Herschel ACMS : Generic OBDB Modification Procedure
File: H_FCP_AOC_DODB.xls
Author: dsalt-hp

Procedure Summary

Objectives

The procedure allows the modification of any set of parameters in the ACMS onboard database.

Summary of Constraints

Spacecraft should be in ground visibility to allow immediate dumping and verification of portions of the OBDB modified by the procedure

Spacecraft Configuration

Start of Procedure

N/A

End of Procedure

Updated ACMS OBDB

Reference File(s)

Input Command Sequences

HFADODDI
HVADODDL
HVADODDJ
HVADODDK

Output Command Sequences

HFADODB1
HFADODB2
HFADODB3
HFADODB4
HFADODB5
HFADODB6
NULLSEQ1
NULLSEQ2
NULLSEQ4
NULLSEQ5

Referenced Displays

ANDs **GRDs** **SLDs**
ZAD07999

Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
03/03/09	2.1	1	Created	dsalt-hp	

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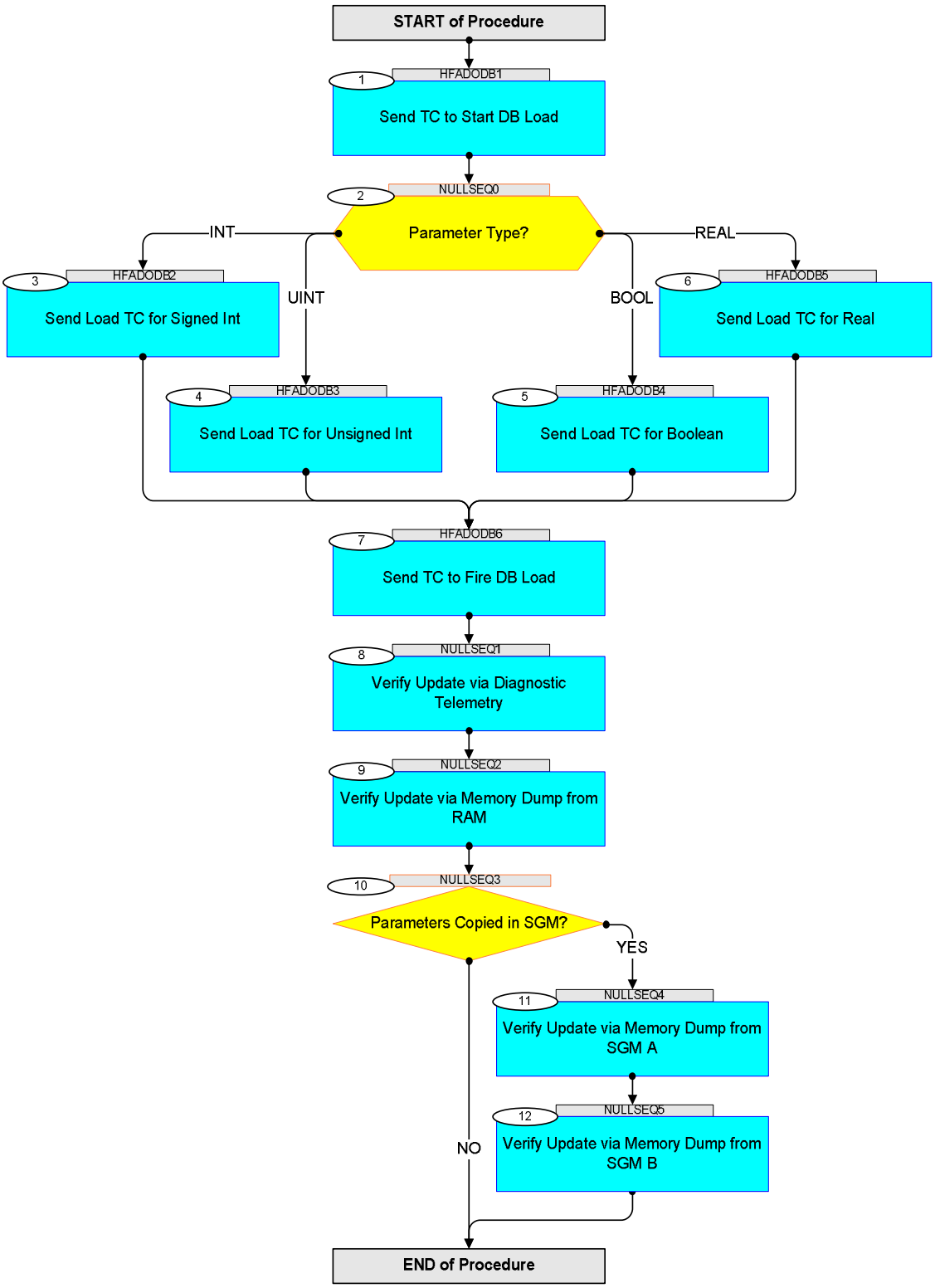
Procedure Flowchart Overview



