MTL Uplink
File: H_FCP_DHS_1011.xls
Author: S. Manganelli

Procedure Summary

Objectives

To prepare and execute DTCP uplink to MTL

Summary of Constraints

At least one SSMM bank 0 ON, MTL buffer existing, Scheduling task started

Spacecraft Configuration

Start of Procedure

Any with MTL running

End of Procedure

Unchanged

Reference File(s)

Input Command Sequences

Output Command Sequences

HFD1011A
HFD1011B

Referenced Displays

ANDs **GRDs** **SLDs**

ZAZ7A999
ZAZ35999
ZAZ8T999

Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
18/02/08		1	Created	S. Manganelli	
19/02/08		2	Minor modification.	cmevi-hp	
19/02/08		3	TC flags updated.	cmevi-hp	
19/02/08	1	4	DB checked.	cmevi-hp	
09/12/08	2	5	DB check against OBSW 3_6_2	S. Manganelli	

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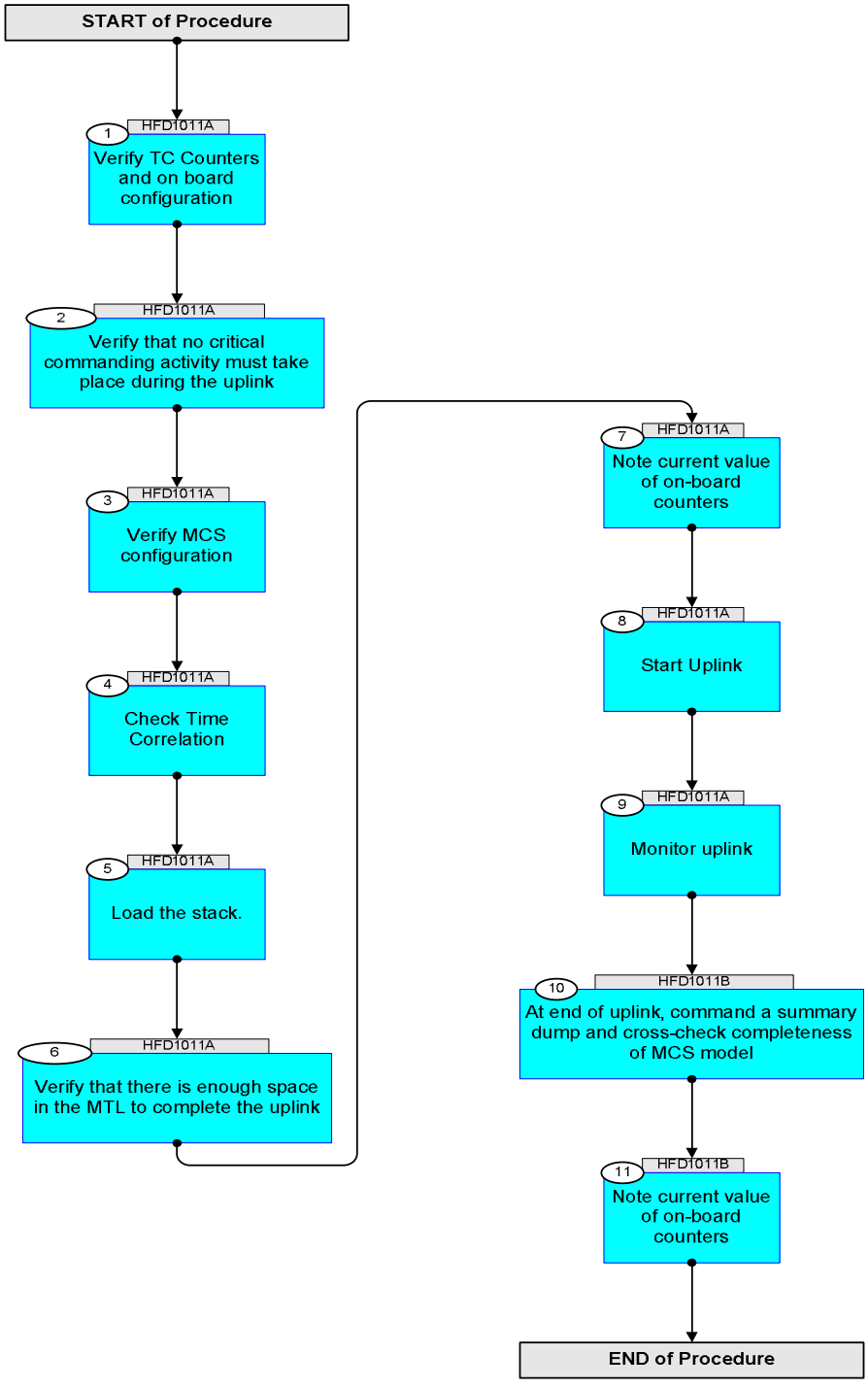
Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Beginning of Procedure			
	HFD1011A	*TC Seq. Name :* HFD1011A (MTL Uplink (1)) *TimeTag Type: N* *Sub Schedule ID:*			
1		Verify TC Counters and on board configuration		Next Step: 2	
		The MTL (Scheduling) task must be running. Note which SSMM buffer is "in use".			
		Verify Telemetry **MtlSts DEH26170**	**= Running**	AND=ZAZ7A999	
		Verify Telemetry **Mtl1LogSts DEH90170**	**Nom or Red**	AND=ZAZ35999	
		Verify Telemetry **Mtl1Use DEH91170**	**In Use or not**	AND=ZAZ35999	
		Verify Telemetry **Mtl1FailSts DEH88170**	**Failed or not**	AND=ZAZ35999	
		Verify Telemetry **Mtl2LogSts DEH94170**	**Nom or Red**	AND=ZAZ35999	
		Verify Telemetry **Mtl2Use DEH95170**	**In use or not**	AND=ZAZ35999	
		Verify Telemetry **Mtl2FailSts DEH92170**	**Failed or not**	AND=ZAZ35999	
2		Verify that no critical commanding activity must take place during the uplink		Next Step: 3	
		If yes, verify with SOE and SOM if MTL uplink is allowed during this period or if it should be suspended. Note anyway that no service 1,1 / 1,3 / 1,7 TM is generated by MTL uplink.			
3		Verify MCS configuration		Next Step: 4	
		1) For DTCP daily MTL unit uplinks, **AD mode must be selected and initialized**. This ensures the controlled stop of uplink in case of problems. In case only a few TCs have to be uplinked to the MTL this is not a constraint.			
		2) Some TCs may be defined in the DB with an interlock, that has a purpose only for real time commanding. To avoid this from stopping the uplink, the **INTERLOCK function must be disabled** from the MSTACK.			
		3) **OBQD task must be running**			

