

RM alarm maintenance
 File: H_CRP_DHS_3018.xls
 Author: S. Manganelli



Procedure Summary

Objectives

This procedure describes the steps needed to:

- Enable or disable the status of an alarm;
- Change the polarity of an alarm.

The steps needed to enable / disable the TTR function and the RMs have been included in the procedure to make it self-contained.

Summary of Constraints

Disabling an alarm or inverting its polarity may have very serious consequences. This procedure must NOT be run without SOM authorization.

Spacecraft Configuration

Start of Procedure

Any

End of Procedure

Depending on the branch chosen:
 Checking of an alarm signal by an RM has been changed (enabled or disabled)
 Polarity of an alarm has been inverted

Reference File(s)

Input Command Sequences

Output Command Sequences

HRD3018X
 HRD3018P
 HRD3018A
 HRD3018B
 HRD3018Q
 HRD3018D
 HRD3018C
 HRD3018Y

Referenced Displays

ANDs	GRDs	SLDs
ZAZAI999		(None)
ZAZ7R999		XL001999
ZAZAA999		

Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
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Status : Version 13 - Unchanged
 Last Checkin: 05/05/09

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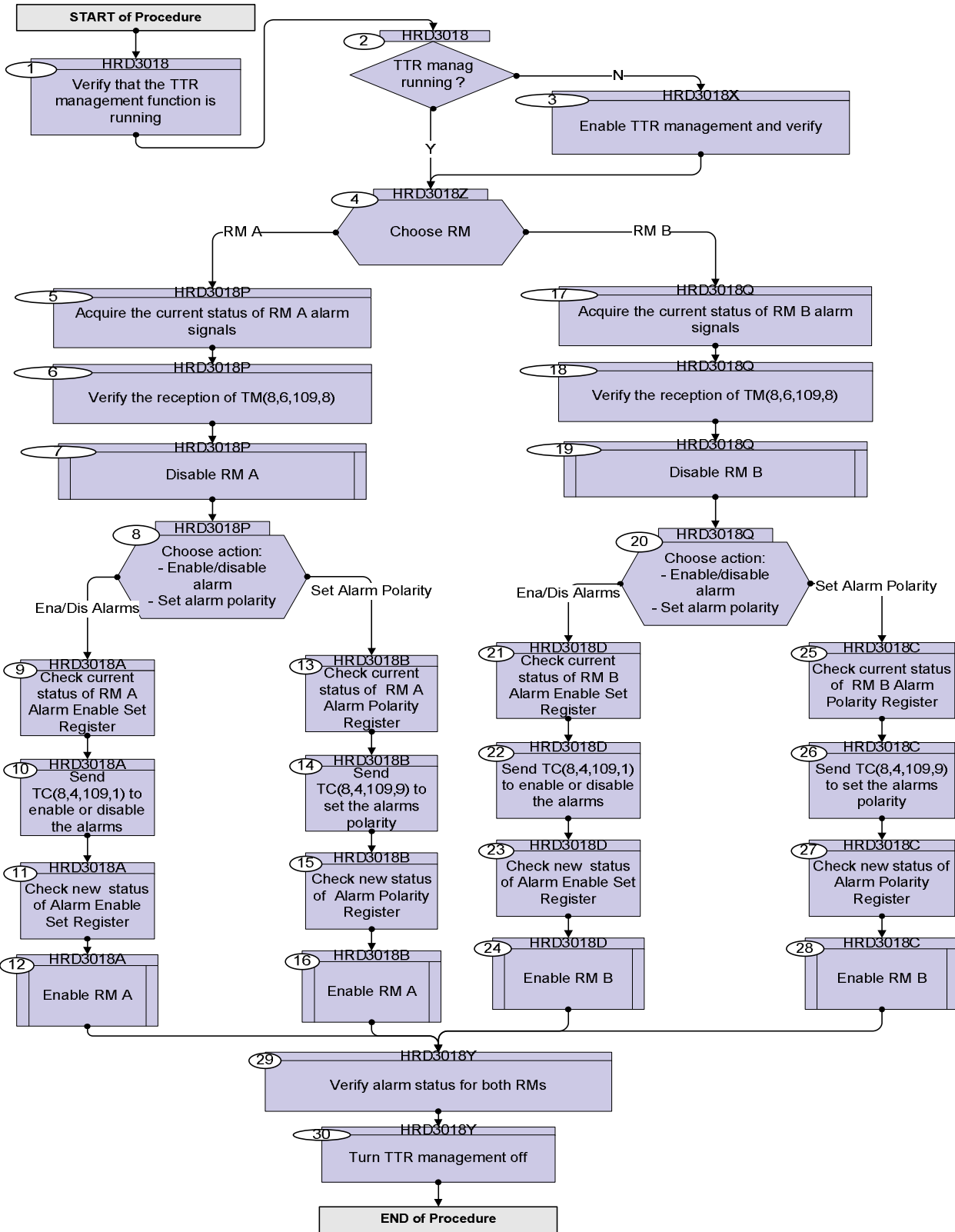