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Beginning of Procedure		
		TC Seq. Name :HFADODB1 (StartObdbLoad) *TimeTag Type: N* *Sub Schedule ID: 20*		
1		*Send TC to Start DB Load*		Next Step: 2
		The procedure relies on the database loading mechanism based on the use of two TC's. The updating process is started by sending a TC_START_DATABASE_LOAD. Any number of commands can be issued afterwards to load parameters into a temporary buffer. Instantiated versions used in the procedure correspond to the four parameter types present in the OBDB. The transfer of data to the OBDB takes place only when the fire command is received for the OBDB function. The loading of individual parameters is carried out using instantiated TC's which correspond to the four parameter types allowed by the OBDB.		
1.1		*Uplink Sequence HFADODB1*		
		When loading this command sequence on the Manual Stack, it will ask you to enter values for the formal parameters inside the sequence. The formal parameters are: - **NrCmds** = Number of OBDB load commands that are to be issued in one batch.		
		Execute Telecommand **Start database loading** *Command Parameter(s) :* **ASW Function ID** **AHFUN001** **DbLoad DF86 Cmd** **AH8D1001** **DbLoad DD86 Cmd** **AH8D2001** **DbLoad Nr Cmds** **AHFDL001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC_START_DATABASE_LOAD	**ACDS1001** **DB loading** (Def) **Enable 86** **Enable 86** **NrCmds**	

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		TC Seq. Name :NULLSEQ0 ( ) *TimeTag Type:* *Sub Schedule ID:*		
2		*Parameter Type?*		Next Step: INT 3 UINT 4 BOOL 5 REAL 6
		Select type of parameter that is about to be loaded in the onboard database: Signed Integer -> GO TO STEP 3 Unsigned Integer -> GO TO STEP 4 Boolean -> GO TO STEP 5 Real -> GO TO STEP 6		
		TC Seq. Name :HFADODB2 (ObdbLoadSignedIntege) *TimeTag Type: N* *Sub Schedule ID: 20* *Formal Parameter List :* DbLoad StartInd StartInd= DbLoad Dwd SignInt SignInt=	 <dec> <dec>	
3		*Send Load TC for Signed Int*		Next Step: 7
3.1		*Uplink Sequence HFADODB2*		
		When loading this command sequence on the Manual Stack, it will ask you to enter values for the formal parameters inside the sequence. The formal parameters are: - **StartInd** = Index of the OBDB parameter that is about to be loaded. Look up the index in H-P-4-TASW-IF-0002 {ACC ASW ICD}, section 6.2, or use the tables attached at the end of this procedure. - **SignInt** = Signed integer value of the OBDB parameter that is about to be loaded.		

