

DTCP Activities
 File: H_GSP_SYS_DTCP.xls
 Author: F. Keck



Procedure Summary

Objectives

Perform Herschel DTCP activities

Summary of Constraints

Spacecraft Configuration

Start of Procedure

Autostack prepared with new MTL(s) from MPS
 Manual Stack 1 prepared with DTCP Sequence
 Manual Stack 2 prepared with Special Ops Commandings

End of Procedure

All DTCP activities performed

Reference File(s)

Input Command Sequences

HFD1014R
 HFD1014D
 HFD3037G

Output Command Sequences

HGYDTCP

Referenced Displays

ANDs	GRDs	SLDs
ZAZ7I999		MIMIC: Overview
ZAZ7P999		
ZAZ7T999		

Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
05/11/2008		1	Created	F. Keck	
13/12/2008		1.01	Validation : Update	F. Keck	
14/12/2008		1.02	Validation : Added branch if S/C mode is not nominal.	F. Keck	
17/12/2008		1.03	Validation : Improvements	F. Keck	
22/12/2008		1.04	Validation : Update	F. Keck	
07/01/2009		1.05	Validation : Replacing the No-TM-Part by a call to the No-TM-Recovery procedure	F. Keck	
07/01/2009	2	1.06	Validation : Adding some reference sequences	F. Keck	
04/03/2009	2.1	2	Update after Routine Ops simulations	F. Keck	
12/03/2009		2.01	Validation : Removing time-tags Removing called sequences from sequence export	F. Keck	
25/03/2009	2.2	2.02	Validation : Adding more table dumps Adding Interlocks	F. Keck	

Status : Version 13 - Updated
 Last Checkin: 31/03/2011

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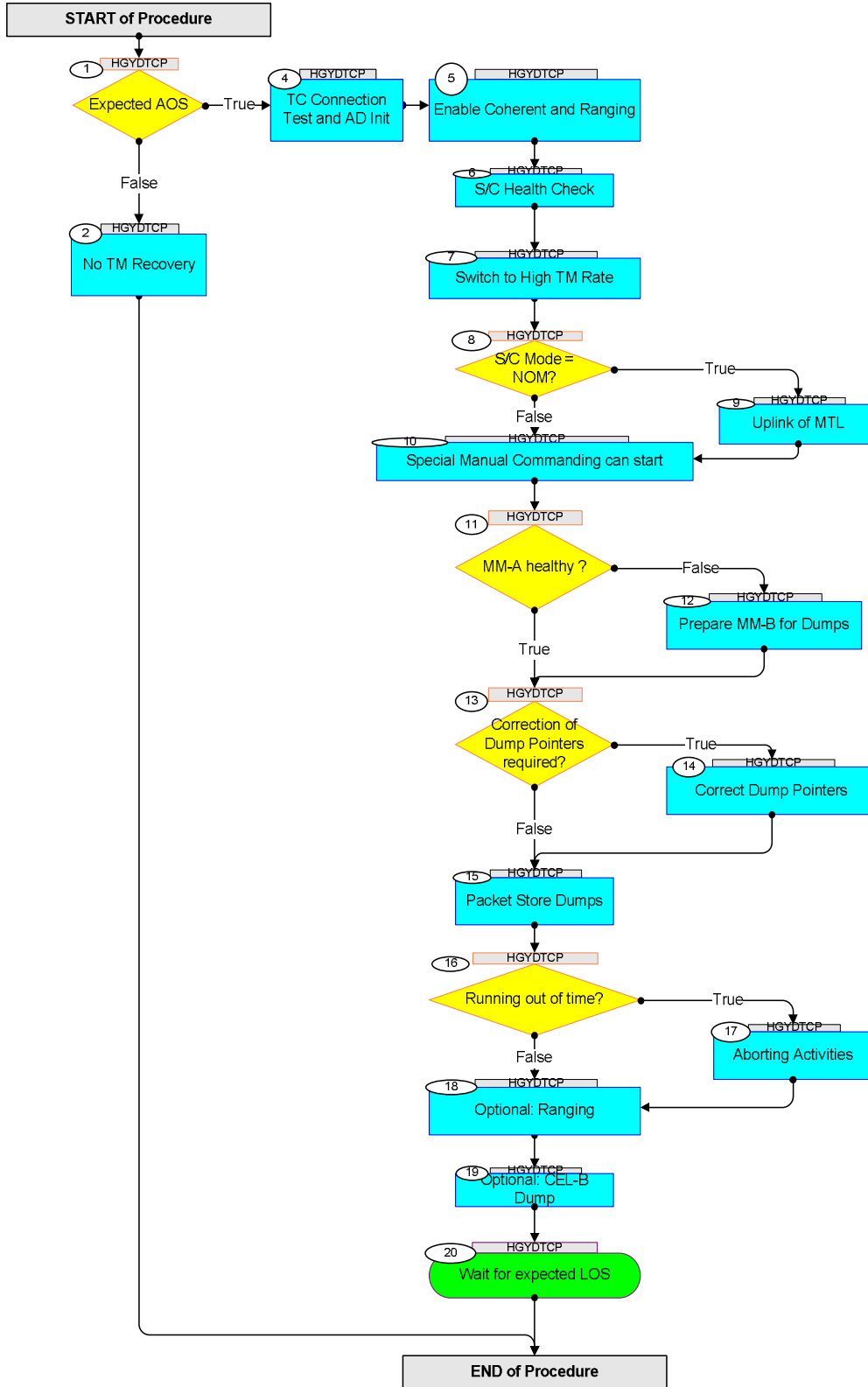


08/05/2009		3	Solving conflict between Interlock and Static PTV.	F. Keck	
18/05/2009		4	Leave Coherent enabled when switching to high TM rate.	F. Keck	
03/06/2009		5	Combining RNG switching with TM rate switching	F. Keck	
12/06/2009		6	Updated ECC communication	F. Keck	
21/09/2009		7	Updated comments and TTC chain 2 health check included	F. Keck	
21/09/2009	2.5	8	Typo correction	F. Keck	
05/02/2010	3	9	Expected failed TCs in case of EAM, update G/S chains naming convention, new MTL-TCO strategy, check OBQD for not matching entries	F. Keck	
02/09/2010		10	Improved handling in case of long CEL dumps.	F. Keck	
12/01/2011		11	Including SOI-37 and 41. Logging of TC uplink parameters. Interlock corrected.	F. Keck	
23/03/2011		12	Ignore SPID 11104109 in CEL-A check. Dump and deletion of CEL-B in MTL. New attachments "OOL Action Sheet" and "CEL and R/T Events Action Sheet". □	F. Keck	
31/03/2011	3.1	13	MTL uplink CRP attached. Updated action sheets. Comment added to contact On-Call SOE in case of MTL upload problems.	F. Keck	

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Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
Beginning of Procedure				
<p><i>TC Seq. Name : HGYDTCP ()</i></p> <p><i>TimeTag Type: N</i> <i>Sub Schedule ID:</i></p> <p style="text-align: center;">□</p>				
1	AOS	<i>Expected AOS</i>		Next Step: False 2 True 3
		Check for - the TM flag on the Stacks to become green - and/or the TMPH for incoming packets - the NCTRS R/T links to become green		
2		<i>No TM Recovery</i>		Next Step: END
		Most steps (except the S/C reconfigurations by blind commanding) of the "No TM Recovery" Procedure may be run by the SPACON alone.		
		Execute Procedure: H_CRP_SYS_NOTM No TM Recovery		
3		<i>Check S/C Mode</i>		Next Step: 4
		Verify Telemetry <div style="display: flex; justify-content: space-around;"> CurrentMode DEL34170 = Nominal </div>		MIMIC: Overview
		If NOM: Continue the normal DTCP activities If S/C Mode is not NOM, contact the On-Call FCT person. The On-Call FCT person has to come in to run H_CRP_SYS_CHECK (called by H_CRP_SYS_ANOM). If EAM: Continue the normal DTCP activities (health checks and dumps), but do not upload the new MTL (MTL function is disabled in EAM). Support the On-Call FCT person in the checkout activities. If not NOM or EAM: Exit this procedure and wait for the On-Call FCT person. Support the On-Call FCT person in the checkout activities.		
4		<i>TC Connection Test and AD Init</i>		Next Step: 5
4.1		<i>Wait for Uplink Sweep Completion</i>		□

