Monitor dump of SPU EEPROM memory area
File: H_FCP_OBS_4240.xls
Author: Liviu Stefanov

Procedure Summary

Objectives

This Herschel OBSM nominal procedure is used to perform the dump monitoring of one or several PACS SPU EEPROM memory areas. It is used for both SPU SWL and SPU LWL subsystems.
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
- PACS instrument in INIT mode (DPU ASW running)
- SPU ON
- DPU-SPU connection established

Memory areas are Dumped through TC(6,5); this TC 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
- PACS instrument in INIT mode (DPU ASW running)
- SPU ON
- DPU-SPU connection established

End of Procedure

Same as start

Reference File(s)

Input Command Sequences

Output Command Sequences

OFCP424A
OFCP424C

Referenced Displays

ANDs **GRDs** **SLDs**

Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF

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30/01/08		1	Created	lstefanov-hp	
30/01/08	1	2	corrected typo in TC Sequence Names OFCP424B and OFCP424D	lstefanov-hp	
04/09/08		3	1. added current steps 4.1 and 4.2 to separate dump stack load for PACS Nom and Red 2. added steps 5.2.1 and 5.2.2 to separate image selection for PACS Nom and Red 3. added steps 9.2.1 and 9.2.2 to separate image selection for PACS Nom and Red 4. added current steps 13.1 and 13.2 to separate dump stack load for PACS Nom and Red 5. added steps 14.2.1 and 14.2.2 to separate image selection for PACS Nom and Red 6. added steps 18.2.1 and 18.2.2 to separate image selection for PACS Nom and Red	lstefanov-hp	
04/09/08	2	4	1. updated initial conditions on cover page and in step 1	lstefanov-hp	