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand **Load databaseSignInt** *Command Parameter(s) :* **DbLoad DF86 Cmd** **AH8D1001** **DbLoad DD86 Cmd** **AH8D2001** **DbLoad StartInd** **AHFDS001** **DbLoad Nr Wrds** **AHFDN001** **DbLoad Dwd SInt** **AHFDV001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,4) - Load database Signed Integer	**ACZTV109** **Enable 86** **Enable 86** **StartInd** **1 <dec>** (Def) **SignInt**	
		TC Seq. Name :HFADODB3 (ObdbLoadUnsignedInte) *TimeTag Type: N* *Sub Schedule ID: 20* *Formal Parameter List :* DbLoad StartInd StartInd= DbLoad Dwd UnsInt UnsigInt=	 <dec> <dec>	
4		*Send Load TC for Unsigned Int*		Next Step: 7
4.1		*Uplink Sequence HFADODB3*		
		When loading this command sequence on the Manual Stack, it will ask you to enter values for the formal parameters inside the sequence. The formal parameters are: - **StartInd** = Index of the OBDB parameter that is about to be loaded. Look up the index in H-P-4-TASW-IF-0002 {ACC ASW ICD}, section 6.2, or use the tables attached at the end of this procedure. - **UnsigInt** = Unsigned integer value of the OBDB parameter that is about to be loaded.		

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand **Load databaseUnsInt** *Command Parameter(s) :* **DbLoad DF86 Cmd** **AH8D1001** **DbLoad DD86 Cmd** **AH8D2001** **DbLoad StartInd** **AHFDS001** **DbLoad Nr Wrds** **AHFDN001** **DbLoad Dwd UInt** **AHFDX001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,4) - Load database Unsigned Integer	**ACZTW109** **Enable 86** **Enable 86** **StartInd** **1 <dec>** (Def) **UnsigInt**	
		TC Seq. Name :HFADODB4 (ObdbLoadBoolean) *TimeTag Type: N* *Sub Schedule ID: 20* *Formal Parameter List :* DbLoad StartInd StartInd= DbLoad Dwd Bool Boolean=	 <dec> <dec>	
5		*Send Load TC for Boolean*		Next Step: 7
5.1		*Uplink Sequence HFADODB4*		
		When loading this command sequence on the Manual Stack, it will ask you to enter values for the formal parameters inside the sequence. The formal parameters are: - **StartInd** = Index of the OBDB parameter that is about to be loaded. Look up the index in H-P-4-TASW-IF-0002 {ACC ASW ICD}, section 6.2, or use the tables attached at the end of this procedure. - **Boolean** = Boolean value of the OBDB parameter that is about to be loaded.		

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand **Load databaseBoolean** *Command Parameter(s) :* **DbLoad DF86 Cmd** **AH8D1001** **DbLoad DD86 Cmd** **AH8D2001** **DbLoad StartInd** **AHFDS001** **DbLoad Nr Wrds** **AHFDN001** **DbLoad Dwd Bool** **AHFDY001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,4) - Load database Boolean	**ACZTX109** **Enable 86** **Enable 86** **StartInd** **1 <dec>** (Def) **Boolean**	
		TC Seq. Name :HFADODB5 (ObdbLoadReal) *TimeTag Type: N* *Sub Schedule ID: 20*		
6		*Send Load TC for Real*		Next Step: 7
6.1		*Uplink Sequence HFADODB5*		
		When loading this command sequence on the Manual Stack, it will ask you to enter values for the formal parameters inside the sequence. The formal parameters are: - **StartInd** = Index of the OBDB parameter that is about to be loaded. Look up the index in H-P-4-TASW-IF-0002 {ACC ASW ICD}, section 6.2, or use the tables attached at the end of this procedure. - **Real** = Real value of the OBDB parameter that is about to be loaded.		
		Execute Telecommand **Load databaseReal** *Command Parameter(s) :* **DbLoad DF86 Cmd** **AH8D1001** **DbLoad DD86 Cmd** **AH8D2001** **DbLoad StartInd** **AHFDS001** **DbLoad Nr Wrds** **AHFDN001** **DbLoad Dwd Real** **AHFDZ001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,4) - Load database Real	**ACZTY109** **Enable 86** **Enable 86** **StartInd** **1 <dec>** (Def) **Real**	