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Wait until RF and Bit Lock is available. Log the values of following TM parameters:		
		Verify Telemetry XPD1_RX1_PLL_SP RMB11442	log value	AND=ZAZ7I999
		Verify Telemetry RX1_TEMP RMB02442	log value	AND=ZAZ7I999
4.2		First Connection Test		<input type="checkbox"/>
		Send the first connection test in BD mode and check the FARM-B counter (Overview MIMIC) increasing by 1.		
		Execute Telecommand ConnectionTest TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : Perform Connection Test	DC810180	
		If this first connection test has failed, run No-TC-Recovery (H_CRP_SYS_NOTC) and contact On-Call FCT person if required.		
4.3		Initialise AD		<input type="checkbox"/>
		Execute Telecommand FARM1 Unlock Directive TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 30 Det. descr. : FARM1 Unlock Directive	GCUNL000	
		Execute Telecommand FARM1 SET V-R- Directive Command Parameter(s) : V-R- Value GPVAL000 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 30 Det. descr. : FARM1 SET V-R- Directive	GCSET000 0 <dec>	
		Switch to AD mode for all following commanding. Send another Connection Test in AD mode and check the AD counter (Overview MIMIC) increasing by 1.		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch																																																																																																																				
		Execute Telecommand <p style="text-align: right;">ConnectionTest</p> <i>TC Control Flags :</i> Subsch. ID : 10 Det. descr. : Perform Connection Test	DC810180																																																																																																																					
5		Enable Coherent and Ranging COH and RNG should be enabled by the MTL by default.		Next Step: 6																																																																																																																				
5.1		Enable Coherent If COH is already ON, skip this TC.		<input type="checkbox"/>																																																																																																																				
		Execute Telecommand <p style="text-align: right;">XpndConfigure_Templ</p> <i>Command Parameter(s) :</i> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 30%; text-align: right;">XpndId</td> <td style="width: 20%; text-align: right;">DH018170</td> <td style="width: 20%;">XpndInUseLogic</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfMask1Unus</td> <td style="text-align: right;">DH220170</td> <td>0 <dec> (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfMask1_ER</td> <td style="text-align: right;">DH221170</td> <td>OFF (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfMask1_CM</td> <td style="text-align: right;">DH222170</td> <td>ON</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfMask1_RM</td> <td style="text-align: right;">DH223170</td> <td>OFF (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfMask1_HRM</td> <td style="text-align: right;">DH224170</td> <td>OFF (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfMask1_MRM</td> <td style="text-align: right;">DH225170</td> <td>OFF (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfMask1LRM1</td> <td style="text-align: right;">DH226170</td> <td>OFF (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfMask1LRM2</td> <td style="text-align: right;">DH227170</td> <td>OFF (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfMask1_RMI</td> <td style="text-align: right;">DH228170</td> <td>Ignore (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfMask1_TMI</td> <td style="text-align: right;">DH229170</td> <td>Ignore (Def)</td> </tr> <tr> <td colspan="4"> </td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfMask2_PG</td> <td style="text-align: right;">DH230170</td> <td>OFF (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfMask2Unus</td> <td style="text-align: right;">DH231170</td> <td>0 <dec> (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfMask2OPLS</td> <td style="text-align: right;">DH232170</td> <td>Ignore (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfDW1Unus</td> <td style="text-align: right;">DH020170</td> <td>0 <dec> (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfDW1_ER</td> <td style="text-align: right;">DH021170</td> <td>OFF (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfDW1_CM</td> <td style="text-align: right;">DH022170</td> <td>ON</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfDW1_RM</td> <td style="text-align: right;">DH023170</td> <td>OFF (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfDW1_HRM</td> <td style="text-align: right;">DH024170</td> <td>OFF (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfDW1_MRM</td> <td style="text-align: right;">DH025170</td> <td>ON</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfDW1LRM1</td> <td style="text-align: right;">DH026170</td> <td>OFF (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfDW1LRM2</td> <td style="text-align: right;">DH027170</td> <td>OFF (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfDW1_RMI</td> <td style="text-align: right;">DH028170</td> <td>0.6</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfDW1_TMI</td> <td style="text-align: right;">DH029170</td> <td>1.2</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfDW2_PG</td> <td style="text-align: right;">DH030170</td> <td>OFF (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfDW2Unus</td> <td style="text-align: right;">DH031170</td> <td>0 <dec> (Def)</td> </tr> <tr> <td colspan="4"> </td> </tr> <tr> <td></td> <td style="text-align: right;">XpndConfDW2OPLS</td> <td style="text-align: right;">DH032170</td> <td>-4</td> </tr> </table> <i>TC Control Flags :</i> Subsch. ID : 10 Det. descr. : TEMPLATE Configure Xpnd TC(8,4,115,9)		XpndId	DH018170	XpndInUseLogic		XpndConfMask1Unus	DH220170	0 <dec> (Def)		XpndConfMask1_ER	DH221170	OFF (Def)		XpndConfMask1_CM	DH222170	ON		XpndConfMask1_RM	DH223170	OFF (Def)		XpndConfMask1_HRM	DH224170	OFF (Def)		XpndConfMask1_MRM	DH225170	OFF (Def)		XpndConfMask1LRM1	DH226170	OFF (Def)		XpndConfMask1LRM2	DH227170	OFF (Def)		XpndConfMask1_RMI	DH228170	Ignore (Def)		XpndConfMask1_TMI	DH229170	Ignore (Def)						XpndConfMask2_PG	DH230170	OFF (Def)		XpndConfMask2Unus	DH231170	0 <dec> (Def)		XpndConfMask2OPLS	DH232170	Ignore (Def)		XpndConfDW1Unus	DH020170	0 <dec> (Def)		XpndConfDW1_ER	DH021170	OFF (Def)		XpndConfDW1_CM	DH022170	ON		XpndConfDW1_RM	DH023170	OFF (Def)		XpndConfDW1_HRM	DH024170	OFF (Def)		XpndConfDW1_MRM	DH025170	ON		XpndConfDW1LRM1	DH026170	OFF (Def)		XpndConfDW1LRM2	DH027170	OFF (Def)		XpndConfDW1_RMI	DH028170	0.6		XpndConfDW1_TMI	DH029170	1.2		XpndConfDW2_PG	DH030170	OFF (Def)		XpndConfDW2Unus	DH031170	0 <dec> (Def)						XpndConfDW2OPLS	DH032170	-4		
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		Verify Telemetry Coherent XD243991	= ON	MIMIC: Overview
		A short TM drop could happen. Should the COH command result in a loss of TM, ask ECC to re-sweep TM.		
5.2		Enable Ranging		☐
		If RNG is already ON, skip this TC.		
		Execute Telecommand XpndConfigure_Templ Command Parameter(s) : XpndId DH018170 XpndInUseLogic XpndConfMask1Unus DH220170 0 <hex> (Def) XpndConfMask1_ER DH221170 OFF (Def) XpndConfMask1_CM DH222170 OFF (Def) XpndConfMask1_RM DH223170 ON XpndConfMask1_HRM DH224170 OFF (Def) XpndConfMask1_MRM DH225170 OFF (Def) XpndConfMask1LRM1 DH226170 OFF (Def) XpndConfMask1LRM2 DH227170 OFF (Def) XpndConfMask1_RMI DH228170 Ignore (Def) XpndConfMask1_TMI DH229170 Ignore (Def) XpndConfMask2_PG DH230170 OFF (Def) XpndConfMask2Unus DH231170 0 <dec> (Def) XpndConfMask2OPLS DH232170 Ignore (Def) XpndConfDW1Unus DH020170 0 <dec> (Def) XpndConfDW1_ER DH021170 OFF (Def) XpndConfDW1_CM DH022170 OFF (Def) XpndConfDW1_RM DH023170 ON XpndConfDW1_HRM DH024170 OFF (Def) XpndConfDW1_MRM DH025170 ON XpndConfDW1LRM1 DH026170 OFF (Def) XpndConfDW1LRM2 DH027170 OFF (Def) XpndConfDW1_RMI DH028170 0.6 XpndConfDW1_TMI DH029170 1.2 XpndConfDW2_PG DH030170 OFF (Def) XpndConfDW2Unus DH031170 0 <dec> (Def) XpndConfDW2OPLS DH032170 -4 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Configure Xpnd TC(8,4,115,9)	DCT18170	
		Verify Telemetry Ranging XD242991	= ON	MIMIC: Overview
		Inform ECC that ranging is enabled and that they can start the ranging operation. Do <u>not</u> wait for ECC's confirmation and continue.		
6		S/C Health Check		Next Step: 7

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		ACC Connection Test		
		Execute Telecommand <p style="text-align: right;">ConnectionTest</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <i>Subsch. ID : 20</i> <i>Det. descr. : Perform Connection Test</i>	AC810070	
		If a connection test to an instrument fails, check the status of the instrument if not already done (Overview MIMIC).		
		HIFI Connection Test (skip the command if the instrument is off)		
		Execute Telecommand <p style="text-align: right;">HIFI_connection_test</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <i>Subsch. ID : 70</i> <i>Det. descr. : Generate a connection test report</i>	HC176289	
		PACS Connection Test (skip the command if the instrument is off) Warning: If S/C mode is EAM, the ground commanding to PACS is disabled and this TC is expected to fail. Skip it in this case.		
		Execute Telecommand <p style="text-align: right;">DPU_TEST_CONN</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <i>Subsch. ID : 90</i> <i>Det. descr. : DPU STARTS THE ARE YOU ALIVE PROCEDURE</i>	PC023380	
		SPIRE Connection Test (skip the command if the instrument is off)		
		Execute Telecommand <p style="text-align: right;">TEST_CONNECTION</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <i>Subsch. ID : 370</i> <i>Det. descr. : PERFORM CONNECTION TEST</i>	SCL00500	
6.3		Dumps		<input type="checkbox"/>
		Warning: If S/C mode is EAM, the MTL function is disabled and following first 3 commands are expected to fail. Skip them in this case.		