09/01/08		1	Created	cmevi-hp	
18/01/08		2	Added checks for enabled/disabled alarms and for the alarm polarity.	cmevi-hp	
15/02/08		3	TC flags updated.	cmevi-hp	
15/02/08		4	TC flags updated.	cmevi-hp	
20/06/08	1	5	Database Consistency check	S. Manganelli	
13/11/08		6	Edited TC parameter values	S. Manganelli	
10/01/09		7	Updated following OBSW 3_8	S. Manganelli	
20/01/09	2	8	Added alarm FP, included DCT64170 in export following TAS comments	S. Manganelli	
12/03/09		9	Corrected MOIS issue with FP definition	S. Manganelli	
22/03/09		10	Restructured to avoid use of Formal Parameters and streamline operation. Comments from TAS-I 3 march 09 taken into account.	S. Manganelli	
22/03/09	2.2	11	Actions needed to perform RM enable / disable included in this procedure, deleted call to H_CRP_DHS_3011	S. Manganelli	
22/04/09	2.3	12	Inserted reference sheets and comments to describe the alarm situation on either CDMS PM A or PM B in the different cases foreseen (pre-sep, post-sep, post-sep with PAP6 disabled) □ Added references to the Excel spreadsheet □ Added final check of alarm status	S. Manganelli	
05/05/09	2.4	13	Modified the verification steps and the INFO RM ALARM sheet since an active but disabled alarm shall still show up as a 1 in the alarm status register report.	S. Manganelli	

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Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
Beginning of Procedure				
TC Seq. Name :HRD3018 (Dummy) TimeTag Type: N Sub Schedule ID: <input type="checkbox"/>				
1		Verify that the TTR management function is running		Next Step: 2
		Verify Telemetry <div style="text-align: right;">TtrSts DEL17170</div>	= Running	AND=ZAZAI999
2		TTR manag running ?		Next Step: Y 4 N 3
TC Seq. Name :HRD3018X (EnaTTRmanag) TimeTag Type: Sub Schedule ID: <input type="checkbox"/>				
3		Enable TTR management and verify		Next Step: 4
		Execute Telecommand <div style="text-align: right;">StartTtrManag</div> TC Control Flags : <div style="text-align: right;">GBM IL DSE --Y -- ---</div> Subsch. ID : 10 Det. descr. : Start Ttr Management TC(8,1,109) This Telecommand will not be included in the export	DCN06170	
		Verify Telemetry <div style="text-align: right;">TtrSts DEL17170</div>	= Running	AND=ZAZAI999
TC Seq. Name :HRD3018Z (Dummy) TimeTag Type: Sub Schedule ID: <input type="checkbox"/>				
4		Choose RM		Next Step: RM A 5 RM B 17

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
<p>TC Seq. Name :HRD3018P (Acquire Alarm status)</p> <p>TimeTag Type: N Sub Schedule ID: <input type="checkbox"/></p>				
5		Acquire the current status of RM A alarm signals		Next Step: 6
		Execute Telecommand <p style="text-align: right;">ReadAlarmSts</p> Command Parameter(s) : <p style="margin-left: 100px;">RmId DH093170</p> TC Control Flags : <p style="margin-left: 100px;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Read Alarm Status TC(8,4,109,8)	DCT62170 RM_A (Def)	
6		Verify the reception of TM(8,6,109,8)		Next Step: 7
		<p>The dedicated Alarm Status Report packet TM(8,6,109,8) is based on the Filtered Alarm Status Register (0x070058FC), i.e. after temporisation and any inversion in the polarity stage.</p> <p>Thus a bit set to 1 means the alarm is active, independently if the polarity is High or Low. However, an active but disabled alarm will still show as 1.</p> <p>Note the Filtered Alarm Status Register has a different layout than the Alarm Status Report packet (see TM/Registers Layout)</p>		
		<p>See tab INFO RM ALARMS at end of procedure for an overview of the foreseen alarm statuses</p> <ul style="list-style-type: none"> -before separation -after separation -after disabling of PAP6 alarm and being on CDMS PM A or PM B. <p>(Note that alarm disabling does NOT result in a change in the alarm status register, since the disabling is performed downstream)</p>		
		Verify Packet Reception TM 8-6-109-8 TTR Management - Alarm Status Report Packet Details:	AlarmStsRpt APID: 16 Type: 8 Subtype: 6 PI1: 27912 PI2: 0	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Packet Telemetry Function_ID DE008170	= TTR_Manag	(None)
		Verify Packet Telemetry TtrManRptActId DE368170	= AlarmStsRpt	AND=ZAZ7R999
		Verify Packet Telemetry RmId DE283170	= RM_A	AND=ZAZ7R999
7		Disable RM A		Next Step: 8
7.1		Acquire RM A status		<input type="checkbox"/>
		Verify Telemetry RMA_fromTTR-RMA DEEXG160		AND=ZAZAA999
		Verify Telemetry RMA_fromTTR-RMB DEEXH160		AND=ZAZAA999
7.2		Send TC to disable RM A		<input type="checkbox"/>
		Execute Telecommand RM_A_Disable TC Control Flags : Subsch. ID : 10 Det. descr. : RM A Disable - High Priority Standard GBM IL DSE --Y -- ---	DCA11170	
7.3		Verify that the RM A has been disabled		<input type="checkbox"/>
		Verify Telemetry RMA_fromTTR-RMA DEEXG160	= DISABLED	AND=ZAZAA999
		Verify Telemetry RMA_fromTTR-RMB DEEXH160	= DISABLED	AND=ZAZAA999
8		Choose action: - Enable/disable alarm - Set alarm polarity		Next Step: Ena/Dis Alarms 9 Set Alarm Polarity 13
TC Seq. Name :HRD3018A (EnaDisAlarmRMA)				
TimeTag Type: N Sub Schedule ID: <input type="checkbox"/>				