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		TC Seq. Name :HFADODB6 (FireObdbLoad) *TimeTag Type: N* *Sub Schedule ID: 20*		
7		*Send TC to Fire DB Load*		Next Step: 8
7.1		*Uplink Sequence HFADODB1*		
		Execute Telecommand **Fire Start DB loading** *Command Parameter(s) :* **FireFun DF86Cmd AH8F1001** **FireFun DD86Cmd AH8F2001** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 20* Det. descr. : TC(8,4) Fire Command - Fire Start DB loading	**ACZ5L109** **Enable 86** **Enable 86**	
		TC Seq. Name :NULLSEQ1 ( ) *TimeTag Type: N* *Sub Schedule ID:*		
8		*Verify Update via Diagnostic Telemetry*		Next Step: 9
		This step enables all diagnostic packets related to the 2000+ onboard database parameters on Herschel. As the Herschel onboard database currently contains 2137 parameters there are 8 diagnostic packets defined that together cover the entire Herschel onboard database. In H-P-4-TASW-IF-0002 {ACC ASW_ICD} section 6.1 you can find a list of Herschel OBDB parameters ordered by offset. NOTE: If you want to enable individual diagnostic packets instead of enabling all, you can run the appropriate step in procedure H_FCT_AOC_DODD {Herschel ACMS : Generic OBDB Dump Procedure}.		

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		CONSTRAINTS: 1. Pre-condition for any diagnostic packet to be enabled is that the spacecraft has to be configured for 150 kbps downlink rate or higher. 2. In 150 kbps downlink rate or higher, 2500 bps is allocated ACMS non-essential telemetry.		
		Verify Telemetry **TME_BITRATE DEMRF160**	**>= 150 Kbps**	AND=ZAD07999
		Packets to be enabled: A3DHOBDB1109 {DTM with Herschel OBDB data1} A3DHOBDB2109 {DTM with Herschel OBDB data2} A3DHOBDB3109 {DTM with Herschel OBDB data3} A3DHOBDB4109 {DTM with Herschel OBDB data4} A3DHOBDB5109 {DTM with Herschel OBDB data5} A3DHOBDB6109 {DTM with Herschel OBDB data6} A3DHOBDB7109 {DTM with Herschel OBDB data7} A3DHOBDB8109 {DTM with Herschel OBDB data8}		
		Per packet (default settings): Packet size = 8160 bits Interval = 30 s (= 120 sampling periods) Packet rate = 8160 [bits] / 30 [s] = 272 [bps] Total: Total DTM packet rate = 8 * 272 [bps] = **2176 [bps]**		
8.1		*Uplink Sequence HFADODDI*		□
		Execute Sequence **HFADODDI ObdbDtmAllEnable v01** Sequence Grouping = - *SSID : 0*		**SEQ**
8.2		*Verify OBDB DTM Enable*		□
		Verify Packet Reception **DTM with Herschel OBDB data1** *Packet Details:* **APID:** **Type:** **Subtype:** **PI1:** **PI2:**	**A3DH0BDB1109** **514** **3** **26** **4501**	

