

Command ACMS from any nominal mode to SM
File: H_CRP_AOC_XN2S.xls
Author: dsalt-hp



Procedure Summary

Objectives

The objective of this Herschel ACMS contingency procedure is to enable transition to SM with control via PMA or PMB.

The procedure involves the following activities:

- check ACMS mode, configuration & PM relays
- transition to SM with control on PMA, if required
 - if PMA is currently used in NOMINAL, via setting the PMA_bit_0 relay to SURVIVAL then commanding a SW Reset
 - if PMB is used in NOMINAL, via PMB switch OFF
- transition to SM with control on PMB, if required
 - if PMB is currently used in NOMINAL, via setting the PMB_bit_0 relay to SURVIVAL then commanding a SW Reset
 - if PMA is used in NOMINAL, via PMA switch OFF

NOTE: These activities assume that the RM Programming Set is configured correctly for each option, though the option for reconfiguration is provided (call H_CRP_AOC_D2PS)

Summary of Constraints

Procedure execution has been authorised by SOM

Spacecraft Configuration

Start of Procedure

Spacecraft controlled by PMA or PMB in any nominal ACMS mode (SAM/OCM/SCM)

End of Procedure

Spacecraft controlled by either PMA or PMB, as necessary, in ACMS Survival Mode (SM)

Reference File(s)

Input Command Sequences

HFADRM1
HFADRM2

Output Command Sequences

NULL01
HRAXN2SA
HRAXN2SC
HRAXN2SB
HRAXN2SD

Referenced Displays

ANDs GRDs SLDs

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ZAA01999
 ZAA07999
 ZAZ53999

