

Start MTL function during LEOP
 File: H_FCP_DHS_1026.xls
 Author: S. Manganelli



Procedure Summary

Objectives

The procedure is intended to be run during LEOP to start the MTL function.

Summary of Constraints

n/a

Spacecraft Configuration

Start of Procedure

MTL function stopped

End of Procedure

MTL function running

Reference File(s)

Input Command Sequences

Output Command Sequences

HFD1026A
 HFD1026B
 HFD1026C
 HFD1026E
 HFD1026F

Referenced Displays

ANDs	GRDs	SLDs
ZAZAI999		
ZAZAQ999		
ZAZ7A999		
ZAZ8T999		

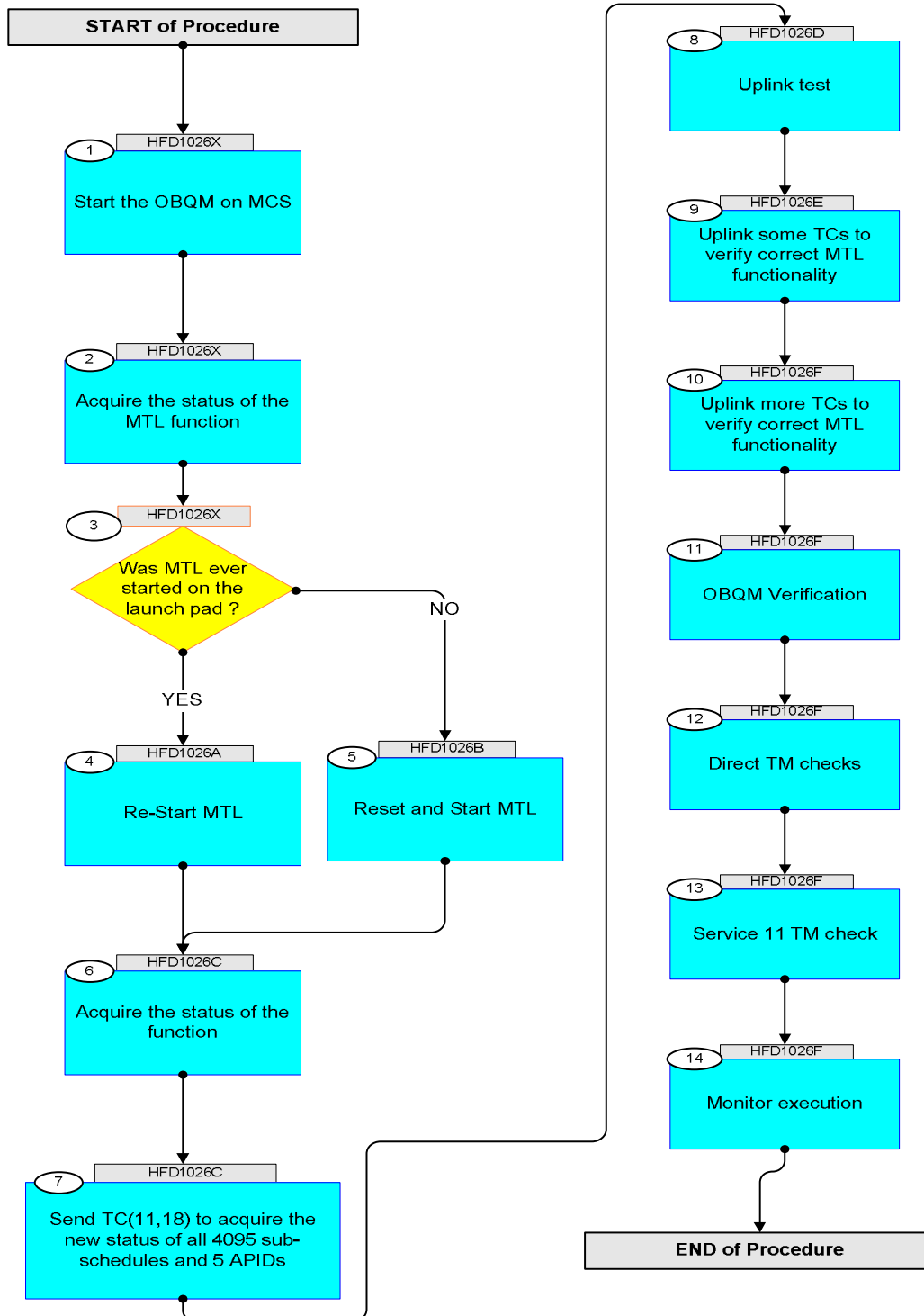
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
17/09/08		1	Created	cmevi-hp	
02/12/08		2	Restructured to include enabling of all subschedules and a short functional test	S. Manganelli	
12/01/09	2	3	Updated following OBSW 3.8	S. Manganelli	
05/02/09		4	TM packet cheks added at the end of step 4.	cmevi-hp	
05/02/09		5	Command to reset MTL removed because first start of MTL function should have been done by AIV on Launch pad.	cmevi-hp	
05/02/09		6	Parameter check added at step 6	cmevi-hp	