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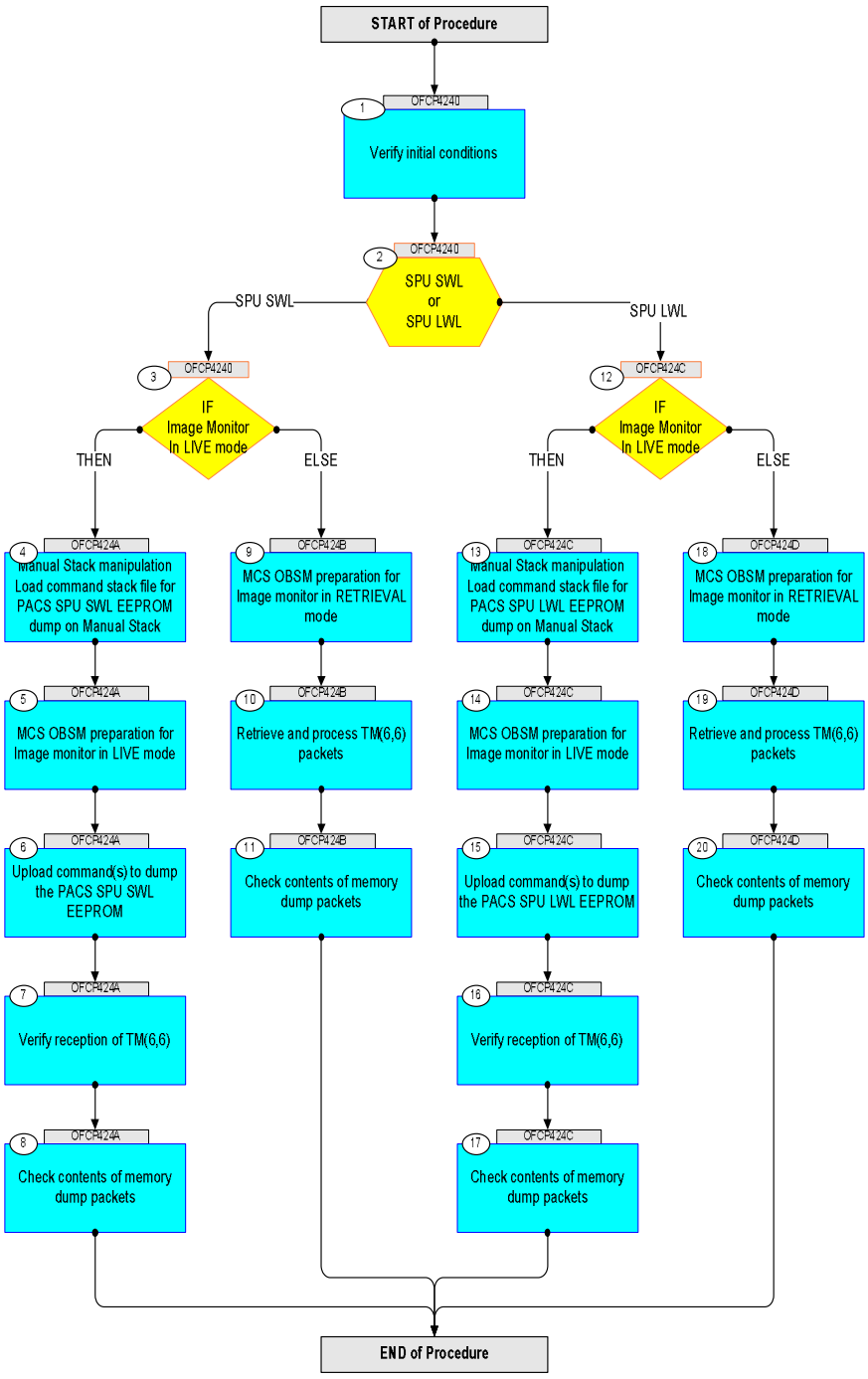
Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Beginning of Procedure			
	OFCP4240	*TC Seq. Name :* OFCP4240 ( ) PACS SPU EEPROM dump monitoring *TimeTag Type: B* *Sub Schedule ID:* □			
1		Verify initial conditions		Next Step: 2	
		Check: - PACS instrument in **INIT mode** (DPU ASW running) - SPU ON - DPU-SPU connection established			
		Instrument SOE to confirm PACS instrument mode and SPU status.			
2		SPU SWL or SPU LWL type: [Switch]		Next Step: SPU SWL 3 SPU LWL 12	
3		IF Image Monitor In LIVE mode type: [If]		Next Step: THEN 4 ELSE 9	
		End of Sequence			
	OFCP424A	*TC Seq. Name :* OFCP424A ( ) PACS SPU SWL EEPROM dump monitoring in LIVE mode *TimeTag Type: B* *Sub Schedule ID:* □			
4		Manual Stack manipulation Load command stack file for PACS SPU SWL EEPROM dump on Manual Stack		Next Step: 5	
		NOTE: The current procedure assumes that the memory dump in Live mode is performed using commands with immediate execution.			
		Select the File -> **LoadStack** option from the main menu of the Manual Stack window			
4.1		IF PACS Nominal			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Select file **PASPEPSW_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine** from directory /home/pmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/PASPEPSW 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 **examples** - No model associated to the memory image: PASPEPSW_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043 - CT PASPEPSW1, ID 0003, Version 001 associated to the memory image: PASPEPSW_DI_0002001_C_PASPEPSW1_0003001_2007_337T093320.sun043			
4.2		ELSE PACS Redundant			
		Select file **PASEPSWR_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine** from directory /home/pmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/PASEPSWR 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 **examples** - No model associated to the memory image: PASEPSWR_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043 - CT PASEPSWR1, ID 0003, Version 001 associated to the memory image: PASEPSWR_DI_0002001_C_PASEPSWR1_0003001_2007_337T093320.sun043			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
4.3		Check command stack loaded			
		Check that loaded stack contains one or several TCs **PC028380**			
		Display the Manual Stack in 'Full mode' and check that the **Memory ID** parameter in the PC028380 command(s) is set to **43 hex**: **Memory ID = 43 hex** **Note**: The Memory ID of the target memory device is stored in the MSB of the 16-bit long Mem ID TC parameter. The LSB of the same parameter carries the most significant 8 bits of the Start Address.			
		Execute Telecommand **DPU_MEMORY_DUMP** *Command Parameter(s) :* **DPU_MEMORY_BLOCK_ID PP009380** **DPU_MEMORY_ADDR PP003380** **DPU_DATA_LENGTH PP008380** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 90* Det. descr. : DUMP OF A DPU MEMORY AREA This Telecommand will not be included in the export	**PC028380** **43xx hex** **<hex>** (Def) **<dec>** (Def)	**TC**	
5		MCS OBSM preparation for Image monitor in LIVE mode		Next Step: 6	
		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		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.			
5.2		Select image to be monitored			
5.2.1		IF PACS Nominal			

