

Check ACC OBS image in EEPROM (checksum calculation)
 File: H_FCP_OBS_2263.xls
 Author: lstefanov-hp



Procedure Summary

Objectives

This Herschel OBSM nominal procedure is used to conduct an ACC On-Board SW EEPROM image integrity verification. The whole OBS on-board image is checked via checksum calculation. The procedure covers verification of both 'Image 1' and 'Image 2'.

The memory ckeck is commanded using TC(6,9) and the checksums calculated on-board are received on ground in TM(6,10) packets.

This procedure doesn't use OBSM generated command stacks, but command stacks generated by MOIS from the procedure itself.

Summary of Constraints

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

ACC in operational mode

End of Procedure

Same as start except:
 - ACC OBS 'Image 1' or/and 'Image 2' integrity verified via checksum calculation

Reference File(s)

Input Command Sequences

Output Command Sequences

OFCP226E
 OFCP226F

Referenced Displays

ANDs GRDs SLDs
 (None)

Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
26/01/09		1	Created	lstefanov-hp	

Status : Version 2 - Unchanged
 Last Checkin: 29/01/09

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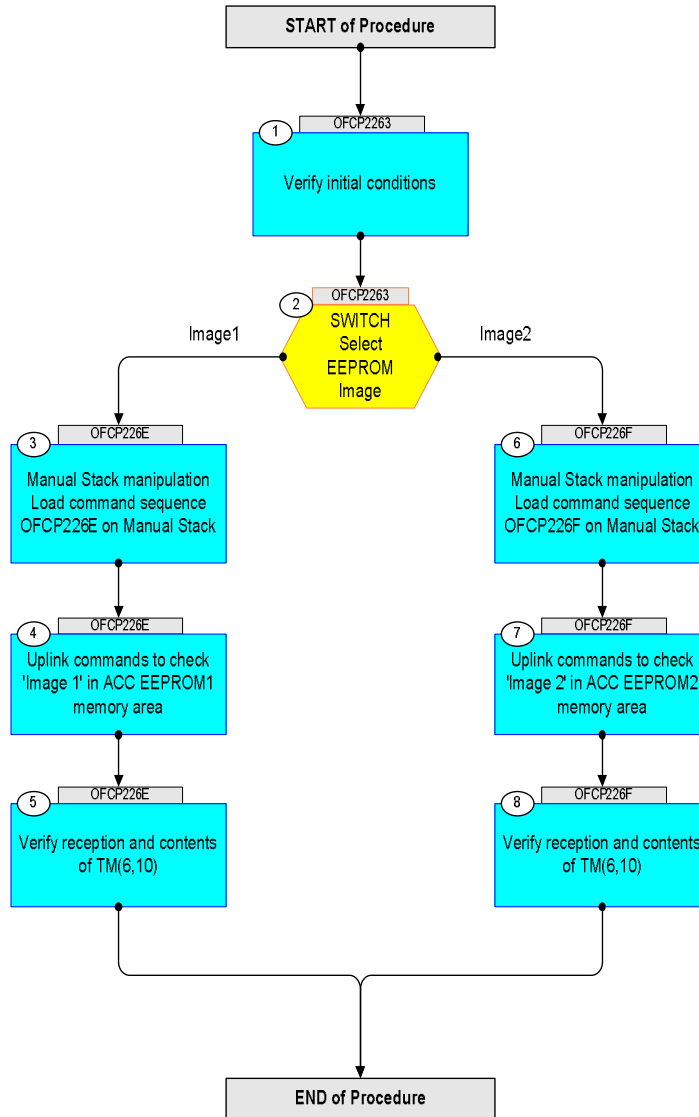


29/01/09	2	2	1. steps 5 and 8 updated: updated checksum values for ACC OBS v.4.0.2	lstefanov-hp	
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Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment																																							
Beginning of Procedure																																												
OFCP2263		TC Seq. Name : OFCP2263 (AccObs Img check) Check ACC OBS EEPROM Image integrity TimeTag Type: B Sub Schedule ID: <input type="checkbox"/>																																										
1		Verify initial conditions		Next Step: 2																																								
		Check: - ACC in Operational Mode																																										
		ACMS SOE to confirm ACC mode																																										
2		SWITCH Select EEPROM Image type: [Switch]		Next Step: Image1 3 Image2 6																																								
End of Sequence																																												
OFCP226E		TC Seq. Name : OFCP226E (AccObs Image1 check) Check ACC OBS EEPROM Image1 integrity TimeTag Type: N Sub Schedule ID: <input type="checkbox"/>																																										
3		Manual Stack manipulation Load command sequence OFCP226E on Manual Stack		Next Step: 4																																								
3.1		Sequence data FP: N/A TT: N/A																																										
3.2		Check command sequence loaded																																										
		With the Manual Stack in 'Full mode', check the 17 TCs AC069109 in the loaded sequence. <table style="width: 100%; border-collapse: collapse;"> <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>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		
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		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			
4		Uplink commands to check 'Image 1' in ACC EEPROM1 memory area		Next Step: 5	
		Uplink the 17 AC069109 memory check commands (one by one) with ARM-GO			
		For each TC AC069109 uplinked, a TM(6,10) packet shall be received on ground.			
		Execute Telecommand Check Memory AC069109 Command Parameter(s) : Memory ID AH6M0109 0080 <hex> Start Address AH6M1109 0000 <hex> (Def) Length SAU AH6M3109 FFFF <hex> TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 20 Det. descr. : TC(6,9) Check Memory Using Absolute Addresses		TC	
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5		Verify reception and contents of TM(6,10)		Next Step: END	
		Verify Packet Reception Memory Check Report - Absolute Addresses Packet Mnemonic : MemChkRepAbs APID : 512 Type : 6 Subtype : 10 PI1 : PI2 :			

