

Load CDMU OBS in EEPROM  
File: H\_FCP\_OBS\_1210.xls  
Author: Liviu Stefanov



## Procedure Summary

### Objectives

This Herschel OBSM procedure is used to conduct a CDMU On-Board SW upload in PM EEPROM.

The whole OBS image is loaded into either 'Image 1' or 'Image 2' memory area. Image integrity after load is verified by on-board memory checksum calculation and full image dump.

This procedure assumes that the memory load and memory check command stacks have already been generated using the OBSM system and are ready for loading on the Manual Stack. The command stack generation activity is not covered by this procedure.

The procedure is called by system procedures H\_CRP\_SYS\_PATC and H\_CRP\_SYS\_PATCS.

### Summary of Constraints

CDMU in Operational Mode

Execution of service 6 TCs will be delayed when there is an ongoing:

- TC(6,2) Load Memory Using Absolute Addresses
- TC(6,5) Dump Memory Using Absolute Addresses
- TC(6,9) Check Memory Using Absolute Addresses
- TC(8,4,1,1) Copy Memory

### Spacecraft Configuration

#### Start of Procedure

CDMU in operational mode

#### End of Procedure

Same as start except:  
- New OBS image loaded in 'Image 1' or 'Image 2'

### Reference File(s)

#### Input Command Sequences

#### Output Command Sequences

OFCP121A  
OFCP121B

### Referenced Displays

ANDs	GRDs	SLDs
ZAD51999		(None)

### Configuration Control Information

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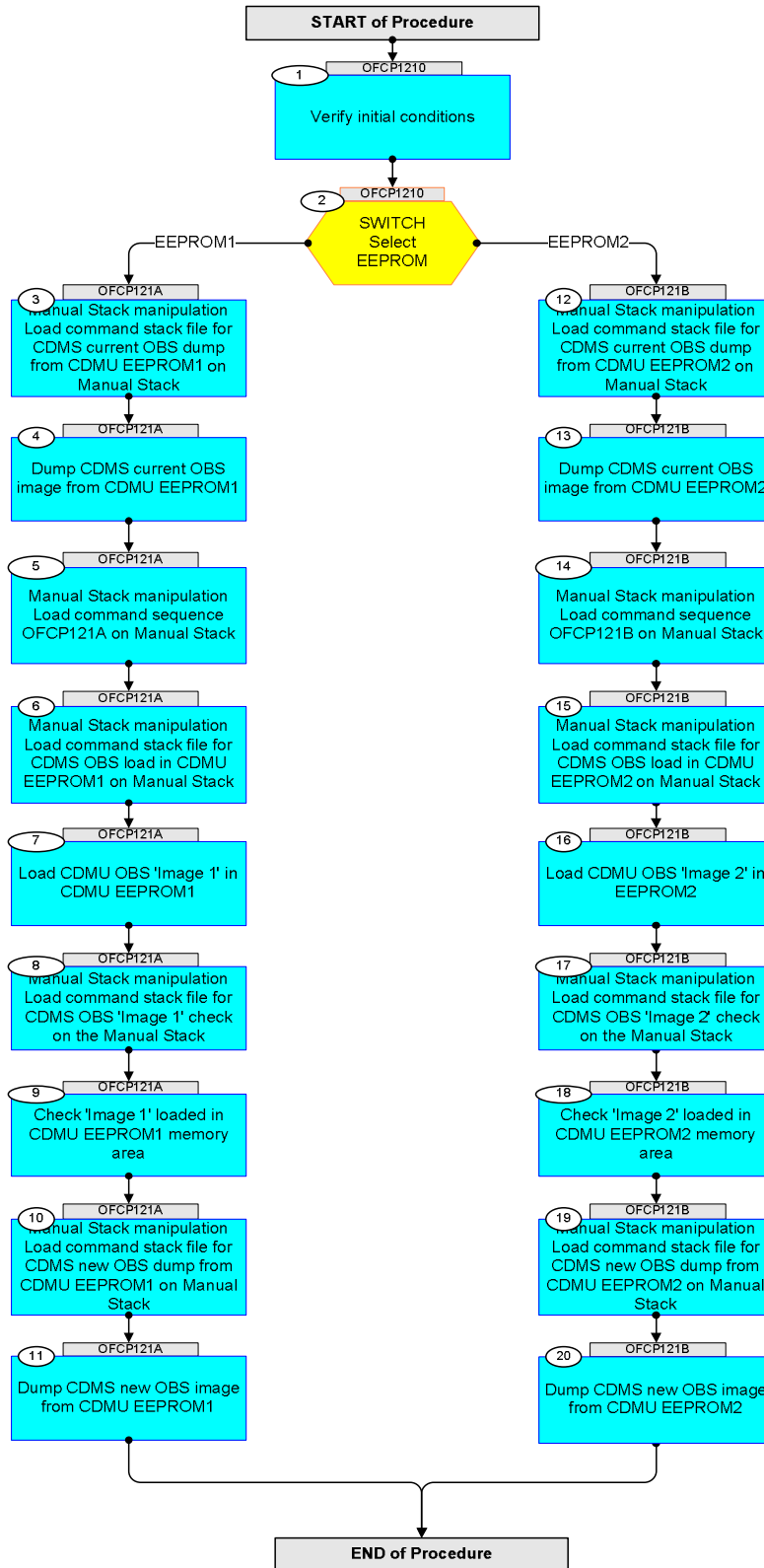


DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
25/02/08	1	1	Created	lstefanov-hp	
			1. added current steps 3 and 4 and sub-steps for OBS image dump before new image load 2. current step 6 updated: sub-steps 6.1 and 6.2 created to separate command stack load for CDMU A and B 3. current step 8 updated: sub-steps 8.1 and 8.2 created to separate command stack load for CDMU A and B 4. steps 8.3 and 9.2 updated: tables with start addresses and length for mem.checksum commands updated 5. added current steps 12 and 13 and sub-steps for OBS image dump before new image load 6. current step 15 updated: sub-steps 15.1 and 15.2 created to separate command stack load for CDMU A and B 7. current step 17 updated: sub-steps 17.1 and 17.2 created to separate command stack load for CDMU A and B 8. steps 17.3 and 18.2 updated: tables with start addresses and length for mem.checksum commands updated		
16/01/09	2	2		lstefanov-hp	
			Updated checksums for Herschel OBS 3.10.0.0. Removed checksum values from procedure body.		
16/04/09	2.3	3	Added attachment with the expected checksum values at the end of procedure.	t.loureiro-hp	
17/07/09	2.5	4	1. updated checksum values for CDMS OBS v.4.0B1114	lstefanov-hp	

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## Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
<b>Beginning of Procedure</b>					
<b>OFCP1210</b> TC Seq. Name :OFCP1210 ( CDMU OBS LOAD EEPROM ) Load CDMU OBS in EEPROM  TimeTag Type: B Sub Schedule ID:  <input type="checkbox"/>					
1		Verify initial conditions		Next Step: 2	
		Check: - CDMU in Operational Mode			
		Data Handling SOE to confirm CDMU mode			
2		SWITCH Select EEPROM  type: [Switch]		Next Step: EEPROM1 3 EEPROM2 12	
End of Sequence					
<b>OFCP121A</b> TC Seq. Name :OFCP121A ( CDMU OBS LD EEPROM1 ) Load CDMU OBS 'Image 1' in EEPROM1  TimeTag Type: N Sub Schedule ID:  <input type="checkbox"/>					
3		Manual Stack manipulation Load command stack file for CDMS current OBS dump from CDMU EEPROM1 on Manual Stack		Next Step: 4	
		<b>NOTE:</b> The current procedure assumes that the memory dump in Live mode is performed using commands with immediate execution.			
		Select the File -> <b>LoadStack</b> option from the main menu of the Manual Stack window			
3.1		IF CDMU A			
		Select file  <b>CDMEE1PG_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine</b>  from directory  <a href="#">/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE1PG</a>  as indicated by the OBSM engineer			