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		NOTE: The contents of diagnostic packet A3DH0BDB1109 {DTM with Herschel OBDB data1} are spread over a group of 4 monitoring displays: ZAZ60999 DTMOBDB1_1 ZAZ61999 DTMOBDB1_2 ZAZ62999 DTMOBDB1_3 ZAZ63999 DTMOBDB1_4		
		Verify Packet Reception **DTM with Herschel OBDB data2** *Packet Details:* **APID:** **Type:** **Subtype:** **PI1:** **PI2:**	**A3DH0BDB2109** **514** **3** **26** **4502**	
		NOTE: The contents of diagnostic packet A3DH0BDB2109 {DTM with Herschel OBDB data2} are spread over a group of 4 monitoring displays: ZAZ64999 DTMOBDB2_1 ZAZ65999 DTMOBDB2_2 ZAZ66999 DTMOBDB2_3 ZAZ67999 DTMOBDB2_4		
		Verify Packet Reception **DTM with Herschel OBDB data3** *Packet Details:* **APID:** **Type:** **Subtype:** **PI1:** **PI2:**	**A3DH0BDB3109** **514** **3** **26** **4503**	
		NOTE: The contents of diagnostic packet A3DH0BDB3109 {DTM with Herschel OBDB data3} are spread over a group of 4 monitoring displays: ZAZ68999 DTMOBDB3_1 ZAZ69999 DTMOBDB3_2 ZAZ6A999 DTMOBDB3_3 ZAZ6B999 DTMOBDB3_4		
		Verify Packet Reception **DTM with Herschel OBDB data4** *Packet Details:* **APID:** **Type:** **Subtype:** **PI1:** **PI2:**	**A3DH0BDB4109** **514** **3** **26** **4504**	

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		NOTE: The contents of diagnostic packet A3DH0BDB4109 {DTM with Herschel OBDB data4} are spread over a group of 4 monitoring displays: ZAZ6C999 DTMOBDB4_1 ZAZ6D999 DTMOBDB4_2 ZAZ6E999 DTMOBDB4_3 ZAZ6F999 DTMOBDB4_4		
		Verify Packet Reception **DTM with Herschel OBDB data5** *Packet Details:* **APID:** **Type:** **Subtype:** **PI1:** **PI2:**	**A3DH0BDB5109** **514** **3** **26** **4505**	
		NOTE: The contents of diagnostic packet A3DH0BDB5109 {DTM with Herschel OBDB data5} are spread over a group of 4 monitoring displays: ZAZ6G999 DTMOBDB5_1 ZAZ6H999 DTMOBDB5_2 ZAZ6I999 DTMOBDB5_3 ZAZ6J999 DTMOBDB5_4		
		Verify Packet Reception **DTM with Herschel OBDB data6** *Packet Details:* **APID:** **Type:** **Subtype:** **PI1:** **PI2:**	**A3DH0BDB6109** **514** **3** **26** **4506**	
		NOTE: The contents of diagnostic packet A3DH0BDB6109 {DTM with Herschel OBDB data6} are spread over a group of 4 monitoring displays: ZAZ6K999 DTMOBDB6_1 ZAZ6L999 DTMOBDB6_2 ZAZ6M999 DTMOBDB6_3 ZAZ6N999 DTMOBDB6_4		
		Verify Packet Reception **DTM with Herschel OBDB data7** *Packet Details:* **APID:** **Type:** **Subtype:** **PI1:** **PI2:**	**A3DH0BDB7109** **514** **3** **26** **4507**	

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		NOTE: The contents of diagnostic packet A3DH0BDB7109 {DTM with Herschel OBDB data7} are spread over a group of 4 monitoring displays: ZAZ6O999 DTMOBDB7_1 ZAZ6P999 DTMOBDB7_2 ZAZ6Q999 DTMOBDB7_3 ZAZ6R999 DTMOBDB7_4		
		Verify Packet Reception **DTM with Herschel OBDB data8** *Packet Details:* **APID:** **Type:** **Subtype:** **PI1:** **PI2:**	**A3DH0BDB8109** **514** **3** **26** **4508**	
		NOTE: The contents of diagnostic packet A3DH0BDB8109 {DTM with Herschel OBDB data8} are spread over a group of 4 monitoring displays: ZAZ6S999 DTMOBDB8_1 ZAZ6T999 DTMOBDB8_2 ZAZ6U999 DTMOBDB8_3 ZAZ6V999 DTMOBDB8_4		
		TC Seq. Name :NULLSEQ2 ( ) *TimeTag Type: N* *Sub Schedule ID:*		
9		*Verify Update via Memory Dump from RAM*		Next Step: 10
		This step dumps the onboard database area in RAM. Modifications are always made in the RAM copy of the onboard database, that's why it is good practise to dump this area before and after doing an onboard database update. BACKGROUND: H-P-4-TASW-IF-0002 {ACC ASW ICD}, section 6.1, contains the table of Herschel onboard database parameters available in RAM. The location of the onboard database in RAM is tied to the location of the ASW_DatabaseManagerObj variable to be found in image.syms file of the software build (under \ACMS\ASW_3.4_b2\Code\OBSP_3_4\B002\AAE\image.syms). Add **12** locations to obtain the offset for the index 0 parameter. Use this as the start address of the dump.		