05/03/09	2.1	7	Inserted IF statement, added some TM checks	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					
HFD1026X TC Seq. Name : HFD1026X (Start MTL in LEOP) TimeTag Type: Sub Schedule ID: <input type="checkbox"/>					
1		Start the OBQM on MCS		Next Step: 2	
2		Acquire the status of the MTL function		Next Step: 3	
		Verify Telemetry MtlSts DEH26170 = Stopped		AND=ZAZAI999	
		Verify Telemetry MtlFirstStrtSts DENAE170		AND=ZAZAQ999	
		Verify Telemetry MtlResetStatus DENAD170		AND=ZAZAQ999	
		Verify Telemetry MtlInitInProgr DENAC170		AND=ZAZAQ999	
3		Was MTL ever started on the launch pad ? type: [If]		Next Step: YES 4 NO 5	
End of Sequence					
HFD1026A TC Seq. Name : HFD1026A (Start MTL in LEOP) TimeTag Type: N Sub Schedule ID: <input type="checkbox"/>					
4		Re-Start MTL		Next Step: 6	
		Execute Telecommand StartOnBoardSched_Rb0R10 TC Control Flags : GBM IL DSE --Y -- -- Subsch. ID : 10 Det. descr. : StartOnBoardScheduling TC(8,1,105) + Rebuild = 0 + Release = 0	DCS0G170	TC	
		TC should be executed immediately			
End of Sequence					