Load CDMU OBS in EEPROM File: H_FCP_OBS_1210.xls Author: lstefanov-hp	
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		IMPORTANT:  XXXXYYYY = 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 <b>example</b>  CDMEE1PG_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
3.2		ELSE CDMU B			
		Select file  CDMEE1PB_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine  from directory  /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE1PB  as indicated by the OBSM engineer			
		IMPORTANT:  XXXXYYYY = 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 <b>example</b>  CDMEE1PB_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
3.3		Check memory dump command stack loaded			
		<b>Note:</b> The start and end address of the EEPROM 'Image 1' are (Memory ID included):  <b>Start Address = 0080.0000 hex</b> <b>End Address = 008F.FFFF hex</b> <b>Length = 100000 hex</b>  <b>Note:</b> The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.			
3.3.1		Check number of memory dump commands in the stack			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment															
		Check that loaded stack contains: 17 TCs DC602180																		
3.3.2		Check Memory ID																		
		Display the Manual Stack in 'Full mode' and check that the <b>Memory ID</b> parameter in the DC602180 commands is set to <b>008 hex</b> :  <b>Memory ID = 008 hex</b>  <b>Note:</b> The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.																		
		Execute Telecommand  <div style="text-align: right; margin-right: 20px;">DumpMem_AbsAddr</div> <div style="text-align: right; margin-right: 20px;">DC602180</div> Command Parameter(s) : <table style="margin-left: 40px; border: none;"> <tr> <td style="padding-right: 20px;">Memory_ID</td> <td style="padding-right: 20px;">DH003180</td> <td style="padding-right: 20px;">008x &lt;hex&gt;</td> </tr> <tr> <td>Start_Address</td> <td>DH004180</td> <td>&lt;hex&gt; (Def)</td> </tr> <tr> <td>N</td> <td>DH105180</td> <td>&lt;hex&gt; (Def)</td> </tr> </table> TC Control Flags : <table style="margin-left: 40px; border: none;"> <tr> <td style="padding-right: 20px;">GBM</td> <td style="padding-right: 20px;">IL</td> <td style="padding-right: 20px;">DSE</td> </tr> <tr> <td>--Y</td> <td>--</td> <td>---</td> </tr> </table> Subsch. ID : 10 Det. descr. : Dump Memory Using Absolute Addresses This Telecommand will not be included in the export	Memory_ID	DH003180	008x <hex>	Start_Address	DH004180	<hex> (Def)	N	DH105180	<hex> (Def)	GBM	IL	DSE	--Y	--	---	DC602180	TC	
Memory_ID	DH003180	008x <hex>																		
Start_Address	DH004180	<hex> (Def)																		
N	DH105180	<hex> (Def)																		
GBM	IL	DSE																		
--Y	--	---																		
3.3.3		Check start address and length of first command in the stack																		
		With the Manual Stack in 'Full mode', check the <b>Start Address</b> in the <b>first</b> DC602180 command (Memory ID included):  <b>Start Address = 0080.0000 hex</b> <b>Length = FFFF hex</b>  <b>Note:</b> The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.																		
		Execute Telecommand  <div style="text-align: right; margin-right: 20px;">DumpMem_AbsAddr</div> <div style="text-align: right; margin-right: 20px;">DC602180</div> Command Parameter(s) : <table style="margin-left: 40px; border: none;"> <tr> <td style="padding-right: 20px;">Memory_ID</td> <td style="padding-right: 20px;">DH003180</td> <td style="padding-right: 20px;">0080 &lt;hex&gt;</td> </tr> <tr> <td>Start_Address</td> <td>DH004180</td> <td>0000 &lt;hex&gt;</td> </tr> <tr> <td>N</td> <td>DH105180</td> <td>FFFF &lt;hex&gt;</td> </tr> </table> TC Control Flags : <table style="margin-left: 40px; border: none;"> <tr> <td style="padding-right: 20px;">GBM</td> <td style="padding-right: 20px;">IL</td> <td style="padding-right: 20px;">DSE</td> </tr> <tr> <td>--Y</td> <td>--</td> <td>---</td> </tr> </table> Subsch. ID : 10 Det. descr. : Dump Memory Using Absolute Addresses This Telecommand will not be included in the export	Memory_ID	DH003180	0080 <hex>	Start_Address	DH004180	0000 <hex>	N	DH105180	FFFF <hex>	GBM	IL	DSE	--Y	--	---	DC602180	TC	
Memory_ID	DH003180	0080 <hex>																		
Start_Address	DH004180	0000 <hex>																		
N	DH105180	FFFF <hex>																		
GBM	IL	DSE																		
--Y	--	---																		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment																	
3.3.4		Check start address and length of last command in the stack																				
		<p>With the Manual Stack in 'Full mode', check the <b>Start Address</b> in the last DC602180 command (Memory ID included):</p> <p><b>Start Address</b> = 008F.FFF0 hex  <b>Length</b> = 10 hex</p> <p><b>Note:</b>            The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.</p>																				
		<p>Execute Telecommand</p> <p style="text-align: center;"><b>DumpMem_AbsAddr</b></p> <p style="text-align: center;"><b>DC602180</b></p> <p>Command Parameter(s) :</p> <table style="margin-left: 40px; border: none;"> <tr> <td style="padding-right: 20px;">Memory_ID</td> <td style="padding-right: 20px;">DH003180</td> <td>008F &lt;hex&gt;</td> </tr> <tr> <td>Start_Address</td> <td>DH004180</td> <td>FFF0 &lt;hex&gt;</td> </tr> <tr> <td>N</td> <td>DH105180</td> <td>10 &lt;hex&gt;</td> </tr> </table> <p>TC Control Flags :</p> <table style="margin-left: 40px; border: none;"> <tr> <td style="padding-right: 20px;">GBM</td> <td style="padding-right: 20px;">IL</td> <td style="padding-right: 20px;">DSE</td> <td></td> </tr> <tr> <td>--Y</td> <td>--</td> <td>---</td> <td></td> </tr> </table> <p>Subsch. ID : 10            Det. descr. : Dump Memory Using Absolute Addresses            This Telecommand will not be included in the export</p>	Memory_ID	DH003180	008F <hex>	Start_Address	DH004180	FFF0 <hex>	N	DH105180	10 <hex>	GBM	IL	DSE		--Y	--	---		TC		
Memory_ID	DH003180	008F <hex>																				
Start_Address	DH004180	FFF0 <hex>																				
N	DH105180	10 <hex>																				
GBM	IL	DSE																				
--Y	--	---																				
4		Dump CDMS current OBS image from CDMU EEPROM1		Next Step: 5																		
4.1		MCS OBSM preparation for Image monitor in LIVE mode																				
		<p><b>Note:</b>            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.</p>																				
4.1.1		Select 'Image MONITOR' from the menu																				
		<p>Select the <b>Image</b> menu of the <b>OBSM Desktop</b>.</p> <p>From the Image menu, select <b>Monitor</b>.</p> <p>The 'Image Catalog' window opens.</p>																				
4.1.2		Select image to be monitored																				

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
4.1.2.1		IF CDMU A			
		Select the image to be monitored for the memory device <b>CDMEE1PG</b> .  The 'Image MONITOR' window opens.			
4.1.2.2		ELSE CDMU B			
		Select the image to be monitored for the memory device <b>CDMEE1PB</b> .  The 'Image MONITOR' window opens.			
4.1.3		Start dump TM processing			
		In <b>LIVE</b> mode, processing of incoming real-time telemetry starts automatically after the image selection.			
4.2		Upload commands to dump the CDMS current OBS image from CDMU EEPROM1			
		<b>Uplink</b> the <b>DC602180</b> memory dump commands with <b>ARM-GO</b>			
		For each command, several TM(6,6) packets must be received on ground.			
4.3		Verify reception of TM(6,6)			
		<b>Note:</b> Several 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 : 16 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 <b>NO OBSM reported differences</b> between the memory dump data and the ground image used for monitoring.			
		<b>IF</b> there are <b>differences</b> reported by OBSM between the dump data and the ground image, <b>the merged image shall be saved</b> for offline analysis.			
4.5.1		Save merged image			
		<b>IF</b> there are <b>mismatches</b> reported by OBSM, save merged image with <b>new ID</b> .			
		Conduct off-line analysis of the reported mismatches.			
5		Manual Stack manipulation Load command sequence OFCP121A on Manual Stack		Next Step: 6	
5.1		Sequence data FP: N/A TT: N/A			
6		Manual Stack manipulation Load command stack file for CDMS OBS load in CDMU EEPROM1 on Manual Stack		Next Step: 7	
		<b>Load</b> command stack file <b>at line 2</b> of Manual Stack.			
		<b>NOTE:</b> The current procedure assumes that the memory load is performed using commands with immediate execution.			
		Select the File -> <b>LoadStack</b> option from the main menu of the Manual Stack window			
6.1		IF CDMU A			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Select file  <b>CDMEE1PG_PI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine</b>  from directory  <a href="#">/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE1PG</a>  as indicated by the OBSM engineer			
		IMPORTANT:  <b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation  <b>YYYY_DDD hhmmss</b> - depend on stack generation time  <b>machine</b> - depends on the name of the machine used for stack generation			
		File name <b>example:</b>  - No model associated to the memory image:  CDMEE1PG_PI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
6.2		ELSE CDMU B			
		Select file  <b>CDMEE1PB_PI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine</b>  from directory  <a href="#">/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE1PB</a>  as indicated by the OBSM engineer			
		IMPORTANT:  <b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation  <b>YYYY_DDD hhmmss</b> - depend on stack generation time  <b>machine</b> - depends on the name of the machine used for stack generation			
		File name <b>example:</b>  - No model associated to the memory image:  CDMEE1PB_PI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
6.3		Check memory load command stack loaded			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment																					
		<p><b>Note:</b>            The start and end address address of the EEPROM 'Image 1' are (Memory ID included):</p> <p><b>Start Address = 0080.0000 hex</b>  <b>End Address = 008F.FFFF hex</b>  <b>Length = 100000 hex</b></p> <p><b>Note:</b>            The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.</p>																								
6.3.1		Check number of memory load commands in the stack																								
		Check that loaded stack contains: <b>4600 TCs XC000999</b>																								
6.3.2		Check Memory ID																								
		<p>Display the Manual Stack in 'Full mode' and check that the <b>Memory ID</b> parameter in the DC602180 commands is set to <b>008 hex</b>:</p> <p><b>Memory ID = 008 hex</b></p> <p><b>Note:</b>            The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.</p>																								
		<p>Execute Telecommand</p> <p style="text-align: center;"><b>Patch APID 16</b></p> <p style="text-align: center;"><b>XC000999</b></p> <p>Command Parameter(s) :</p> <table style="width:100%; border: none;"> <tr> <td style="width:40%;">Memory Id (-----)</td> <td style="width:20%;">XH000999</td> <td style="width:40%;">008x &lt;hex&gt;</td> </tr> <tr> <td>Start Address (-----)</td> <td>XH001999</td> <td>&lt;hex&gt; (Def)</td> </tr> <tr> <td>Length of Block (8 bits)</td> <td>XH003999</td> <td>&lt;dec&gt; (Def)</td> </tr> <tr> <td>Variable len. octet str</td> <td>XH004999</td> <td>&lt;hex&gt; (Def)</td> </tr> <tr> <td>Checksum (-----)</td> <td>XH005999</td> <td>&lt;hex&gt; (Def)</td> </tr> </table> <p>TC Control Flags :</p> <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> <p>Subsch. ID : 1            Det. descr. : Patch APID 16</p> <p>This Telecommand will not be included in the export</p>	Memory Id (-----)	XH000999	008x <hex>	Start Address (-----)	XH001999	<hex> (Def)	Length of Block (8 bits)	XH003999	<dec> (Def)	Variable len. octet str	XH004999	<hex> (Def)	Checksum (-----)	XH005999	<hex> (Def)		GBM IL DSE			--Y --		XC000999	TC	
Memory Id (-----)	XH000999	008x <hex>																								
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Checksum (-----)	XH005999	<hex> (Def)																								
	GBM IL DSE																									
	--Y --																									
6.3.3		Check start address and length of the first command in the stack																								

