

Update SM units configuration  
File: H\_CRP\_AOC\_OSUR.xls  
Author: dsalt-hp



## Procedure Summary

### Objectives

This Herschel ACMS contingency procedure provides all the necessary commands and telemetry checks to change the configuration of any ACMS unit used in Survival Mode.

The procedure involves the following activities:

- check current SM Thrust Level & units configuration
- disabling of TC check on ACMS mode, if necessary
- command new SM units configuration
- enabling of TC check on ACMS mode, if necessary

NOTE: This procedure does not include the contingency analysis part, as this is foreseen to be part of the contingency analysis document (reference TBD).

### Summary of Constraints

Execution of this procedure must be authorised by the SOM

### Spacecraft Configuration

#### Start of Procedure

S/C in any Nominal mode with an inappropriate definition of the SM units configuration

#### End of Procedure

S/C in any Nominal mode with SM configuration updated to an appropriate units configuration

### Reference File(s)

#### Input Command Sequences

#### Output Command Sequences

HRA0SURX  
HRA0SURA  
HRA0SURY

### Referenced Displays

ANDs	GRDs	SLDs
ZAA01999		
ZAAM0999		
ZAAM2999		
ZAA07999		

### Configuration Control Information

Update SM units configuration  
File: H\_CRP\_AOC\_0SUR.xls  
Author: dsalt-hp

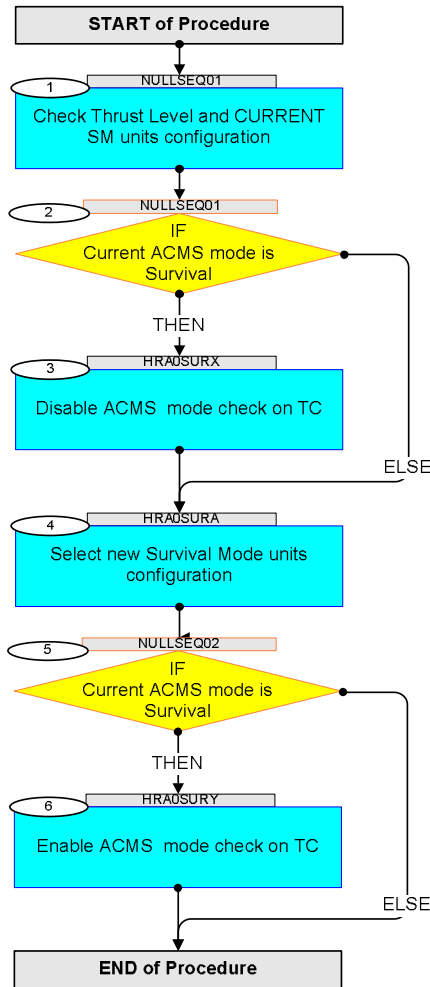


DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
22/07/09		1	Created	dsalt-hp	
22/07/09	2.5	2	Check step moved to start of procedure	dsalt-hp	

Update SM units configuration  
 File: H\_CRP\_AOC\_0SUR.xls  
 Author: dsalt-hp



**Procedure Flowchart Overview**

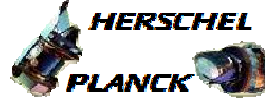


Update SM units configuration  
 File: H\_CRP\_AOC\_0SUR.xls  
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
<b>Beginning of Procedure</b>				
TC Seq. Name : NULLSEQ01 (Null Sequence 01)				
TimeTag Type: N				
Sub Schedule ID:				
□				
1		Check Thrust Level and CURRENT SM units configuration		Next Step: 2
1.1		Check Nominal Unit Selection		□
		Verify Telemetry Nom Conf SAS AESCB002	<to be read>	AND=ZAA01999
		Verify Telemetry Reserved AESCE002	<to be read>	AND=ZAA01999
		Verify Telemetry Nom Conf RCS AESCF002	<to be read>	AND=ZAA01999
1.2		Check Survival Unit Selection		□
		Verify Telemetry Surv Conf SAS AESCH001	<to be read>	AND=ZAA01999
		Verify Telemetry Surv Conf CRS AESCL001	<to be read>	AND=ZAA01999
		Verify Telemetry Surv Conf RCS AESCM001	<to be read>	AND=ZAA01999
1.3		Uplink Sequence HFADRM R1		□
		Execute Sequence HFADRM R1 GetRmAstatusReport		
1.3.1		Check Thrust Level		□
		Verify Telemetry MiscCfg ThrstLev AEW2W109	<to be read>	AND=ZAAM0999
1.3.2		Check Nominal Units Selection		□
		Verify Telemetry Nom Conf Reserv AEW2T109	<to be read>	AND=ZAAM0999