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
<p>TC Seq. Name : HFD1026B (First Start MTL leap)</p> <p>HFD1026B</p> <p>TimeTag Type: B Sub Schedule ID:</p> <p>□</p>					
5		Reset and Start MTL		Next Step: 6	
		Execute Telecommand <p style="text-align: center;">ResetTcSchedule</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 500 Det. descr. : ResetTcSchedule, TC(11,3), no application data	DC58F170	TC	
		Execute Telecommand <p style="text-align: center;">StartOnBoardSched_Rb0R10</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : StartOnBoardScheduling TC(8,1,105) + Rebuild = 0 + Release = 0	DCS0G170	TC	
		Wait about 12 minutes for TC execution			
<p>End of Sequence</p> <p>TC Seq. Name : HFD1026C (MTL test leap c)</p> <p>HFD1026C</p> <p>TimeTag Type: N Sub Schedule ID: 500</p> <p>□</p>					
6		Acquire the status of the function		Next Step: 7	
		Verify Telemetry <p style="text-align: center;">MtlSts</p> <p style="text-align: right;">DEH26170</p> <p style="text-align: center;">= Running</p>		AND=ZAZAI999	
		Verify Telemetry <p style="text-align: center;">MtlFirstStrtSts</p> <p style="text-align: right;">DENAE170</p>		AND=ZAZAQ999	
		Verify Telemetry <p style="text-align: center;">MtlResetStatus</p> <p style="text-align: right;">DENAD170</p>		AND=ZAZAQ999	
		Verify Telemetry <p style="text-align: center;">MtlInitInProgr</p> <p style="text-align: right;">DENAC170</p>		AND=ZAZAQ999	
6.1		Send TC(11,18) to acquire the new status of all 4095 sub-schedules and 5 APIDs			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment																								
		<p>When this request is received, a Command Schedule Status Report (set of TM(11,19) packets) will be generated containing the release status (enabled or disabled) of all five Application Processes and of all 4095 Subschedules.</p> <p>When the dump of TM(11,19) has ended, an Event Report TM(5,1,105,12) indicating the number of reported TM(11,19) is issued.</p>																											
		<p>Execute Telecommand</p> <p style="text-align: center;">RetStatusOfCmdSchedule</p> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10 Det. descr. : ReportStatusOfCmdSchedule, TC(11,18)</p>	DC89F170	TC																									
6.2		<p>Enable release of all TCs (all Subschedules and all APIDs)</p>																											
		<p>Execute Telecommand</p> <p style="text-align: center;">EnableRelOfTcs_Templ</p> <p>Command Parameter(s) :</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;">N_Repetition</td> <td style="width: 20%;">DH041170</td> <td style="width: 40%;">1 <dec> (Def)</td> </tr> <tr> <td>SubscheduleId</td> <td>DH053170</td> <td>0 <dec></td> </tr> <tr> <td>M_nrOfApids</td> <td>DH054170</td> <td>5 <dec></td> </tr> <tr> <td>APID_for_TC_11-x</td> <td>DH235170</td> <td>CDMS</td> </tr> <tr> <td>APID_for_TC_11-x</td> <td>DH235170</td> <td>ACMS</td> </tr> <tr> <td>APID_for_TC_11-x</td> <td>DH235170</td> <td>HIFI</td> </tr> <tr> <td>APID_for_TC_11-x</td> <td>DH235170</td> <td>PACS</td> </tr> <tr> <td>APID_for_TC_11-x</td> <td>DH235170</td> <td>SPIRE</td> </tr> </table> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10 Det. descr. : TEMPLATE EnableReleaseOfTcs, TC(11,1)</p>	N_Repetition	DH041170	1 <dec> (Def)	SubscheduleId	DH053170	0 <dec>	M_nrOfApids	DH054170	5 <dec>	APID_for_TC_11-x	DH235170	CDMS	APID_for_TC_11-x	DH235170	ACMS	APID_for_TC_11-x	DH235170	HIFI	APID_for_TC_11-x	DH235170	PACS	APID_for_TC_11-x	DH235170	SPIRE	DCT22170	TC	
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APID_for_TC_11-x	DH235170	CDMS																											
APID_for_TC_11-x	DH235170	ACMS																											
APID_for_TC_11-x	DH235170	HIFI																											
APID_for_TC_11-x	DH235170	PACS																											
APID_for_TC_11-x	DH235170	SPIRE																											
7		<p>Send TC(11,18) to acquire the new status of all 4095 sub-schedules and 5 APIDs</p>		Next Step: 8																									
		<p>When this request is received, a Command Schedule Status Report (set of TM(11,19) packets) will be generated containing the release status (enabled or disabled) of all five Application Processes and of all 4095 Subschedules.</p> <p>When the dump of TM(11,19) has ended, an Event Report TM(5,1,105,12) indicating the number of reported TM(11,19) is issued.</p>																											
		<p>Execute Telecommand</p> <p style="text-align: center;">RetStatusOfCmdSchedule</p> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10 Det. descr. : ReportStatusOfCmdSchedule, TC(11,18)</p>	DC89F170	TC																									
End of Sequence																													