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment															
		With the Manual Stack in 'Full mode', check the <b>Start Address</b> and <b>Length</b> in the <b>first</b> XC000999 command (Memory ID included):  <b>Start Address = 0080.0000 hex</b> <b>Length = 228 dec</b>  <b>Note:</b> The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.																		
		Execute Telecommand  <div style="text-align: right; margin-right: 100px;"><b>Patch APID 16</b></div> <div style="text-align: right;"><b>XC000999</b></div> <i>Command Parameter(s) :</i> <table style="width:100%; border: none;"> <tr> <td style="width:40%;">Memory Id (-----)</td> <td style="width:20%;">XH000999</td> <td style="width:40%;">0080 &lt;hex&gt;</td> </tr> <tr> <td>Start Address (-----)</td> <td>XH001999</td> <td>0000 &lt;hex&gt;</td> </tr> <tr> <td>Length of Block (8 bits)</td> <td>XH003999</td> <td>228 &lt;dec&gt;</td> </tr> <tr> <td>Variable len. octet str</td> <td>XH004999</td> <td>patch data</td> </tr> <tr> <td>Checksum (-----)</td> <td>XH005999</td> <td>calculated by OBSM</td> </tr> </table> <i>TC Control Flags :</i> <div style="text-align: right; margin-right: 100px;">GBM IL DSE</div> <div style="text-align: right;">--Y -- --</div> <i>Subsch. ID : 1</i> <i>Det. descr. : Patch APID 16</i>  This Telecommand will not be included in the export	Memory Id (-----)	XH000999	0080 <hex>	Start Address (-----)	XH001999	0000 <hex>	Length of Block (8 bits)	XH003999	228 <dec>	Variable len. octet str	XH004999	patch data	Checksum (-----)	XH005999	calculated by OBSM		TC	
Memory Id (-----)	XH000999	0080 <hex>																		
Start Address (-----)	XH001999	0000 <hex>																		
Length of Block (8 bits)	XH003999	228 <dec>																		
Variable len. octet str	XH004999	patch data																		
Checksum (-----)	XH005999	calculated by OBSM																		
6.3.4		Check start address and length of the last command in the stack																		
		With the Manual Stack in 'Full mode', check the <b>Start Address</b> and <b>Length</b> in the <b>last</b> XC000999 command (Memory ID included):  <b>Start Address = 008F.FFFC hex</b> <b>Length = 4 dec</b>  <b>Note:</b> The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.																		
		Execute Telecommand  <div style="text-align: right; margin-right: 100px;"><b>Patch APID 16</b></div> <div style="text-align: right;"><b>XC000999</b></div> <i>Command Parameter(s) :</i> <table style="width:100%; border: none;"> <tr> <td style="width:40%;">Memory Id (-----)</td> <td style="width:20%;">XH000999</td> <td style="width:40%;">008F &lt;hex&gt;</td> </tr> <tr> <td>Start Address (-----)</td> <td>XH001999</td> <td>FFFC &lt;hex&gt;</td> </tr> <tr> <td>Length of Block (8 bits)</td> <td>XH003999</td> <td>4 &lt;dec&gt;</td> </tr> <tr> <td>Variable len. octet str</td> <td>XH004999</td> <td>patch data</td> </tr> <tr> <td>Checksum (-----)</td> <td>XH005999</td> <td>calculated by OBSM</td> </tr> </table> <i>TC Control Flags :</i> <div style="text-align: right; margin-right: 100px;">GBM IL DSE</div> <div style="text-align: right;">--Y -- --</div> <i>Subsch. ID : 1</i> <i>Det. descr. : Patch APID 16</i>  This Telecommand will not be included in the export	Memory Id (-----)	XH000999	008F <hex>	Start Address (-----)	XH001999	FFFC <hex>	Length of Block (8 bits)	XH003999	4 <dec>	Variable len. octet str	XH004999	patch data	Checksum (-----)	XH005999	calculated by OBSM		TC	
Memory Id (-----)	XH000999	008F <hex>																		
Start Address (-----)	XH001999	FFFC <hex>																		
Length of Block (8 bits)	XH003999	4 <dec>																		
Variable len. octet str	XH004999	patch data																		
Checksum (-----)	XH005999	calculated by OBSM																		
7		Load CDMU OBS 'Image 1' in CDMU EEPROM1		Next Step: 8																

Load CDMU OBS in EEPROM  
 File: H\_FCP\_OBS\_1210.xls  
 Author: lstefanov-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
7.1		Disable CDMU EEPROM write protection			
		Verify Telemetry EEPromWriteProt DEL0J160	= ENABLED	AND=ZAD51999	
		Uplink TC with ARM GO			
		Execute Telecommand EnableEEWrite TC Control Flags : Subsch. ID : 10 Det. descr. : Enable write to EEPROM	DC806180	TC	
		Verify Telemetry EEPromWriteProt DEL0J160	= DISABLED	AND=ZAD51999	
7.2		Uplink the memory load commands			
		Memory load details: Start address: 0080.0000 hex End address : 008F.FFFF hex # of TCs : 4600 dec			
		Uplink TCs XC000999 with ARM-GO			
		For each TC XC000999 successfully executed on-board, a TM(1,1) and a TM(1,7) packet shall be received on ground.			
		Verify Packet Reception Telecommand Acceptance Report - Success Packet Mnemonic : D_TcAccSucc APID : 16 Type : 1 Subtype : 1 PI1 : PI2 :			
		Verify Packet Reception Telecommand Execution Report - Completed Packet Mnemonic : D_TcExeComp APID : 16 Type : 1 Subtype : 7 PI1 : PI2 :			
7.3		Enable CDMU EEPROM write protection			
		Verify Telemetry EEPromWriteProt DEL0J160	= DISABLED	AND=ZAD51999	
		Uplink TC with ARM GO			


Load CDMU OBS in EEPROM File: H_FCP_OBS_1210.xls Author: lstefanov-hp	 
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand <div style="text-align: right;"><b>DisableEEWrite</b></div> <i>TC Control Flags :</i> <div style="text-align: right;">GBM IL DSE --Y -- ---</div> <i>Subsch. ID : 10</i> <i>Det. descr. : Disable write to EEPROM</i>	DC805180	TC	
		Verify Telemetry <div style="text-align: center;"><b>EEPromWriteProt</b>      <b>DEL0J160</b></div> <div style="text-align: center;">= <b>ENABLED</b></div>	= <b>ENABLED</b>	AND=ZAD51999	
8		Manual Stack manipulation Load command stack file for CDMS OBS 'Image 1' check on the Manual Stack		Next Step: 9	
		Select the File -> <b>LoadStack</b> option from the main menu of the Manual Stack window			
8.1		IF CDMU A			
		Select file <b>CDMEE1PG_CI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine</b> from directory <a href="#">/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE1PG</a> as indicated by the OBSM engineer			
		IMPORTANT:  <b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation  <b>YYYY_DDD hhmmss</b> - depend on stack generation time  <b>machine</b> - depends on the name of the machine used for stack generation			
		File name <b>example:</b>  - No model associated to the memory image: CDMEE1PG_CI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
8.2		ELSE CDMU B			