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		Execute Telecommand <p style="text-align: right;">RptOBoardSchedSts</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE ---Y LC ---</p> Subsch. ID : 10 Det. descr. : Report on-noard scheduling status TC(8,5,105)	DC92F170	
		Execute Telecommand <p style="text-align: right;">RetStatusOfCmdSchedule</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE --- LC -Y-</p> Subsch. ID : 10 Det. descr. : TEMPLATE ReportStatusOfCmdSchedule, TC(11,18), no appl. data	DCT25170	
		Execute Telecommand <p style="text-align: right;">ReptSummaryMtl</p> Command Parameter(s) : <p style="text-align: right;">N_Repetition DH041170</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE --- LC -Y-</p> Subsch. ID : 10 Det. descr. : ReportWhole MTL TcSchedule in summary form, TC(11,12)	DC86F170 0 <dec>	
		Execute Telecommand <p style="text-align: right;">ReptEvtActTable</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE --- LC ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Report The contents of the event/action table TC(19,6)	DCT86170	
		Execute Telecommand <p style="text-align: right;">ReportMonitList</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE --- LC ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Report current monitoring list, TC(12,8) no appl. data	DC51F170	

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		Execute Telecommand <p style="text-align: right;">ReptOnBoardObcps</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --- LC ---</p> <i>Subsch. ID : 10</i> Det. descr. : TEMPLATE Report list of on-board OBCPs TC(18,8)	DCT76170	
		Execute Telecommand <p style="text-align: right;">ReptActiveObcps</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --- LC ---</p> <i>Subsch. ID : 10</i> Det. descr. : TEMPLATE Report list of Active OBCPs TC(18,10)	DCT77170	
		Execute Telecommand <p style="text-align: right;">ReportFdirManagSts</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --- LC ---</p> <i>Subsch. ID : 10</i> Det. descr. : Report Fdir Management Status, TC(8,5,116)	DCN02170	
		Execute Telecommand <p style="text-align: right;">ReportPktStrAlloc</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --- LC ---</p> <i>Subsch. ID : 10</i> Det. descr. : Report Packet Store Allocation	DC809160	
		Execute Telecommand <p style="text-align: right;">RepDownlinkTMStorage</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --- LC ---</p> <i>Subsch. ID : 10</i> Det. descr. : Report Telemetry Packets Down-linking/ Storage Status	DC141160	
		Execute Telecommand <p style="text-align: right;">ReportThCtrlManagSts</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --- LC ---</p> <i>Subsch. ID : 10</i> Det. descr. : Report Thermal Control Management Status, TC(8,5,114)	DCN11170	

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		Execute Telecommand TtcReportStatus <i>TC Control Flags :</i> GBM IL DSE --- LC --- <i>Subsch. ID : 10</i> Det. descr. : TTC: Report TTC Management Status TC(8,5,115)	DC30F170	
		Execute Telecommand ReportPayloadManagSts <i>TC Control Flags :</i> GBM IL DSE --- LC --- <i>Subsch. ID : 10</i> Det. descr. : Report Payload Management Status TC(8,5,111)	DC12M170	
		Execute Telecommand EvFiltDumpStat_Templ <i>TC Control Flags :</i> GBM IL DSE --- -- --- <i>Subsch. ID : 10</i> Det. descr. : TEMPLATE Dump Event Filtering Statistics TC(8,4,117,2)	DCT52170	
6.4		Wait for CEL-A Dump Completion		<input type="checkbox"/>
		Should the CEL-A dump take longer, wait here until completion.		
6.5		Delete CEL-A		<input type="checkbox"/>
		Comment: The following sequence deletes by default both CELs, but will not have any effect on CEL-B (the delete TC only deletes the dumped parts of a CEL).		
		Execute Sequence HFD1014R Delete CELs RealTime v25 Sequence Grouping = - <i>SSID : 0</i>		SEQ
7		Switch to High TM Rate		Next Step: 8
		This switching to high TM rate includes disabling of Ranging as well.		

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7.1		<i>ECC Interaction</i>		<input type="checkbox"/>																																	
		<p>If Backup Chain is in medium TM rate (usually it's already in high for AOS):</p> <p>Inform ECC that TM rate will be changed to high and that Backup Chain (usually 2) shall be configured for high TM.</p> <p>Wait until ECC confirmed the reconfiguration of the Backup Chain.</p>																																			
		<p>Always inform ECC:</p> <p>Announce the upcoming change of the S/C TM rate (and that Ranging must be stopped).</p>																																			
7.2		<i>Switch to High TM Rate</i>		<input type="checkbox"/>																																	
		<p>Send the following 2 blocked TCs in BD mode.</p> <p>Loss of TM via Prime Chain (usually 1) is expected.</p> <p>NCTRS: The VC-0/4 links connected to Backup Chain should change from INPUT to PROCESS (while the Prime Chain VC-0/4 links should change from PROCESS to INPUT). So no complete loss of TM is expected for the MCS.</p>																																			
		<p>Execute Telecommand</p> <p style="text-align: center;">XpndConfigure_Templ</p> <p>Command Parameter(s) :</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">XpndId</td> <td style="width: 30%;">DH018170</td> <td style="width: 30%;">XpndInUseLogic</td> </tr> <tr> <td>XpndConfMask1Unus</td> <td>DH220170</td> <td>11 <bin></td> </tr> <tr> <td>XpndConfMask1_ER</td> <td>DH221170</td> <td>ON</td> </tr> <tr> <td>XpndConfMask1_CM</td> <td>DH222170</td> <td>ON</td> </tr> <tr> <td>XpndConfMask1_RM</td> <td>DH223170</td> <td>ON</td> </tr> <tr> <td>XpndConfMask1_HRM</td> <td>DH224170</td> <td>ON</td> </tr> <tr> <td>XpndConfMask1_MRM</td> <td>DH225170</td> <td>ON</td> </tr> <tr> <td>XpndConfMask1LRM1</td> <td>DH226170</td> <td>ON</td> </tr> <tr> <td>XpndConfMask1LRM2</td> <td>DH227170</td> <td>ON</td> </tr> <tr> <td>XpndConfMask1_RMI</td> <td>DH228170</td> <td>111 <bin></td> </tr> <tr> <td>XpndConfMask1_TMI</td> <td>DH229170</td> <td>1111 <bin></td> </tr> </table>	XpndId	DH018170	XpndInUseLogic	XpndConfMask1Unus	DH220170	11 <bin>	XpndConfMask1_ER	DH221170	ON	XpndConfMask1_CM	DH222170	ON	XpndConfMask1_RM	DH223170	ON	XpndConfMask1_HRM	DH224170	ON	XpndConfMask1_MRM	DH225170	ON	XpndConfMask1LRM1	DH226170	ON	XpndConfMask1LRM2	DH227170	ON	XpndConfMask1_RMI	DH228170	111 <bin>	XpndConfMask1_TMI	DH229170	1111 <bin>	DCT18170	
XpndId	DH018170	XpndInUseLogic																																			
XpndConfMask1Unus	DH220170	11 <bin>																																			
XpndConfMask1_ER	DH221170	ON																																			
XpndConfMask1_CM	DH222170	ON																																			
XpndConfMask1_RM	DH223170	ON																																			
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XpndConfMask1_MRM	DH225170	ON																																			
XpndConfMask1LRM1	DH226170	ON																																			
XpndConfMask1LRM2	DH227170	ON																																			
XpndConfMask1_RMI	DH228170	111 <bin>																																			
XpndConfMask1_TMI	DH229170	1111 <bin>																																			

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		XpndConfMask2_PG DH230170 XpndConfMask2Unus DH231170 XpndConfMask2OPLS DH232170 XpndConfDW1Unus DH020170 XpndConfDW1_ER DH021170 XpndConfDW1_CM DH022170 XpndConfDW1_RM DH023170 XpndConfDW1_HRM DH024170 XpndConfDW1_MRM DH025170 XpndConfDW1LRM1 DH026170 XpndConfDW1LRM2 DH027170 XpndConfDW1_RMI DH028170 XpndConfDW1_TMI DH029170 XpndConfDW2_PG DH030170 XpndConfDW2Unus DH031170	ON 1111111111 <bin> 1111 <bin> 0 <dec> (Def) OFF (Def) ON OFF (Def) ON OFF (Def) OFF (Def) OFF (Def) OFF (Def) 0 (Def) 1.2 OFF (Def) 0 <dec> (Def)	
		XpndConfDW2OPLS DH032170 TC Control Flags : GBM IL DSE -SY -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Configure Xpnd TC(8,4,115,9)	-4	
	ET=+ UT=+00.00.05	Execute Telecommand TtcConfigTmEncInUseHigh TC Control Flags : GBM IL DSE -E- -- --- Subsch. ID : 10 Det. descr. : TTC: Config TM Enc In Use Mode High 1.5Mbps, TC(8,4,115,20)	DC27F170	
		Check TM rate and Ranging status on Overview MIMIC.		
		Verify Telemetry Ranging XD242991	= OFF	MIMIC: Overview
7.3		ECC Interaction		<input type="checkbox"/>
		1) ECC should confirm good TM via Backup Chain. 2) Request ECC to configure Prime Chain for high TM as well. 3) TM via Prime Chain should come back		
7.4		NCTRS: Set Prime Chain links back to process		<input type="checkbox"/>
		Change the Prime Chain VC-0/4 links back to PROCESS (then the Backup Chain VC-0/4 links should go back to INPUT).		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
8		S/C Mode = NOM?		Next Step: False 10 True 9
		Verify Telemetry CurrentMode DEL34170	= Nominal	MIMIC: Overview
9		Uplink of MTL		Next Step: 10
		<p>Check if TCO is valid (and time stamping must be in SP mode, not TF).</p> <p>If TCO is not valid, log this issue. Load sequence HFD1034 on top of MSTK-1 and release the TCs; this will increase the VC-0 rate and provide more time packets in a short time.</p> <p>If the TCO is still not valid, try sequence HFD1034 again, but reset the TCO before releasing the TCs.</p> <p>If the TCO is still not valid, you cannot upload the new MTL. Contact immediately the SWS On-Call person.</p> <p>If this problem cannot be fixed during the DTCP, inform the FCT On-Call person about the failed MTL upload.</p>		
		TCO gradient must be fixed for MTL upload !!!		
		Select TCSPACON - TCO Tab - Control Gradient		
		<p>The normal situation is that the TCO Gradient is fixed (in this case it is yellow in colour).</p> <p>If it's not fixed (should not be the case...), click on "Fixed Gradient" and a small window opens asking you confirm; when the Gradient is fixed it is yellow in colour.</p>		
		Ensure AD mode is selected on the ASTK before starting the MTL upload.		
		Start ASTK upload and continue this procedure while MTL upload is ongoing.		
9.1		MTL Upload		<input type="checkbox"/>