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		IMPORTANT: Following checksum values are applicable ONLY for ACC OBS v.4.0.2 The checksums are CRC checksums.																																																										
		Verify contents of TM(6,10) packets: <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Pkt #</th> <th style="text-align: left;">Memory_ID</th> <th style="text-align: left;">Start_Address</th> <th style="text-align: left;">N</th> <th style="text-align: left;">Checksum</th> </tr> <tr> <th style="text-align: left;">[hex]</th> <th style="text-align: left;">[hex]</th> <th style="text-align: left;">[hex]</th> <th style="text-align: left;">[hex]</th> <th style="text-align: left;">[hex]</th> </tr> </thead> <tbody> <tr><td>1</td><td>0080</td><td>0000</td><td>FFFF</td><td>7383</td></tr> <tr><td>2</td><td>0080</td><td>FFFF</td><td>FFFF</td><td>2EAB</td></tr> <tr><td>3</td><td>0081</td><td>FFFE</td><td>FFFF</td><td>155D</td></tr> <tr><td>4</td><td>0082</td><td>FFFD</td><td>FFFF</td><td>7261</td></tr> <tr><td>5</td><td>0083</td><td>FFFC</td><td>FFFF</td><td>E844</td></tr> <tr><td>6</td><td>0084</td><td>FFFB</td><td>FFFF</td><td>3E2A</td></tr> <tr><td>7</td><td>0085</td><td>FFFA</td><td>FFFF</td><td>E914</td></tr> <tr><td>8</td><td>0086</td><td>FFF9</td><td>FFFF</td><td>B786</td></tr> <tr><td>9</td><td>0087</td><td>FFF8</td><td>FFFF</td><td>0AB2</td></tr> </tbody> </table>	Pkt #	Memory_ID	Start_Address	N	Checksum	[hex]	[hex]	[hex]	[hex]	[hex]	1	0080	0000	FFFF	7383	2	0080	FFFF	FFFF	2EAB	3	0081	FFFE	FFFF	155D	4	0082	FFFD	FFFF	7261	5	0083	FFFC	FFFF	E844	6	0084	FFFB	FFFF	3E2A	7	0085	FFFA	FFFF	E914	8	0086	FFF9	FFFF	B786	9	0087	FFF8	FFFF	0AB2			
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OFCP226F End of Sequence TC Seq. Name : OFCP226F (AccObs Image2 check) Check ACC OBS EEPROM Image2 integrity TimeTag Type: N Sub Schedule ID: <input type="checkbox"/>																																																												
6		Manual Stack manipulation Load command sequence OFCP226F on Manual Stack		Next Step: 7																																																								

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8		Verify reception and contents of TM(6,10)		Next Step: END																																																								
		Verify Packet Reception Memory Check Report - Absolute Addresses Packet Mnemonic : MemChkRepAbs APID : 512 Type : 6 Subtype : 10 PI1 : PI2 :																																																										
		IMPORTANT: Following checksum values are applicable ONLY for ACC OBS v.4.0.2 The checksums are CRC checksums.																																																										
		Verify contents of TM(6,10) packets: <table border="1"> <thead> <tr> <th>Pkt #</th> <th>Memory_ID</th> <th>Start_Address</th> <th>N</th> <th>Checksum</th> </tr> <tr> <th>[hex]</th> <th>[hex]</th> <th>[hex]</th> <th>[hex]</th> <th>[hex]</th> </tr> </thead> <tbody> <tr><td>1</td><td>0080</td><td>0000</td><td>FFFF</td><td>7383</td></tr> <tr><td>2</td><td>0080</td><td>FFFF</td><td>FFFF</td><td>2EAB</td></tr> <tr><td>3</td><td>0081</td><td>FFFE</td><td>FFFF</td><td>155D</td></tr> <tr><td>4</td><td>0082</td><td>FFFD</td><td>FFFF</td><td>7261</td></tr> <tr><td>5</td><td>0083</td><td>FFFC</td><td>FFFF</td><td>E844</td></tr> <tr><td>6</td><td>0084</td><td>FFFB</td><td>FFFF</td><td>3E2A</td></tr> <tr><td>7</td><td>0085</td><td>FFFA</td><td>FFFF</td><td>E914</td></tr> <tr><td>8</td><td>0086</td><td>FFF9</td><td>FFFF</td><td>B786</td></tr> <tr><td>9</td><td>0087</td><td>FFF8</td><td>FFFF</td><td>0AB2</td></tr> </tbody> </table>	Pkt #	Memory_ID	Start_Address	N	Checksum	[hex]	[hex]	[hex]	[hex]	[hex]	1	0080	0000	FFFF	7383	2	0080	FFFF	FFFF	2EAB	3	0081	FFFE	FFFF	155D	4	0082	FFFD	FFFF	7261	5	0083	FFFC	FFFF	E844	6	0084	FFFB	FFFF	3E2A	7	0085	FFFA	FFFF	E914	8	0086	FFF9	FFFF	B786	9	0087	FFF8	FFFF	0AB2			
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		10 0088 FFF7 FFFF 02C5 11 0089 FFF6 FFFF 41AD 12 008A FFF5 FFFF FF00 13 008B FFF4 FFFF FF00 14 008C FFF3 FFFF FF00 15 008D FFF2 FFFF FF00 16 008E FFF1 FFFF 6569 17 008F FFF0 0010 61BD																																																										
		Verify Telemetry Memory_ID AE060070 = <hex>		(None)																																																								
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
8.1		Verify checksum values			
		Check the received checksums against the expected values listed in step 8.			
		Verify Telemetry <div style="display: flex; justify-content: space-between; margin-left: 100px;"> Checksum AE064070 </div>	= expected value	(None)	
End of Sequence					
End of Procedure					