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
9		Check current status of RM A Alarm Enable Set Register		Next Step: 10
		It is suggested to use the Excel spreadsheet tool to verify the correct setting of the register before and after the modification.		
9.1		Send TC(8,4,109,17) to read the register		<input type="checkbox"/>
		Execute Telecommand CRMA_RMH_AlarmEnSetReg TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : CROME A: Read RMH Alarm Enable Set Register	DCW1A159	
9.2		Check the reception of TM(8,6,109,17)		<input type="checkbox"/>
		Both the Alarm Enable Set or Alarm Enable Clear registers have the same layout as the Filtered Alarm Status Register (see TM/Register layout).		
		Verify Packet Reception TM 8-6-109-17 TTR Management - Crome Register Report Packet Details: APID: 16 Type: 8 Subtype: 6 PI1: 27921 PI2: 0	CromeRegRpt	
		Verify Packet Telemetry Function_ID DE008170	= TTR_Manag	(None)
		Verify Packet Telemetry TtrManRptActId DE368170	= CromeRegRpt	(None)
		Verify Packet Telemetry CromeId DE285170	= Crome_A	SLD=XL001999
		Verify Packet Telemetry CromeAddr DE329170	= 070058D4 <hex>	AND=ZAZ7R999
		Verify Packet Telemetry CromeData DE367170	Standard value (all enabled) is HEX 00 23 FE 3F	(None)
10		Send TC(8,4,109,1) to enable or disable the alarms		Next Step: 11

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch																																																																								
		This TC must be modified as required by the specific situation. The default values shown are consistent with all alarms enabled except the don't care / not used ones.																																																																										
		Execute Telecommand <p style="text-align: center;">EnblDisblAlarms</p> Command Parameter(s) : <table style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: right;">RmId</td><td>DH093170</td><td>RM_A (Def)</td></tr> <tr><td style="text-align: right;">WatchdogTogg</td><td>DH104170</td><td>Enable</td></tr> <tr><td style="text-align: right;">ExtAlarm1DoD1</td><td>DH105170</td><td>Enable</td></tr> <tr><td style="text-align: right;">ExtAlarm2DoD2</td><td>DH106170</td><td>Enable</td></tr> <tr><td style="text-align: right;">ExtAlarm3Ss5a6a</td><td>DH107170</td><td>Enable</td></tr> <tr><td style="text-align: right;">ExtAlarm4Ss5b6b</td><td>DH108170</td><td>Enable</td></tr> <tr><td style="text-align: right;">ExtAlarm5Ss3a4a</td><td>DH109170</td><td>Enable</td></tr> <tr><td style="text-align: right;">ExtAlarm6</td><td>DH110170</td><td>Disable (Def)</td></tr> <tr><td style="text-align: right;">ExtAlarm7</td><td>DH111170</td><td>Disable (Def)</td></tr> <tr><td style="text-align: right;">ExtAlarm8</td><td>DH112170</td><td>Disable (Def)</td></tr> <tr><td style="text-align: right;">PMASysErr</td><td>DH113170</td><td>Enable</td></tr> <tr><td colspan="3"> </td></tr> <tr><td style="text-align: right;">PMAAlarmAll</td><td>DH114170</td><td>Enable</td></tr> <tr><td style="text-align: right;">PMAUnderVolt</td><td>DH115170</td><td>Enable</td></tr> <tr><td style="text-align: right;">PMASWAlarm</td><td>DH116170</td><td>Enable</td></tr> <tr><td style="text-align: right;">PMBSysErr</td><td>DH117170</td><td>Enable</td></tr> <tr><td style="text-align: right;">PMBAlarmAll</td><td>DH118170</td><td>Enable</td></tr> <tr><td style="text-align: right;">PMBUnderVolt</td><td>DH119170</td><td>Enable</td></tr> <tr><td style="text-align: right;">PMBSWAlarm</td><td>DH120170</td><td>Enable</td></tr> <tr><td style="text-align: right;">SelectPM</td><td>DH121170</td><td>Enable</td></tr> <tr><td style="text-align: right;">NotUsed1</td><td>DH122170</td><td>0 <dec> (Def)</td></tr> <tr><td style="text-align: right;">NotUsed2</td><td>DH123170</td><td>0 <dec> (Def)</td></tr> <tr><td style="text-align: right;">NotUsed3</td><td>DH124170</td><td>0 <dec> (Def)</td></tr> <tr><td style="text-align: right;">WatchdogEnable</td><td>DH125170</td><td>Enable</td></tr> </table> TC Control Flags : <p style="text-align: center;">GBM IL DSE</p> <p style="text-align: center;">--Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Enable / Disable Alarms TC(8,4,109,1)	RmId	DH093170	RM_A (Def)	WatchdogTogg	DH104170	Enable	ExtAlarm1DoD1	DH105170	Enable	ExtAlarm2DoD2	DH106170	Enable	ExtAlarm3Ss5a6a	DH107170	Enable	ExtAlarm4Ss5b6b	DH108170	Enable	ExtAlarm5Ss3a4a	DH109170	Enable	ExtAlarm6	DH110170	Disable (Def)	ExtAlarm7	DH111170	Disable (Def)	ExtAlarm8	DH112170	Disable (Def)	PMASysErr	DH113170	Enable				PMAAlarmAll	DH114170	Enable	PMAUnderVolt	DH115170	Enable	PMASWAlarm	DH116170	Enable	PMBSysErr	DH117170	Enable	PMBAlarmAll	DH118170	Enable	PMBUnderVolt	DH119170	Enable	PMBSWAlarm	DH120170	Enable	SelectPM	DH121170	Enable	NotUsed1	DH122170	0 <dec> (Def)	NotUsed2	DH123170	0 <dec> (Def)	NotUsed3	DH124170	0 <dec> (Def)	WatchdogEnable	DH125170	Enable	DCT55170	
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11		Check new status of Alarm Enable Set Register		Next Step: 12																																																																								
11.1		Send TC(8,4,109,17) to read the register		<input type="checkbox"/>																																																																								
		Execute Telecommand <p style="text-align: center;">CRMA_RMH_AlarmEnSetReg</p> TC Control Flags : <p style="text-align: center;">GBM IL DSE</p> <p style="text-align: center;">--Y -- ---</p> Subsch. ID : 10 Det. descr. : CROME A: Read RMH Alarm Enable Set Register	DCW1A159																																																																									
11.2		Check the reception of TM(8,6,109,17)		<input type="checkbox"/>																																																																								