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		NOTE: *The RAM memory address for a parameter with a given OBDB ID can be calculated as follows:* *RAM address = OBDB start address + parameter offset;* *OBDB start address = address of Asw_DatabaseManager_Obj + 12;* *parameter offset = OBDB ID * 4.* *Parameter ID's are listed in the ASW ICD (H-P-4-TASW-IF-002).* *Asw_Databasemanager_Obj is an ASW container structure used in the management of the OBDB and its address has to be obtained from the linker memory map valid for the software build currently used onboard.*		
9.1		*Prepare OBSM Desktop*		
		Prepare the OBSM desktop application for the memory download, by executing the following steps: -> Open 'OBSM Desktop' -> Select 'Image' in menubar -> Select 'Monitor' in pulldown menu -> New window opens, called 'Image Catalog' -> In the new window, press the 'Device' button in the 'Filter' toolbar (bottom left corner)		
		-> New window opens, called 'Device Catalog' -> Select ACCROBDB 'ACC RAM OBDB'. Hit OK. -> Now all available memory images for the selected device appear in the 'Image Catalog'. Select the image that relates to the onboard image that is to be dumped, this is generally the last entry in the list. Hit OK. -> Another window will appear that will display all mismatches between dumped values and the ground image, once the download is running. Check the 'LIVE' button is highlighted.		
9.2		*Uplink Sequence HVADODDL*		

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Sequence **HVADODDL ObdbDumpFromRam v03** Sequence Grouping = - *SSID : 0*		**SEQ**
		NOTE: *This instance of the TC dumps **all** parameters in **OBDB** (i.e. parameter offset 0 to 2133)*		
9.3		*Monitor Memory Download*		
		Verify Packet Reception **Memory Dump - Absolute Addresses - SAU 8** *Packet Details:* **APID:** **Type:** **Subtype:** **PI1:** **PI2:**	**MemDmpAbsAdd** **512** **6** **6**	
		NOTE 1: While the monitor screen is up, any areas of memory which are declared monitorable shall trigger an alarm if they are different in the dump packet to the ground image. This will be displayed in the EVENT window at the bottom of the screens and audibly. NOTE 2: All differences will appear in the gridded area. However the refresh of this screen is poor. After all the dump packets are down, hit the STOP and then the LIVE button. All the mismatches found so far will be displayed.		
		NOTE 3: Only data declared monitorable in the MODEL will trigger an alarm. NOTE 4: If it is wanted to dump the same areas of memory several times, or process in retrieval areas of memory several times, it is advisable to close and restart the MONITOR window between each task, as the comparison base image is often updated with the differences.		
9.4		*Update Ground Image*		
		If it desired to store the image updated with the mismatches for reference or later analysis then continue here. WARNING: In a lot of cases where there are no mismatches or only mismatches in variable data areas it is not worth saving the image.		