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>Each MTL is split in 2 parts: - MTL part A (H_xxxx_A_***HERS) - MTL part B (H_xxxx_B_***HERS)</p> <p>In a nominal case these 2 files will be uploaded in every DTCP (the MTL's OD number should be today's DTCP number + 1).</p> <p>The TCO gradient must only be unfixed/fixed between A and B (never between B and A).</p>		
		<p>If there are special MTL instructions provided by the On-Call SOE or SOM (e.g. on DTCP sheet, in logbook or handover information): Those instructions override the instructions given here.</p> <p>In case of doubts contact On-Call SOE.</p>		
		<p>If yesterday's MTL part B was not uploaded (probably due to an instrument anomaly) and no special MTL instructions were provided by On-Call SOE or SOM:</p> <ol style="list-style-type: none"> 1) Uplink yesterday's MTL part B (H_xxxx_B_***HERS) (the MTL's OD number should be today's DTCP number) 2) Leave TCO gradient fixed! 		
		<p>Normal uplink of today's MTL part A: (the MTLs OD number should be today's DTCP number+1)</p> <ol style="list-style-type: none"> 1) Uplink of MTL part A (H_xxxx_A_***HERS) 2) Unfix TCO gradient 3) Wait for the next TCO packet (SPID 240007998). Option to speed up the VC-0 rate (to get a new time packet earlier): Run sequence HFD1034 4) Fix TCO gradient 		
		<p>In case of "severe instrument failure" (declared by On-Call SOE or SOM):</p> <ul style="list-style-type: none"> - Do not uplink today's MTL part B - Log this for the SPACON handover for next DTCP <p>Info: - Special MTL instructions for the next days must be provided by On-Call SOE or SOM</p>		
		<p>If no "severe instrument failure": Normal uplink of today's MTL part B: (the MTLs OD number should be today's DTCP number+1)</p> <ol style="list-style-type: none"> 1) Uplink of MTL part B (H_xxxx_B_***HERS) 2) Leave TCO gradient fixed! 		
9.2		Report MTL summary after MTL upload		<input type="checkbox"/>

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>This command must not be sent while the MTL upload is ongoing !</p> <p>The command must be loaded and sent manually on MSTK-1.</p> <p>Continue this procedure, but don't forget to load this command on top of the MSTK and release it when the MTL upload is completed.</p> <p>When loading this TC the Repetition Counter must be set to 0 (default is 1).</p>		
		<p>Execute Telecommand</p> <p style="text-align: right;">ReptSummaryMtl</p> <p>Command Parameter(s) :</p> <p style="text-align: right;">N_Repetition DH041170</p> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10 Det. descr. : ReportWhole MTL TcSchedule in summary form, TC(11,12) This Telecommand will not be included in the export</p>	<p>DC86F170</p> <p>0 <dec></p>	
9.2.1		OBQD Check		□
		<p>After the MTL summary report, use the OBQD to find not matching entries.</p> <p>Comment: The completeness of a MTL uplink is guaranteed by the AD mode. This step is to check that the execution times on board fit to the expected ones on ground.</p>		
		<p>Attached to the procedure are following pages, which describe the required actions in the currently foreseen cases:</p> <ul style="list-style-type: none"> - Real MISMATCH indication in a "nominal" case - Real MISMATCH indication due to uplink problem - False MISMATCH indication - MISMATCH together with UNEXPECTED indication <p>Should a new case happen that is different from the ones listed above, contact the On-Call SOE (in doubts as well).</p> <p>The correct upload of the complete MTL is important; if you run into trouble which you cannot solve, contact the On-Call SOE.</p>		
10		Special Manual Commanding can start		Next Step: 11

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>Special Operations can start in parallel on MSTK-2.</p> <p>Depending on the Special Operations Request, this can be performed by the SPACON or by a SOE.</p> <p>SPACONs must never run a procedure alone if they have not been trained for this procedure.</p> <p>Should the required SOE not arrive to run the procedure, contact the On-Call FCT person.</p>		
11		MM-A healthy ?		Next Step: False 12 True 13
		<p>In case of a failed MM-A the S/C will not stop routine operations, but continue via MM-B.</p> <p>Check status of both MMs (CDMU MIMIC).</p> <p>If MM-A is healthy: Continue as normal.</p> <p>If not, but MM-B is healthy: Use MM-B</p> <p>If both MMs are unhealthy: No Packet Store dumps can be performed. Contact On-Call FCT person.</p>		
12		Prepare MM-B for Dumps		Next Step: 13
12.1		Synchronise Mass Memories		<input type="checkbox"/>
		Do only perform synchronisations for packet stores, which dumps were completely performed in previous DTCP; i.e. not for packet stores, which dumps were aborted or not done at all.		
		The packet store order in following sequences are 0-1-2-3. Be careful, the dump order was 1-2-0-3. Do not get confused with the times to insert. Double check!		
		When loading the sequence the times for all 4 packet stores must be specified. To skip the synchronisation of a packet store, specify a dummy time and delete the TC after the sequence is loaded.		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>Each fp time must be set to the time when downlink was started (use the logged times from previous DTCP) for the corresponding store on the other SSMM, minus one minute.</p> <p>E.g. Store 0 dump started: 2009.100.13.48.00 T_st_0, time for store 128, must be set to: 2009.100.13.47.00</p> <p>Correspondence : SSMM A -> B 0 -> 128 1 -> 129 2 -> 130 3 -> 131</p>		
		<p>Execute Sequence HFD1014D SetDwnkTimeSSMMB v17 Sequence Grouping = -</p> <p>This Sequence Reference is not included in the generated sequence SSID : 0</p>		SEQ
12.2		Replace Packet Store Dump TCs		<input type="checkbox"/>
		Correct the DTCP Sequence by replacing the following dump TCs by sequence HFD1014B.		
13		Correction of Dump Pointers required?		Next Step: False 15 True 14
		In case of aborted dumps in the previous DTCP the packet store pointers must be corrected.		
14		Correct Dump Pointers		Next Step: 15
		<p>The required parameters for this activity should have been calculated as part of the previous DTCP and Post-Pass activities.</p> <p>The TCs should be already in place on the MSTK if done as part of the Pass-Preparation procedure.</p>		
		<p>Execute Telecommand</p> <p style="text-align: center;">DownlinkTimeP_After</p> <p>TC Control Flags :</p> <p style="text-align: center;">GBM IL DSE ---Y ---</p> <p>Subsch. ID : 10 Det. descr. : Downlink Packets after Storage Time1 This Telecommand will not be included in the export</p>	DC166160	
15		Packet Store Dumps		Next Step: 16

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Only 1 dump must be ongoing at a time. Wait always for the previous dump to finish before starting the next one.		
15.1		Start Packet Store 1 Dump (VC-2)		<input type="checkbox"/>
		Execute Telecommand ReportCatSelPktStore Command Parameter(s) : Store_Id DH003160 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : Report Catalogues for Selected Packet Store	DC169160 127 <dec>	
	ET=+ UT=+00.00.03	Execute Telecommand ReportCatSelPktStore Command Parameter(s) : Store_Id DH003160 Subsch. ID : 10 Det. descr. : Report Catalogues for Selected Packet Store	DC169160 1 <dec>	
	ET=+ UT=+00.00.05	Execute Telecommand DownlinkPktStoreCont_A Command Parameter(s) : Store_Id DH003160 Subsch. ID : 10 Det. descr. : Downlink Packet Store Contents - All stored TM packets	DC162160 1 <dec>	
	ET=+ UT=+00.00.03	Execute Telecommand ReportCatSelPktStore Command Parameter(s) : Store_Id DH003160 Subsch. ID : 10 Det. descr. : Report Catalogues for Selected Packet Store	DC169160 1 <dec>	
15.2		Wait until packet store 1 dump is completed		<input type="checkbox"/>
		Continue immediately with the following dump.		
15.3		Start Packet Store 2 Dump (VC-2)		<input type="checkbox"/>