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		Both the Alarm Enable Set or Alarm Enable Clear registers have the same layout as as the Filtered Alarm Status Register (see TM/Register layout).		
		Verify Packet Reception TM 8-6-109-17 TTR Management - Crome Register Report Packet Details: APID: 16 Type: 8 Subtype: 6 PI1: 27921 PI2: 0	CromeRegRpt	
		Verify Packet Telemetry Function_ID DE008170	= TTR_Manag	(None)
		Verify Packet Telemetry TtrManRptActId DE368170	= CromeRegRpt	(None)
		Verify Packet Telemetry CromeId DE285170	= Crome_A	(None)
		Verify Packet Telemetry CromeAddr DE329170	= 070058D4 <hex>	(None)
		Verify Packet Telemetry CromeData DE367170	Consistent with commanded change	(None)
12		Enable RM A		Next Step: 29
12.1		Acquire RM A status		<input type="checkbox"/>
		Verify Telemetry RMA_fromTTR-RMA DEEXG160	= DISABLED	AND=ZAZAA999
		Verify Telemetry RMA_fromTTR-RMB DEEXH160	= DISABLED	AND=ZAZAA999
12.2		Send TC to enable RM A		<input type="checkbox"/>
		Execute Telecommand RM_A_enable DCA14170 TC Control Flags : GBM IL DSE --Y -- -- Subsch. ID : 10 Det. descr. : RM A enable - High Priority Standard		
12.3		Verify that the RM A has been enabled		<input type="checkbox"/>
		Verify Telemetry RMA_fromTTR-RMA DEEXG160	= ENABLED	AND=ZAZAA999

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---------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry RMA_fromTTR-RMB DEEXH160	= ENABLED	AND=ZAZAA999
<p>TC Seq. Name :HRD3018B (SetAlarmPolRMA)</p> <p>TimeTag Type: N Sub Schedule ID:</p> <p style="text-align: center;">□</p>				
13		Check current status of RM A Alarm Polarity Register		Next Step: 14
		It is suggested to use the Excel spreadsheet tool to verify the correct setting of the register before and after the modification.		
13.1		Send TC(8,4,109,17) to read the register		□
		Execute Telecommand CRMA_RMH_AlrmPlrityReg TC Control Flags : GBM IL DSE --Y -- -- Subsch. ID : 10 Det. descr. : CROME A: Read RMH Alarm Polarity Register	DCW17159	
13.2		Check the reception of TM(8,6,109,17)		□
		Note: while in the TC a raw value set to 0 correspond to High, in the registry a bit set to 0 corresponds to Low.		
		The Alarm Polarity Register layout is the same as the Filtered Alarm Status Register (see TM/Register layout).		
		Verify Packet Reception TM 8-6-109-17 TTR Management - Crome Register Report Packet Details: APID: 16 Type: 8 Subtype: 6 PI1: 27921 PI2: 0	CromeRegRpt	
		Verify Packet Telemetry Function_ID DE008170	= TTR_Manag	(None)
		Verify Packet Telemetry TtrManRptActId DE368170	= CromeRegRpt	(None)
		Verify Packet Telemetry CromeId DE285170	The RM selected	SLD=XL001999