Load CDMU OBS in EEPROM  
 File: H\_FCP\_OBS\_1210.xls  
 Author: lstefanov-hp




Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment																																								
		Select file  <b>CDMEE2PG_CI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThmmss.machine</b>  from directory  /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE2PG  as indicated by the OBSM engineer																																											
		IMPORTANT:  <b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation  <b>YYYY_DDD hhmss</b> - depend on stack generation time  <b>machine</b> - depends on the name of the machine used for stack generation																																											
		File name <b>example:</b>  - No model associated to the memory image:  CDMEE2PG_CI_0002001_N_NoModel_NoModel_2007_254T123300.sun043																																											
8.3		Check command stack loaded																																											
		With the Manual Stack in 'Full mode', check the 17 TCs <b>DC603180</b> in loaded stack.  <table border="1"> <thead> <tr> <th>TC #</th> <th>Memory_ID</th> <th>Start_Address</th> <th>N</th> </tr> </thead> <tbody> <tr><td>1</td><td>0080</td><td>0000</td><td>FFFF</td></tr> <tr><td>2</td><td>0080</td><td>FFFF</td><td>FFFF</td></tr> <tr><td>3</td><td>0081</td><td>FFFE</td><td>FFFF</td></tr> <tr><td>4</td><td>0082</td><td>FFFD</td><td>FFFF</td></tr> <tr><td>5</td><td>0083</td><td>FFFC</td><td>FFFF</td></tr> <tr><td>6</td><td>0084</td><td>FFFB</td><td>FFFF</td></tr> <tr><td>7</td><td>0085</td><td>FFFA</td><td>FFFF</td></tr> <tr><td>8</td><td>0086</td><td>FFF9</td><td>FFFF</td></tr> <tr><td>9</td><td>0087</td><td>FFF8</td><td>FFFF</td></tr> </tbody> </table>	TC #	Memory_ID	Start_Address	N	1	0080	0000	FFFF	2	0080	FFFF	FFFF	3	0081	FFFE	FFFF	4	0082	FFFD	FFFF	5	0083	FFFC	FFFF	6	0084	FFFB	FFFF	7	0085	FFFA	FFFF	8	0086	FFF9	FFFF	9	0087	FFF8	FFFF			
TC #	Memory_ID	Start_Address	N																																										
1	0080	0000	FFFF																																										
2	0080	FFFF	FFFF																																										
3	0081	FFFE	FFFF																																										
4	0082	FFFD	FFFF																																										
5	0083	FFFC	FFFF																																										
6	0084	FFFB	FFFF																																										
7	0085	FFFA	FFFF																																										
8	0086	FFF9	FFFF																																										
9	0087	FFF8	FFFF																																										
		10 0088 FFF7 FFFF 11 0089 FFF6 FFFF 12 008A FFF5 FFFF 13 008B FFF4 FFFF 14 008C FFF3 FFFF 15 008D FFF2 FFFF 16 008E FFF1 FFFF 17 008F FFF0 0010																																											
		<b>Note:</b> Only the <b>first TC DC603180</b> is included below, as example.																																											
		Execute Telecommand  <div style="text-align: right;">ChkMem_AbsAdd</div> <div style="text-align: right;">DC603180</div> Command Parameter(s) : <table border="0" style="width: 100%;"> <tr> <td style="text-align: right;">Memory_ID</td> <td style="text-align: right;">DH003180</td> <td style="text-align: right;">0080 &lt;hex&gt;</td> </tr> <tr> <td style="text-align: right;">Start_Address</td> <td style="text-align: right;">DH004180</td> <td style="text-align: right;">0000 &lt;hex&gt;</td> </tr> <tr> <td style="text-align: right;">N</td> <td style="text-align: right;">DH105180</td> <td style="text-align: right;">FFFF &lt;hex&gt;</td> </tr> </table> TC Control Flags : <table border="0" style="width: 100%;"> <tr> <td style="text-align: right;">GBM IL DSE</td> </tr> <tr> <td style="text-align: right;">--Y -- ---</td> </tr> </table> Subsch. ID : 10 Det. descr. : Check Memory Using Absolute Addresses This Telecommand will not be included in the export	Memory_ID	DH003180	0080 <hex>	Start_Address	DH004180	0000 <hex>	N	DH105180	FFFF <hex>	GBM IL DSE	--Y -- ---		TC																														
Memory_ID	DH003180	0080 <hex>																																											
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--Y -- ---																																													

Load CDMU OBS in EEPROM File: H_FCP_OBS_1210.xls Author: lstefanov-hp	
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
9		Check 'Image 1' loaded in CDMU EEPROM1 memory area		Next Step: 10	
9.1		Command memory checksum calculation			
		<b>Uplink</b> the 17 <b>DC603180</b> memory check commands (one by one) with <b>ARM-GO</b>			
		For each TC DC603180 uplinked, a TM(6,10) packet shall be received on ground.			
9.2		Verify reception and contents of TM(6,10)			
		Verify Packet Reception  Memory Check Report - Absolute Addresses Packet Mnemonic : MemChkRepAbs APID : 16 Type : 6 Subtype : 10 PI1 : PI2 :			
		Verify Telemetry  <b>Memory_ID</b> <b>DE060180</b> = <hex>			
		Verify Telemetry  <b>Start_Address</b> <b>DE061180</b> = <hex>		(None)	
		Verify Telemetry  <b>N</b> <b>DE062180</b> = <hex>		(None)	
		Verify Telemetry  <b>Checksum</b> <b>DE064180</b> = <hex>		(None)	
9.2.1		Verify checksum values			
		Check the received checksums against the expected values listed in <b>Attachment 1</b> (worksheet "CRC checksums").  <b>IMPORTANT:</b> Checksum values depend on the OBS version.			
		Verify Telemetry  <b>Checksum</b> <b>DE064180</b> = expected value		(None)	
10		Manual Stack manipulation Load command stack file for CDMS new OBS dump from CDMU EEPROM1 on Manual Stack		Next Step: 11	
		<b>NOTE:</b> The current procedure assumes that the memory dump in Live mode is performed using commands with immediate execution.			



Load CDMU OBS in EEPROM File: H_FCP_OBS_1210.xls Author: lstefanov-hp	
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Select the File -> <b>LoadStack</b> option from the main menu of the Manual Stack window			
10.1		IF CDMU A			
		Select file  <b>CDMEE1PG_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine</b>  from directory  <a href="#">/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE1PG</a>  as indicated by the OBSM engineer			
		IMPORTANT:  <b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation  <b>YYYY_DDD hhmmss</b> - depend on stack generation time  <b>machine</b> - depends on the name of the machine used for stack generation			
		File name <b>example</b>  CDMEE1PG_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
10.2		ELSE CDMU B			
		Select file  <b>CDMEE1PB_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine</b>  from directory  <a href="#">/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE1PB</a>  as indicated by the OBSM engineer			
		IMPORTANT:  <b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation  <b>YYYY_DDD hhmmss</b> - depend on stack generation time  <b>machine</b> - depends on the name of the machine used for stack generation			
		File name <b>example</b>  CDMEE1PB_PI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
10.3		Check memory dump command stack loaded			

Load CDMU OBS in EEPROM File: H_FCP_OBS_1210.xls Author: lstefanov-hp	 
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment									
		<p><b>Note:</b>            The start and end address of the EEPROM 'Image 1' are (Memory ID included):</p> <p><b>Start Address = 0080.0000 hex</b>  <b>End Address = 008F.FFFF hex</b>  <b>Length = 100000 hex</b></p> <p><b>Note:</b>            The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.</p>												
10.3.1		Check number of memory dump commands in the stack												
		Check that loaded stack contains: 17 TCs DC602180												
10.3.2		Check Memory ID												
		<p>Display the Manual Stack in 'Full mode' and check that the <b>Memory ID</b> parameter in the DC602180 commands is set to <b>008 hex</b>:</p> <p><b>Memory ID = 008 hex</b></p> <p><b>Note:</b>            The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.</p>												
		<p>Execute Telecommand</p> <p style="text-align: right;"><b>DumpMem_AbsAddr</b></p> <p style="text-align: right;"><b>DC602180</b></p> <p>Command Parameter(s) :</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: right;">Memory_ID</td> <td style="text-align: right;">DH003180</td> <td style="text-align: right;">008x &lt;hex&gt;</td> </tr> <tr> <td style="text-align: right;">Start_Address</td> <td style="text-align: right;">DH004180</td> <td style="text-align: right;">&lt;hex&gt; (Def)</td> </tr> <tr> <td style="text-align: right;">N</td> <td style="text-align: right;">DH105180</td> <td style="text-align: right;">&lt;hex&gt; (Def)</td> </tr> </table> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10            Det. descr. : Dump Memory Using Absolute Addresses            This Telecommand will not be included in the export</p>	Memory_ID	DH003180	008x <hex>	Start_Address	DH004180	<hex> (Def)	N	DH105180	<hex> (Def)	DC602180	TC	
Memory_ID	DH003180	008x <hex>												
Start_Address	DH004180	<hex> (Def)												
N	DH105180	<hex> (Def)												
10.3.3		Check start address and length of first command in the stack												

Load CDMU OBS in EEPROM File: H_FCP_OBS_1210.xls Author: lstefanov-hp	
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment																		
		With the Manual Stack in 'Full mode', check the <b>Start Address</b> in the <b>first</b> DC602180 command (Memory ID included):  <b>Start Address = 0080.0000 hex</b> <b>Length = FFFF hex</b>  <b>Note:</b> The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.																					
		Execute Telecommand  <div style="text-align: right; margin-right: 20px;"><b>DumpMem_AbsAddr</b></div> <div style="text-align: right; margin-right: 20px;"><b>DC602180</b></div> Command Parameter(s) : <table style="width:100%; border: none;"> <tr> <td style="width:30%;"><b>Memory_ID</b></td> <td style="width:20%;">DH003180</td> <td style="width:20%;">0080 &lt;hex&gt;</td> <td style="width:30%;"></td> </tr> <tr> <td><b>Start_Address</b></td> <td>DH004180</td> <td>0000 &lt;hex&gt;</td> <td></td> </tr> <tr> <td><b>N</b></td> <td>DH105180</td> <td>FFFF &lt;hex&gt;</td> <td></td> </tr> </table> TC Control Flags : <table style="width:100%; border: none;"> <tr> <td style="width:30%;"></td> <td style="width:20%; text-align: center;"><b>GBM IL DSE</b></td> <td style="width:50%;"></td> </tr> <tr> <td></td> <td style="text-align: center;">--Y -- ---</td> <td></td> </tr> </table> Subsch. ID : 10 Det. descr. : Dump Memory Using Absolute Addresses This Telecommand will not be included in the export	<b>Memory_ID</b>	DH003180	0080 <hex>		<b>Start_Address</b>	DH004180	0000 <hex>		<b>N</b>	DH105180	FFFF <hex>			<b>GBM IL DSE</b>			--Y -- ---			TC	
<b>Memory_ID</b>	DH003180	0080 <hex>																					
<b>Start_Address</b>	DH004180	0000 <hex>																					
<b>N</b>	DH105180	FFFF <hex>																					
	<b>GBM IL DSE</b>																						
	--Y -- ---																						
10.3.4		Check start address and length of last command in the stack																					
		With the Manual Stack in 'Full mode', check the <b>Start Address</b> in the <b>last</b> DC602180 command (Memory ID included):  <b>Start Address = 008F.FFF0 hex</b> <b>Length = 10 hex</b>  <b>Note:</b> The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.																					
		Execute Telecommand  <div style="text-align: right; margin-right: 20px;"><b>DumpMem_AbsAddr</b></div> <div style="text-align: right; margin-right: 20px;"><b>DC602180</b></div> Command Parameter(s) : <table style="width:100%; border: none;"> <tr> <td style="width:30%;"><b>Memory_ID</b></td> <td style="width:20%;">DH003180</td> <td style="width:20%;">008F &lt;hex&gt;</td> <td style="width:30%;"></td> </tr> <tr> <td><b>Start_Address</b></td> <td>DH004180</td> <td>FFF0 &lt;hex&gt;</td> <td></td> </tr> <tr> <td><b>N</b></td> <td>DH105180</td> <td>10 &lt;hex&gt;</td> <td></td> </tr> </table> TC Control Flags : <table style="width:100%; border: none;"> <tr> <td style="width:30%;"></td> <td style="width:20%; text-align: center;"><b>GBM IL DSE</b></td> <td style="width:50%;"></td> </tr> <tr> <td></td> <td style="text-align: center;">--Y -- ---</td> <td></td> </tr> </table> Subsch. ID : 10 Det. descr. : Dump Memory Using Absolute Addresses This Telecommand will not be included in the export	<b>Memory_ID</b>	DH003180	008F <hex>		<b>Start_Address</b>	DH004180	FFF0 <hex>		<b>N</b>	DH105180	10 <hex>			<b>GBM IL DSE</b>			--Y -- ---			TC	
<b>Memory_ID</b>	DH003180	008F <hex>																					
<b>Start_Address</b>	DH004180	FFF0 <hex>																					
<b>N</b>	DH105180	10 <hex>																					
	<b>GBM IL DSE</b>																						
	--Y -- ---																						
11		Dump CDMS new OBS image from CDMU EEPROM1		Next Step: END																			
11.1		MCS OBSM preparation for Image monitor in LIVE mode																					