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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 **PASPEPSW.** The 'Image MONITOR' window opens.			
5.2.2		ELSE PACS Redundant			
		Select the image to be monitored for the memory device **PASEPSWR.** The 'Image MONITOR' window opens.			
5.3		Start dump TM processing			
		In **LIVE** mode, processing of incoming real-time telemetry starts automatically after the image selection.			
6		Upload command(s) to dump the PACS SPU SWL EEPROM		Next Step: 7	
		Uplink the **PC028380** memory dump command(s) with **ARM-GO**			
		For each command, one or more TM(6,6) packets must be received on ground.			
7		Verify reception of TM(6,6)		Next Step: 8	
		Note: One or more TM(6,6) packets will be received for each memory dump command uplinked.			
7.1		IF PACS Prime			
		Verify Packet Reception MEMORY_DUMP Packet Mnemonic : MEMORY_DUMP APID : 1152 Type : 6 Subtype : 6 PI1 : PI2 :			
7.2		ELSE PACS Redundant			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify Packet Reception MEMORY_DUMP Packet Mnemonic : MEMORY_DUMP APID : 1153 Type : 6 Subtype : 6 PI1 : PI2 :			
8		Check contents of memory dump packets		Next Step: END	
		Verify that there are **NO OBSM reported differences** between the memory dump data and the ground image used for monitoring.			
		IF there are **differences** reported by OBSM between the dump data and the ground image, **the merged image shall be saved** for offline analysis.			
8.1		Save merged image			
		IF there are **mismatches** reported by OBSM, save merged image with **new ID**.			
		Conduct off-line analysis of the reported mismatches.			
		End of Sequence			
	OFCP424B	*TC Seq. Name :* OFCP424B ( ) PACS SPU SWL EEPROM dump monitoring in Retrieval mode *TimeTag Type:* *Sub Schedule ID:* □			
9		MCS OBSM preparation for Image monitor in RETRIEVAL mode		Next Step: 10	
		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.			
9.1		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.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
9.2		Select image to be monitored			
9.2.1		IF PACS Nominal			
		Select the image to be monitored for the memory device **PASPEPSW.** The 'Image MONITOR' window opens.			
9.2.2		ELSE PACS Redundant			
		Select the image to be monitored for the memory device **PASEPSWR.** The 'Image MONITOR' window opens.			
9.3		Start dump TM packets processing			
		Set retrieval start time and start retrieval of TM packets using the PLAY buttons.			
10		Retrieve and process TM(6,6) packets		Next Step: 11	
		Use the **STEP** 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 **PLAY** 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.			
11		Check contents of memory dump packets		Next Step: END	
		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.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
11.1		Save merged image			
		IF there are **mismatches** reported by OBSM, save merged image with **new ID**.			
		Conduct off-line analysis of the reported mismatches.			
		End of Sequence			
	OFCP424C	*TC Seq. Name :* OFCP424C ( ) PACS SPU LWL EEPROM dump monitoring in LIVE mode *TimeTag Type: B* *Sub Schedule ID:* □			
12		IF Image Monitor In LIVE mode type: [If]		Next Step: THEN 13 ELSE 18	
13		Manual Stack manipulation Load command stack file for PACS SPU LWL EEPROM dump on Manual Stack		Next Step: 14	
		NOTE: The current procedure assumes that the memory dump in Live mode is performed using commands with immediate execution.			
		Select the File -> **LoadStack** option from the main menu of the Manual Stack window			
13.1		IF PACS Nominal			
		Select file **PASPEPLW_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine** from directory /home/pmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/PASPEPLW 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			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		File name **examples** - No model associated to the memory image: PASPEPLW_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043 - CT PASPEPLW1, ID 0003, Version 001 associated to the memory image: PASPEPLW_DI_0002001_C_PASPEPLW1_0003001_2007_337T093320.sun043			
13.2		ELSE PACS Redundant			
