

## Procedure Summary

#### Objectives

This Herschel OBSM nominal procedure is used to perform an ACC PM EEPROM dump monitoring against the ground image. The procedure covers both ACC PM EEPROM1 and EEPROM2. The memory dump is commanded using TC(6,5) and the memory locations content is received on ground in TM(6,6) packets.

The procedure assumes that the command stack has already been generated using the OBSM system and is ready for loading on the Manual Stack. The command stack generation activity is not covered by this procedure.

#### Summary of Constraints

CDMU in Operational Mode - ACC 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

- ACC in Operational Mode

End of Procedure

Same as start except:

- ACC PM EEPROM1 and/or EEPROM2 memory dump executed

Reference File(s)

Input Command Sequences

Output Command Sequences OFCP224C OFCP224E

Referenced Displays

ANDS GRDS SLDS

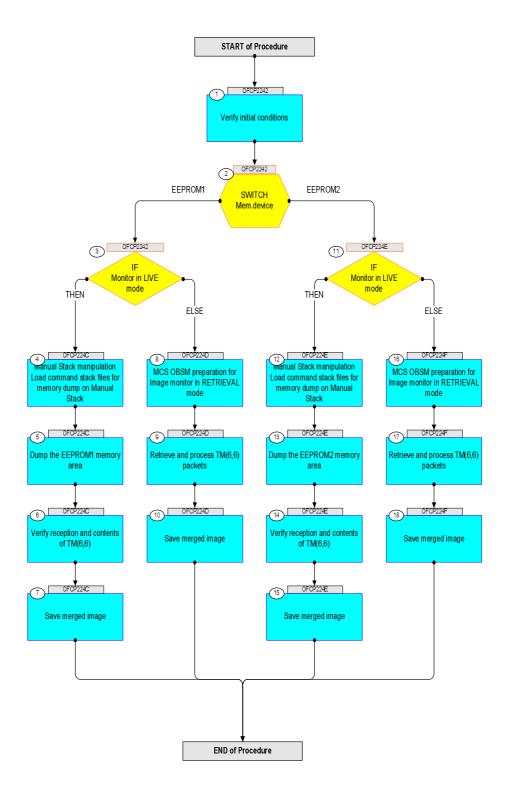
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
04/08/08	1	1	Created	dsalt-hp	





# Procedure Flowchart Overview





Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Beginning of Procedure			
	OFCP2242	TC Seq. Name : OFCP2242 ( ACC EEPROM dump ) ACC PM EEPROM dump monitor			
		TimeTag Type: Sub Schedule ID:			
	1			Next Step:	
1		Verify initial conditions		2	
		Check:			
		- CDMU in Operational Mode - ACC in Operational Mode			
		CDMS SOE to confirm CDMU mode			
		ACMS SOE to confirm ACC mode			
2		SWITCH		Next Step: EEPROM1 3	
		Mem.device		EEPROM2 11	
		type: [Switch]			
3		IF		Next Step: THEN 4	
5		Monitor in LIVE mode		ELSE 8	
		type: [If]			
		End of Sequence TC Seq. Name : OFCP224C ( ACC EEPROM1 dump L )			
	OFCP224C	ACC PM EEPROM1 dump monitor in LIVE mode			
		TimeTag Type: Sub Schedule ID:			
4		Manual Stack manipulation		Next Step: 5	
		Load command stack files for memory dump on Manual Stack			
4.1		Load memory dump command stack			
		Coloct the File . LondStack ention from the main			
		Select the File -> <b>LoadStack</b> option from the main menu of the Manual Stack window			
4.1.1		IF			
		ACC PM A			