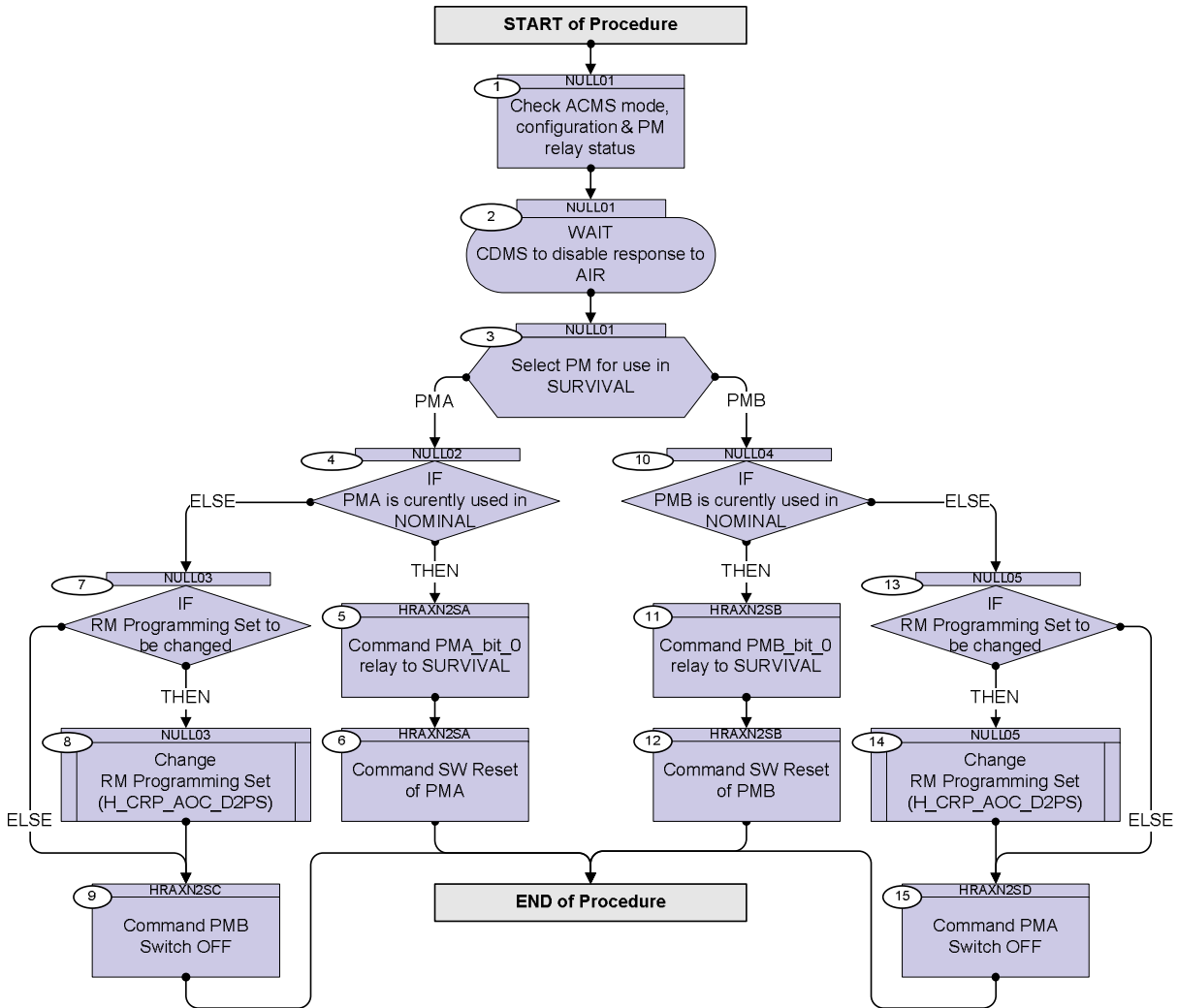
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
10/12/08		1	Created	dsalt-hp	
19/01/09	2	2	Updated for TAS-I comments: <input type="checkbox"/> - note added in Step 3.1 to enable Level 3a only <input type="checkbox"/> - 3rd SW Alarm instance added in Step 4, plus wait comments	dsalt-hp	
01/03/09		3	Major update to enable transition to SURVIVAL using either PMA or PMB when in NOMINAL on PMA or PMB, plus options for changing the RM Programming Set if necessary. <input type="checkbox"/> <input type="checkbox"/> Option to trigger SM via x3 SW Alarms now removed and replaced by command to switch OFF the active PM in NOMINAL	dsalt-hp	
02/03/09	2.1	4	Step 1 now calls sequences, rather than TCs. <input type="checkbox"/> Step 2 includes a note referencing the CDSM procedure for AIR protection.	dsalt-hp	

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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 : NULL01 (Null Sequence 01)				
TimeTag Type: Sub Schedule ID: □				
1		Check ACMS mode, configuration & PM relay status		Next Step: 2
1.1		Check current ACMS mode		□
		Verify Telemetry AcmsMode AESMG002	<to be read>	AND=ZAA01999
		Verify Telemetry AcmsSubstate AESMF002	<to be read>	AND=ZAA01999
		Verify Telemetry AcmsMain AID AESM3002	<to be read>	AND=ZAA01999
		Verify Telemetry FDIR mode AEZ02002	<to be read>	AND=ZAA01999
1.2		Check current configuration		□
		Verify Telemetry Curr CPDU use AEZ01002	<to be read>	AND=ZAA01999
1.3		Check PM relay status		□
		Check ACC configuration (read by BSW at start-up through GPI)		
		Verify Telemetry PM_relay_0 AEG43050	<to be read>	AND=ZAA07999
		Verify Telemetry StartupSurvNom AEG44050	<to be read>	AND=ZAA07999
		Check ACC configuration (via PIO port of RM)		
		Verify Telemetry ACC_A_MODE AEE8G050	<to be read>	AND=ZAA07999
		Verify Telemetry ACC_A_IMAGE AEE8H050	<to be read>	AND=ZAA07999
		Verify Telemetry ACC_B_MODE AEE8Z050	<to be read>	AND=ZAA07999
		Verify Telemetry ACC_B_IMAGE AEE8J050	<to be read>	AND=ZAA07999