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch																																																																																																																																	
		Verify Packet Telemetry CromeAddr DE329170	= 070058C0 <hex>	AND=ZAZ7R999																																																																																																																																	
		Verify Packet Telemetry CromeData DE367170	Default polarity setting should return HEX 003F55F9	(None)																																																																																																																																	
14		Send TC(8,4,109,9) to set the alarms polarity		Next Step: 15																																																																																																																																	
		<p>For all the following alarms: 0 – Active at High 1 – Active at Low</p> <p>The TC shows the default setting, it must be modified according to the situation</p>																																																																																																																																			
		Execute Telecommand <p style="text-align: right;">SetAlarmPolrty</p> DCT63170 Command Parameter(s) : <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;"></td> <td style="width: 20%; text-align: right;">RmId</td> <td style="width: 20%; text-align: right;">DH093170</td> <td style="width: 20%; text-align: right;">RM_A (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">WatchdogToggAP</td> <td style="text-align: right;">DH184170</td> <td style="text-align: right;">ActiveHigh (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">ExtAlarm1DoD1AP</td> <td style="text-align: right;">DH185170</td> <td style="text-align: right;">ActiveLow</td> </tr> <tr> <td></td> <td style="text-align: right;">ExtAlarm2DoD2AP</td> <td style="text-align: right;">DH186170</td> <td style="text-align: right;">ActiveLow</td> </tr> <tr> <td></td> <td style="text-align: right;">ExtAlarm3Ss5a6aAP</td> <td style="text-align: right;">DH187170</td> <td style="text-align: right;">ActiveHigh (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">ExtAlarm4Ss5b6bAP</td> <td style="text-align: right;">DH188170</td> <td style="text-align: right;">ActiveHigh (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">ExtAlarm5Ss3a4aAP</td> <td style="text-align: right;">DH189170</td> <td style="text-align: right;">ActiveHigh (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">ExtAlarm6AP</td> <td style="text-align: right;">DH190170</td> <td style="text-align: right;">ActiveHigh (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">ExtAlarm7AP</td> <td style="text-align: right;">DH191170</td> <td style="text-align: right;">ActiveHigh (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">ExtAlarm8AP</td> <td style="text-align: right;">DH192170</td> <td style="text-align: right;">ActiveHigh (Def)</td> </tr> <tr> <td></td> <td style="text-align: right;">PMASysErrAP</td> <td style="text-align: right;">DH193170</td> <td style="text-align: right;">ActiveLow</td> </tr> <tr> <td colspan="4"> </td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">PMAAlarmAllAP</td> <td style="text-align: right;">DH194170</td> <td style="text-align: right;">ActiveHigh (Def)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">PMAUnderVoltAP</td> <td style="text-align: right;">DH195170</td> <td style="text-align: right;">ActiveLow</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">PMASWAlarmAP</td> <td style="text-align: right;">DH196170</td> <td style="text-align: right;">ActiveHigh (Def)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">PMBSysErrAP</td> <td style="text-align: right;">DH197170</td> <td style="text-align: right;">ActiveLow</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">PMBAlarmAllAP</td> <td style="text-align: right;">DH198170</td> <td style="text-align: right;">ActiveHigh (Def)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">PMBUnderVoltAP</td> <td style="text-align: right;">DH199170</td> <td style="text-align: right;">ActiveLow</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">PMBSWAlarmAP</td> <td style="text-align: right;">DH200170</td> <td style="text-align: right;">ActiveHigh (Def)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">SelectPMAP</td> <td style="text-align: right;">DH201170</td> <td style="text-align: right;">ActiveHigh (Def)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">NotUsed1AP</td> <td style="text-align: right;">DH202170</td> <td style="text-align: right;">0 <dec> (Def)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">NotUsed2AP</td> <td style="text-align: right;">DH203170</td> <td style="text-align: right;">0 <dec> (Def)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">NotUsed3AP</td> <td style="text-align: right;">DH204170</td> <td style="text-align: right;">0 <dec> (Def)</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">WatchdogEnableAP</td> <td style="text-align: right;">DH205170</td> <td style="text-align: right;">ActiveHigh (Def)</td> </tr> <tr> <td colspan="4"> </td> </tr> <tr> <td></td> <td></td> <td>TC Control Flags :</td> <td style="text-align: right;">GBM IL DSE</td> <td></td> </tr> <tr> <td colspan="4"> </td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">--Y -- --</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td>Subsch. 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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
15		Check new status of Alarm Polarity Register		Next Step: 16
15.1		Send TC(8,4,109,17) to read the register		<input type="checkbox"/>
		Execute Telecommand CRMA_RMh_AlrmPlrityReg TC Control Flags : Subsch. ID : 10 Det. descr. : CROME A: Read RMH Alarm Polarity Register <div style="text-align: right;">GBM IL DSE --Y -- --</div>	DCW17159	
15.2		Check the reception of TM(8,6,109,17)		<input type="checkbox"/>
		Note: while in the TC a raw value set to 0 correspond to High, in the registry a bit set to 0 corresponds to Low. The Alarm Polarity Register layout is the same as the Filtered Alarm Status Register (see TM/Register layout).		
		Verify Packet Reception TM 8-6-109-17 TTR Management - Crome Register Report Packet Details: <div style="text-align: right;">APID: 16 Type: 8 Subtype: 6 PI1: 27921 PI2: 0</div>	CromeRegRpt	
		Verify Packet Telemetry (Pkt = CromeRegRpt) <div style="text-align: right;">Function_ID DE008170 = TTR_Manag (None)</div>		
		Verify Packet Telemetry (Pkt = CromeRegRpt) <div style="text-align: right;">TtrManRptActId DE368170 = CromeRegRpt (None)</div>		
		Verify Packet Telemetry (Pkt = CromeRegRpt) <div style="text-align: right;">CromeId DE285170 = The RM selected</div>		SLD=XL001999
		Verify Packet Telemetry (Pkt = CromeRegRpt) <div style="text-align: right;">CromeAddr DE329170 = 070058C0 <hex></div>		AND=ZAZ7R999
		Verify Packet Telemetry (Pkt = CromeRegRpt) <div style="text-align: right;">CromeData DE367170</div>	Depending on commanded data	(None)
16		Enable RM A		Next Step: 29
16.1		Acquire RM A status		<input type="checkbox"/>

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry RMA_fromTTR-RMA DEEXG160	= DISABLED	AND=ZAZAA999
		Verify Telemetry RMA_fromTTR-RMB DEEXH160	= DISABLED	AND=ZAZAA999
16.2		Send TC to enable RM A		<input type="checkbox"/>
		Execute Telecommand RM_A_enable TC Control Flags : Subsch. ID : 10 Det. descr. : RM A enable - High Priority Standard	DCA14170 GBM IL DSE --Y -- ---	
16.3		Verify that the RM A has been enabled		<input type="checkbox"/>
		Verify Telemetry RMA_fromTTR-RMA DEEXG160	= ENABLED	AND=ZAZAA999
		Verify Telemetry RMA_fromTTR-RMB DEEXH160	= ENABLED	AND=ZAZAA999
<p>TC Seq. Name :HRD3018Q (Acquire Alarm status)</p> <p>TimeTag Type: N Sub Schedule ID: <input type="checkbox"/></p>				
17		Acquire the current status of RM B alarm signals		Next Step: 18
		Execute Telecommand ReadAlarmSts Command Parameter(s) : RmId DH093170 TC Control Flags : Subsch. ID : 30 Det. descr. : TEMPLATE Read Alarm Status TC(8,4,109,8)	DCT62170 RM_B GBM IL DSE --Y -- ---	
18		Verify the reception of TM(8,6,109,8)		Next Step: 19