Update SM units configuration  
 File: H\_CRP\_AOC\_0SUR.xls  
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
1.3.3		<i>Check Survival Unit Selection</i>		<input type="checkbox"/>
		Verify Telemetry Surv Conf SAS1                      AEW35109	<to be read>	AND=ZAAM0999
		Verify Telemetry Surv Conf SAS2                      AEW36109	<to be read>	AND=ZAAM0999
		Verify Telemetry Surv Conf CRS                        AEW37109	<to be read>	AND=ZAAM0999
		Verify Telemetry Surv Conf RCS                        AEW38109	<to be read>	AND=ZAAM0999
1.3.4		<i>Check Detection Unit Selection</i>		<input type="checkbox"/>
		Verify Telemetry AENSET CRS2                        AEW5C109	<to be read>	AND=ZAAM2999
		Verify Telemetry AENSET CRS1                        AEW5B109	<to be read>	AND=ZAAM2999
1.4		<i>Uplink Sequence HFADRM2</i>		<input type="checkbox"/>
		Execute Sequence HFADRM2 GetRmBstatusReport		
1.4.1		<i>Check Thrust Level</i>		<input type="checkbox"/>
		Verify Telemetry MiscCfg ThrstLev                    AEW2W109	<to be read>	AND=ZAAM0999
1.4.2		<i>Check Nominal Units Selection</i>		<input type="checkbox"/>
		Verify Telemetry Nom Conf Reserv                    AEW2T109	<to be read>	AND=ZAAM0999
1.4.3		<i>Check Survival Unit Selection</i>		<input type="checkbox"/>
		Verify Telemetry Surv Conf SAS1                      AEW35109	<to be read>	AND=ZAAM0999
		Verify Telemetry Surv Conf SAS2                      AEW36109	<to be read>	AND=ZAAM0999
		Verify Telemetry Surv Conf CRS                        AEW37109	<to be read>	AND=ZAAM0999

Update SM units configuration  
 File: H\_CRP\_AOC\_0SUR.xls  
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry Surv Conf RCS                      AEW38109	<to be read>	AND=ZAAM0999
1.4.4		Check Detection Unit Selection		<input type="checkbox"/>
		Verify Telemetry AENSET CRS2                      AEW5C109	<to be read>	AND=ZAAM2999
		Verify Telemetry AENSET CRS1                      AEW5B109	<to be read>	AND=ZAAM2999
2		IF Current ACMS mode is Survival		Next Step: THEN 3 ELSE 4
<p>TC Seq. Name :HRA0SURX (Disable_SM_TCcheck)</p> <p>TimeTag Type: Sub Schedule ID: <input type="checkbox"/></p>				
3		Disable ACMS mode check on TC		Next Step: 4
		Execute Telecommand DisChkMode-StateFID 161 Command Parameter(s) : DisChk DF86Cmd                      AH8C1001                      Enable 86 DisChk DD86Cmd                      AH8C2001                      Enable 86 TC Control Flags : GBM IL DSE --Y -- -- Subsch. ID : 20 Det. descr. : TC(8,1) - Disable Command check- DisChkMode-StateFID 161	ACY8L109	
		Execute Telecommand Fire Disable Check Command Parameter(s) : FireFun DF86Cmd                      AH8F1001                      Enable 86 FireFun DD86Cmd                      AH8F2001                      Enable 86 TC Control Flags : GBM IL DSE --Y -- -- Subsch. ID : 20 Det. descr. : TC(8,4) Fire Command - Fire Disable Check	ACZ7M109	