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1.4		Check current RM Programming Set		<input type="checkbox"/>
		<p>NOTE: The RM Programming Set consists of two pointers which identify, respectively, the location of the PAP table and the attempt table (the reconfiguration command sequences are stored in a unique CCS table common to all programming sets).</p> <p>For Herschel and Planck, the user has the possibility to select one of four predefined programming sets, for which the PAP and attempt tables are stored in the RM EEPROM's. Each programming set corresponds to one specific configuration of ACC PM's:</p> <p>(0) PMA = main, PMB = redundant; (1) PMB = main, PMA = redundant; (2) PMA = both main and redundant (PMB excluded from use); (3) PMB both main and redundant (PMA excluded from use).</p>		
1.4.1		Uplink Sequence HFADRMR1		<input type="checkbox"/>
		Execute Sequence HFADRMR1 GetRmAstatusReport v02 Sequence Grouping = - SSID : 0		SEQ
1.4.2		Check status of PMA relays		<input type="checkbox"/>
		Verify Telemetry PMA Bit 0 sts AEW07109 <to be read>		AND=ZAZ53999
		Verify Telemetry PMA Bit 1 sts AEW0C109 <to be read>		AND=ZAZ53999
		Verify Telemetry RMH_ATPTR AEW1Y109 <to be read>		AND=ZAZ53999
		Verify Telemetry RMH_PAPTR AEW1Z109 <to be read>		AND=ZAZ53999
1.4.3		Uplink Sequence HFADRMR2		<input type="checkbox"/>

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Sequence HFADRRM2 GetRmBstatusReport v02 Sequence Grouping = - <i>SSID : 0</i>		SEQ
1.4.4		Check status of PMB relays		<input type="checkbox"/>
		Verify Telemetry PMA Bit 0 sts AEW07109	<to be read>	AND=ZAZ53999
		Verify Telemetry PMA Bit 1 sts AEW0C109	<to be read>	AND=ZAZ53999
		Verify Telemetry RMH_ATPTR AEW1Y109	<to be read>	AND=ZAZ53999
		Verify Telemetry RMH_PAPPTR AEW1Z109	<to be read>	AND=ZAZ53999
2		WAIT CDMS to disable response to AIR		Next Step: 3
		***** IMPORTANT ***** Make CDMU SOE is aware that the next steps of this procedure will raise the AIR flag, so the <u>CDMS reaction to it must disabled!</u>		
		Wait for CDMS SOE to confirm that the CDMS response to AIR is disabled NOTE: The CDMS SOE will perform this via the procedure for EAT Maintenance (H_FCP_DHS_3049)		
3		Select PM for use in SURVIVAL		Next Step: PMA 4 PMB 10
		Select PM to be used in Survival, based upon TM read in Step 1		
TC Seq. Name :NULL02 (Null Sequence 02) TimeTag Type: Sub Schedule ID: <input type="checkbox"/>				
4		IF PMA is curently used in NOMINAL		Next Step: THEN 5 ELSE 7

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
TC Seq. Name :HRAXN2SA (SMonPMAviaSWreset) TimeTag Type: N Sub Schedule ID: <input type="checkbox"/>				
5		Command PMA_bit_0 relay to SURVIVAL		Next Step: 6
		NOTE: If it is desired to <u>generate a Level 3a only</u> , this TC should be skipped.		
		Execute Telecommand <div style="text-align: right;">ACC_A_Srv_ACC_PMA_Bit_0</div> TC Control Flags : <div style="text-align: right;">GBM IL DSE --Y -- ---</div> Subsch. ID : 10 Det. descr. : Set ACC A Survival Mode = Set ACC PM A Bit 0 - High Level	DCH14170	
		Verify Telemetry <div style="text-align: right;">PM_relay_0 AEG43050</div>	= SET	AND=ZAA07999
		Verify Telemetry <div style="text-align: right;">ACC_A_MODE AEE8G050</div>	= Survival	AND=ZAA07999
6		Command SW Reset of PMA		Next Step: END
		Execute Telecommand <div style="text-align: right;">PM A Reset</div> TC Control Flags : <div style="text-align: right;">GBM IL DSE --Y -- ---</div> Subsch. ID : 20 Det. descr. : TC(2,3) - PM A Reset - Mission Specific	ACY42109	
TC Seq. Name :NULL03 (Null Sequence 03) TimeTag Type: Sub Schedule ID: <input type="checkbox"/>				
7		IF RM Programming Set to be changed		Next Step: THEN 8 ELSE 9