		Select file **PASEPLWR_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine** from directory /home/pmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/PASEPLWR 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 **examples** - No model associated to the memory image: PASEPLWR_DI_0002001_N_NoModel_NoModel_2007_254T123300.sun043 - CT PASEPLWR1, ID 0003, Version 001 associated to the memory image: PASEPLWR_DI_0002001_C_PASEPLWR1_0003001_2007_337T093320.sun043			
13.3		Check command stack loaded			
		Check that loaded stack contains one or several TCs **PC028380**			
		Display the Manual Stack in 'Full mode' and check that the **Memory ID** parameter in the PC028380 command(s) is set to **63 hex**: **Memory ID = 63 hex** **Note**: The Memory ID of the target memory device is stored in the MSB of the 16-bit long Mem ID TC parameter. The LSB of the same parameter carries the most significant 8 bits of the Start Address.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand **DPU_MEMORY_DUMP** *Command Parameter(s) :* **DPU_MEMORY_BLOCK_ID** **PP009380** **DPU_MEMORY_ADDR** **PP003380** **DPU_DATA_LENGTH** **PP008380** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 90* Det. descr. : DUMP OF A DPU MEMORY AREA This Telecommand will not be included in the export	**PC028380** **63xx** **<hex>** (Def) **<dec>** (Def)	**TC**	
14		MCS OBSM preparation for Image monitor in LIVE mode		Next Step: 15	
		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.			
14.1		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.			
14.2		Select image to be monitored			
14.2.1		IF PACS Nominal			
		Select the image to be monitored for the memory device **PASPEPLW.** The 'Image MONITOR' window opens.			
14.2.2		ELSE PACS Redundant			
		Select the image to be monitored for the memory device **PASEPLWR.** The 'Image MONITOR' window opens.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
14.3		Start dump TM processing			
		In **LIVE** mode, processing of incoming real-time telemetry starts automatically after the image selection.			
15		Upload command(s) to dump the PACS SPU LWL EEPROM		Next Step: 16	
		Uplink the **PC028380** memory dump command(s) with **ARM-GO**			
		For each command, one or more TM(6,6) packets must be received on ground.			
16		Verify reception of TM(6,6)		Next Step: 17	
		Note: One or more TM(6,6) packets will be received for each memory dump command uplinked.			
16.1		IF PACS Prime			
		Verify Packet Reception MEMORY_DUMP Packet Mnemonic : MEMORY_DUMP APID : 1152 Type : 6 Subtype : 6 PI1 : PI2 :			
16.2		ELSE PACS Redundant			
		Verify Packet Reception MEMORY_DUMP Packet Mnemonic : MEMORY_DUMP APID : 1153 Type : 6 Subtype : 6 PI1 : PI2 :			
17		Check contents of memory dump packets		Next Step: END	
		Verify that there are **NO OBSM reported differences** between the memory dump data and the ground image used for monitoring.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		IF there are **differences** reported by OBSM between the dump data and the ground image, **the merged image shall be saved** for offline analysis.			
17.1		Save merged image			
		IF there are **mismatches** reported by OBSM, save merged image with **new ID**.			
		Conduct off-line analysis of the reported mismatches.			
		End of Sequence			
	OFCP424D	*TC Seq. Name :* OFCP424D ( ) PACS SPU LWL EEPROM dump monitoring in Retrieval mode *TimeTag Type:* *Sub Schedule ID:* □			
18		MCS OBSM preparation for Image monitor in RETRIEVAL mode		Next Step: 19	
		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.			
18.1		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.			
18.2		Select image to be monitored			
18.2.1		IF PACS Nominal			
		Select the image to be monitored for the memory device **PASPEPLW.** The 'Image MONITOR' window opens.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
18.2.2		ELSE PACS Redundant			
		Select the image to be monitored for the memory device **PASEPLWR.** The 'Image MONITOR' window opens.			
18.3		Start dump TM packets processing			
		Set retrieval start time and start retrieval of TM packets using the PLAY buttons.			
19		Retrieve and process TM(6,6) packets		Next Step: 20	
		Use the **STEP** 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 **PLAY** 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.			
20		Check contents of memory dump packets		Next Step: END	
		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.			
20.1		Save merged image			
		IF there are **mismatches** reported by OBSM, save merged image with **new ID**.			
		Conduct off-line analysis of the reported mismatches.			
		End of Sequence			
		End of Procedure			