

Select CRS Survival Unit  
 File: H\_CRP\_AOC\_3SUR.xls  
 Author: dsalt-hp



## Procedure Summary

### Objectives

This procedure provides the commands and telemetry checks for selecting the CRS unit to be used in ACMS Survival Mode. It does not include the contingency analysis part, as this is foreseen to be part of the contingency analysis document (reference TBD).

Along with a change of nominal unit selection, a change of detection unit selection might be needed. The applicable procedure is H\_CRP\_AOC\_3DET (Select CRS Detection Unit)

### Summary of Constraints

### Spacecraft Configuration

Start of Procedure

End of Procedure

### Reference File(s)

Input Command Sequences

Output Command Sequences

HRA3SUR1  
 HRA3SUR2  
 HRA3SUR3

### Referenced Displays

ANDs	GRDs	SLDs
ZAA01999		
ZAAM0999		
ZAAM2999		
ZAA07999		

### Configuration Control Information

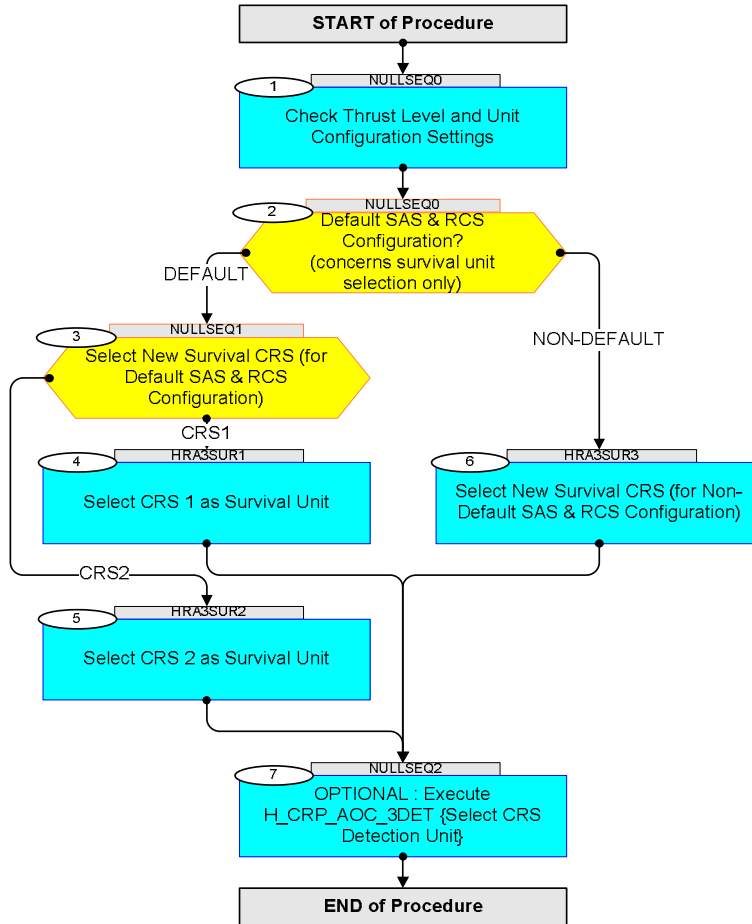
DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
15/01/09	2	1	Created	dsalt-hp	
05/05/09		2	Sequences updated to enable correct parity values to be defined via Formal Parameters	dsalt-hp	
05/05/09	2.4	3	TM check corrected in Step 4.1.2	dsalt-hp	

Status : Version 3 - Unchanged  
 Last Checkin: 05/05/09

Select CRS Survival Unit  
 File: H\_CRP\_AOC\_3SUR.xls  
 Author: dsalt-hp



**Procedure Flowchart Overview**



Select CRS Survival Unit  
 File: H\_CRP\_AOC\_3SUR.xls  
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
<b>Beginning of Procedure</b>				
TC Seq. Name :NULLSEQ0 ( )				
TimeTag Type: Sub Schedule ID:  <input type="checkbox"/>				
1		Check Thrust Level and Unit Configuration Settings		Next Step: 2
1.1		Check Nominal Unit Selection		<input type="checkbox"/>
		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		<input type="checkbox"/>
		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		<input type="checkbox"/>
		Execute Sequence HFADRM R1 GetRmAstatusReport		
1.3.1		Check Thrust Level		<input type="checkbox"/>
		Verify Telemetry MiscCfg ThrstLev AEW2W109	<to be read>	AND=ZAAM0999
1.3.2		Check Nominal Units Selection		<input type="checkbox"/>
		Verify Telemetry Nom Conf Reserv AEW2T109	<to be read>	AND=ZAAM0999

