE</td> <td style="width: 60%;">--Y -- ---</td> </tr> </table> <i>Subsch. ID : 20</i> <i>Det. descr. : TC_DUMP_STR_SOFTWARE</i> This Telecommand will not be included in the export	ASW Function ID	AHFUN001	STRSwHandling	STRSw AID Cmd	AHFXB001	(Def)	STRSw DF86 Cmd	AH8U1001	Dumping (Def)	STRSw DD86 Cmd	AH8U2001	Disable 86 (Def)	STRSw STR ID	AHFXU001	Disable 86 (Def)	STRSw STR Mem	AHFXM001	STR-2	STRSw Nr Words	AHFXN001	<hex> (Def)			<dec> (Def)	GBM IL DSE	--Y -- ---	ACXD1001	TC	
ASW Function ID	AHFUN001	STRSwHandling																													
STRSw AID Cmd	AHFXB001	(Def)																													
STRSw DF86 Cmd	AH8U1001	Dumping (Def)																													
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STRSw STR ID	AHFXU001	Disable 86 (Def)																													
STRSw STR Mem	AHFXM001	STR-2																													
STRSw Nr Words	AHFXN001	<hex> (Def)																													
		<dec> (Def)																													
GBM IL DSE	--Y -- ---																														
12		Dump STR2 current OBS image from EEPROM		Next Step: 13																											
		Note: The dump of the current OBS image should be executed in a DTCP preceding the DTCP selected for the new OBS image load.																													
12.1		MCS OBSM preparation for Image update in LIVE mode																													
		Note: It is assumed that the OBSM application is already running and the OBSM Desktop is displayed on the MCS client. Starting the OBSM application is not covered by the current procedure.																													
12.1.1		Select 'Image MONITOR' from the menu																													
		Select the Image menu of the <i>OBSM Desktop</i> . From the Image menu, select Monitor . The 'Image Catalog' window opens.																													
12.1.2		Select image to be monitored																													
		Select the image to be monitored for the memory device STR2EEPG . The 'Image MONITOR' window opens.																													
12.1.3		Start dump TM processing																													

Load STR OBS in EEPROM File: H_FCP_OBS_2810.xls Author: lstefanov-hp	
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		In LIVE mode, processing of incoming real-time telemetry starts automatically after the image selection.			
12.2		Upload commands to dump the STR2 current OBS image from EEPROM			
		Uplink the ACXD1001 memory dump commands with ARM-GO			
		After successful execution of each command, 2 TM(6,6) packets shall be received on ground.			
12.3		Verify reception of TM(6,6)			
		Note: 2 TM(6,6) packets will be received for each memory dump command uplinked.			
		Verify Packet Reception Memory Dump - Absolute Addresses - SAU 8 Packet Mnemonic : MemDmpAbsAdd APID : 512 Type : 6 Subtype : 6 PI1 : PI2 :			
12.4		Check OBSM dump packet processing			
		Check that the OBSM is processing the incoming memory dump packets.			
12.5		Check contents of memory dump packets			
		Verify that there are NO OBSM reported differences between the memory dump data and the ground image used for monitoring.			
		IF there are differences reported by OBSM between the dump data and the ground image, the merged image shall be saved for offline analysis.			
12.5.1		Save merged image			
		IF there are mismatches reported by OBSM, save merged image with new ID .			
		Conduct off-line analysis of the reported mismatches.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
13		Manual Stack manipulation Load command stack file for OBS load on Manual Stack		Next Step: 14	
		NOTE: The current procedure assumes that the memory load is performed using commands with immediate execution.			
		Select the File -> LoadStack option from the main menu of the Manual Stack window			
		Select file STR2EEPG_PI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmss.machine from directory /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/STR2EEPG as indicated by the OBSM engineer			
		IMPORTANT: XXXXYYY = Image ID(X) and Version(Y) - depend on image used for stack generation YYYY_DDD hhmss - depend on stack generation time machine - depends on the name of the machine used for stack generation			
		File name example: - No model associated to the memory image: STR2EEPG_PI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
13.1		Check memory load command stack loaded			
		For STR OBS v.x.y : Start Address = 0400.0000 hex End Address = 0403.0A13 hex (TBC) Length = 30A14 hex (TBC) 32-bit words			
		Note: This procedure assumes that the OBS image covers both EAPPL and Star Catalogue EEPROM areas.			
13.1.1		Check number of memory load commands in the stack			
		Note: A maximum of 14 (TBC) 32-bit words can be loaded with a single STR memory load command.			
		Check that loaded stack contains: TBC TCs ACXL1001			

Load STR OBS in EEPROM
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand <p style="text-align: center;">Load STR software</p> Command Parameter(s) : ASW Function ID AHFUN001 STRSwHandling STRSw AID Cmd AHFXB001 (Def) STRSw DF86 Cmd AH8U1001 Loading (Def) STRSw DD86 Cmd AH8U2001 Disable 86 (Def) STRSw STR ID AHFXU001 Disable 86 (Def) STRSw STR Mem AHFXM001 STR-1 STRSw Checksum AHFXK001 <hex> (Def) STRSw Nr Words AHFXN001 calculated by OBSM STRSw Data Word AHFXD001 1 <dec> (Def) <dec> (Def) TC Control Flags : <p style="text-align: center;">GBM IL DSE</p> <p style="text-align: center;">--Y -- --</p> Subsch. ID : 20 Det. descr. : TC_LOAD_STR_SOFTWARE This Telecommand will not be included in the export	ACXL1001	TC	
14		Upload STR2 OBS image in EEPROM		Next Step: 15	
		Uplink the ACXL1001 memory load commands with ARM-GO			
		For each TC ACXL1001 successfully executed on-board, a TM(1,1) and TM(1,7) packet shall be received on ground.			
		Verify Packet Reception Telecommand Acceptance Report - Success Packet Mnemonic : A_TcAccSucc APID : 512 Type : 1 Subtype : 1 PI1 : PI2 :			
		Verify Packet Reception Telecommand Execution Report - Completed Packet Mnemonic : A_TcExeComp APID : 512 Type : 1 Subtype : 7 PI1 : PI2 :			
15		Manual Stack manipulation Load command stack file for STR2 new OBS dump from EEPROM on Manual Stack		Next Step: 16	
		NOTE: The current procedure assumes that the memory dump in Live mode is performed using commands with immediate execution.			
		Select the File -> LoadStack option from the main menu of the Manual Stack window			