Step					
No.	Time	Activity/Remarks Select file	TC/TLM	Display/ Branch	AIT Comment
		ACCEE1PG_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss. machine			
		from directory			
		/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OB SM/ACCEE1PG			
		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			
		$\ensuremath{\mbox{machine}}$ - depends on the name of the machine used for stack generation			
		Note: The file name pattern above assumes that NO model was associated with the image used for command stack generation.			
		If the memory image used has a model associated, than the fields <b>N_NoModel_NoModel</b> will change to reflect the CT name, ID and Version of the used Configuration Table.			
		File name example:			
		- No model associated to the memory image:			
		ACCEE1PG_DI_0002001_N_NoModel_NoModel_2008_133T123300. sun045			
		- CT ACCEE1PG1, ID 0003, Version 001 associated to the memory image:			
		ACCEE1PG_DI_0002001_C_ACCEE1PG1_0003001_2008_148T09332 0.sun045			
4.1.2		ELSE ACC PM B			
		Select file			
		ACCEE1PB_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss. machine			
		from directory			
		/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OB SM/ACCEE1PB			
		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			
		<pre>machine - depends on the name of the machine used for stack generation</pre>			
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
NO.	TTILE	Note:	IC/ILM	Display/ Branch	AII COmment
		The file name pattern above assumes that NO model was associated with the image used for command stack generation.			
		If the memory image used has a model associated, than the fields <b>N_NoModel_NoModel</b> will change to reflect the CT name, ID and Version of the used Configuration			
		Table.			
		File name <b>example:</b>			
		- No model associated to the memory image:			
		ACCEE1PB_DI_0002001_N_NoModel_NoModel_2008_133T123300. sun045			
		- CT ACCEE1PB1, ID 0003, Version 001 associated to the memory image:			
		ACCEE1PB_DI_0002001_C_ACCEE1PB1_0003001_2008_148T09332 0.sun045			
4.2		Check memory dump command stack loaded			
		Check that loaded stack contains one or several TCs AC063109.			
		Display the Manual Stack in 'Full mode' and check that the <b>Memory ID</b> parameter in the AC063109 command(s) is set to <b>008 hex</b> :			
		Memory ID = 008 hex			
		Note: The Memory ID of the target memory device is stored in the most significant 12 bits of the 16-bit long Mem ID TC parameter.			
		The least significant 4 bits of the same parameter carry the most significant 4 bits of the Start Address.			
		Execute Telecommand		TC	
		Dump Memory	AC063109		
		Command Parameter(s): Memory ID AH6M0109 Start Address AH6M1109 Length SAU AH6M3109	008x <hex> <hex> (Def) <hex> (Def)</hex></hex></hex>		
		TC Control Flags :			
		GBM IL DSE Y			
		Subsch. ID : 20			
		Det. descr. : TC(6,5) Dump Memory Using Absolute Addresses			
		This Telecommand will not be included in the export			
		Note: For a full dump of ACC EEPROM1, the stack will contain 17 TCs AC063109, covering the address range 0080.0000 hex to 008F.FFFF hex			
		Note: The start and end address of the EEPROM 'Image 1' are (Memory ID included):			
		Start Address= 0080.0000 hexEnd Address= 008F.FFFF hexLength= 100000 hex			



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
5		Dump the EEPROM1 memory area		Next Step: 6	
				, , , , , , , , , , , , , , , , , , ,	
F 1					
5.1		MCS OBSM preparation for Image monitor 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.			
5.1.1		Select 'Image MONITOR' from the menu			
		Select the <b>Image</b> menu of the <b>OBSM Desktop</b> .			
		From the Image menu, select Monitor.			
		The 'Image Catalog' window opens.			
5.1.2		Select image to be monitored			
5.1.2.1		IF ACC PM A			
		Select the image to be monitored for the memory device			
		ACCEE1PG.			
		The 'Image MONITOR' window opens.			
		ELSE			
5.1.2.2		ACC PM B			
		Colort the image to be meritared for the merel '			
		Select the image to be monitored for the memory device ACCEE1PB.			
		The 'Image MONITOR' window opens.			
5.1.3		Start dump TM processing			
5.1.5					
		In <b>LIVE</b> mode, processing of incoming real-time			
		telemetry starts automatically after the image selection.			
1				1	



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
5.2		Command memory dump			
		Uplink TCs AC063109 with ARM-GO			
		For each command, one or several TM(6,6) packets will be received on ground.			
6		Verify reception and contents of TM(6,6)		Next Step: 7	
		Note: One or 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 : 512			
		Type: 6 Subtype: 6			
		PII : PI2 :			
6.1		Check OBSM dump packet processing			
		Check that the OBSM is processing the incoming memory			
		dump packets.			
6.2		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 <b>differences</b> reported by OBSM between the dump data and the ground image, <b>the merged image shall</b>			
		<b>be saved</b> for offline analysis.			
				Next Step:	
7		Save merged image		END	
		WAIT for execution completion of the last dump			
		WAIT for execution completion of the last dump command.			
		IF there are mismatches reported by OBSM, save merged			
		image with <b>new ID</b> .			
		Conduct off-line analysis of the reported mismatches.			
		End of Sequence			



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		TC Seq. Name :OFCP224D ( ACC EEPROM1 dump R ) ACC PM EEPROM1 dump monitor in Retrieval mode			
	OFCP224D	TimeTag Type: Sub Schedule ID:			
8		MCS OBSM preparation for Image monitor in RETRIEVAL mode		Next Step: 9	
		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		Select 'Image MONITOR' from the menu			
		Select the <b>Image</b> menu of the <b>OBSM Desktop</b> .			
		From the Image menu, select <b>Monitor</b> .			
		The 'Image Catalog' window opens.			
8.2		Select image to be monitored			
8.2.1		IF ACC PM A			
		Select the image to be monitored for the memory device			
		ACCEEIPG. The 'Image MONITOR' window opens.			
8.2.1.1		ELSE ACC PM B			
		Select the image to be monitored for the memory device ACCEE1PB.			
		The 'Image MONITOR' window opens.			
8.3		Start dump TM packets processing			
		Set <b>retrieval start</b> and <b>stop time</b> and start retrieval			