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand ReportCatSelPktStore Command Parameter(s) : Store_Id DH003160 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : Report Catalogues for Selected Packet Store	DC169160 1 <dec>	
	ET=+ UT=+00.00.03	Execute Telecommand ReportCatSelPktStore Command Parameter(s) : Store_Id DH003160 Subsch. ID : 10 Det. descr. : Report Catalogues for Selected Packet Store	DC169160 2 <dec>	
	ET=+ UT=+00.00.05	Execute Telecommand DownlinkPktStoreCont_A Command Parameter(s) : Store_Id DH003160 Subsch. ID : 10 Det. descr. : Downlink Packet Store Contents - All stored TM packets	DC162160 2 <dec>	
	ET=+ UT=+00.00.03	Execute Telecommand ReportCatSelPktStore Command Parameter(s) : Store_Id DH003160 Subsch. ID : 10 Det. descr. : Report Catalogues for Selected Packet Store	DC169160 2 <dec>	
		Continue while the PS-2 dump is ongoing.		
15.4		Check Packet Store 0 Pointer		□
		Packet Store 0 should always be empty. Check the pointers: WR_PTR = (DNLK_END_PTR + 1) Otherwise something has been written since the last DTCP; then log this issue and carry on with the DTCP. Inform later the FCT via email (H_FCT). It's not urgent, no need to contact the FCT On-Call person.		
		Verify Telemetry WR_PTR_000 XM311991		AND=ZAZ7P999

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry DLNK_END_PTR_000 XM293991		AND=ZAZ7P999
15.5		Wait until packet store 2 dump is completed		<input type="checkbox"/>
		Continue immediately with the following dump.		
15.6		Dump of Packet Store 0 (VC-2)		<input type="checkbox"/>
		Packet Store 0 should be empty, so the dump should complete immediately.		
		Execute Telecommand ReportCatSelPktStore Command Parameter(s) : Store_Id DH003160 TC Control Flags : GBM IL DSE --Y -- -- Subsch. ID : 10 Det. descr. : Report Catalogues for Selected Packet Store	DC169160 2 <dec>	
	ET=+ UT=+00.00.03	Execute Telecommand ReportCatSelPktStore Command Parameter(s) : Store_Id DH003160 Subsch. ID : 10 Det. descr. : Report Catalogues for Selected Packet Store	DC169160 0 <dec>	
	ET=+ UT=+00.00.05	Execute Telecommand DownlinkPktStoreCont_A Command Parameter(s) : Store_Id DH003160 Subsch. ID : 10 Det. descr. : Downlink Packet Store Contents - All stored TM packets	DC162160 0 <dec>	
	ET=+ UT=+00.00.03	Execute Telecommand ReportCatSelPktStore Command Parameter(s) : Store_Id DH003160 Subsch. ID : 10 Det. descr. : Report Catalogues for Selected Packet Store	DC169160 0 <dec>	
		Continue immediately with the following dump.		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
15.7		Start Dump of Packet Store 3 (VC-3)		<input type="checkbox"/>
		Execute Telecommand ReportCatSelPktStore Command Parameter(s) : Store_Id DH003160 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : Report Catalogues for Selected Packet Store	DC169160 0 <dec>	
	ET=+ UT=+00.00.03	Execute Telecommand ReportCatSelPktStore Command Parameter(s) : Store_Id DH003160 Subsch. ID : 10 Det. descr. : Report Catalogues for Selected Packet Store	DC169160 3 <dec>	
	ET=+ UT=+00.00.05	Execute Telecommand DownlinkPktStoreCont_A Command Parameter(s) : Store_Id DH003160 Subsch. ID : 10 Det. descr. : Downlink Packet Store Contents - All stored TM packets	DC162160 3 <dec>	
	ET=+ UT=+00.00.03	Execute Telecommand ReportCatSelPktStore Command Parameter(s) : Store_Id DH003160 Subsch. ID : 10 Det. descr. : Report Catalogues for Selected Packet Store	DC169160 3 <dec>	
15.8		Option: TTC Chain 2 Health Check		<input type="checkbox"/>
		Perform this step once per week (every Monday) while packet store 3 dump is ongoing. Comment: If it was not possible to run it on Monday, run it in the next possible DTCP.		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Procedure: H_FCP_TTC_T2HC TTC chain 2 health check		
15.9		Wait until packet store 3 dump is completed		<input type="checkbox"/>
		Release the following ReportCatSelPktStore command immediately when dump is finished.		
		Execute Telecommand <p style="text-align: center;">ReportCatSelPktStore</p> Command Parameter(s) : Store_Id DH003160 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : Report Catalogues for Selected Packet Store	DC169160 3 <dec>	
16		Running out of time?		Next Step: False 18 True 17
		DTCP times are fixed. No flexible extension is possible! If time runs out to complete the ongoing dump and/or MTL upload: Skip ranging (if ranging is at the end of the DTCP). The maximum allowed skipping of ranging is on 3 consecutive DTCPs. If this does not help to complete all activities before the end of the DTCP, select True.		
17		Aborting Activities		Next Step: 18
		Inform the FCT via email about the abort activities (afterwards, don't waste time now). Put HSC and the 3 ICCs on copy to inform them up to which time VC-2 and VC-3 TM is available (and consolidated).		
17.1		Stop MTL Upload		<input type="checkbox"/>
		Stop MTL upload by pressing stop on ASTK.		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
17.2		Abort Packet Store Dump		<input type="checkbox"/>
		To abort an ongoing packet store dump, load following sequence on top of the MSTK, specify the packet store (which is currently being dumped; must be entered twice). No abort of packet store 0 and 1 dumps are foreseen (the abort activity could take longer than the dump).		
		Execute Sequence HFD3037G Stop D/L v11 Sequence Grouping = - This Sequence Reference is not included in the generated sequence SSID : 0		SEQ
		This sequence contains 3 TCs: 1) Release the first TC (PS pointer update) 2) Make a printout of the AND containing the packet store which dump shall be aborted (to get the required one of the TM parameters listed below). 3) Release the second TC to abort the dump 4) Release the third TC (another PS pointer update)		
		Verify Telemetry <p style="text-align: center;">CUR_TIM_002 XM367991</p>		AND=ZAZ7T999
		Verify Telemetry <p style="text-align: center;">CUR_TIM_003 XM368991</p>		AND=ZAZ7T999
		Comment: The SGS must be informed about dump aborts (later in the Pass Report Email, see POPA procedure), because today the expected amount of TM will not be provided to them.		
18		Optional: Ranging		Next Step: 19
		Latest time to run this step (to gain at least 5min of Ranging): LOS-10min. If Herschel is before Planck: Ranging at the end of the DTCP is important and may only be skipped in up to 3 consecutive DTCPs. If Herschel is after Planck: This step is optional and may be performed if time allows. Info: Whenever time allows do Ranging. It does not harm and improves the orbit determination by FD.		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch																																	
18.1		Switch to Medium TM Rate		<input type="checkbox"/>																																	
		This switching to medium TM rate will enable Ranging as well.																																			
18.1.1		ECC Interaction		<input type="checkbox"/>																																	
		Inform ECC that TM rate will be changed to medium and that Backup Chain (usually 2) shall be configured for medium TM. Wait until ECC confirmed the reconfiguration of Backup Chain.																																			
18.1.2		Switch to Medium TM Rate		<input type="checkbox"/>																																	
		Send the following sequence in BD mode. Loss of TM via Prime Chain (usually 1) is expected. NCTRS: The VC-0/4 links connected to Backup Chain should change from INPUT to PROCESS (while the Prime Chain VC-0/4 links should change from PROCESS to INPUT). So no complete loss of TM is expected for the MCS.																																			
		Execute Telecommand XpndConfigure_Templ Command Parameter(s) : <table border="0" style="width: 100%;"> <tr> <td style="text-align: right;">XpndId</td> <td>DH018170</td> <td>XpndInUseLogic</td> </tr> <tr> <td style="text-align: right;">XpndConfMask1Unus</td> <td>DH220170</td> <td>11 <bin></td> </tr> <tr> <td style="text-align: right;">XpndConfMask1_ER</td> <td>DH221170</td> <td>ON</td> </tr> <tr> <td style="text-align: right;">XpndConfMask1_CM</td> <td>DH222170</td> <td>OFF (Def)</td> </tr> <tr> <td style="text-align: right;">XpndConfMask1_RM</td> <td>DH223170</td> <td>ON</td> </tr> <tr> <td style="text-align: right;">XpndConfMask1_HRM</td> <td>DH224170</td> <td>ON</td> </tr> <tr> <td style="text-align: right;">XpndConfMask1_MRM</td> <td>DH225170</td> <td>ON</td> </tr> <tr> <td style="text-align: right;">XpndConfMask1LRM1</td> <td>DH226170</td> <td>ON</td> </tr> <tr> <td style="text-align: right;">XpndConfMask1LRM2</td> <td>DH227170</td> <td>ON</td> </tr> <tr> <td style="text-align: right;">XpndConfMask1_RMI</td> <td>DH228170</td> <td>111 <bin></td> </tr> <tr> <td style="text-align: right;">XpndConfMask1_TMI</td> <td>DH229170</td> <td>1111 <bin></td> </tr> </table>	XpndId	DH018170	XpndInUseLogic	XpndConfMask1Unus	DH220170	11 <bin>	XpndConfMask1_ER	DH221170	ON	XpndConfMask1_CM	DH222170	OFF (Def)	XpndConfMask1_RM	DH223170	ON	XpndConfMask1_HRM	DH224170	ON	XpndConfMask1_MRM	DH225170	ON	XpndConfMask1LRM1	DH226170	ON	XpndConfMask1LRM2	DH227170	ON	XpndConfMask1_RMI	DH228170	111 <bin>	XpndConfMask1_TMI	DH229170	1111 <bin>	DCT18170	
XpndId	DH018170	XpndInUseLogic																																			
XpndConfMask1Unus	DH220170	11 <bin>																																			
XpndConfMask1_ER	DH221170	ON																																			
XpndConfMask1_CM	DH222170	OFF (Def)																																			
XpndConfMask1_RM	DH223170	ON																																			
XpndConfMask1_HRM	DH224170	ON																																			
XpndConfMask1_MRM	DH225170	ON																																			
XpndConfMask1LRM1	DH226170	ON																																			
XpndConfMask1LRM2	DH227170	ON																																			
XpndConfMask1_RMI	DH228170	111 <bin>																																			
XpndConfMask1_TMI	DH229170	1111 <bin>																																			