Load CDMU OBS in EEPROM  
 File: H\_FCP\_OBS\_1210.xls  
 Author: lstefanov-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		<p><b>Note:</b>            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.</p>			
11.1.1		Select 'Image MONITOR' from the menu			
		<p>Select the <b>Image</b> menu of the <i>OBSM Desktop</i> .            From the Image menu, select <b>Monitor</b> .            The 'Image Catalog' window opens.</p>			
11.1.2		Select image to be monitored			
11.1.2.1		<p>IF            CDMU A</p>			
		<p>Select the image to be monitored for the memory device <b>CDMEE1PG</b> .            The 'Image MONITOR' window opens.</p>			
11.1.2.2		<p>ELSE            CDMU B</p>			
		<p>Select the image to be monitored for the memory device <b>CDMEE1PB</b> .            The 'Image MONITOR' window opens.</p>			
11.1.3		Start dump TM processing			
		In <b>LIVE</b> mode, processing of incoming real-time telemetry starts automatically after the image selection.			
11.2		Upload commands to dump the CDMS current OBS image from CDMU EEPROM1			
		<b>Uplink</b> the <b>DC602180</b> memory dump commands with <b>ARM-GO</b>			
		For each command, several TM(6,6) packets must be received on ground.			

Load CDMU OBS in EEPROM File: H_FCP_OBS_1210.xls Author: lstefanov-hp	
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
11.3		Verify reception of TM(6,6)			
		<b>Note:</b> Several 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 : 16 Type : 6 Subtype : 6 PI1 : PI2 :			
11.4		Check OBSM dump packet processing			
		Check that the OBSM is processing the incoming memory dump packets.			
11.5		Check contents of memory dump packets			
		Verify that there are <b>NO OBSM reported differences</b> between the memory dump data and the ground image used for monitoring.			
		<b>IF</b> there are <b>differences</b> reported by OBSM between the dump data and the ground image, <b>the merged image shall be saved</b> for offline analysis.			
11.5.1		Save merged image			
		<b>IF</b> there are <b>mismatches</b> reported by OBSM, save merged image with <b>new ID</b> .			
		Conduct off-line analysis of the reported mismatches.			
End of Sequence					
<b>OFCP121B</b> TC Seq. Name : OFCP121B ( CDMU OBS LD EEPROM2 ) Load CDMU OBS 'Image 2' in EEPROM2  TimeTag Type: N Sub Schedule ID:  <input type="checkbox"/>					
12		Manual Stack manipulation Load command stack file for CDMS current OBS dump from CDMU EEPROM2 on Manual Stack		Next Step: 13	
		<b>NOTE:</b> The current procedure assumes that the memory dump in Live mode is performed using commands with immediate execution.			

Load CDMU OBS in EEPROM File: H_FCP_OBS_1210.xls Author: lstefanov-hp	
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Select the File -> <b>LoadStack</b> option from the main menu of the Manual Stack window			
12.1		IF CDMU A			
		Select file  <b>CDMEE2PG_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine</b>  from directory  <a href="#">/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE2PG</a>  as indicated by the OBSM engineer			
		IMPORTANT:  <b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation  <b>YYYY_DDD hhmmss</b> - depend on stack generation time  <b>machine</b> - depends on the name of the machine used for stack generation			
		File name <b>example</b>  CDMEE2PG_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
12.2		ELSE CDMU B			
		Select file  <b>CDMEE2PB_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine</b>  from directory  <a href="#">/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE2PB</a>  as indicated by the OBSM engineer			
		IMPORTANT:  <b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation  <b>YYYY_DDD hhmmss</b> - depend on stack generation time  <b>machine</b> - depends on the name of the machine used for stack generation			
		File name <b>example</b>  CDMEE2PB_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
12.3		Check memory dump command stack loaded			

Load CDMU OBS in EEPROM File: H_FCP_OBS_1210.xls Author: lstefanov-hp	
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment															
		<p><b>Note:</b>            The start and end address of the EEPROM 'Image 2' are (Memory ID included):</p> <p><b>Start Address = 0090.0000 hex</b>  <b>End Address = 009F.FFFF hex</b>  <b>Length = 100000 hex</b></p> <p><b>Note:</b>            The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.</p>																		
12.3.1		Check number of memory dump commands in the stack																		
		Check that loaded stack contains: 17 TCs DC602180																		
12.3.2		Check Memory ID																		
		<p>Display the Manual Stack in 'Full mode' and check that the <b>Memory ID</b> parameter in the DC602180 commands is set to <b>009 hex</b>:</p> <p><b>Memory ID = 009 hex</b></p> <p><b>Note:</b>            The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.</p>																		
		<p>Execute Telecommand</p> <p style="text-align: center;"><b>DumpMem_AbsAddr</b></p> <p style="text-align: center;"><b>DC602180</b></p> <p>Command Parameter(s) :</p> <table style="margin-left: 40px;"> <tr> <td style="padding-right: 20px;">Memory_ID</td> <td>DH003180</td> <td>009x &lt;hex&gt;</td> </tr> <tr> <td>Start_Address</td> <td>DH004180</td> <td>&lt;hex&gt; (Def)</td> </tr> <tr> <td>N</td> <td>DH105180</td> <td>&lt;hex&gt; (Def)</td> </tr> </table> <p>TC Control Flags :</p> <table style="margin-left: 40px;"> <tr> <td style="padding-right: 20px;">GBM</td> <td>IL</td> <td>DSE</td> </tr> <tr> <td>--</td> <td>Y</td> <td>---</td> </tr> </table> <p>Subsch. ID : 10            Det. descr. : Dump Memory Using Absolute Addresses            This Telecommand will not be included in the export</p>	Memory_ID	DH003180	009x <hex>	Start_Address	DH004180	<hex> (Def)	N	DH105180	<hex> (Def)	GBM	IL	DSE	--	Y	---	DC602180	TC	
Memory_ID	DH003180	009x <hex>																		
Start_Address	DH004180	<hex> (Def)																		
N	DH105180	<hex> (Def)																		
GBM	IL	DSE																		
--	Y	---																		
12.3.3		Check start address and length of first command in the stack																		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment																		
		With the Manual Stack in 'Full mode', check the <b>Start Address</b> in the <b>first</b> DC602180 command (Memory ID included):  <b>Start Address = 0090.0000 hex</b> <b>Length = FFFF hex</b>  <b>Note:</b> The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.																					
		Execute Telecommand  <div style="text-align: right; margin-right: 20px;"><b>DumpMem_AbsAddr</b></div> <div style="text-align: right; margin-right: 20px;"><b>DC602180</b></div> Command Parameter(s) : <table style="width:100%; border: none;"> <tr> <td style="width:30%;"><b>Memory_ID</b></td> <td style="width:20%;">DH003180</td> <td style="width:20%;">0090 &lt;hex&gt;</td> <td style="width:30%;"></td> </tr> <tr> <td><b>Start_Address</b></td> <td>DH004180</td> <td>0000 &lt;hex&gt;</td> <td></td> </tr> <tr> <td><b>N</b></td> <td>DH105180</td> <td>FFFF &lt;hex&gt;</td> <td></td> </tr> </table> TC Control Flags : <table style="width:100%; border: none;"> <tr> <td style="width:30%;"></td> <td style="width:20%; text-align: center;"><b>GBM IL DSE</b></td> <td style="width:50%;"></td> </tr> <tr> <td></td> <td style="text-align: center;">--Y -- ---</td> <td></td> </tr> </table> Subsch. ID : 10 Det. descr. : Dump Memory Using Absolute Addresses This Telecommand will not be included in the export	<b>Memory_ID</b>	DH003180	0090 <hex>		<b>Start_Address</b>	DH004180	0000 <hex>		<b>N</b>	DH105180	FFFF <hex>			<b>GBM IL DSE</b>			--Y -- ---			TC	
<b>Memory_ID</b>	DH003180	0090 <hex>																					
<b>Start_Address</b>	DH004180	0000 <hex>																					
<b>N</b>	DH105180	FFFF <hex>																					
	<b>GBM IL DSE</b>																						
	--Y -- ---																						
12.3.4		Check start address and length of last command in the stack																					
		With the Manual Stack in 'Full mode', check the <b>Start Address</b> in the <b>last</b> DC602180 command (Memory ID included):  <b>Start Address = 009F.FFF0 hex</b> <b>Length = 10 hex</b>  <b>Note:</b> The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.																					
		Execute Telecommand  <div style="text-align: right; margin-right: 20px;"><b>DumpMem_AbsAddr</b></div> <div style="text-align: right; margin-right: 20px;"><b>DC602180</b></div> Command Parameter(s) : <table style="width:100%; border: none;"> <tr> <td style="width:30%;"><b>Memory_ID</b></td> <td style="width:20%;">DH003180</td> <td style="width:20%;">009F &lt;hex&gt;</td> <td style="width:30%;"></td> </tr> <tr> <td><b>Start_Address</b></td> <td>DH004180</td> <td>FFF0 &lt;hex&gt;</td> <td></td> </tr> <tr> <td><b>N</b></td> <td>DH105180</td> <td>10 &lt;hex&gt;</td> <td></td> </tr> </table> TC Control Flags : <table style="width:100%; border: none;"> <tr> <td style="width:30%;"></td> <td style="width:20%; text-align: center;"><b>GBM IL DSE</b></td> <td style="width:50%;"></td> </tr> <tr> <td></td> <td style="text-align: center;">--Y -- ---</td> <td></td> </tr> </table> Subsch. ID : 10 Det. descr. : Dump Memory Using Absolute Addresses This Telecommand will not be included in the export	<b>Memory_ID</b>	DH003180	009F <hex>		<b>Start_Address</b>	DH004180	FFF0 <hex>		<b>N</b>	DH105180	10 <hex>			<b>GBM IL DSE</b>			--Y -- ---			TC	
<b>Memory_ID</b>	DH003180	009F <hex>																					
<b>Start_Address</b>	DH004180	FFF0 <hex>																					
<b>N</b>	DH105180	10 <hex>																					
	<b>GBM IL DSE</b>																						
	--Y -- ---																						
13		Dump CDMS current OBS image from CDMU EEPROM2		Next Step: 14																			
13.1		MCS OBSM preparation for Image monitor in LIVE mode																					