Update SM units configuration  
 File: H\_CRP\_AOC\_0SUR.xls  
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p><b>NOTE:</b>            There are no TM parameters available to enable a direct verification that this check is now <u>disabled</u>.</p>		
<p>TC Seq. Name :HRA0SURA (Define_SM_units)</p> <p>TimeTag Type:            Sub Schedule ID:            Formal Parameter List :            SMCnf TL Parbit TLparity= &lt;dec&gt;            SMCnf ThLvlInd ThrLevel= &lt;dec&gt;            SMCnf RM Parbit SMparity= &lt;dec&gt;            SMCnf SAS SurSAS= &lt;dec&gt;            SMCnf CRS Use SurCRS= &lt;dec&gt;            SMCnf RCS Use SurRCS= &lt;dec&gt;</p>				
4		Select new Survival Mode units configuration		Next Step: 5
4.1		Uplink Sequence HRA0SURA		<input type="checkbox"/>
		<p>When loading this command sequence on the Manual Stack, it will ask you to enter values for the formal parameters inside the sequence. The formal parameters are:</p> <p><b>TLparity</b> = Defines the bit to give ODD parity for the Thrust Level definition;            0 &lt;dec&gt; = for Thrust Level 1, 2, 4 &amp; 7            1 &lt;dec&gt; = for Thrust Level 0, 3, 5 &amp; 6</p> <p><b>ThrLevel</b> = Survival Mode thrust level. The thrust level to be entered here is the one read from telemetry in steps 1.3.2 and 1.3.7 (readings from the two RMS, thrust level should be the same on both).</p>		

Update SM units configuration  
 File: H\_CRP\_AOC\_OSUR.xls  
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p><b>SMparity</b> = Defines the bit to give ODD parity for the Survival Mode unit configuration definition;            0 &lt;dec&gt; = if each SAS uses a different channel (i.e. Nominal &amp; Redundant)            1 &lt;dec&gt; = if both SAS use the same channel (i.e Nominal or Redundant)</p> <p><b>SurSAS</b> = Specifies the SAS and the channels to use for the survival mode configuration;            0 &lt;dec&gt; = Both SAS using nominal channels            1 &lt;dec&gt; = SAS-1 using redundant, SAS-2 using nominal channels            2 &lt;dec&gt; = SAS-1 using nominal, SAS-2 using redundant channels            3 &lt;dec&gt; = Both SAS using redundant channels</p>		
		<p><b>SurCRS</b> = Specifies the CRS to use for the survival mode configuration;            4 &lt;dec&gt; = CRS-1            2 &lt;dec&gt; = CRS-2            1 &lt;dec&gt; = CRS-3</p> <p><b>SurRCS</b> = Specifies the RCS to use for the survival mode configuration;            2 &lt;dec&gt; = RCS-A            1 &lt;dec&gt; = RCS-B</p>		
4.1.1		Disable RM A		<input type="checkbox"/>
		<p>Execute Telecommand</p> <p style="text-align: center;"><b>Ext_ACC_RM_A_Disable</b></p> <p>TC Control Flags :</p> <p style="text-align: right;"><b>GBM IL DSE</b> --Y -- --</p> <p>Subsch. ID : 10            Det. descr. : External ACC RM A Disable - Mission Specific</p>	DCM22170	
		<p>Verify Telemetry</p> <p style="text-align: center;"><b>RMA_fromTTR-RMA                      AEE91050</b></p> <p style="text-align: right;">= DISABLED</p>		AND=ZAA07999
		<p>Verify Telemetry</p> <p style="text-align: center;"><b>RMA_fromTTR-RMB                      AEE92050</b></p> <p style="text-align: right;">= DISABLED</p>		AND=ZAA07999
4.1.2		Select New Survival CRS (for Non-Default SAS & RCS Configuration) on RM A		<input type="checkbox"/>

