Monitor dump of CDMU PM EEPROM memory area
File: H_FCP_OBS_1242.xls
Author: lstefanov-hp

Procedure Summary

Objectives

This Herschel OBSM nominal procedure is used to perform a CDMU PM EEPROM dump monitoring against the ground image. The procedure covers both CDMU 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

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:
- CDMU PM EEPROM1 and/or EEPROM2 memory dump executed

Reference File(s)

Input Command Sequences

Output Command Sequences

OFCP124C
OFCP124E

Referenced Displays

ANDs **GRDs** **SLDs**

Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
21/04/09	2.3	1	Created	lstefanov-hp	

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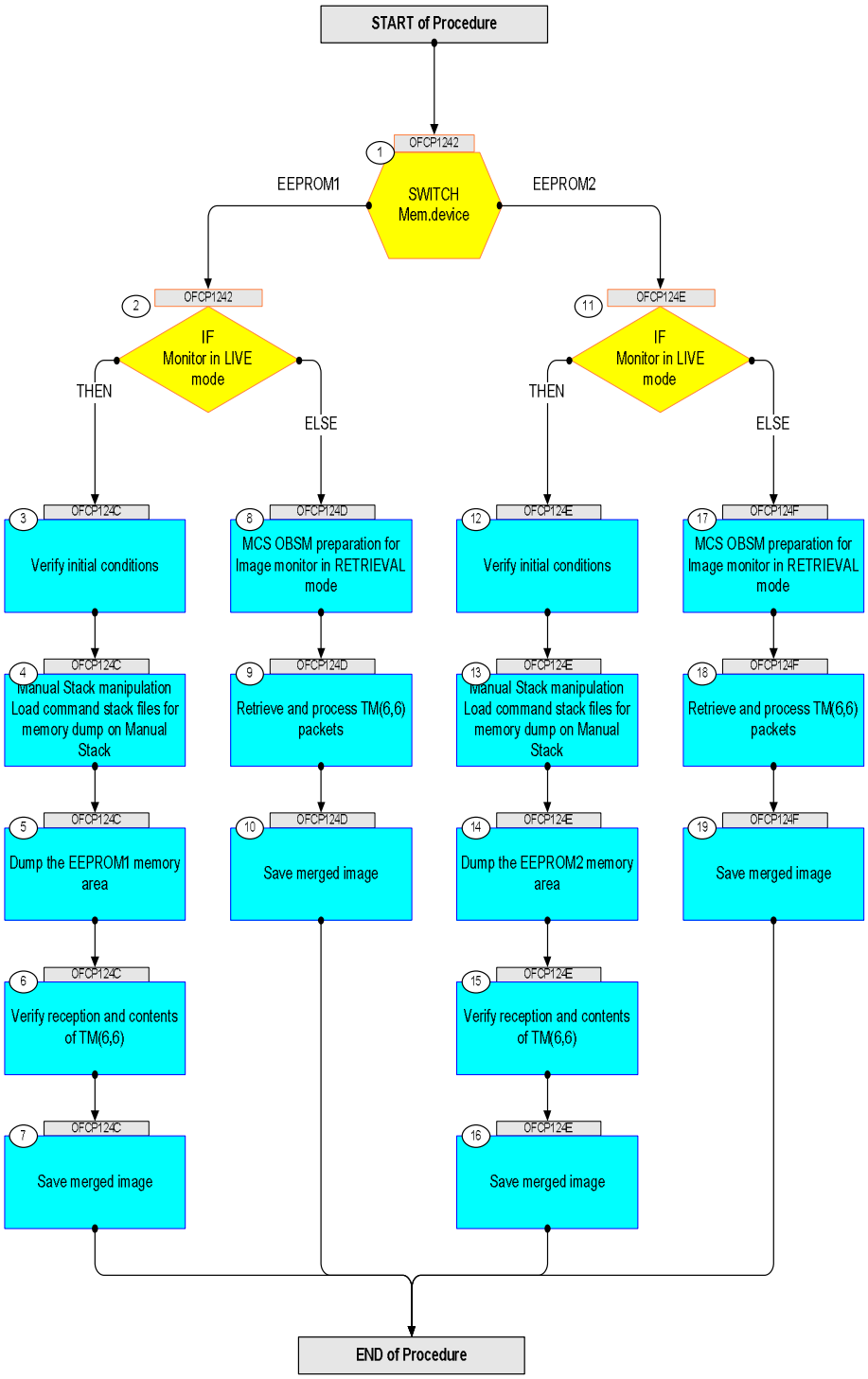
Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Beginning of Procedure			
	OFCP1242	*TC Seq. Name :* OFCP1242 (CDMU EEPROM dump) CDMU PM EEPROM dump monitor *TimeTag Type:* *Sub Schedule ID:*			
1		SWITCH Mem.device type: [Switch]		Next Step: EEPROM1 2 EEPROM2 11	
2		IF Monitor in LIVE mode type: [If]		Next Step: THEN 3 ELSE 8	
		End of Sequence			
	OFCP124C	*TC Seq. Name :* OFCP124C (CDMU EEPROM1 dump L) CDMU PM EEPROM1 dump monitor in LIVE mode *TimeTag Type: B* *Sub Schedule ID:*			
3		Verify initial conditions		Next Step: 4	
		Check: - CDMU in Operational Mode			
		CDMS SOE to confirm CDMU mode			
4		Manual Stack manipulation Load command stack files for memory dump on Manual Stack		Next Step: 5	
4.1		Load memory dump command stack			
		Select the File -> **LoadStack** option from the main menu of the Manual Stack window			
4.1.1		IF CDMU PM A			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Select file **CDMEE1PG_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine** from directory /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE1PG 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 ***N_NoModel_NoModel*** 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: CDMEE1PG_DI_0002001_N_NoModel_NoModel_2008_133T123300.sun045 - CT CDMEE1PG1, ID 0003, Version 001 associated to the memory image: CDMEE1PG_DI_0002001_C_CDMEE1PG1_0003001_2008_148T093320.sun045			
4.1.2		ELSE CDMU PM 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			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		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 ***N_NoModel_NoModel*** 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: CDMEE1PB_DI_0002001_N_NoModel_NoModel_2008_133T123300.sun045 - CT CDMEE1PB1, ID 0003, Version 001 associated to the memory image: CDMEE1PB_DI_0002001_C_CDMEE1PB1_0003001_2008_148T093320.sun045			
4.2		Check memory dump command stack loaded			
		For a **full** CDMU PM EEPROM1 ('Image1') **dump** (**Memory ID** = **008** included in the address): **Start Address** = **0080.0000 hex** **End Address = 008F.FFFF hex** **Length = 100000 hex**			
		Note: For a full dump of CDMU EEPROM1, the stack will contain 17 TCs DC602180, covering the address range **0080.0000 hex** to **008F.FFFF hex**			
		Check that loaded stack contains one or several TCs **DC602180**.			