Load CDMU OBS in EEPROM File: H_FCP_OBS_1210.xls Author: lstefanov-hp	 
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		<b>Note:</b> 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.			
13.1.1		Select 'Image MONITOR' from the menu			
		Select the <b>Image</b> menu of the <i>OBSM Desktop</i> .  From the Image menu, select <b>Monitor</b> .  The 'Image Catalog' window opens.			
13.1.2		Select image to be monitored			
13.1.2.1		IF CDMU A			
		Select the image to be monitored for the memory device <b>CDMEE2PG</b> .  The 'Image MONITOR' window opens.			
13.1.2.2		ELSE CDMU B			
		Select the image to be monitored for the memory device <b>CDMEE2PB</b> .  The 'Image MONITOR' window opens.			
13.1.3		Start dump TM processing			
		In <b>LIVE</b> mode, processing of incoming real-time telemetry starts automatically after the image selection.			
13.2		Upload commands to dump the CDMS current OBS image from CDMU EEPROM2			
		<b>Uplink</b> the <b>DC602180</b> memory dump commands with <b>ARM-GO</b>			
		For each command, several TM(6,6) packets must be received on ground.			

Load CDMU OBS in EEPROM File: H_FCP_OBS_1210.xls Author: lstefanov-hp	 
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
13.3		Verify reception of TM(6,6)			
		<b>Note:</b> Several 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 : 16 Type : 6 Subtype : 6 PI1 : PI2 :			
13.4		Check OBSM dump packet processing			
		Check that the OBSM is processing the incoming memory dump packets.			
13.5		Check contents of memory dump packets			
		Verify that there are <b>NO OBSM reported differences</b> between the memory dump data and the ground image used for monitoring.			
		<b>IF</b> there are <b>differences</b> reported by OBSM between the dump data and the ground image, <b>the merged image shall be saved</b> for offline analysis.			
13.5.1		Save merged image			
		<b>IF</b> there are <b>mismatches</b> reported by OBSM, save merged image with <b>new ID</b> .			
		Conduct off-line analysis of the reported mismatches.			
14		Manual Stack manipulation Load command sequence OFCP121B on Manual Stack		Next Step: 15	
14.1		Sequence data  FP: N/A TT: N/A			

Load CDMU OBS in EEPROM File: H_FCP_OBS_1210.xls Author: lstefanov-hp	 
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
15		Manual Stack manipulation Load command stack file for CDMS OBS load in CDMU EEPROM2 on Manual Stack		Next Step: 16	
		<b>Load</b> command stack file <b>at line 2</b> of Manual Stack.			
		<b>NOTE:</b> The current procedure assumes that the memory load is performed using commands with immediate execution.			
		Select the File -> <b>LoadStack</b> option from the main menu of the Manual Stack window			
15.1		IF CDMU A			
		Select file  <b>CDMEE2PG_PI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmss.machine</b>  from directory  <a href="/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE2PG">/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE2PG</a>  as indicated by the OBSM engineer			
		IMPORTANT:  <b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation  <b>YYYY_DDD hhmss</b> - depend on stack generation time  <b>machine</b> - depends on the name of the machine used for stack generation			
		File name <b>example:</b>  - No model associated to the memory image:  CDMEE2PG_PI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
15.2		ELSE CDMU B			
		Select file  <b>CDMEE2PB_PI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmss.machine</b>  from directory  <a href="/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE2PB">/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE2PB</a>  as indicated by the OBSM engineer			

Load CDMU OBS in EEPROM File: H_FCP_OBS_1210.xls Author: lstefanov-hp	
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		IMPORTANT:  <b>XXXXYYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation  <b>YYYY_DDD hhmmss</b> - depend on stack generation time  <b>machine</b> - depends on the name of the machine used for stack generation			
		File name <b>example:</b>  - No model associated to the memory image:  CDMEE2PB_PI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
15.3		Check memory load command stack loaded			
		<b>Note:</b> The start and end address address of the EEPROM 'Image 2' are (Memory ID included):  <b>Start Address = 0090.0000 hex</b> <b>End Address = 009F.FFFF hex</b> <b>Length = 100000 hex</b>  <b>Note:</b> The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.			
15.3.1		Check number of memory load commands in the stack			
		Check that loaded stack contains: <b>4600 TCs XC000999</b>			
15.3.2		Check Memory ID			
		Display the Manual Stack in 'Full mode' and check that the <b>Memory ID</b> parameter in the DC602180 commands is set to <b>009 hex</b> :  <b>Memory ID = 009 hex</b>  <b>Note:</b> The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.			

Load CDMU OBS in EEPROM  
 File: H\_FCP\_OBS\_1210.xls  
 Author: lstefanov-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand <p style="text-align: right;">Patch APID 16</p> Command Parameter(s) : Memory Id (-----) XH000999 Start Address (-----) XH001999 Length of Block (8 bits) XH003999 Variable len. octet str XH004999 Checksum (-----) XH005999  TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 1 Det. descr. : Patch APID 16  This Telecommand will not be included in the export	XC000999	TC	
15.3.3		Check start address and length of the first command in the stack  With the Manual Stack in 'Full mode', check the <b>Start Address</b> and <b>Length</b> in the <b>first</b> XC000999 command (Memory ID included):  <b>Start Address = 0090.0000 hex</b> <b>Length = 228 dec</b>  <b>Note:</b> The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.			
		Execute Telecommand <p style="text-align: right;">Patch APID 16</p> Command Parameter(s) : Memory Id (-----) XH000999 Start Address (-----) XH001999 Length of Block (8 bits) XH003999 Variable len. octet str XH004999 Checksum (-----) XH005999  TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 1 Det. descr. : Patch APID 16  This Telecommand will not be included in the export	XC000999	TC	
15.3.4		Check start address and length of the last command in the stack  With the Manual Stack in 'Full mode', check the <b>Start Address</b> and <b>Length</b> in the <b>last</b> XC000999 command (Memory ID included):  <b>Start Address = 009F.FFFC hex</b> <b>Length = 4 dec</b>  <b>Note:</b> The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.			