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		Ensure OBQD is synchronized with on board situation by commanding two service 11 reports.			
		Execute Telecommand **RetStatusOfCmdSchedule** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : TEMPLATE ReportStatusOfCmdSchedule, TC(11,18), no appl. data	**DCT25170**	**TC**	
		Execute Telecommand **ReportWholeTcSchedule** *Command Parameter(s) :* **N_Repetition** **DH041170** **0 <dec>** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : ReportWholeTcSchedule, TC(11,9)	**DC83F170**	**TC**	
		Select the OBQD "Dump Display" and perform first a "Retrieve" and then a "Refresh". **All TCs should be green and marked MATCH.**			
		Known OBQD issues to be fixed in a future release : [current implementation marks UNEXPECTED the TCs that execute after the last summary dump] [Row count and direct Count of <non-MATCH> TCs will be displayed, filtering improved] [ENTRIES LEFT counter will display 50000 for empty MTL, not 35000] [Refresh of OBQD during uplink and simultaneous TC execution shall be improved]			
4		Check Time Correlation		Next Step: 5	
		TCO tab in TMSPACON. **The TCO must be VALID and ACCURATE.** If not, command 4 short memory dumps using the following TC (not inserted in TC sequence)until TCO achieves VALID and ACCURATE status. The TC just speeds up VC0 TM rate in order to receive more time couples in a short time.			
		Execute Telecommand **DumpMem_AbsAddr** *Command Parameter(s) :* **Memory_ID** **DH003180** **80 <hex>** **Start_Address** **DH004180** **0 <hex>** **N** **DH105180** **FFFF <hex>** *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**	
5		Load the stack.		Next Step: 6	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Note the total number of TCs to be uplinked			
6		Verify that there is enough space in the MTL to complete the uplink		Next Step: 7	
		TC slots already taken **MtlTcCnt DE82F170**		AND=ZAZ8T999	
		TC slots available for uplink **MtlBufFree DEA74170**		AND=ZAZ8T999	
		Nr of TC to be uplinked shall normally be less or equal to the value of DEA74170 MtlBufFree, so full the MTL can be uplinked without further problems. Should Nr of TC to be uplinked be larger than DEA74170 MtlBufFree : a) uplink can be started (at later step) only for line 1 to line [value of DEA74170 MtlBufFree] b) request opinion of on-call SOE. In principle : - determine by inspection of OBQD the value X = number of TCs that will be executed from now until LOS-30 min. - at LOS-30 min uplink of further X TCs can be started. Extra station support may have to be requested to complete uplink.			
7		Note current value of on-board counters		Next Step: 8	
		There are 4 on-board counters that will be updated by BSW and ASW when each TC(11,4) is uplinked to the MTL buffer. Mark the current value of these counters.			
		DID_BSW_TC_FV_GNDLO_PASS - Number of TCs with Source 4 passing format verification. **BSWTcFvGndLPass DELN0160**		AND=ZAZ8T999	
		DID_BSW_TC_TO_ASW - Number of TCs routed to ASW. **BSW_TC_TO_BSW DELVF160**		AND=ZAZ8T999	
		DID_ASW_ACCEPT_TC_CNT Accepted TC counter by ASW **AcceptTcCnt DE85A170**		AND=ZAZ8T999	
		DID_ASW_EXECUTED_TC_CNT Succesfully executed TC counter by ASW **ExecutedTcCnt DE863170**		AND=ZAZ8T999	
8		Start Uplink		Next Step: 9	
9		Monitor uplink		Next Step: 10	
		Verify (increase due to MTL uplink from this and other stacks, decrease due to MTL TTAG TC execution) **MtlTcCnt DE82F170**		AND=ZAZ8T999	