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
8		Change RM Programming Set (H_CRP_AOC_D2PS)		Next Step: 9
TC Seq. Name : HRAXN2SC (SMonPMBviaPMBOff) TimeTag Type: N Sub Schedule ID: <input type="checkbox"/>				
9		Command PMB Switch OFF		Next Step: END
		***** WARNING ***** This TC will switch OFF the PMB, causing an UV alarm that triggers the RM to reconfigure to PMB. [N.B. This assumes that the PMA_bit_0 relay is set to survival and that the Programming Set is also correctly configured]		
		Execute Telecommand TC Control Flags : Subsch. ID : 10 Det. descr. : External ACC PM B OFF - Mission Specific	Ext_ACC_PM_B_OFF DCM26170 GBM IL DSE --Y -- ---	
TC Seq. Name : NULL04 (Null Sequence 04) TimeTag Type: Sub Schedule ID: <input type="checkbox"/>				
10		IF PMB is curenly used in NOMINAL		Next Step: THEN 11 ELSE 13
TC Seq. Name : HRAXN2SB (SMonPMBviaSWreset) TimeTag Type: N Sub Schedule ID: <input type="checkbox"/>				
11		Command PMB_bit_0 relay to SURVIVAL		Next Step: 12

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		NOTE: If it is desired to generate a Level 3a only, this TC should be skipped.		
		Execute Telecommand <p style="text-align: center;">ACC_B_Srv_ACC_PMB_Bit_0</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : Set ACC B Survival Mode = Set ACC PM B Bit 0 - High Level	DCH16170	
		Verify Telemetry <p style="text-align: center;">PM_relay_0 AEG43050</p>	= SET	AND=ZAA07999
		Verify Telemetry <p style="text-align: center;">ACC_B_MODE AEE8Z050</p>	= Survival	AND=ZAA07999
12		Command SW Reset of PMB		Next Step: END
		Execute Telecommand <p style="text-align: center;">PM B Reset</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 20 Det. descr. : TC(2,3) - PM B Reset - Mission Specific	ACY52109	
TC Seq. Name :NULL05 (Null Sequence 05) TimeTag Type: Sub Schedule ID: <input type="checkbox"/>				
13		IF RM Programming Set to be changed		Next Step: THEN 14 ELSE 15
14		Change RM Programming Set (H_CRP_AOC_D2PS)		Next Step: 15

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
<p><i>TC Seq. Name : HRAXN2SD (SMonPMBviaPMAoff)</i></p> <p><i>TimeTag Type:</i> <i>Sub Schedule ID:</i></p> <p>□</p>				
15		Command PMA Switch OFF		Next Step: END
		<p>***** WARNING *****</p> <p>This TC will switch OFF the PMA, causing an UV alarm that triggers the RM to reconfigure to PMB.</p> <p>[N.B. This assumes that the PMB_bit_0 relay is set to survival and that the Programming Set is also correctly configured]</p>		
		<p>Execute Telecommand</p> <p style="text-align: right;">Ext_ACC_PM_A_OFF</p> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10 Det. descr. : External ACC PM A OFF - Mission Specific</p>	DCM23170	
End of Procedure				