Load CDMU OBS in EEPROM  
 File: H\_FCP\_OBS\_1210.xls  
 Author: lstefanov-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand Patch APID 16 Command Parameter(s) : Memory Id (-----) XH000999 Start Address (-----) XH001999 Length of Block (8 bits) XH003999 Variable len. octet str XH004999 Checksum (-----) XH005999 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 1 Det. descr. : Patch APID 16 This Telecommand will not be included in the export	XC000999	TC	
16		Load CDMU OBS 'Image 2' in EEPROM2		Next Step: 17	
16.1		Disable EEPROM write protection			
		Verify Telemetry EEPROMWriteProt DEL0J160 = ENABLED		AND=ZAD51999	
		Uplink TC with ARM GO			
		Execute Telecommand EnableEEWrite TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : Enable write to EEPROM	DC806180	TC	
		Verify Telemetry EEPROMWriteProt DEL0J160 = DISABLED		AND=ZAD51999	
16.2		Uplink the memory load commands			
		Memory load details: Start address: 0090.0000 hex End address : 009F.FFFF hex # of TCs : 4600 dec			
		Uplink TCs XC000999 with ARM-GO			
		For each TC XC000999 successfully executed on-board, a TM(1,1) and a TM(1,7) packet shall be received on ground.			
		Verify Packet Reception Telecommand Acceptance Report - Success Packet Mnemonic : D_TcAccSucc APID : 16 Type : 1 Subtype : 1 PI1 : PI2 :			

Load CDMU OBS in EEPROM  
 File: H\_FCP\_OBS\_1210.xls  
 Author: lstefanov-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify Packet Reception  Telecommand Execution Report - Completed Packet Mnemonic : D_TcExeComp APID : 16 Type : 1 Subtype : 7 PI1 : PI2 :			
16.3		Enable EEPROM write protection			
		Verify Telemetry <b>EEPromWriteProt</b> <b>DEL0J160</b>	<b>= DISABLED</b>	AND=ZAD51999	
		Uplink TC with <b>ARM GO</b>			
		Execute Telecommand  <b>DisableEEWrite</b>  TC Control Flags :  <b>GBM IL DSE</b> <b>--Y -- ---</b>  Subsch. ID : 10 Det. descr. : Disable write to EEPROM	<b>DC805180</b>	<b>TC</b>	
		Verify Telemetry <b>EEPromWriteProt</b> <b>DEL0J160</b>	<b>= ENABLED</b>	AND=ZAD51999	
17		Manual Stack manipulation Load command stack file for CDMS OBS 'Image 2' check on the Manual Stack		Next Step: 18	
		Select the File -> <b>LoadStack</b> option from the main menu of the Manual Stack window			
17.1		IF CDMU A			
		Select file  <b>CDMEE2PG_CI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine</b>  from directory  <a href="#">/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE2PG</a>  as indicated by the OBSM engineer			
		IMPORTANT:  <b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation  <b>YYYY_DDD hhmmss</b> - depend on stack generation time  <b>machine</b> - depends on the name of the machine used for stack generation			

Load CDMU OBS in EEPROM File: H_FCP_OBS_1210.xls Author: lstefanov-hp	 
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment																																																																								
		File name <b>example:</b> - No model associated to the memory image: CDMEE2PG_CI_0002001_N_NoModel_NoModel_2007_254T123300. sun043																																																																											
17.2		ELSE CDMU B																																																																											
		Select file CDMEE2PB_CI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss. <b>machine</b> from directory /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE2PB as indicated by the OBSM engineer																																																																											
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		With the Manual Stack in 'Full mode', check the 17 TCs <b>DC603180</b> in loaded stack. <table style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="text-align: left;">TC #</th> <th style="text-align: left;">Memory_ID</th> <th style="text-align: left;">Start Address</th> <th style="text-align: left;">N</th> </tr> </thead> <tbody> <tr><td>1</td><td>0090</td><td>0000</td><td>FFFF</td></tr> <tr><td>2</td><td>0090</td><td>FFFF</td><td>FFFF</td></tr> <tr><td>3</td><td>0091</td><td>FFFE</td><td>FFFF</td></tr> <tr><td>4</td><td>0092</td><td>FFFD</td><td>FFFF</td></tr> <tr><td>5</td><td>0093</td><td>FFFC</td><td>FFFF</td></tr> <tr><td>6</td><td>0094</td><td>FFFB</td><td>FFFF</td></tr> <tr><td>7</td><td>0095</td><td>FFFA</td><td>FFFF</td></tr> <tr><td>8</td><td>0096</td><td>FFF9</td><td>FFFF</td></tr> <tr><td>9</td><td>0097</td><td>FFF8</td><td>FFFF</td></tr> <tr><td>10</td><td>0098</td><td>FFF7</td><td>FFFF</td></tr> <tr><td>11</td><td>0099</td><td>FFF6</td><td>FFFF</td></tr> <tr><td>12</td><td>009A</td><td>FFF5</td><td>FFFF</td></tr> <tr><td>13</td><td>009B</td><td>FFF4</td><td>FFFF</td></tr> <tr><td>14</td><td>009C</td><td>FFF3</td><td>FFFF</td></tr> <tr><td>15</td><td>009D</td><td>FFF2</td><td>FFFF</td></tr> <tr><td>16</td><td>009E</td><td>FFF1</td><td>FFFF</td></tr> <tr><td>17</td><td>009F</td><td>FFF0</td><td>0010</td></tr> </tbody> </table>	TC #	Memory_ID	Start Address	N	1	0090	0000	FFFF	2	0090	FFFF	FFFF	3	0091	FFFE	FFFF	4	0092	FFFD	FFFF	5	0093	FFFC	FFFF	6	0094	FFFB	FFFF	7	0095	FFFA	FFFF	8	0096	FFF9	FFFF	9	0097	FFF8	FFFF	10	0098	FFF7	FFFF	11	0099	FFF6	FFFF	12	009A	FFF5	FFFF	13	009B	FFF4	FFFF	14	009C	FFF3	FFFF	15	009D	FFF2	FFFF	16	009E	FFF1	FFFF	17	009F	FFF0	0010			
TC #	Memory_ID	Start Address	N																																																																										
1	0090	0000	FFFF																																																																										
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10	0098	FFF7	FFFF																																																																										
11	0099	FFF6	FFFF																																																																										
12	009A	FFF5	FFFF																																																																										
13	009B	FFF4	FFFF																																																																										
14	009C	FFF3	FFFF																																																																										
15	009D	FFF2	FFFF																																																																										
16	009E	FFF1	FFFF																																																																										
17	009F	FFF0	0010																																																																										
		<b>Note:</b> Only the <b>first TC DC603180</b> is included below, as example.																																																																											



Load CDMU OBS in EEPROM File: H_FCP_OBS_1210.xls Author: lstefanov-hp	
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand <div style="text-align: right; margin-right: 100px;">ChkMem_AbsAdd</div> DC603180  Command Parameter(s) : <div style="margin-left: 40px;">             Memory_ID           DH003180   0090 &lt;hex&gt;              Start_Address       DH004180   0000 &lt;hex&gt;                                    N            DH105180   FFFF &lt;hex&gt;           </div> TC Control Flags : <div style="margin-left: 100px;">GBM IL DSE --Y -- ---</div> Subsch. ID : 10 Det. descr. : Check Memory Using Absolute Addresses This Telecommand will not be included in the export		TC	
18		Check 'Image 2' loaded in CDMU EEPROM2 memory area		Next Step: 19	
18.1		Command memory checksum calculation			
		<b>Uplink</b> the 17 <b>DC603180</b> memory check commands (one by one) with <b>ARM-GO</b>			
		For each TC DC603180 uplinked, a TM(6,10) packet shall be received on ground.			
18.2		Verify reception and contents of TM(6,10)			
		Verify Packet Reception  Memory Check Report - Absolute Addresses Packet Mnemonic :       MemChkRepAbs APID :                   16 Type :                   6 Subtype :                10 PI1 : PI2 :			
		Verify Telemetry <div style="margin-left: 100px;">Memory_ID           DE060180   = &lt;hex&gt;</div>			
		Verify Telemetry <div style="margin-left: 100px;">Start_Address       DE061180   = &lt;hex&gt;</div>		(None)	
		Verify Telemetry <div style="margin-left: 100px;">N                    DE062180   = &lt;hex&gt;</div>		(None)	
		Verify Telemetry <div style="margin-left: 100px;">Checksum            DE064180   = &lt;hex&gt;</div>		(None)	
18.2.1		Verify checksum values			
		Check the received checksums against the expected values listed in <b>Attachment 1</b> (worksheet "CRC checksums").  <b>IMPORTANT:</b> Checksum values depend on the OBS version.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify Telemetry  Checksum DE064180	= expected value	(None)	
19		Manual Stack manipulation Load command stack file for CDMS new OBS dump from CDMU EEPROM2 on Manual Stack		Next Step: 20	
		<b>NOTE:</b> The current procedure assumes that the memory dump in Live mode is performed using commands with immediate execution.			
		Select the File -> <b>LoadStack</b> option from the main menu of the Manual Stack window			
19.1		IF CDMU A			
		Select file  CDMEE2PG_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss. machine  from directory  <a href="#">/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE2PG</a>  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 <b>example</b>  CDMEE2PG_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
19.2		ELSE CDMU B			
		Select file  CDMEE2PB_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss. machine  from directory  <a href="#">/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE2PB</a>  as indicated by the OBSM engineer			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		IMPORTANT:  <b>XXXXYYY</b> = Image ID(X) and Version(Y) - depend on image used for stack generation  <b>YYYY_DDD hhhmss</b> - depend on stack generation time  <b>machine</b> - depends on the name of the machine used for stack generation			
		File name <b>example</b>  CDMEE2PB_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043			
19.3		Check memory dump command stack loaded			
		<b>Note:</b> The start and end address of the EEPROM 'Image 2' are (Memory ID included):  <b>Start Address = 0090.0000 hex</b> <b>End Address = 009F.FFFF hex</b> <b>Length = 100000 hex</b>  <b>Note:</b> The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.			
19.3.1		Check number of memory dump commands in the stack			
		Check that loaded stack contains: 17 TCs <b>DC602180</b>			
19.3.2		Check Memory ID			
		Display the Manual Stack in 'Full mode' and check that the <b>Memory ID</b> parameter in the DC602180 commands is set to <b>009 hex</b> :  <b>Memory ID = 009 hex</b>  <b>Note:</b> The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand <div style="text-align: right; margin-left: 100px;">DumpMem_AbsAddr</div> <div style="text-align: right; margin-left: 100px;">DC602180</div> <i>Command Parameter(s) :</i> <div style="margin-left: 40px;">             Memory_ID           DH003180   009x &lt;hex&gt;              Start_Address       DH004180   &lt;hex&gt; (Def)                                N            DH105180   &lt;hex&gt; (Def)           </div> <i>TC Control Flags :</i> <div style="margin-left: 100px;">GBM IL DSE</div> <div style="margin-left: 100px;">--Y -- ---</div> <i>Subsch. ID : 10</i> Det. descr. : Dump Memory Using Absolute Addresses This Telecommand will not be included in the export		TC	
19.3.3		Check start address and length of first command in the stack			
		With the Manual Stack in 'Full mode', check the <b>Start Address</b> in the <b>first</b> DC602180 command (Memory ID included):  <b>Start Address = 0090.0000 hex</b> <b>Length = FFFF hex</b>  <b>Note:</b> The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.			
		Execute Telecommand <div style="text-align: right; margin-left: 100px;">DumpMem_AbsAddr</div> <div style="text-align: right; margin-left: 100px;">DC602180</div> <i>Command Parameter(s) :</i> <div style="margin-left: 40px;">             Memory_ID           DH003180   0090 &lt;hex&gt;              Start_Address       DH004180   0000 &lt;hex&gt;                                N            DH105180   FFFF &lt;hex&gt;           </div> <i>TC Control Flags :</i> <div style="margin-left: 100px;">GBM IL DSE</div> <div style="margin-left: 100px;">--Y -- ---</div> <i>Subsch. ID : 10</i> Det. descr. : Dump Memory Using Absolute Addresses This Telecommand will not be included in the export		TC	
19.3.4		Check start address and length of last command in the stack			
		With the Manual Stack in 'Full mode', check the <b>Start Address</b> in the <b>last</b> DC602180 command (Memory ID included):  <b>Start Address = 009F.FFF0 hex</b> <b>Length = 10 hex</b>  <b>Note:</b> The Memory ID of the target memory device is stored in the MS 12 bits of the 16-bit long Mem ID TC parameter. The LS 4 bits of the same parameter carry the most significant 4 bits of the Start Address.			