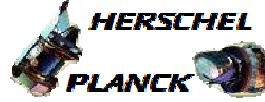


Update SM units configuration  
 File: H\_CRP\_AOC\_0SUR.xls  
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand  Modify SM configuration  Command Parameter(s) : SMConf DF86 Cmd           AH8S1001           Enable 86 SMConf DD86 Cmd           AH8S2001           Enable 86 SMConfHP_ID               AHFS1001           Herschel only SMConf RM ID               AHFS4001           RM-A SMCnf TL Parbit           AHFS5001           TLparity SMConf ThLvlInd           AHFS6001           ThrLevel SMCnf RM Parbit           AHFS7001           SMparity SMConf SAS                 AHFS8001           SursAS SMConf CRS Use            AHFS9001           SurCRS SMConf RCS Use            AHFSD001           SurRCS  TC Control Flags : GBM IL DSE --Y -- ---  Subsch. ID : 20 Det. descr. : TC_MODIFY_SM_CONFIGURATION	ACMC1001	
		Verify Telemetry Surv Conf SAS               AESCH001	<as defined>	AND=ZAA01999
		Verify Telemetry Surv Conf CRS               AESCL001	<as defined>	AND=ZAA01999
		Verify Telemetry Surv Conf RCS               AESCM001	<as defined>	AND=ZAA01999
4.1.3		Verify Update via RM A Status Report		□
		Execute Telecommand  Get RM-A status  TC Control Flags : GBM IL DSE --Y -- ---  Subsch. ID : 20 Det. descr. : TC(8,1) - Get RM-A status	ACZZ4109	
		Verify Packet Reception TM 8-6 for RM Status parametrized Packet Details: APID:       512 Type:        8 Subtype:   6 PI1:        41600 PI2:        1	A86_RMStatus	
		Verify Telemetry MiscCfg ThrstLev            AEW2W109	<as defined>	AND=ZAAM0999
		Verify Telemetry Surv Conf SAS1               AEW35109	<as defined>	AND=ZAAM0999
		Verify Telemetry Surv Conf SAS2               AEW36109	<as defined>	AND=ZAAM0999

Update SM units configuration  
 File: H\_CRP\_AOC\_0SUR.xls  
 Author: dsalt-hp



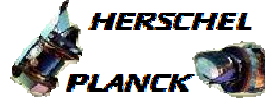
Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry Surv Conf CRS                            AEW37109	<as defined>	AND=ZAAM0999
		Verify Telemetry Surv Conf RCS                            AEW38109	<as defined>	AND=ZAAM0999
4.1.4		Enable RM A		<input type="checkbox"/>
		Execute Telecommand  Ext_ACC_RM_A_Enable  TC Control Flags :  GBM IL DSE --Y -- --  Subsch. ID : 10 Det. descr. : External ACC RM A Enable - Mission Specific	DCM21170	
		Verify Telemetry RMA_fromTTR-RMA                        AEE91050	= ENABLED	AND=ZAA07999
		Verify Telemetry RMA_fromTTR-RMB                        AEE92050	= ENABLED	AND=ZAA07999
4.1.5		Disable RM B		<input type="checkbox"/>
		Execute Telecommand  Ext_ACC_RM_B_Disable  TC Control Flags :  GBM IL DSE --Y -- --  Subsch. ID : 10 Det. descr. : External ACC RM B Disable - Mission Specific	DCM25170	
		Verify Telemetry RMB_fromTTR-RMA                        AEE93050	= DISABLED	AND=ZAA07999
		Verify Telemetry RMB_fromTTR-RMB                        AEE94050	= DISABLED	AND=ZAA07999
4.1.6		Select New Survival CRS (for Non-Default SAS & RCS Configuration) on RM B		<input type="checkbox"/>