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>The dedicated Alarm Status Report packet TM(8,6,109,8) is based on the Filtered Alarm Status Register (0x070058FC), i.e. after temporisation and any inversion in the polarity stage.</p> <p>Thus a bit set to 1 means the alarm is active, independently if the polarity is High or Low. However, an active but disabled alarm will still show as 1.</p> <p>Note the Filtered Alarm Status Register has a different layout than the Alarm Status Report packet (see TM/Registers Layout)</p>		
		<p>See tab INFO RM ALARMS at end of procedure for an overview of the foreseen alarm statuses</p> <ul style="list-style-type: none"> -before separation -after separation -after disabling of PAP6 alarm and being on CDMS PM A or PM B. <p>(Note that alarm disabling does NOT result in a change in the alarm status register, since the disabling is performed downstream)</p>		
		<p>Verify Packet Reception TM 8-6-109-8 TTR Management - Alarm Status Report Packet Details:</p>	AlarmStsRpt	
		<p style="text-align: right;">APID: 16 Type: 8 Subtype: 6 PI1: 27912 PI2: 0</p>		
		<p>Verify Packet Telemetry Function_ID DE008170</p>	= TTR_Manag	(None)
		<p>Verify Packet Telemetry TtrManRptActId DE368170</p>	= AlarmStsRpt	AND=ZAZ7R999
		<p>Verify Packet Telemetry RmId DE283170</p>	= RM_B	AND=ZAZ7R999
19		Disable RM B		Next Step: 20
19.1		Acquire RM B status		<input type="checkbox"/>
		<p>Verify Telemetry RMB_fromTTR-RMA DEEXJ160</p>	= ENABLED	AND=ZAZAA999
		<p>Verify Telemetry RMB_fromTTR-RMB DEEXK160</p>	= ENABLED	AND=ZAZAA999
19.2		Send TC to disable RM B		<input type="checkbox"/>

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand RM_B_Disable <i>TC Control Flags :</i> GBM IL DSE --Y -- -- <i>Subsch. ID : 10</i> <i>Det. descr. : RM B Disable - High Priority Standard</i>	DCA12170	
19.3		Verify that the RM B has been disabled		<input type="checkbox"/>
		Verify Telemetry RMB_fromTTR-RMA DEEXJ160	= DISABLED	AND=ZAZAA999
		Verify Telemetry RMB_fromTTR-RMB DEEXK160	= DISABLED	AND=ZAZAA999
20		Choose action: - Enable/disable alarm - Set alarm polarity		Next Step: Ena/Dis Alarms 21 Set Alarm Polarity 25
<i>TC Seq. Name :HRD3018D (EnaDisAlarmRMB)</i> <i>TimeTag Type: N</i> <i>Sub Schedule ID:</i> <input type="checkbox"/>				
21		Check current status of RM B Alarm Enable Set Register		Next Step: 22
		It is suggested to use the Excel spreadsheet tool to verify the correct setting of the register before and after the modification.		
21.1		Send TC(8,4,109,17) to read the register		<input type="checkbox"/>
		Execute Telecommand CRMB_RM_H_AlarmEnSetReg <i>TC Control Flags :</i> GBM IL DSE --Y -- -- <i>Subsch. ID : 10</i> <i>Det. descr. : CROME B: Read RMH Alarm Enable Set Register</i>	DCW38159	
21.2		Check the reception of TM(8,6,109,17)		<input type="checkbox"/>

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		PMAAlarmAll DH114170 PMAUnderVolt DH115170 PMASWAlarm DH116170 PMBSysErr DH117170 PMBAlarmAll DH118170 PMBUnderVolt DH119170 PMBSWAlarm DH120170 SelectPM DH121170 NotUsed1 DH122170 NotUsed2 DH123170 NotUsed3 DH124170 WatchdogEnable DH125170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable / Disable Alarms TC(8,4,109,1)	Enable Enable Enable Enable Enable Enable Enable Enable 0 <dec> (Def) 0 <dec> (Def) 0 <dec> (Def) Enable	
23		Check new status of Alarm Enable Set Register		Next Step: 24
23.1		Send TC(8,4,109,17) to read the register		<input type="checkbox"/>
		The Alarm Enable Clear Register (0x070058D0) could also be used as it returns the same value.		
		Execute Telecommand CRMB_RM_H_AlarmEnSetReg TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : CROME B: Read RMH Alarm Enable Set Register	DCW38159	
23.2		Check the reception of TM(8,6,109,17)		<input type="checkbox"/>
		Both the Alarm Enable Set or Alarm Enable Clear registers have the same layout as as the Filtered Alarm Status Register (see TM/Register layout).		
		Verify Packet Reception TM 8-6-109-17 TTR Management - Crome Register Report Packet Details: APID: 16 Type: 8 Subtype: 6 PI1: 27921 PI2: 0	CromeRegRpt	
		Verify Packet Telemetry (Pkt = CromeRegRpt) Function_ID DE008170 = TTR_Manag (None)		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Packet Telemetry (Pkt = CromeRegRpt) TtrManRptActId DE368170 = CromeRegRpt (None)		
		Verify Packet Telemetry (Pkt = CromeRegRpt) CromeId DE285170 = Crome_B (None)		
		Verify Packet Telemetry (Pkt = CromeRegRpt) CromeAddr DE329170 = 070058D4 <hex> (None)		
		Verify Packet Telemetry CromeData DE367170 = Consistent with (None) commanded change		
24		Enable RM B		Next Step: 29
24.1		Acquire RM B status		<input type="checkbox"/>
		Verify Telemetry RMB_fromTTR-RMA DEEXJ160 = DISABLED AND=ZAZAA999		
		Verify Telemetry RMB_fromTTR-RMB DEEXK160 = DISABLED AND=ZAZAA999		
24.2		Send TC to enable RM B		<input type="checkbox"/>
		Execute Telecommand RM_B_enable TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : RM B enable - High Priority Standard	DCA15170	
24.3		Verify that the RM B has been enabled		<input type="checkbox"/>
		Verify Telemetry RMB_fromTTR-RMA DEEXJ160 = ENABLED AND=ZAZAA999		
		Verify Telemetry RMB_fromTTR-RMB DEEXK160 = ENABLED AND=ZAZAA999		
<p><i>TC Seq. Name :HRD3018C (SetAlarmPolRMB)</i></p> <p><i>TimeTag Type: N</i> <i>Sub Schedule ID:</i></p> <p><input type="checkbox"/></p>				