Load CDMU OBS in EEPROM File: H_FCP_OBS_1210.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: right; margin-right: 100px;">DumpMem_AbsAddr</p> <p style="margin-left: 20px;">Command Parameter(s) :</p> <table style="margin-left: 40px; border: none;"> <tr> <td style="padding-right: 20px;">Memory_ID</td> <td style="padding-right: 20px;">DH003180</td> <td style="padding-right: 20px;">009F &lt;hex&gt;</td> </tr> <tr> <td>Start_Address</td> <td>DH004180</td> <td>FFF0 &lt;hex&gt;</td> </tr> <tr> <td>N</td> <td>DH105180</td> <td>10 &lt;hex&gt;</td> </tr> </table> <p style="margin-left: 20px;">TC Control Flags :</p> <table style="margin-left: 40px; border: none;"> <tr> <td style="padding-right: 20px;">GBM</td> <td style="padding-right: 20px;">IL</td> <td style="padding-right: 20px;">DSE</td> </tr> <tr> <td>--Y</td> <td>--</td> <td>---</td> </tr> </table> <p style="margin-left: 20px;">Subsch. ID : 10            Det. descr. : Dump Memory Using Absolute Addresses            This Telecommand will not be included in the export</p>	Memory_ID	DH003180	009F <hex>	Start_Address	DH004180	FFF0 <hex>	N	DH105180	10 <hex>	GBM	IL	DSE	--Y	--	---	DC602180	TC	
Memory_ID	DH003180	009F <hex>																		
Start_Address	DH004180	FFF0 <hex>																		
N	DH105180	10 <hex>																		
GBM	IL	DSE																		
--Y	--	---																		
20		Dump CDMS new OBS image from CDMU EEPROM2		Next Step: END																
20.1		MCS OBSM preparation for Image monitor in LIVE mode																		
		<b>Note:</b> 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.																		
20.1.1		Select 'Image MONITOR' from the menu																		
		Select the <b>Image</b> menu of the <i>OBSM Desktop</i> .  From the Image menu, select <b>Monitor</b> .  The 'Image Catalog' window opens.																		
20.1.2		Select image to be monitored																		
20.1.2.1		IF CDMU A																		
		Select the image to be monitored for the memory device <b>CDMEE2PG</b> .  The 'Image MONITOR' window opens.																		
20.1.2.2		ELSE CDMU B																		

Load CDMU OBS in EEPROM File: H_FCP_OBS_1210.xls Author: lstefanov-hp	 
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Select the image to be monitored for the memory device <b>CDMEE2PB</b> .  The 'Image MONITOR' window opens.			
20.1.3		Start dump TM processing			
		In <b>LIVE</b> mode, processing of incoming real-time telemetry starts automatically after the image selection.			
20.2		Upload commands to dump the CDMS current OBS image from CDMU EEPROM2			
		<b>Uplink</b> the <b>DC602180</b> memory dump commands with <b>ARM-GO</b>			
		For each command, several TM(6,6) packets must be received on ground.			
20.3		Verify reception of TM(6,6)			
		<b>Note:</b> Several 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 : 16 Type : 6 Subtype : 6 PI1 : PI2 :			
20.4		Check OBSM dump packet processing			
		Check that the OBSM is processing the incoming memory dump packets.			
20.5		Check contents of memory dump packets			
		Verify that there are <b>NO OBSM reported differences</b> between the memory dump data and the ground image used for monitoring.			
		<b>IF</b> there are <b>differences</b> reported by OBSM between the dump data and the ground image, <b>the merged image shall be saved</b> for offline analysis.			

Load CDMU OBS in EEPROM File: H_FCP_OBS_1210.xls Author: lstefanov-hp	 
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
20.5.1		Save merged image			
		<b>IF</b> there are <b>mismatches</b> reported by OBSM, save merged image with <b>new ID</b> .			
		Conduct off-line analysis of the reported mismatches.			
End of Sequence					
<b>End of Procedure</b>					

**Herschel CDMU OBS image CRC checksums**

**Attachment 1**

Load CDMU OBS in EEPROM  
 File: H\_FCP\_OBS\_1210.xls  
 Author: t.loureiro-hp

Checksum #	EEPROM1		EEPROM2		CRC checksums
	Start address	End address	Start address	End address	CDMS OBS 4.0B1114
1	0080.0000	0080.FFFE	0090.0000	0090.FFFE	AFCC
2	0080.FFFF	0081.FFFD	0090.FFFF	0091.FFFD	E8BB
3	0081.FFFE	0082.FFFC	0091.FFFE	0092.FFFC	F324
4	0082.FFFD	0083.FFFB	0092.FFFD	0093.FFFB	773E
5	0083.FFFC	0084.FFFA	0093.FFFC	0094.FFFA	4CAA
6	0084.FFFB	0085.FFF9	0094.FFFB	0095.FFF9	059E
7	0085.FFFA	0086.FFF8	0095.FFFA	0096.FFF8	3337
8	0086.FFF9	0087.FFF7	0096.FFF9	0097.FFF7	E102
9	0087.FFF8	0088.FFF6	0097.FFF8	0098.FFF6	DFEC
10	0088.FFF7	0089.FFF5	0098.FFF7	0099.FFF5	A5C0
11	0089.FFF6	008A.FFF4	0099.FFF6	009A.FFF4	7994
12	008A.FFF5	008B.FFF3	009A.FFF5	009B.FFF3	F16B
13	008B.FFF4	008C.FFF2	009B.FFF4	009C.FFF2	D791
14	008C.FFF3	008D.FFF1	009C.FFF3	009D.FFF1	4CE0
15	008D.FFF2	008E.FFF0	009D.FFF2	009E.FFF0	6B94
16	008E.FFF1	008F.FFEF	009E.FFF1	009F.FFEF	D652
17	008F.FFF0	008F.FFFF	009F.FFF0	009F.FFFF	3140



**Herschel CDMU OBS image ANC32 checksums**

**Attachment 2**

Load CDMU OBS in EEPROM  
 File: H\_FCP\_OBS\_1210.xls  
 Author: t.loureiro-hp

Block #	EEPROM1		EEPROM2		ANC32 checksums
	Start address	End address	Start address	End address	CDMS OBS 4.0B1114
1	0080.0000	0080.FFFF	0090.0000	0090.FFFF	75A965AF
2	0081.0000	0081.FFFF	0091.0000	0091.FFFF	E7647348
3	0082.0000	0082.FFFF	0092.0000	0092.FFFF	4742F080
4	0083.0000	0083.FFFF	0093.0000	0093.FFFF	CB272D76
5	0084.0000	0084.FFFF	0094.0000	0094.FFFF	9742CA0F
6	0085.0000	0084.FFFF	0095.0000	0094.FFFF	B6884A50
7	0086.0000	0086.FFFF	0096.0000	0096.FFFF	4D6B90B4
8	0087.0000	0087.FFFF	0097.0000	0097.FFFF	C50F26DF
9	0088.0000	0088.FFFF	0098.0000	0098.FFFF	FF11691E
10	0089.0000	0089.FFFF	0099.0000	0099.FFFF	2120766F
11	008A.0000	008A.FFFF	009A.0000	009A.FFFF	8DED9D2C
12	008B.0000	008B.FFFF	009B.0000	009B.FFFF	53B8CCC8
13	008C.0000	008C.FFFF	009C.0000	009C.FFFF	EA929721
14	008D.0000	008D.FFFF	009D.0000	009D.FFFF	16D2873C
15	008E.0000	008E.FFFF	009E.0000	009E.FFFF	671B4C69
16	008F.0000	008F.FFBF	009F.0000	009F.FFBF	7CDC3C88