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Step					
No.	Time	Activity/Remarks	TC/TLM	Display/ Branch Next Step:	AIT Comment
9		Retrieve and process TM(6,6) packets		10	
		The the damp better to extend on a location the			
		Use the <b>STEP</b> button to retrieve and process the TM(6,6) packets, packet by packet and starting from			
		the time shown in the packet time field.			
		OR			
		Use the <b>PLAY</b> button to retrieve and process the TM(6,6) packets in automated mode.			
		Pressing the PLAY button, the display will start to retrieve and process packets, starting from the time			
		shown in the packet time field. This processing will stop automatically when a packet is received which			
		creation time is greater than the one contained in the			
		end time field.			
9.1		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.			
10		Same mound image		Next Step:	
10		Save merged image		END	
		WAIT for retrieval completion of the last dump packet.			
		IF there are mismatches reported by OBSM, save merged			
		image with <b>new ID</b> .			
		Conduct off-line analysis of the reported mismatches.			
		End of Sequence		· · · · · · · · · · · · · · · · · · ·	
	OFCP224E	TC Seq. Name :OFCP224E ( ACC EEPROM2 dump L ) ACC PM EEPROM2 dump monitor in LIVE mode			
		- TimeTag Type:			
		Sub Schedule ID:			
				Next Step:	
11		IF Monitor in LIVE		THEN 12 ELSE 16	
		mode			
		type: [If]			
				Next Step:	
12		Manual Stack manipulation		13	
		Load command stack files for memory dump on Manual Stack			
	1			1	



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
12.1		Load memory dump command stack			
		Select the File -> <b>LoadStack</b> option from the main menu of the Manual Stack window			
12.1.1		IF ACC PM A			
		Select file			
		ACCEE2PG_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss. machine from directory			
		/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OB SM/ACCEE2PG			
		as indicated by the OBSM engineer			
		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			
		Note: The file name pattern above assumes that NO model was associated with the image used for command stack generation.			
		If the memory image used has a model associated, than the fields <b>N_NoModel_NoModel</b> will change to reflect the CT name, ID and Version of the used Configuration Table.			
		File name <b>example:</b> - No model associated to the memory image:			
		ACCEE2PG_DI_0002001_N_NoModel_NoModel_2008_133T123300. sun045			
		- CT ACCEE2PG1, ID 0003, Version 001 associated to the memory image: ACCEE2PG_DI_0002001_C_ACCEE2PG1_0003001_2008_148T09332 0.sun045			
12.1.2		ELSE ACC PM B			



Step					
No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		ACCEE2PB_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss. machine			
		from directory			
		/home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OB SM/ACCEE2PB			
		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			
		Note:			
		The file name pattern above assumes that NO model was associated with the image used for command stack generation.			
		If the memory image used has a model associated, than the fields <b>N_NoModel_NoModel</b> will change to reflect the CT name, ID and Version of the used Configuration Table.			
		File name <b>example:</b>			
		- No model associated to the memory image:			
		ACCEE2PB_DI_0002001_N_NoModel_NoModel_2008_133T123300. sun045			
		- CT ACCEE2PB1, ID 0003, Version 001 associated to the memory image:			
		ACCEE2PB_DI_0002001_C_ACCEE2PB1_0003001_2008_148T09332 0.sun045			
10.0					
12.2		Check memory dump command stack loaded			
		Check that loaded stack contains one or cover! "			
		Check that loaded stack contains one or several TCs AC063109.			
		Display the Manual Stack in 'Full mode' and check that the <b>Memory ID</b> parameter in the AC063109 command(s) is set to <b>009 hex</b> :			
		Memory ID = 009 hex			
		Note: The Memory ID of the target memory device is stored in the most significant 12 bits of the 16-bit long Mem ID TM parameter.			
		The least significant 4 bits of the same parameter carry the most significant 4 bits of the Start Address.			
				1	