Select CRS Survival Unit  
 File: H\_CRP\_AOC\_3SUR.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

Select CRS Survival Unit  
 File: H\_CRP\_AOC\_3SUR.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		Default SAS & RCS Configuration? (concerns survival unit selection only)		Next Step: DEFAULT 3 NON-DEFAULT 6
		Check whether the SAS and RCS currently selected for use in Survival Mode are or are not according to the flight defaults (check flight defaults under step 2.1). SAS and RCS selected for nominal use are:  Flight-default -> GO TO STEP 3  Non-default -> GO TO STEP 6		
2.1		Default SAS & RCS Configuration (survival unit selection only)		<input type="checkbox"/>
		Verify Telemetry Surv Conf SAS1                      AEW35109	= REDUNDANT	AND=ZAAM0999
		Verify Telemetry Surv Conf SAS2                      AEW36109	= REDUNDANT	AND=ZAAM0999
		Verify Telemetry Surv Conf RCS                      AEW38109	= RCS-B	AND=ZAAM0999
TC Seq. Name : NULLSEQ1 ( )				
TimeTag Type: Sub Schedule ID:  <input type="checkbox"/>				
3		Select New Survival CRS (for Default SAS & RCS Configuration)		Next Step: CRS1 4 CRS2 5
		CRS 1 -> GO TO STEP 4  CRS 2 -> GO TO STEP 5		

Select CRS Survival Unit  
 File: H\_CRP\_AOC\_3SUR.xls  
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
<p>TC Seq. Name :HRA3SUR1 (SelCrslasSurvivalUni)</p> <p>TimeTag Type: N            Sub Schedule ID:            Formal Parameter List :            SMCnf TL Parbit TLparity= &lt;dec&gt;            SMConf ThLvlInd ThrLevel=</p>				
4		Select CRS 1 as Survival Unit		Next Step: 7
4.1		Uplink Sequence HRA3SUR1		<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>		
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: center;"><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: center;">= DISABLED</p>		AND=ZAA07999
		<p>Verify Telemetry</p> <p style="text-align: center;"><b>RMA_fromTTR-RMB                    AEE92050</b></p> <p style="text-align: center;">= DISABLED</p>		AND=ZAA07999
4.1.2		Select CRS 1 as Survival Unit on RM A		<input type="checkbox"/>

Select CRS Survival Unit  
 File: H\_CRP\_AOC\_3SUR.xls  
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: center;"><b>Modify SM configuration</b></p> <i>Command Parameter(s) :</i> 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 SMCnf ThLvlInd            AHFS6001            ThrLevel SMCnf RM Parbit            AHFS7001            1 <dec> SMConf SAS            AHFS8001            SAS12 R SMConf CRS Use        AHFS9001            CRS-1 SMConf RCS Use        AHFSD001            RCS-B	ACMC1001	
		<i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE            --Y -- ---</p> <i>Subsch. ID : 20</i> <i>Det. descr. : TC_MODIFY_SM_CONFIGURATION</i>		
		Verify Telemetry <p style="text-align: center;"><b>Surv Conf CRS            AESCL001</b></p>	= CRS-1	AND=ZAA01999
4.1.3		Verify Update via RM A Status Report		<input type="checkbox"/>
		Execute Telecommand <p style="text-align: center;"><b>Get RM-A status</b></p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE            --Y -- ---</p> <i>Subsch. ID : 20</i> <i>Det. descr. : TC(8,1) - Get RM-A status</i>	ACZZ4109	
		Verify Packet Reception <p style="text-align: center;"><b>TM 8-6 for RM Status parametrized</b></p> <i>Packet Details:</i> <p style="text-align: right;">APID:            512            Type:            8            Subtype:        6            PI1:            41600            PI2:            1</p>	A86_RMstatus	
		Verify Telemetry <p style="text-align: center;"><b>Surv Conf CRS            AEW37109</b></p>	= CRS-1	AND=ZAAM0999
4.1.4		Enable RM A		<input type="checkbox"/>
		Execute Telecommand <p style="text-align: center;"><b>Ext_ACC_RM_A_Enable</b></p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE            --Y -- ---</p> <i>Subsch. ID : 10</i> <i>Det. descr. : External ACC RM A Enable - Mission Specific</i>	DCM21170	