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		-> On the MONITOR window, displaying the mismatches, enter a correct description in the description area. More detailed text can be added by hitting the description button. -> Check the model is correct. -> Goto Image, Save New ID		
		TC Seq. Name :NULLSEQ3 ( ) *TimeTag Type: B* *Sub Schedule ID:* □		
10		*Parameters Copied in SGM?*		Next Step: YES 11 NO END
		H-P-4-TASW-IF-0002 {ACC ASW ICD}, section 6.1, contains the table of onboard database parameters copied to SGM after an onboard database update in RAM. Parameters copied to SGM? YES -> GO TO STEP 11 NO -> GO TO END		
		TC Seq. Name :NULLSEQ4 ( ) *TimeTag Type: N* *Sub Schedule ID:* □		
11		*Verify Update via Memory Dump from SGM A*		Next Step: 12
		This step dumps the onboard database area in non-protected SGM A. The onboard database in SGM contains only a subset of the onboard database parameters available in RAM. BACKGROUND: The absolute address of the start of the onboard database area within SGM A is 0xBA0000 and within SGM B it is 0xEA0000. The database parameters stored are mission-specific. Each parameter occupies 32 bits as in the onboard database in RAM. H-P-4-TASW-IF-0002 {ACC ASW ICD}, section 3.2.4, contains a table with the subset of the onboard database parameters available in non-protected SGM.		

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		NOTE: *The address of a parameter with a given ID can be calculated as follows:* ***SGMA*** *Address = 0x**BA0000** + (ParamID-1) * 4* ***SGMB*** *Address = 0x**EA0000** + (ParamID-1) * 4* *Parameter ID's refer to the listing of SGM OBDB parameters in the ASW ICD (H-P-4-TASW-IF-0002) and are **not the same as the ID's in the RAM OBDB**.*		
11.1		*Prepare OBSM Desktop*		
		Prepare the OBSM desktop application for the memory download, by executing the following steps: -> Open 'OBSM Desktop' -> Select 'Image' in menubar -> Select 'Monitor' in pulldown menu -> New window opens, called 'Image Catalog' -> In the new window, press the 'Device' button in the 'Filter' toolbar (bottom left corner)		
		-> New window opens, called 'Device Catalog' -> Select ASGAOBDB 'ACC SGM A OBDB'. Hit OK. -> Now all available memory images for the selected device appear in the 'Image Catalog'. Select the image that relates to the onboard image that is to be dumped, this is generally the last entry in the list. Hit OK. -> Another window will appear that will display all mismatches between dumped values and the ground image, once the download is running. Check the 'LIVE' button is highlighted.		
11.2		*Uplink Sequence HVADODDJ*		
		Execute Sequence **HVADODDJ ObdbDumpFromSgmA v03** Sequence Grouping = - *SSID : 0*		**SEQ**

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		NOTE: *This instance of the TC dumps **all** parameters in **SGMA** (i.e. position 1 to 422)*		
11.3		*Monitor Memory Download*		
		Verify Packet Reception **Memory Dump - Absolute Addresses - SAU 8** *Packet Details:* **APID:** **Type:** **Subtype:** **PI1:** **PI2:**	**MemDmpAbsAdd** **512** **6** **6**	
		NOTE 1: While the monitor screen is up, any areas of memory which are declared monitorable shall trigger an alarm if they are different in the dump packet to the ground image. This will be displayed in the EVENT window at the bottom of the screens and audibly. NOTE 2: All differences will appear in the gridded area. However the refresh of this screen is poor. After all the dump packets are down, hit the STOP and then the LIVE button. All the mismatches found so far will be displayed.		
		NOTE 3: Only data declared monitorable in the MODEL will trigger an alarm. NOTE 4: If it is wanted to dump the same areas of memory several times, or process in retrieval areas of memory several times, it is advisable to close and restart the MONITOR window between each task, as the comparison base image is often updated with the differences.		
11.4		*Update Ground Image*		
		If it desired to store the image updated with the mismatches for reference or later analysis then continue here. WARNING: In a lot of cases where there are no mismatches or only mismatches in variable data areas it is not worth saving the image.		