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
25		Check current status of RM B Alarm Polarity Register		Next Step: 26
		It is suggested to use the Excel spreadsheet tool to verify the correct setting of the register before and after the modification.		
25.1		Send TC(8,4,109,17) to read the register		<input type="checkbox"/>
		Execute Telecommand CRMB_RMh_AlrmPlrityReg TC Control Flags : GBM IL DSE --Y -- -- Subsch. ID : 10 Det. descr. : CROME B: Read RMH Alarm Polarity Register	DCW35159	
25.2		Check the reception of TM(8,6,109,17)		<input type="checkbox"/>
		Note: while in the TC a raw value set to 0 correspond to High, in the registry a bit set to 0 corresponds to Low. The Alarm Polarity Register layout is the same as the Filtered Alarm Status Register (see TM/Register layout).		
		Verify Packet Reception TM 8-6-109-17 TTR Management - Crome Register Report Packet Details: APID: 16 Type: 8 Subtype: 6 PI1: 27921 PI2: 0	CromeRegRpt	
		Verify Packet Telemetry Function_ID DE008170	= TTR_Manag	(None)
		Verify Packet Telemetry TtrManRptActId DE368170	= CromeRegRpt	(None)
		Verify Packet Telemetry CromeId DE285170	The RM selected	SLD=XL001999
		Verify Packet Telemetry CromeAddr DE329170	= 070058C0 <hex>	AND=ZAZ7R999
		Verify Packet Telemetry CromeData DE367170	Default polarity setting should return HEX 003F55F9	(None)
26		Send TC(8,4,109,9) to set the alarms polarity		Next Step: 27

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch																																																																								
		<p>For all the following alarms: 0 – Active at High 1 – Active at Low</p> <p>The TC shows the default setting, it must be modified according to the situation</p>																																																																										
		<p>Execute Telecommand</p> <p style="text-align: center;">SetAlarmPolarity</p> <p>DCT63170</p> <p>Command Parameter(s) :</p> <table border="0"> <tr> <td>RmId</td> <td>DH093170</td> <td>RM_B</td> </tr> <tr> <td>WatchdogToggAP</td> <td>DH184170</td> <td>ActiveHigh (Def)</td> </tr> <tr> <td>ExtAlarm1DoD1AP</td> <td>DH185170</td> <td>ActiveLow</td> </tr> <tr> <td>ExtAlarm2DoD2AP</td> <td>DH186170</td> <td>ActiveLow</td> </tr> <tr> <td>ExtAlarm3Ss5a6aAP</td> <td>DH187170</td> <td>ActiveHigh (Def)</td> </tr> <tr> <td>ExtAlarm4Ss5b6bAP</td> <td>DH188170</td> <td>ActiveHigh (Def)</td> </tr> <tr> <td>ExtAlarm5Ss3a4aAP</td> <td>DH189170</td> <td>ActiveHigh (Def)</td> </tr> <tr> <td>ExtAlarm6AP</td> <td>DH190170</td> <td>ActiveHigh (Def)</td> </tr> <tr> <td>ExtAlarm7AP</td> <td>DH191170</td> <td>ActiveHigh (Def)</td> </tr> <tr> <td>ExtAlarm8AP</td> <td>DH192170</td> <td>ActiveHigh (Def)</td> </tr> <tr> <td>PMASysErrAP</td> <td>DH193170</td> <td>ActiveLow</td> </tr> <tr> <td colspan="3"> </td> </tr> <tr> <td>PMAAlarmAllAP</td> <td>DH194170</td> <td>ActiveHigh (Def)</td> </tr> <tr> <td>PMAUnderVoltAP</td> <td>DH195170</td> <td>ActiveLow</td> </tr> <tr> <td>PMASWAlarmAP</td> <td>DH196170</td> <td>ActiveHigh (Def)</td> </tr> <tr> <td>PMBSysErrAP</td> <td>DH197170</td> <td>ActiveLow</td> </tr> <tr> <td>PMBAlarmAllAP</td> <td>DH198170</td> <td>ActiveHigh (Def)</td> </tr> <tr> <td>PMBUnderVoltAP</td> <td>DH199170</td> <td>ActiveLow</td> </tr> <tr> <td>PMBSWAlarmAP</td> <td>DH200170</td> <td>ActiveHigh (Def)</td> </tr> <tr> <td>SelectPMAP</td> <td>DH201170</td> <td>ActiveHigh (Def)</td> </tr> <tr> <td>NotUsed1AP</td> <td>DH202170</td> <td>0 <dec> (Def)</td> </tr> <tr> <td>NotUsed2AP</td> <td>DH203170</td> <td>0 <dec> (Def)</td> </tr> <tr> <td>NotUsed3AP</td> <td>DH204170</td> <td>0 <dec> (Def)</td> </tr> <tr> <td>WatchdogEnableAP</td> <td>DH205170</td> <td>ActiveHigh (Def)</td> </tr> </table> <p>TC Control Flags :</p> <p style="text-align: center;">GBM IL DSE</p> <p style="text-align: center;">--Y -- ---</p> <p>Subsch. ID : 10 Det. descr. : TEMPLATE Set Alarm Polarity TC(8,4,109,9)</p>	RmId	DH093170	RM_B	WatchdogToggAP	DH184170	ActiveHigh (Def)	ExtAlarm1DoD1AP	DH185170	ActiveLow	ExtAlarm2DoD2AP	DH186170	ActiveLow	ExtAlarm3Ss5a6aAP	DH187170	ActiveHigh (Def)	ExtAlarm4Ss5b6bAP	DH188170	ActiveHigh (Def)	ExtAlarm5Ss3a4aAP	DH189170	ActiveHigh (Def)	ExtAlarm6AP	DH190170	ActiveHigh (Def)	ExtAlarm7AP	DH191170	ActiveHigh (Def)	ExtAlarm8AP	DH192170	ActiveHigh (Def)	PMASysErrAP	DH193170	ActiveLow				PMAAlarmAllAP	DH194170	ActiveHigh (Def)	PMAUnderVoltAP	DH195170	ActiveLow	PMASWAlarmAP	DH196170	ActiveHigh (Def)	PMBSysErrAP	DH197170	ActiveLow	PMBAlarmAllAP	DH198170	ActiveHigh (Def)	PMBUnderVoltAP	DH199170	ActiveLow	PMBSWAlarmAP	DH200170	ActiveHigh (Def)	SelectPMAP	DH201170	ActiveHigh (Def)	NotUsed1AP	DH202170	0 <dec> (Def)	NotUsed2AP	DH203170	0 <dec> (Def)	NotUsed3AP	DH204170	0 <dec> (Def)	WatchdogEnableAP	DH205170	ActiveHigh (Def)		
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27		Check new status of Alarm Polarity Register		Next Step: 28																																																																								
27.1		Send TC(8,4,109,17) to read the register		□																																																																								