Load STR OBS in EEPROM File: H_FCP_OBS_2810.xls Author: lstefanov-hp	
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Select file STR2EEPG_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThmmss.machine from directory /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/STR2EEPG as indicated by the OBSM engineer			
		IMPORTANT: XXXXYYY = Image ID(X) and Version(Y) - depend on image used for stack generation YYYY_DDD hhmss - depend on stack generation time machine - depends on the name of the machine used for stack generation			
		File name example: - No model associated to the memory image: STR2EEPG_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
15.1		Check memory dump command stack loaded			
		For STR OBS v.x.y : Start Address = 0400.0000 hex End Address = 0403.0A13 hex (TBC) Length = 30A14 hex (TBC) 32-bit words			
		Note: This procedure assumes that the OBS image covers both EAPPL and Star Catalogue EEPROM areas.			
15.1.1		Check number of memory dump commands in the stack			
		Note: A maximum of 1536 32-bit words can be dumped with a single STR memory dump command.			
		Check that loaded stack contains: 130 (TBC) TCs ACXD1001			
15.1.2		Check start address and length of the first dump command in the stack			
		With the Manual Stack in 'Full mode', check the Start Address (STRSw STR Mem parameter) and Length (STRSw Nr Words parameter) in the first ACXD1001 command: STRSw STR Mem = 0400.0000 hex STRSw Nr Words = 1536 dec			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand Dump STR software Command Parameter(s) : ASW Function ID AHFUN001 STRSw AID Cmd AHFXB001 STRSw DF86 Cmd AH8U1001 STRSw DD86 Cmd AH8U2001 STRSw STR ID AHFXU001 STRSw STR Mem AHFXM001 STRSw Nr Words AHFXN001 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 20 Det. descr. : TC_DUMP_STR_SOFTWARE This Telecommand will not be included in the export	ACXD1001	TC	
15.1.3		Check start address and length of the last dump command in the stack			
		With the Manual Stack in 'Full mode', check the Start Address (STRSw STR Mem parameter) and Length (STRSw Nr Words parameter) in the last ACXD1001 command: STRSw STR Mem = 040x.xxxx hex STRSw Nr Words = TBC dec			
		Execute Telecommand Dump STR software Command Parameter(s) : ASW Function ID AHFUN001 STRSw AID Cmd AHFXB001 STRSw DF86 Cmd AH8U1001 STRSw DD86 Cmd AH8U2001 STRSw STR ID AHFXU001 STRSw STR Mem AHFXM001 STRSw Nr Words AHFXN001 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 20 Det. descr. : TC_DUMP_STR_SOFTWARE This Telecommand will not be included in the export	ACXD1001	TC	
16		Dump STR2 new OBS image from EEPROM		Next Step: 17	
		Note: The dump of the current OBS image should be executed in a DTCP preceding the DTCP selected for the new OBS image load.			
16.1		MCS OBSM preparation for Image update in LIVE mode			
		Note: It is assumed that the OBSM application is already running and the OBSM Desktop is displayed on the MCS client. Starting the OBSM application is not covered by the current procedure.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
16.1.1		Select 'Image MONITOR' from the menu			
		Select the Image menu of the <i>OBSM Desktop</i> . From the Image menu, select Monitor . The 'Image Catalog' window opens.			
16.1.2		Select image to be monitored			
		Select the image to be monitored for the memory device STR2EEPG . The 'Image MONITOR' window opens.			
16.1.3		Start dump TM processing			
		In LIVE mode, processing of incoming real-time telemetry starts automatically after the image selection.			
16.2		Upload commands to dump the STR2 new OBS image from EEPROM			
		Uplink the ACXD1001 memory dump commands with ARM-GO			
		After successful execution of each command, 2 TM(6,6) packets shall be received on ground.			
16.3		Verify reception of TM(6,6)			
		Note: 2 TM(6,6) packets will be received for each memory dump command uplinked.			
		Verify Packet Reception Memory Dump - Absolute Addresses - SAU 8 Packet Mnemonic : MemDmpAbsAdd APID : 512 Type : 6 Subtype : 6 PI1 : PI2 :			
16.4		Check OBSM dump packet processing			
		Check that the OBSM is processing the incoming memory dump packets.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
16.5		Check contents of memory dump packets			
		Verify that there are NO OBSM reported differences between the memory dump data and the ground image used for monitoring.			
		IF there are differences reported by OBSM between the dump data and the ground image, the merged image shall be saved for offline analysis.			
16.5.1		Save merged image			
		IF there are mismatches reported by OBSM, save merged image with new ID .			
		Conduct off-line analysis of the reported mismatches.			
17		RETURN to proc. H_FCP_AOC_4S61 or H_FCP_AOC_4S62		Next Step: END	
End of Sequence					
End of Procedure					