DTCP Activities
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		XpndConfMask2_PG DH230170 XpndConfMask2Unus DH231170 XpndConfMask2OPLS DH232170 XpndConfDW1Unus DH020170 XpndConfDW1_ER DH021170 XpndConfDW1_CM DH022170 XpndConfDW1_RM DH023170 XpndConfDW1_HRM DH024170 XpndConfDW1_MRM DH025170 XpndConfDW1LRM1 DH026170 XpndConfDW1LRM2 DH027170 XpndConfDW1_RMI DH028170 XpndConfDW1_TMI DH029170 XpndConfDW2_PG DH030170 XpndConfDW2Unus DH031170 XpndConfDW2OPLS DH032170 TC Control Flags : GBM IL DSE -SY -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Configure Xpnd TC(8,4,115,9)	ON 1111111111 <bin> 1111 <bin> 0 <dec> (Def) OFF (Def) OFF (Def) ON OFF (Def) ON OFF (Def) OFF (Def) OFF (Def) 0.6 1.2 OFF (Def) 0 <dec> (Def)	
	ET=+ UT=+00.00.05	Execute Telecommand TtcConfTmEncInUseMedium TC Control Flags : GBM IL DSE -E- -- --- Subsch. ID : 10 Det. descr. : TTC: Config TM Enc In Use Mode Medium 150 kbps, TC(8,4,115,20)	DC22F170	
		Check TM rate and RNG status on Overview MIMIC.		
		Verify Telemetry Ranging XD242991	= ON	MIMIC: Overview
18.1.3		ECC Interaction		<input type="checkbox"/>
		1) ECC should confirm good TM via Backup Chain. 2) Request ECC to configure Prime Chain for medium TM as well. 3) TM via Prime Chain should come back 4) Inform ECC that ranging is enabled and that they can start the ranging operation.		
18.1.4		NCTRS: Set Prime Chain links back to process		<input type="checkbox"/>
		Change the Prime Chain VC-0/4 links back to PROCESS (then the Backup Chain VC-0/4 links should go back to INPUT).		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
19		Optional: CEL-B Dump		Next Step: 20
		The MTL contains TCs at about 30min after LOS to automatically dump CEL-B (to nowhere) and to delete CEL-B; therefore a manual dump is usually not required during the DTCP. Should special circumstances (e.g. problems with CEL-A) require the dump of CEL-B during the DTCP, the DTCP sequence contains the necessary TCs here.		
		CEL dumps result in expected "missing packets" alerts of the MCS. The dump of CEL-B (containing the same data as CEL-A) will generate duplicated TM and OOL packets in the MCS. The duplicated OOL packets will cause additional "PDSarchive" alerts, following the CEL-B dump. Ignore these alerts in these cases.		
		Execute Telecommand ReportCatSelPktStore Command Parameter(s) : Store_Id DH003160 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : Report Catalogues for Selected Packet Store	DC169160 255 <dec>	
	ET=+ UT=+00.00.05	Execute Telecommand DownlinkPktStoreCont_A Command Parameter(s) : Store_Id DH003160 Subsch. ID : 10 Det. descr. : Downlink Packet Store Contents - All stored TM packets	DC162160 255 <dec>	
	ET=+ UT=+00.00.03	Execute Telecommand ReportCatSelPktStore Command Parameter(s) : Store_Id DH003160 Subsch. ID : 10 Det. descr. : Report Catalogues for Selected Packet Store	DC169160 255 <dec>	
19.1		Delete CEL-B		□

DTCP Activities
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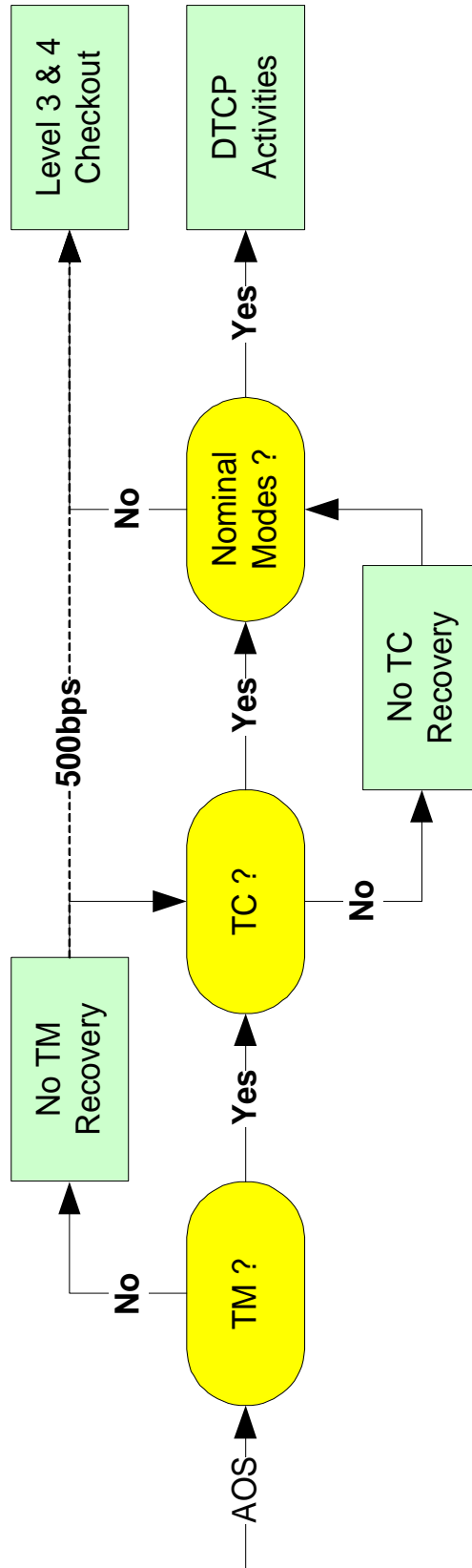


Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		After CEL-B dump completion, delete CEL-B Comment: The following sequence deletes by default both CELs, but will not have any effect on CEL-A (the delete TC only deletes the dumped parts of a CEL).		
		Execute Sequence HFD1014R Delete CELs RealTime v25 Sequence Grouping = - SSID : 0		SEQ
20	LOS	Wait for expected LOS		Next Step: END
End of Procedure				

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Simple DTCP Overview



DTCP Activities
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MTL Uplink "CRP"

Following steps must be performed by the SPACON whenever the MTL uplink stopped by unknown reason.

1. Click Stop on ASTK (preventive action to avoid surprises)
2. Get the AD report value (e.g. from Overview MIMIC), when R/T TM is available. Convert it to hex.
3. Find this (value-1) on the TC History (hex in TCH !): The corresponding TC is the last one confirmed onboard (don't trust any colours)
4. Find this TC on the ASTK (don't trust any colours), get the row number (x)
5. Re-initialize AD mode if necessary
6. Connection Test:
 - A. Remember the last TC on the TCH
 - B. Send a Connection Test from the MSTK in AD mode
 - C. Check TCH: Did only this Connection Test TC appear new as released? Should more TCs appear, they were invisible pending in the Releaser. Restart from step 2 again and repeat the AD counter check (x will change).
7. Continue the MTL uplink with the following row (x+1)

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CEL and R/T Events Action Sheet

Events (5,2) & (5,4)	SVM	1) Contact On-Call SOE	1) Contact On-Call SOE 2) On-Call SOE to decide: Try to contact S/S SOE 3) If instrument OBCP has triggered: Contact ICC On-Call person 4) On-Call SOE to decide: Contact SOM 5) On-Call SOE or SOM to decide: Contact FD 6) Email to H_FCT
		2) On-Call SOE to decide: Try to contact S/S SOE	
3) If instrument OBCP has triggered: Contact ICC On-Call person			
4) On-Call SOE to decide: Contact SOM			
5) On-Call SOE or SOM to decide: Contact FD			
6) Email to H_FCT			
TC Failures (1,2) & (1,8)	PLM	HIFI	If HIFI is prime (check bus profile) contact HIFI On-Call person
		PACS	Add to DTCP report email. Attach screenshot of AND: ZAZ9C999
		SPIRE	Add to DTCP report email. Attach screenshot of AND: ZAZ98999
	SVM	Ignore SPID 11104109, no action required. For all other SVM TC failures:	
		1) Contact On-Call SOE	1) Contact On-Call SOE
		2) On-Call SOE to decide: Try to contact S/S SOE	2) On-Call SOE to decide: Try to contact S/S SOE
PLM	3) On-Call SOE to decide: Contact SOM	3) On-Call SOE to decide: Contact SOM	
	4) On-Call SOE or SOM to decide: Contact FD	4) On-Call SOE or SOM to decide: Contact FD	
	5) Email to H_FCT	5) Email to H_FCT	