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		Verify (sum of this parameter and DE82F170 should be constant at 50000) **MtlBufFree DEA74170**		AND=ZAZ8T999	
		Filter TCHIST for TM(1,1) and TM(1,2) For service 1 TM : Uplink to MTL shall not generate success packets, however shall generate failure packets. The verifier shall now trap TC failures even if no ACK flags are set for TC(11,4).			
		In case of MTL TC failure in uplink: - stop uplink - analyze service 1 TM failure information on TMPH. Verify status of Time Correlator (should be VALID and ACCURATE) - consult on-call SOE. A decision may be taken to complete uplink but disable some APID and/or subschedule. - log problem in all cases			
		End of Sequence			
	HFD1011B	*TC Seq. Name :* HFD1011B (MTL Uplink(2nd part)) *TimeTag Type:* N *Sub Schedule ID:*			
10		At end of uplink, command a summary dump and cross-check completeness of MCS model		Next Step: 11	
		Execute Telecommand **RetStatusOfCmdSchedule** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : TEMPLATE ReportStatusOfCmdSchedule, TC(11,18), no appl. data	**DCT25170**	**TC**	
		Execute Telecommand **ReportWholeTcSchedule** *Command Parameter(s) :* **N_Repetition DH041170** *TC Control Flags :* **GBM IL DSE** **--Y -- ---** *Subsch. ID : 10* Det. descr. : ReportWholeTcSchedule, TC(11,9)	**DC83F170** **0 <dec>**	**TC**	
		Select the OBQD "Dump Display" and perform first a "Retrieve" and then a "Refresh". **All TCs should be green and marked MATCH.**			
11		Note current value of on-board counters		Next Step: END	
		There are 4 on-board counters that will be updated by BSW and ASW when each TC(11,4) is uplinked to the MTL buffer. Mark the current value of these counters.			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		DID_BSW_TC_FV_GNDLO_PASS - Number of TCs with Source 4 passing format verification. **BSWTcFvGndLPass** **DELN0160**		AND=ZAZ8T999	
		DID_BSW_TC_TO_ASW - Number of TCs routed to ASW. **BSW_TC_TO_BSW** **DELVF160**		AND=ZAZ8T999	
		DID_ASW_ACCEPT_TC_CNT Accepted TC counter by ASW **AcceptTcCnt** **DE85A170**		AND=ZAZ8T999	
		DID_ASW_EXECUTED_TC_CNT Succesfully executed TC counter by ASW **ExecutedTcCnt** **DE863170**		AND=ZAZ8T999	
		End of Sequence			
		End of Procedure			