RM alarm maintenance
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand CRMB_RMh_AlrmPlrityReg <i>TC Control Flags :</i> Subsch. ID : 10 Det. descr. : CROME B: Read RMH Alarm Polarity Register Register GBM IL DSE --Y -- --	DCW35159	
27.2		Check the reception of TM(8,6,109,17)		<input type="checkbox"/>
		Note: while in the TC a raw value set to 0 correspond to High, in the registry a bit set to 0 corresponds to Low. The Alarm Polarity Register layout is the same as the Filtered Alarm Status Register (see TM/Register layout).		
		Verify Packet Reception TM 8-6-109-17 TTR Management - Crome Register Report <i>Packet Details:</i> APID: 16 Type: 8 Subtype: 6 PI1: 27921 PI2: 0	CromeRegRpt	
		Verify Packet Telemetry (Pkt = CromeRegRpt) Function_ID DE008170 = TTR_Manag (None)		
		Verify Packet Telemetry (Pkt = CromeRegRpt) TtrManRptActId DE368170 = CromeRegRpt (None)		
		Verify Packet Telemetry (Pkt = CromeRegRpt) CromeId DE285170 = The RM selected (None)		
		Verify Packet Telemetry (Pkt = CromeRegRpt) CromeAddr DE329170 = 070058C0 <hex> (None)		
		Verify Packet Telemetry (Pkt = CromeRegRpt) CromeData DE367170 = Depending on commanded data (None)		
28		Enable RM B		Next Step: 29
28.1		Acquire RM B status		<input type="checkbox"/>
		Verify Telemetry RMB_fromTTR-RMA DEEXJ160 = DISABLED		AND=ZAZAA999
		Verify Telemetry RMB_fromTTR-RMB DEEXK160 = DISABLED		AND=ZAZAA999

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
28.2		Send TC to enable RM B		<input type="checkbox"/>
		Execute Telecommand RM_B_enable TC Control Flags : GBM IL DSE --Y -- -- Subsch. ID : 10 Det. descr. : RM B enable - High Priority Standard	DCA15170	
28.3		Verify that the RM B has been enabled		<input type="checkbox"/>
		Verify Telemetry RMB_fromTTR-RMA DEEXJ160 = ENABLED		AND=ZAZAA999
		Verify Telemetry RMB_fromTTR-RMB DEEXK160 = ENABLED		AND=ZAZAA999
TC Seq. Name :HRD3018Y (Turn off TTR management) TimeTag Type: N Sub Schedule ID: <input type="checkbox"/>				
29		Verify alarm status for both RMs		Next Step: 30
		<p>The dedicated Alarm Status Report packet TM(8,6,109,8) is based on the Filtered Alarm Status Register (0x070058FC), i.e. after temporisation and any inversion in the polarity stage.</p> <p>Thus a bit set to 1 means the alarm is active, independently if the polarity is High or Low. However, an active but disabled alarm will still show as 1.</p>		
		<p>See tab INFO RM ALARMS at end of procedure for an overview of the foreseen alarm statuses</p> <ul style="list-style-type: none"> -before separation -after separation -after disabling of PAP6 alarm <p>and being on CDMS PM A or PM B.</p> <p>(Note that alarm disabling does NOT result in a change in the alarm status register, since the disabling is performed downstream)</p>		
29.1		Verify RM A alarms status		<input type="checkbox"/>

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INFO RM ALARMS

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Info

TM(8,6,109,8) Alarm Status Report

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
not used										WD tog.	DOD alams	Sep. straps alams	Ext. alams	PMA alams	PMB alams	Sel PM	not used	WD En.													

TM(8,6,109,17) Read Crome

Filtered Alarm Status Register/ Alarm Polarity Register/ Alarm Enable Set & Clear

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
not used										WD En.	not used	Sel PM	PMB alams	PMA alams	Ext. alams	Sep. straps alams	DOD alams	WD tog.													