Update SM units configuration  
 File: H\_CRP\_AOC\_0SUR.xls  
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand  Modify SM configuration  Command Parameter(s) : SMConf DF86 Cmd           AH8S1001           Enable 86 SMConf DD86 Cmd           AH8S2001           Enable 86 SMConfHP_ID               AHFS1001           Herschel only SMConf RM ID               AHFS4001           RM-B SMCnf TL Parbit           AHFS5001           TLparity SMConf ThLvlInd           AHFS6001           ThrLevel SMCnf RM Parbit           AHFS7001           SMparity SMConf SAS                 AHFS8001           SurSAS SMConf CRS Use            AHFS9001           SurCRS SMConf RCS Use            AHFSD001           SurRCS  TC Control Flags : GBM IL DSE --Y -- ---  Subsch. ID : 20 Det. descr. : TC_MODIFY_SM_CONFIGURATION	ACMC1001	
		Verify Telemetry Surv Conf SAS               AESCH001	<as defined>	AND=ZAA01999
		Verify Telemetry Surv Conf CRS               AESCL001	<as defined>	AND=ZAA01999
		Verify Telemetry Surv Conf RCS               AESC001	<as defined>	AND=ZAA01999
4.1.7		Verify Update via RM B Status Report		□
		Execute Telecommand  Get RM-B status  TC Control Flags : GBM IL DSE --Y -- ---  Subsch. ID : 20 Det. descr. : TC(8,1) - Get RM-B status	ACZZ5109	
		Verify Packet Reception TM 8-6 for RM Status parametrized Packet Details: APID:       512 Type:        8 Subtype:   6 PI1:       41600 PI2:        1	A86_RMStatus	
		Verify Telemetry MiscCfg ThrstLev            AEW2W109	<as defined>	AND=ZAAM0999
		Verify Telemetry Surv Conf SAS1               AEW35109	<as defined>	AND=ZAAM0999
		Verify Telemetry Surv Conf SAS2               AEW36109	<as defined>	AND=ZAAM0999

Update SM units configuration  
 File: H\_CRP\_AOC\_0SUR.xls  
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry <b>Surv Conf CRS</b> <b>AEW37109</b>	<as defined>	AND=ZAAM0999
		Verify Telemetry <b>Surv Conf RCS</b> <b>AEW38109</b>	<as defined>	AND=ZAAM0999
4.1.8		Enable RM B		<input type="checkbox"/>
		Execute Telecommand <b>Ext_ACC_RM_B_Enable</b>  TC Control Flags : <b>GBM IL DSE</b> <b>--Y -- --</b>  Subsch. ID : 10 Det. descr. : External ACC RM B Enable - Mission Specific	DCM24170	
		Verify Telemetry <b>RMB_fromTTR-RMA</b> <b>AEE93050</b>	= ENABLED	AND=ZAA07999
		Verify Telemetry <b>RMB_fromTTR-RMB</b> <b>AEE94050</b>	= ENABLED	AND=ZAA07999
TC Seq. Name :NULLSEQ02 (Null Sequence 02)  TimeTag Type: N Sub Schedule ID:  <input type="checkbox"/>				
5		IF Current ACMS mode is Survival		Next Step: THEN 6 ELSE END
TC Seq. Name :HRA0SURY (Enable_SM_TCcheck)  TimeTag Type: Sub Schedule ID:  <input type="checkbox"/>				
6		Enable ACMS mode check on TC		Next Step: END

Update SM units configuration  
 File: H\_CRP\_AOC\_0SUR.xls  
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: center;"><b>EnaChkMode-StateFID 161</b></p> <i>Command Parameter(s) :</i> <b>EnaChck DF86Cmd</b> <b>AH8F3001</b> <b>EnaChck DD86Cmd</b> <b>AH8F4001</b>	ACZDH109  Enable 86 Enable 86	
		<i>TC Control Flags :</i> <p style="text-align: right;"><b>GBM IL DSE</b>            --Y -- ---</p> <i>Subsch. ID : 20</i> Det. descr. : TC(8,1) - Enable Command check - EnaChkMode-StateFID 161		
		<b>NOTE:</b> <i>There are no TM parameters available to enable a direct verification that this check is now <u>enabled</u>.</i>		
<b>End of Procedure</b>				