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<p>HFD1026D</p> <p>TC Seq. Name :HFD1026D (MTL test LEOP d)</p> <p>TimeTag Type: Sub Schedule ID:</p> <p style="text-align: center;">□</p>					
8		Uplink test		Next Step: 9	
		Verify that the Time Correlation is valid and accurate and fixed gradient uplink. Choose an execution time T about 10 minutes in the future. Uplink the two following sequences using for both the same execution time T.			
		Verify Telemetry	MtlTcCnt DE82F170 = 0 <dec>	AND=ZAZ7A999	
End of Sequence					
<p>HFD1026E</p> <p>TC Seq. Name :HFD1026E (MTL test LEOP e)</p> <p>TimeTag Type: Sub Schedule ID:</p> <p style="text-align: center;">□</p>					
9		Uplink some TCs to verify correct MTL functionality		Next Step: 10	
	ET=TR+00.00.00 UT=+	Execute Telecommand	ConnectionTest DC810180	TC	
		TC Control Flags : Subsch. ID : 10 Det. descr. : Perform Connection Test	GBM IL DSE --Y -- ---		
	ET=TR+00.00.30 UT=+	Execute Telecommand	ConnectionTest AC810070	TC	
		TC Control Flags : Subsch. ID : 20 Det. descr. : Perform Connection Test	GBM IL DSE --Y -- ---		
End of Sequence					
<p>HFD1026F</p> <p>TC Seq. Name :HFD1026F (MTL test LEOP f)</p> <p>TimeTag Type: Sub Schedule ID:</p> <p style="text-align: center;">□</p>					
10		Uplink more TCs to verify correct MTL functionality		Next Step: 11	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
	ET=TR+00.00.15 UT=+	Execute Telecommand ConnectionTest TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 500 Det. descr. : Perform Connection Test	DC810180	TC	
	ET=TR+00.00.45 UT=+	Execute Telecommand ConnectionTest TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 500 Det. descr. : Perform Connection Test	AC810070	TC	
11		OBQM Verification		Next Step: 12	
		The OBQM should show four TCs : the first at time T and the others spaced 15 seconds each. The first and third have subschedule ID 10, the second and fourth have subschedule ID 500.			
12		Direct TM checks		Next Step: 13	
		Verify Telemetry MtlTcCnt DE82F170	= 4 <dec>	AND=ZAZ8T999	
		Verify Telemetry MtlNextTcTime XM653991	Time T	AND=ZAZ8T999	
		Verify Telemetry MtlLastTcTime XM652991	Time T + 45 sec	AND=ZAZ8T999	
13		Service 11 TM check		Next Step: 14	
		Execute Telecommand ReptSummaryMtl Command Parameter(s) : N_Repetition DH041170 SubscheduleId DH053170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : ReportWhole MTL TcSchedule in summary form, TC(11,12)	DC86F170 1 <dec> (Def) 0 <dec>	TC	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand <p style="text-align: center;">ReportWholeTcSchedule</p> <i>Command Parameter(s) :</i> N_Repetition DH041170 SubscheduleId DH053170 <i>TC Control Flags :</i> GBM IL DSE --Y -- --- <i>Subsch. ID : 10</i> <i>Det. descr. : ReportWholeTcSchedule, TC(11,9)</i>	DC83F170	TC	
		The OBQM should show the TC uplink as verified by TM			
14		Monitor execution		Next Step: END	
		At the set time, the 4 TCs should execute. The related TM(17,2) should be received from CDMU and ACC. The TChistory should show the TCs as verified. The OBQM should show no TC left. Final TM checks :			
		Verify Telemetry MtlTcCnt DE82F170	= 0 <dec>	AND=ZAZ8T999	
		Verify Telemetry MtlNextTcTime XM653991		AND=ZAZ8T999	
		Verify Telemetry MtlLastTcTime XM652991		AND=ZAZ8T999	
End of Sequence					
End of Procedure					