		Display the Manual Stack in 'Full mode' and check that the **Memory ID** parameter in the DC602180 command(s) is set to **008 hex**: **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 **DumpMem_AbsAddr** *Command Parameter(s) :* **Memory_ID DH003180** **008x <hex>** **Start_Address DH004180** **<hex>** (Def) **N DH105180** **<hex>** (Def) *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : Dump Memory Using Absolute Addresses This Telecommand will not be included in the export	**DC602180**	**TC**	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
5		Dump the EEPROM1 memory area		Next Step: 6	
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 **Image** menu of the ***OBSM Desktop***. From the Image menu, select **Monitor**. The 'Image Catalog' window opens.			
5.1.2		Select image to be monitored			
5.1.2.1		IF CDMU PM A			
		Select the image to be monitored for the memory device **CDMEE1PG.** The 'Image MONITOR' window opens.			
5.1.2.2		ELSE CDMU PM B			
		Select the image to be monitored for the memory device **CDMEE1PB.** The 'Image MONITOR' window opens.			
5.1.3		Start dump TM processing			
		In **LIVE** mode, processing of incoming real-time telemetry starts automatically after the image selection.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
5.2		Command memory dump			
		Uplink TCs **DC602180** 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 : 16 Type : 6 Subtype : 6 PI1 : 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 **differences** reported by OBSM between the dump data and the ground image, **the merged image shall be saved** for offline analysis.			
7		Save merged image		Next Step: 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.			
		End of Sequence			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
	OFCP124D	*TC Seq. Name :* OFCP124D (CDMU EEPROM1 dump R) CDMU PM EEPROM1 dump monitor in Retrieval mode *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 **Image** menu of the ***OBSM Desktop***. From the Image menu, select **Monitor**. The 'Image Catalog' window opens.			
8.2		Select image to be monitored			
8.2.1		IF CDMU PM A			
		Select the image to be monitored for the memory device **CDMEE1PG.** The 'Image MONITOR' window opens.			
8.2.1.1		ELSE ACC PM B			
		Select the image to be monitored for the memory device **CDMEE1PB.** The 'Image MONITOR' window opens.			
8.3		Start dump TM packets processing			
		Set **retrieval start** and **stop time** and start retrieval of TM packets using the **PLAY buttons**.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
9		Retrieve and process TM(6,6) packets		Next Step: 10	
		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.			
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		Save merged image		Next Step: END	
		WAIT for retrieval completion of the last dump packet.			
		IF there are **mismatches** reported by OBSM, save merged image with **new ID**.			
		Conduct off-line analysis of the reported mismatches.			
		End of Sequence			
	OFCP124E	*TC Seq. Name :* OFCP124E (CDMU EEPROM2 dump L) CDMU PM EEPROM2 dump monitor in LIVE mode *TimeTag Type: B* *Sub Schedule ID:* □			
11		IF Monitor in LIVE mode type: [If]		Next Step: THEN 12 ELSE 17	
12		Verify initial conditions		Next Step: 13	