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand Dump Memory	AC063109	TC	
		Command Parameter(s) : Memory ID AH6M0109	009x <hex></hex>		
		Start Address AH6M1109 Length SAU AH6M3109	<hex> (Def) <hex> (Def)</hex></hex>		
			(Der)		
		TC Control Flags : GBM IL DSE			
		Subsch. ID : 20 Det. descr. : TC(6,5) Dump Memory Using Absolute			
		Addresses This Telecommand will not be included in the export			
		Into receccimitana with not be included in the expert			
		Note: For a full dump of ACC EEPROM2, the stack will contain 17 TCs AC063109, covering the address range 0090.0000 hex to 009F.FFFF hex			
		Note: The start and end address of the EEPROM 'Image 2' are (Memory ID included):			
		Start Address = 0090.0000 hex End Address = 009F.FFFF hex Length = 100000 hex			
13		Dump the EEPROM2 memory area		Next Step: 14	
13.1		MCS OBSM preparation for Image monitor 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.			
13.1.1		Select 'Image MONITOR' from the menu			
		Select the Image menu of the OBSM Desktop.			
		From the Image menu, select Monitor.			
		The 'Image Catalog' window opens.			
13.1.2		Select image to be monitored			
3.1.2.		IF ACC PM A			
-					



Step	mina				NTE Comment
No.	Time	Activity/Remarks Select the image to be monitored for the memory device	TC/TLM	Display/ Branch	AIT Comment
		ACCEE2PG.			
		The 'Image MONITOR' window opens.			
		ELSE			
13.1.2.		ACC PM B			
2					
		Select the image to be monitored for the memory device ACCEE2PB.			
		ACCERTED.			
		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		Command memory dump			
		Uplink TCs AC063109 with ARM-GO			
		For each command, one or several $TM(6,6)$ packets will be received on ground.			
		be received on ground.			
14		Verify reception and contents of TM(6,6)		Next Step: 15	
		Note:			
		One or 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: 512 Type: 6			
		Subtype : 6			
		PI1 : PI2 :			
14.1		Check OBSM dump packet processing			
± I · ±		Success of the analy proved processing			
		Check that the OBSM is processing the incoming memory			
		dump packets.			
14.2		Check contents of memory dump packets			



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
10.	TTWE	Verify that there are NO OBSM reported differences	10/158	Dispitay/ brailCh	ATT COmment
		between the memory dump data and the ground image used for monitoring.			
		IF there are <b>differences</b> reported by OBSM between the dump data and the ground image, <b>the merged image shall</b>			
		be saved for offline analysis.			
				Next Step:	
15		Save merged image		END	
		WAIT for execution completion of the last dump			
		command.			
		IF there are mismatches reported by OBSM, save merged			
		image with new ID.			
		Conduct off-line analysis of the reported mismatches.			
		conduct off fine analysis of the reported withwatches.			
	I	End of Sequence		1	
	OFCP224F	TC Seq. Name :OFCP224F ( ACC EEPROM2 dump R ) ACC PM EEPROM2 dump monitor in Retrieval mode			
	01 0F 224F				
		TimeTag Type: Sub Schedule ID:			
				Next Step:	
16		MCS OBSM preparation for Image monitor in RETRIEVAL mode		17	
		lioue			
		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.			
16.1		Select 'Image MONITOR' from the menu			
		Select the Image menu of the OBSM Desktop.			
		From the Image menu, select <b>Monitor</b> .			
		The 'Image Catalog' window opens.			
				-	
16.2		Select image to be monitored			
10.2		Serect image to be monitored			
16.2.1		IF			
		ACC PM A			
l					



Step					
No.	Time	Activity/Remarks Select the image to be monitored for the memory device		Display/ Branch	AIT Comment
		ACCEE2PG.			
		The 'Image MONITOR' window opens.			
		ELSE			
16.2.1. 1		ACC PM B			
		Colort the image to be manifound for the manual device			
		Select the image to be monitored for the memory device ACCEE2PB.			
		The 'Image MONITOR' window opens.			
16.3		Start dump TM packets processing			
		Set retrieval start and stop time and start retrieval			
		of TM packets using the <b>PLAY buttons</b> .			
17		Retrieve and process TM(6,6) packets		Next Step: 18	
		Use the <b>STEP</b> button to retrieve and process the $TM(6,6)$ packets, packet by packet and starting from			
		the time shown in the packet time field.			
		OR			
		Use the <b>PLAY</b> button to retrieve and process the			
		TM(6,6) packets in automated mode.			
		Pressing the PLAY button, the display will start to retrieve and process packets, starting from the time			
		shown in the packet time field. This processing will stop automatically when a packet is received which			
		creation time is greater than the one contained in the end time field.			
17.1		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 <b>differences</b> reported by OBSM between the			
		dump data and the ground image, the merged image shall be saved for offline analysis.			
18		Save merged image		Next Step: END	
10		Save merged image		ראש	
		WAIT for retrieval completion of the last dump packet.			
		IF there are mismatches reported by OBSM, save merged			
		image with <b>new ID</b> .			
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Step							
No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment		
		Conduct off-line analysis of the reported mismatches.					
	1	End of Sequence		1			
	End of Procedure						