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		-> On the MONITOR window, displaying the mismatches, enter a correct description in the description area. More detailed text can be added by hitting the description button. -> Check the model is correct. -> Goto Image, Save New ID		
		TC Seq. Name :NULLSEQ5 ( ) *TimeTag Type: N* *Sub Schedule ID:* □		
12		*Verify Update via Memory Dump from SGM B*		Next Step: END
		This step dumps the onboard database area in non-protected SGM B. The onboard database in SGM contains only a subset of the onboard database parameters available in RAM. BACKGROUND: The absolute address of the start of the onboard database area within SGM A is 0xBA0000 and within SGM B it is 0xEA0000. The database parameters stored are mission-specific. Each parameter occupies 32 bits as in the onboard database in RAM. H-P-4-TASW-IF-0002 {ACC ASW ICD}, section 3.2.4, contains a table with the subset of the onboard database parameters available in non-protected SGM.		
		NOTE: *The address of a parameter with a given ID can be calculated as follows:* ***SGMA*** *Address = 0x**BA0000** + (ParamID-1) * 4* ***SGMB*** *Address = 0x**EA0000** + (ParamID-1) * 4* *Parameter ID's refer to the listing of SGM OBDB parameters in the ASW ICD (H-P-4-TASW-IF-0002) and are **not the same as the ID's in the RAM OBDB**.*		
12.1		*Prepare OBSM Desktop*		□

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Prepare the OBSM desktop application for the memory download, by executing the following steps: -> Open 'OBSM Desktop' -> Select 'Image' in menubar -> Select 'Monitor' in pulldown menu -> New window opens, called 'Image Catalog' -> In the new window, press the 'Device' button in the 'Filter' toolbar (bottom left corner)		
		-> New window opens, called 'Device Catalog' -> Select ASGBOBDB 'ACC SGM B OBDB'. Hit OK. -> Now all available memory images for the selected device appear in the 'Image Catalog'. Select the image that relates to the onboard image that is to be dumped, this is generally the last entry in the list. Hit OK. -> Another window will appear that will display all mismatches between dumped values and the ground image, once the download is running. Check the 'LIVE' button is highlighted.		
12.2		*Uplink Sequence HVADODDK*		□
		Execute Sequence **HVADODDK ObdbDumpFromSgmB v03** Sequence Grouping = - *SSID : 0*		**SEQ**
		NOTE: *This instance of the TC dumps **all** parameters in **SGMB** (i.e. position 1 to 422)*		
12.3		*Monitor Memory Download*		□
		Verify Packet Reception **Memory Dump - Absolute Addresses - SAU 8** *Packet Details:* **APID:** **Type:** **Subtype:** **PI1:** **PI2:**	**MemDmpAbsAdd** **512** **6** **6**	

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		NOTE 1: While the monitor screen is up, any areas of memory which are declared monitorable shall trigger an alarm if they are different in the dump packet to the ground image. This will be displayed in the EVENT window at the bottom of the screens and audibly. NOTE 2: All differences will appear in the gridded area. However the refresh of this screen is poor. After all the dump packets are down, hit the STOP and then the LIVE button. All the mismatches found so far will be displayed.		
		NOTE 3: Only data declared monitorable in the MODEL will trigger an alarm. NOTE 4: If it is wanted to dump the same areas of memory several times, or process in retrieval areas of memory several times, it is advisable to close and restart the MONITOR window between each task, as the comparison base image is often updated with the differences.		
12.4		*Update Ground Image*		□
		If it desired to store the image updated with the mismatches for reference or later analysis then continue here. WARNING: In a lot of cases where there are no mismatches or only mismatches in variable data areas it is not worth saving the image.		
		-> On the MONITOR window, displaying the mismatches, enter a correct description in the description area. More detailed text can be added by hitting the description button. -> Check the model is correct. -> Goto Image, Save New ID		
		End of Procedure		