Monitor dump of CDMU PM EEPROM memory area
File: H_FCP_OBS_1242.xls
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Check: - CDMU in Operational Mode			
		CDMS SOE to confirm CDMU mode			
13		Manual Stack manipulation Load command stack files for memory dump on Manual Stack		Next Step: 14	
13.1		Load memory dump command stack			
		Select the File -> **LoadStack** option from the main menu of the Manual Stack window			
13.1.1		IF CDMU PM A			
		Select file **CDMEE2PG_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine** from directory /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE2PG 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 ***N_NoModel_NoModel*** 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: CDMEE2PG_DI_0002001_N_NoModel_NoModel_2008_133T123300.sun045 - CT CDMEE2PG1, ID 0003, Version 001 associated to the memory image: CDMEE2PG_DI_0002001_C_CDMEE2PG1_0003001_2008_148T093320.sun045			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
13.1.2		ELSE CDMU PM B			
		Select file **CDMEE2PB_DI_XXXXYYY_N_NoModel_NoModel_YYYY_DDDThhmmss.machine** from directory /home/hmcsops/HPMCS/SESSION/current/data/CMD/STACKS/OBSM/CDMEE2PB 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 ***N_NoModel_NoModel*** 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: CDMEE2PB_DI_0002001_N_NoModel_NoModel_2008_133T123300.sun045 - CT CDMEE2PB1, ID 0003, Version 001 associated to the memory image: CDMEE2PB_DI_0002001_C_CDMEE2PB1_0003001_2008_148T093320.sun045			
13.2		Check memory dump command stack loaded			
		For a **full** CDMU PM EEPROM2 ('Image2') **dump** (**Memory ID** = **009** included in the address): **Start Address** = **0090.0000 hex** **End Address** = **009F.FFFF hex** **Length** = **100000 hex**			
		Note: For a full dump of CDMU EEPROM2, the stack will contain 17 TCs DC602180, covering the address range **0090.0000 hex** to **009F.FFFF hex**			
		Check that loaded stack contains one or several TCs **DC602180**.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Display the Manual Stack in 'Full mode' and check that the **Memory ID** parameter in the DC602180 command(s) is set to **009 hex**: **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.			
		Execute Telecommand **DumpMem_AbsAddr** **DC602180** *Command Parameter(s) :* **Memory_ID DH003180 009x <hex>** **Start_Address DH004180 <hex>** (Def) **N DH105180 <hex>** (Def) *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : Dump Memory Using Absolute Addresses This Telecommand will not be included in the export		**TC**	
14		Dump the EEPROM2 memory area		Next Step: 15	
14.1		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.			
14.1.1		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.			
14.1.2		Select image to be monitored			
14.1.2.1		IF CDMU PM A			

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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 **CDMEE2PG.** The 'Image MONITOR' window opens.			
14.1.2.2		ELSE CDMU PM B			
		Select the image to be monitored for the memory device **CDMEE2PB.** The 'Image MONITOR' window opens.			
14.1.3		Start dump TM processing			
		In **LIVE** mode, processing of incoming real-time telemetry starts automatically after the image selection.			
14.2		Command memory dump			
		Uplink TCs **DC602180** with **ARM-GO**			
		For each command, one or several TM(6,6) packets will be received on ground.			
15		Verify reception and contents of TM(6,6)		Next Step: 16	
		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 : 16 Type : 6 Subtype : 6 PI1 : PI2 :			
15.1		Check OBSM dump packet processing			
		Check that the OBSM is processing the incoming memory dump packets.			
15.2		Check contents of memory dump packets			

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		Verify that there are **NO OBSM reported differences** between the memory dump data and the ground image used for monitoring.			
		IF there are **differences** reported by OBSM between the dump data and the ground image, **the merged image shall be saved** for offline analysis.			
16		Save merged image		Next Step: 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.			
		End of Sequence			
	OFCP124F	*TC Seq. Name :* OFCP124F (CDMU EEPROM2 dump R) CDMU PM EEPROM2 dump monitor in Retrieval mode *TimeTag Type:* *Sub Schedule ID:*			
17		MCS OBSM preparation for Image monitor in RETRIEVAL mode		Next Step: 18	
		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.			
17.1		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.			
17.2		Select image to be monitored			
17.2.1		IF CDMU PM A			

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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 **CDMEE2PG.** The 'Image MONITOR' window opens.			
17.2.1.1		ELSE ACC PM B			
		Select the image to be monitored for the memory device **CDMEE2PB.** The 'Image MONITOR' window opens.			
17.3		Start dump TM packets processing			
		Set **retrieval start** and **stop time** and start retrieval of TM packets using the **PLAY buttons**.			
18		Retrieve and process TM(6,6) packets		Next Step: 19	
		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.			
18.1		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.			
19		Save merged image		Next Step: END	
		WAIT for retrieval completion of the last dump packet.			
		IF there are **mismatches** reported by OBSM, save merged image with **new ID**.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Conduct off-line analysis of the reported mismatches.			
		End of Sequence			
		End of Procedure			