Select CRS Survival Unit  
 File: H\_CRP\_AOC\_3SUR.xls  
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand  Get RM-B status  TC Control Flags :  Subsch. ID : 20 Det. descr. : TC(8,1) - Get RM-B status  GBM IL DSE --Y -- --	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 Surv Conf CRS AEW37109	= CRS-1	AND=ZAAM0999
4.1.8		Enable RM B		<input type="checkbox"/>
		Execute Telecommand  Ext_ACC_RM_B_Enable  TC Control Flags :  Subsch. ID : 10 Det. descr. : External ACC RM B Enable - Mission Specific  GBM IL DSE --Y -- --	DCM24170	
		Verify Telemetry RMB_fromTTR-RMA AEE93050	= ENABLED	AND=ZAA07999
		Verify Telemetry RMB_fromTTR-RMB AEE94050	= ENABLED	AND=ZAA07999
<p>TC Seq. Name :HRA3SUR2 (SelSurCrs2ForNonDefC)</p> <p>TimeTag Type: N          Sub Schedule ID:          Formal Parameter List :          SMCnf TL Parbit TLparity=          SMConf ThLvlInd ThrLevel=</p> <p style="text-align: right;">&lt;dec&gt;</p>				
5		Select CRS 2 as Survival Unit		Next Step: 7
5.1		Uplink Sequence HRA3SUR2		<input type="checkbox"/>

Select CRS Survival Unit  
 File: H\_CRP\_AOC\_3SUR.xls  
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch																														
		<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>																																
5.1.1		Disable RM A		<input type="checkbox"/>																														
		<p>Execute Telecommand</p> <p style="text-align: right;"><b>Ext_ACC_RM_A_Disable</b></p> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE --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>	= DISABLED	AND=ZAA07999																														
		<p>Verify Telemetry</p> <p style="text-align: center;"><b>RMA_fromTTR-RMB                      AEE92050</b></p>	= DISABLED	AND=ZAA07999																														
5.1.2		Select CRS 2 as Survival Unit on RM A		<input type="checkbox"/>																														
		<p>Execute Telecommand</p> <p style="text-align: center;"><b>Modify SM configuration</b></p> <p>Command Parameter(s) :</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">SMConf DF86 Cmd</td> <td style="width: 30%;">AH8S1001</td> <td style="width: 40%;">Enable 86</td> </tr> <tr> <td>SMConf DD86 Cmd</td> <td>AH8S2001</td> <td>Enable 86</td> </tr> <tr> <td>SMConfHP_ID</td> <td>AHFS1001</td> <td>Herschel only</td> </tr> <tr> <td>SMConf RM ID</td> <td>AHFS4001</td> <td>RM-A</td> </tr> <tr> <td>SMCnf TL Parbit</td> <td>AHFS5001</td> <td>TLparity</td> </tr> <tr> <td>SMConf ThLvlInd</td> <td>AHFS6001</td> <td>ThrLevel</td> </tr> <tr> <td>SMCnf RM Parbit</td> <td>AHFS7001</td> <td>1 &lt;dec&gt;</td> </tr> <tr> <td>SMConf SAS</td> <td>AHFS8001</td> <td>SAS12 R</td> </tr> <tr> <td>SMConf CRS Use</td> <td>AHFS9001</td> <td>CRS-2</td> </tr> <tr> <td>SMConf RCS Use</td> <td>AHFS001</td> <td>RCS-B</td> </tr> </table>	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	1 <dec>	SMConf SAS	AHFS8001	SAS12 R	SMConf CRS Use	AHFS9001	CRS-2	SMConf RCS Use	AHFS001	RCS-B	ACMC1001	
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	1 <dec>																																
SMConf SAS	AHFS8001	SAS12 R																																
SMConf CRS Use	AHFS9001	CRS-2																																
SMConf RCS Use	AHFS001	RCS-B																																

Select CRS Survival Unit  
 File: H\_CRP\_AOC\_3SUR.xls  
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 20 Det. descr. : TC_MODIFY_SM_CONFIGURATION		
		Verify Telemetry Surv Conf CRS                      AESCL001	= CRS-2	AND=ZAA01999
5.1.3		Verify Update via RM A Status Report		<input type="checkbox"/>
		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 Surv Conf CRS                      AEW37109	= CRS-2	AND=ZAAM0999
5.1.4		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
5.1.5		Disable RM B		<input type="checkbox"/>





Select CRS Survival Unit  
 File: H\_CRP\_AOC\_3SUR.xls  
 Author: dsalt-hp



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<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>		
		<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>		
6.1.1		Disable RM A		<input type="checkbox"/>
		<p>Execute Telecommand</p> <p style="text-align: right;"><b>Ext_ACC_RM_A_Disable</b></p> <p>TC Control Flags :</p> <p style="text-align: right;"><b>GBM IL DSE</b>  <b>--Y -- --</b></p> <p>Subsch. ID : 10            Det. descr. : External ACC RM A Disable - Mission Specific</p>	DCM22170	