DTCP Activities
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OOL Action Sheet

SYM	AETF5002 or AETF6002 FCV Arm Status: SCC error	Ignore if RWL Bias or Delta-V is ongoing, else: See below "other (unexpected) OOLs" Email to Dave Salt
	AEW1/2/3/4A002	
	RWL1/2/3/4 tacho spd: OOL error	
	RMB01439	Ignore if it reads at AOS 1342 V for some samples, else: See below "other (unexpected) OOLs" Email to Eduardo Picallo
	EPC1_ANODE_VOLT: OOL error	
	WM210565	
	Twta_1_L49_I: OOL error	
RMB22442	Ignore if XPND TM bit rate change is ongoing, else: See below "other (unexpected) OOLs"	
X1 Status - XS: OOL error	1) Contact On-Call SOE	
Other (unexpected) OOLs	2) On-Call SOE to decide: Try to contact S/S SOE 3) On-Call SOE to decide: Contact SOM 4) On-Call SOE or SOM to decide: Contact FD 5) Email to H_FCT	
PLM	HIFI	Run H_CRP_HIF_SPCN: Procedure will help to decide if On-Call SOE must be contacted (to run H_CRP_HIF_CALL) or if an email notification is sufficient.
	HM049190 HI_LCU_commands = DISABLED	
	Red OOLs	If HIFI is prime (check bus profile) contact HIFI On-Call person Add to DTCP report email.
	All other OOLs	Add to DTCP report email.
	All OOLs	Add to DTCP report email.
SPIRE	All OOLs	Add to DTCP report email.



----- TIME MISMATCH ANALYSIS -----

Num	Name	APID	SSC	SSCHED	Execution Time	SSCHED	Raw Exec. Time	Execution Time	Match
17550	DC169160	16	97	10	2010.077.20.31.06.000	10	6234EBF90000	2010.077.20.31.06.185	MATCH
17551	DC169160	16	99	10	2010.077.20.31.07.000	10	6234EBFA0000	2010.077.20.31.07.185	MATCH
17552	DC169160	16	101	10	2010.077.20.31.08.000	10	6234EBFB0000	2010.077.20.31.08.185	MATCH
17553	DC169160	16	103	10	2010.077.20.31.09.000	10	6234EBFC0000	2010.077.20.31.09.185	MATCH
17554	ACUE1002	512	675	20	2010.077.20.35.00.000	20	6234ECE30000	2010.077.20.35.00.186	MATCH
17555	ACDS1001	512	676	20	2010.077.20.36.00.000	20	6234ED1F0000	2010.077.20.36.00.186	MATCH
17556	XC033990	512	677	20	2010.077.20.36.01.000	20	6234ED200000	2010.077.20.36.01.186	MATCH
17557	ACFC1001	512	678	20	2010.077.20.36.02.000	20	6234ED210000	2010.077.20.36.02.186	MATCH
17558	ACYJU109	512	679	20	2010.077.20.37.00.000	20	6234ED5B0000	2010.077.20.37.00.186	MATCH
17559	ACZ4M109	512	680	20	2010.077.20.37.01.000	20	6234ED5C0000	2010.077.20.37.01.186	MATCH
17560	ACWP1002	512	681	20	2010.077.20.38.00.000	20	6234ED960000	2010.077.20.37.59.186	MISMATCH
17561	ACDS1001	512	682	20	2010.077.20.38.01.000	20	6234ED980000	2010.077.20.38.01.186	MATCH
17562	ACZTY109	512	683	20	2010.077.20.38.02.000	20	6234ED990000	2010.077.20.38.02.186	MATCH
17563	ACZ5L109	512	684	20	2010.077.20.38.03.000	20	6234ED9A0000	2010.077.20.38.03.186	MATCH
17564	DC169160	16	115	10	2010.077.20.41.00.000	10	6234EE4B0000	2010.077.20.41.00.186	MATCH

17559	ACZ4M109	512	680	20
17560	ACWP1002	512	681	20

calculate the MPS time diff	calculate the raw time diff	calculate the UTC correl time diff
20:37:01.000	6234ED5C	20:37:01.186
20:38:00.000	6234ED96	20:37:59.186
so ...	convert...	so...
MPS exe time diff is	raw time sec in decimal	actual UTC exe time diff is
00:00:59.000	1647635804	00:00:58.000
and ...	so ...	and ...
MPS exe time diff in sec is	raw time diff in sec is	UTC exe time diff in sec is
59	58	58

So, the MISMATCH is real. The difference between the two execution times stored on board is not the same as the one in the MPS file. In other words, ACWP1002 will be executed at 20:37:59, i.e. one second before its planned time.

EFFECTS OF MISMATCH
 If at the new actual exe time (in this case 20:37:59) of the mismatching TC ...
 - there is no other TC : no problem at all
 - there is some other TC : refer to On Call Engineer, who shall have to decide if there is a need to modify the MTL.
Note: the MTL can execute without problems up to 4 TCs per second.

CAUSE OF MISMATCH
 It is as well important to determine why the mismatch occurred.
 There are two possible cases, a "nominal" one and an "uplink problem" one. See two next pages for more details.



----- TIME MISMATCH ANALYSIS -----

Num	Name	APID	SSC	SSCHED	Execution Time	SSCHED	Raw Exec. Time	Execution Time	Match
17550	DC169160	16	97	10	2010.077.20.31.06.000	10	6234EBF90000	2010.077.20.31.06.185	MATCH
17551	DC169160	16	99	10	2010.077.20.31.07.000	10	6234EBFA0000	2010.077.20.31.07.185	MATCH
17552	DC169160	16	101	10	2010.077.20.31.08.000	10	6234EBFB0000	2010.077.20.31.08.185	MATCH
17553	DC169160	16	103	10	2010.077.20.31.09.000	10	6234EBFC0000	2010.077.20.31.09.185	MATCH
17554	ACUE1002	512	675	20	2010.077.20.35.00.000	20	6234ECE30000	2010.077.20.35.00.186	MATCH
17555	ACDS1001	512	676	20	2010.077.20.36.00.000	20	6234ED1F0000	2010.077.20.36.00.186	MATCH
17556	XC033990	512	677	20	2010.077.20.36.01.000	20	6234ED200000	2010.077.20.36.01.186	MATCH
17557	ACFC1001	512	678	20	2010.077.20.36.02.000	20	6234ED210000	2010.077.20.36.02.186	MATCH
17558	ACYJU109	512	679	20	2010.077.20.37.00.000	20	6234ED5B0000	2010.077.20.37.00.186	MATCH
17559	ACZ4M109	512	680	20	2010.077.20.37.01.000	20	6234ED5C0000	2010.077.20.37.01.186	MATCH
17560	ACWP1002	512	681	20	2010.077.20.38.00.000	20	6234ED960000	2010.077.20.37.59.186	MISMATCH
17561	ACDS1001	512	682	20	2010.077.20.38.01.000	20	6234ED980000	2010.077.20.38.01.186	MATCH
17562	ACZTY109	512	683	20	2010.077.20.38.02.000	20	6234ED990000	2010.077.20.38.02.186	MATCH
17563	ACZ5L109	512	684	20	2010.077.20.38.03.000	20	6234ED9A0000	2010.077.20.38.03.186	MATCH
17564	DC169160	16	115	10	2010.077.20.41.00.000	10	6234EE4B0000	2010.077.20.41.00.186	MATCH

17559	ACZ4M109	512	680	20
17560	ACWP1002	512	681	20

calculate the MPS time diff
 20:37:01.000
 20:38:00.000
 so ...
 MPS exe time diff is
 00:00:59.000
 and ...
 MPS exe time diff in sec is
 59

<- different ->

calculate the raw time diff
 6234ED5C
 6234ED96
 convert...
 raw time sec in decimal
 1647635804
 1647635862
 so ...
 raw time diff in sec is
 58

calculate the UTC correl time diff
 20:37:01.186
 20:37:59.186
 so...
 actual UTC exe time diff is
 00:00:58.000
 and ...
 UTC exe time diff in sec is
 58

So, the MISMATCH is real. The difference between the two execution times stored on board is not the same as the one in the MPS file. In other words, ACWP1002 will be executed at 20:37:59, i.e. one second before its planned time.

EFFECTS OF MISMATCH
 If at the new actual exe time (in this case 20:37:59) of the mismatching TC ...
 - there is no other TC : no problem at all
 - there is some other TC : refer to On Call Engineer, who shall have to decide if there is a need to modify the MTL.
Note: the MTL can execute without problems up to 4 TCs per second.

CAUSE OF MISMATCH
 It is as well important to determine why the mismatch occurred.
 There are two possible cases, a "nominal" one and an "uplink problem" one. See two next pages for more details.



OBQD Example 3

----- TIME MISMATCH : UPLINK PROBLEM CASE -----

Num	Name	Description	Release Time	Apid	SSC	Execution Time	SID	Load Status	OBQ Status
17550	DC169160	ReportCatSelPktStore	2010.075.21.17.19	16	97	2010.077.20.31.06.000	10	LOAD	VERIFIED
17551	DC169160	ReportCatSelPktStore	2010.075.21.17.19	16	99	2010.077.20.31.07.000	10	LOAD	VERIFIED
17552	DC169160	ReportCatSelPktStore	2010.075.21.17.19	16	101	2010.077.20.31.08.000	10	LOAD	VERIFIED
17553	DC169160	ReportCatSelPktStore	2010.075.21.17.19	16	103	2010.077.20.31.09.000	10	LOAD	VERIFIED
17554	ACUE1002	Update ephemerides	2010.075.21.17.19	512	675	2010.077.20.35.00.000	20	LOAD	VERIFIED
17555	ACDS1001	Start database loading	2010.075.21.17.19	512	676	2010.077.20.36.00.000	20	LOAD	VERIFIED
17556	XC033990	OBDB_STR_VEL	2010.075.21.17.19	512	677	2010.077.20.36.01.000	20	LOAD	VERIFIED
17557	ACFC1001	Fire critical command	2010.075.21.17.20	512	678	2010.077.20.36.02.000	20	LOAD	VERIFIED
17558	ACYJU109	STRmain SC Velocity	2010.075.21.17.20	512	679	2010.077.20.37.00.000	20	LOAD	VERIFIED
17559	ACZ4M109	Fire Cmd STR config	2010.075.21.17.20	512	680	2010.077.20.37.01.000	20	LOAD	VERIFIED
17560	ACWP1002	Bias total RWS pointing	2010.075.21.17.20	512	681	2010.077.20.38.00.000	20	LOAD	VERIFIED
17561	ACDS1001	Start database loading	2010.075.21.17.20	512	682	2010.077.20.38.01.000	20	LOAD	VERIFIED
17562	ACZTY109	Load databaseReal	2010.075.21.17.20	512	683	2010.077.20.38.02.000	20	LOAD	VERIFIED
17563	ACZ5L109	Fire Start DB loading	2010.075.21.17.20	512	684	2010.077.20.38.03.000	20	LOAD	VERIFIED
17564	DC169160	ReportCatSelPktStore	2010.075.21.17.20	16	115	2010.077.20.41.00.000	10	LOAD	VERIFIED

17559 ACZ4M109 was uplinked at 2010.075.21.17.20
 17560 ACWP1002 was uplinked at 2010.075.21.17.20 that is, not more than 2 seconds later.

Since the two uplink times are contiguous, it is reasonable to assume that ...
 17560 ACWP1002 ... is NOT the first TC of an uplink unit segment.
 If the uplink were performed with FIXED gradient this mismatch should not have happened, so SOE must investigate (during normal hours)

Note: the affected TCs shown above are just examples, the situation may occur with any TC



----- TIME MISMATCH : FALSE ALARM CASE -----

Num	Name	APID	SSC	SSCHED	Execution Time	SSCHED	Raw Exec. Time	Execution Time	Match
13456	DC169160	16	1403	10	2009.181.00.03.03.000	10	60DBB4B40000	2009.181.00.03.02.549	MATCH
13457	DC169160	16	1405	10	2009.181.00.03.04.000	10	60DBB4B50000	2009.181.00.03.03.549	MATCH
13458	DC169160	16	1407	10	2009.181.00.03.05.000	10	60DBB4B60000	2009.181.00.03.04.549	MATCH
13459	DC169160	16	1409	10	2009.181.00.03.06.000	10	60DBB4B70000	2009.181.00.03.05.549	MATCH
13460	DC169160	16	1411	10	2009.181.00.03.07.000	10	60DBB4B80000	2009.181.00.03.06.549	MATCH
13461	DC169160	16	1413	10	2009.181.00.03.08.000	10	60DBB4B90000	2009.181.00.03.07.549	MATCH
13462	DC169160	16	1415	10	2009.181.00.03.09.000	10	60DBB4BA0000	2009.181.00.03.08.549	MATCH
13463	DC169160	16	1417	10	2009.181.00.03.10.000	10	60DBB4BB0000	2009.181.00.03.09.549	MATCH
13464	DC169160	16	1419	10	2009.181.00.03.11.000	10	60DBB4BC0000	2009.181.00.03.10.549	MATCH
13465	DC169160	16	1421	10	2009.181.00.03.12.000	10	60DBB4BD0000	2009.181.00.03.11.549	MATCH
13466	HC016289	1024	795	70	2009.181.00.06.30.000	70	60DBB5830000	2009.181.00.06.29.549	MISMATCH
13467	HC179289	1024	796	70	2009.181.00.06.31.000	70	60DBB5840000	2009.181.00.06.30.549	MATCH
13468	HC016289	1024	797	70	2009.181.00.06.31.000	70	60DBB5840000	2009.181.00.06.30.549	MATCH
13469	HC014289	1024	798	70	2009.181.00.06.32.000	70	60DBB5850000	2009.181.00.06.31.549	MATCH
13470	HC014289	1024	799	70	2009.181.00.06.33.000	70	60DBB5860000	2009.181.00.06.32.549	MATCH

13465	DC169160	16	1421	10
13466	HC016289	1024	795	70

calculate the time difference

00:03:12.000
 00:06:30.000

calculate the raw time difference

60DBB4BD
 60DBB583

calculate the time difference

00:03:11.549
 00:06:29.549

MPS exe time diff is
 00:03:18.000

raw time sec in decimal
 1625011389
 1625011587

actual UTC exe time diff is
 00:03:18.000

MPS exe time diff in sec

198

<- SAME ->

raw time diff in sec is

198

UTC exe time diff in sec

198

So, the MISMATCH is a **false indication**.
 Please **print to file** both the OBQD real time and dump display.
 No further real time action needed. Inform SOM and CDMS engineer by e-mail



OBQD Example 5

----- TIME MISMATCH PLUS UNEXPECTED TC CASE -----

Num	Name	APID	SSC	SSCHED	Execution Time	SSCHED	Raw Exec. Time	Execution Time	Match
13456	DC169160	16	1403	10	2009.181.00.03.03.000	10	60DBB4B40000	2009.181.00.03.02.549	MATCH
13457	DC169160	16	1405	10	2009.181.00.03.04.000	10	60DBB4B50000	2009.181.00.03.03.549	MATCH
13458	DC169160	16	1407	10	2009.181.00.03.05.000	10	60DBB4B60000	2009.181.00.03.04.549	MATCH
13459	DC169160	16	1409	10	2009.181.00.03.06.000	10	60DBB4B70000	2009.181.00.03.05.549	MATCH
13460	DC169160	16	1411	10	2009.181.00.03.07.000	10	60DBB4B80000	2009.181.00.03.06.549	MATCH
13461	DC169160	16	1413	10	2009.181.00.03.08.000	10	60DBB4B90000	2009.181.00.03.07.549	MATCH
13462	DC169160	16	1415	10	2009.181.00.03.09.000	10	60DBB4BA0000	2009.181.00.03.08.549	MATCH
13463	DC169160	16	1417	10	2009.181.00.03.10.000	10	60DBB4BB0000	2009.181.00.03.09.549	MATCH
13464	DC169160	16	1419	10	2009.181.00.03.11.000	10	60DBB4BC0000	2009.181.00.03.10.549	MATCH
13465		16	1421			10	60DBB4BD0000	2009.181.00.03.11.549	UNEXPECTED
13466	HC016289	1024	795	70	2009.181.00.06.30.000	70	60DBB5830000	2009.181.00.06.29.549	MISMATCH
13467	HC179289	1024	796	70	2009.181.00.06.31.000	70	60DBB5840000	2009.181.00.06.30.549	MATCH
13468	HC016289	1024	797	70	2009.181.00.06.31.000	70	60DBB5840000	2009.181.00.06.30.549	MATCH
13469	HC014289	1024	798	70	2009.181.00.06.32.000	70	60DBB5850000	2009.181.00.06.31.549	MATCH
13470	HC014289	1024	799	70	2009.181.00.06.33.000	70	60DBB5860000	2009.181.00.06.32.549	MATCH

This is a special case.
 The TC with Num = 13465 is on board, but the OBQD does not expect it to be.
 This can happen if for some reason a TC is uplinked to the MTL but the uplink is not verified by the MCS.
 Since the TC uplink was not verified, the OBQD does not put it in the model.
 When the MTL summary report is received, the TC is "seen" as being on board but does not fit the model expectations, therefore the UNEXPECTED indication.
 As a consequence, the matching verification of the following TC will fail, since it is checked against the former "ghost" TC, therefore the MISMATCH indication.

WHAT TO DO:
 The UNEXPECTED TC is the main problem. Normally this will be spotted soon after the MTL uplink, and this gives us a day to think about it.
 Please print to file both the OBQD real time and dump display, and inform by mail the On Call Engineer (if the next day is not a working day, call !)

Actions to be taken offline by SOE, in principle :

- inspecting the series of TM(11,13) of the MTL summary report that triggered the UNEXPECTED indication, find the packet containing the exe time range concerned
- verify that the unexpected TC is real : the TM(11,13) should show it sandwiched between the other two
 (in the example, it would be between exe time 2009.181.00.03.10.549 and exe time 2009.181.00.06.29.549)
- Delete the Unexpected TC both from the model and on the spacecraft
- Reuplink it
- Re-dump the summary MTL