

CCU Switch OFF  
File: H\_CRP\_CCU\_AB00.xls  
Author: E. Picallo



## Procedure Summary

### Objectives

This procedure describes the steps to power CCU A OFF or CCU B OFF

### Summary of Constraints

Except for failure cases, the CCU will be operated in hot redundancy, because each CCU has the task to control a dedicated set of sensors in the cryostat.

However, the control and monitoring of the cryostat can also be accomplished by using only one CCU (part A or B). But during launch, it is mandatory that both CCU's will be powered ON to provide hot redundancy for the operation of the redundant valves by the AR-5 launcher.

To switch CCU A/B OFF it is necessary to open the LCL 37/38, thus ASW function "PCDU Management" has to be "running".

Before switching the CCU OFF, it is necessary to disable the related EAT (Event-Action Table) entry and mark it OFF in the Unit In Use (UIU).

Thus the status of the ASW functions "Event/Action Management" have to be "running" and "FDIR Management" have to be "running"

Before switching the CCU OFF verify if decontamination is planned or on-going. The triplet of thermistors used for the decontamination control should be modified, selecting only the thermistors acquired

### Spacecraft Configuration

#### Start of Procedure

CDMU in default configuration  
Payload management function started  
LCL 37 (CCU A)/ LCL38 (CCU B) closed  
CCU A / B configured "ON" and "VALID" on the 1553 S/C bus CCU A /  
CCU B configured "ON" in the UIU table  
CCU A / CCU B monitoring ON  
CCU A / CCU B in monitoring mode #1 or #2 enabled

#### End of Procedure

CDMU in default configuration  
Payload management function started  
LCL 37 (CCU A)/ LCL38 (CCU B) shall be open  
CCU A / B configured "OFF" and "INVALID" on 1553 S/C bus  
CCU A / CCU B configured "OFF" in the UIU table  
CCU A / CCU B monitoring mode stopped  
CCU A / CCU B in monitoring mode #1 and #2 disabled

### Reference File(s)

#### Input Command Sequences

#### Output Command Sequences

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HRKAB001  
 HRKAB002

**Referenced Displays**

**ANDs**      **GRDs**      **SLDs**  
 ZAZ9L999

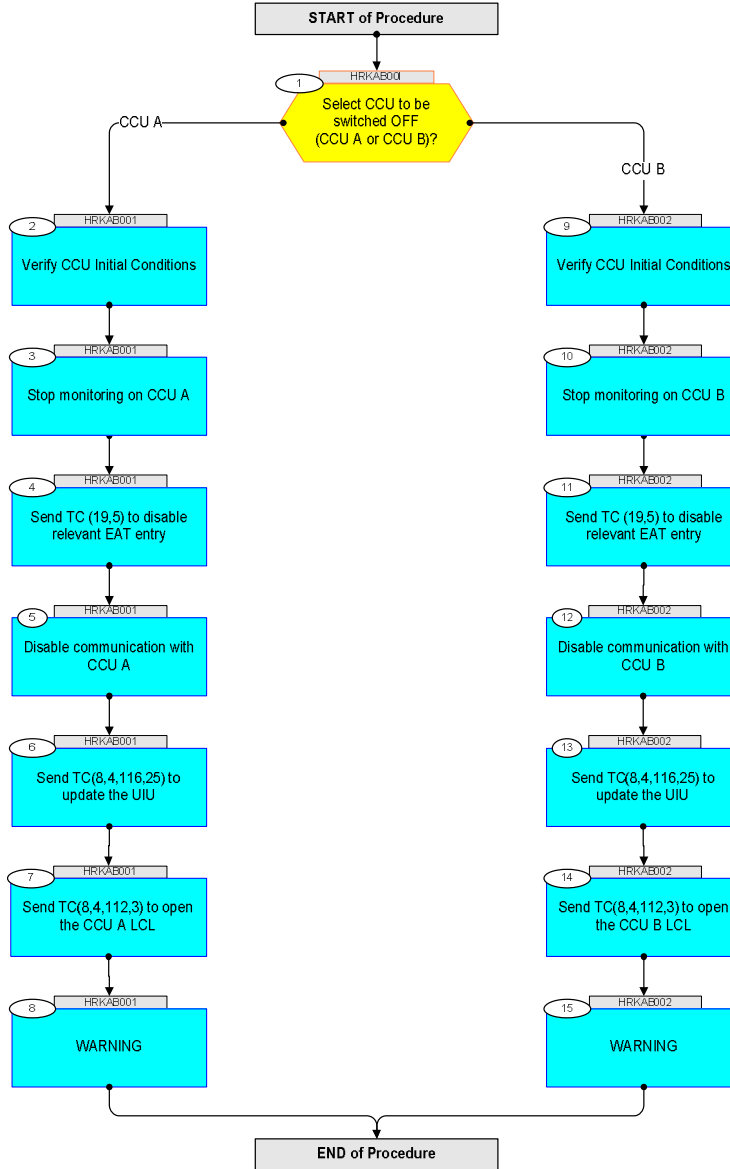
**Configuration Control Information**

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
31/07/08	1	1	Created	E. Picallo	
15/09/08		2	TC DC005161 (Configure SDBFDIR) M12 / F12 flag setting update	E. Picallo	
26/11/08		3	database consistency check	E. Picallo	
09/01/09	2	4	CDMU ASW V3.8 and BSW V2.4 alignment	E. Picallo	

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## Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
<b>Beginning of Procedure</b>				
TC Seq. Name :HRKAB00I (CCU Switch OFF) CCU A and/or B Switch OFF  TimeTag Type: Sub Schedule ID:  <input type="checkbox"/>				
1		Select CCU to be switched OFF (CCU A or CCU B)?		Next Step: CCU A 2 CCU B 9
TC Seq. Name :HRKAB001 (CCU A Switch OFF)  TimeTag Type: N Sub Schedule ID:  <input type="checkbox"/>				
2		Verify CCU Initial Conditions		Next Step: 3
2.1		Verify CCU A power status		<input type="checkbox"/>
		Verify LCL37 (CCU A) Status Telemetry Ccu_A_L37_S WM12A565 = ON		AND=ZAZ9L999
		Verify LCL37 (CCU A) current Telemetry Ccu_A_L37_I WM106565		AND=ZAZ9L999
2.2		Verify CCU B power status		<input type="checkbox"/>
		Verify LCL38 (CCU B) Status Telemetry Ccu_B_L38_S WMA2A565 = ON		AND=ZAZ9L999
		Verify LCL38 (CCU B) current Telemetry Ccu_B_L38_I WMA06565		AND=ZAZ9L999
2.3		Verify CCU A status on the 1553 S/C bus		<input type="checkbox"/>
		Verify Telemetry CCUA_OnOff DED3G161 = ON		AND=ZAZ9L999
		Verify Telemetry CCUA_ValidInval DED3K161 = Valid		AND=ZAZ9L999
2.4		Verify CCU A status in UIU table		<input type="checkbox"/>
		Verify Telemetry CcuAFuncSts DEL97171 = On		AND=ZAZ9L999

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
2.5		Request for the report payload management status		<input type="checkbox"/>
		Execute Telecommand <p style="text-align: right;"><b>ReportPayloadManagSts</b></p> TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : Report Payload Management Status TC(8,5,111)	DC12M170	
2.6		Verify that Payload management is running and CCU A Monitoring "ENABLE"		<input type="checkbox"/>
		Verify Packet Reception <b>TM 8-6-111 Payload Management Status Report - running idle</b> Packet Details: <p style="text-align: right;">APID: 16 Type: 8 Subtype: 6 PI1: 28671 PI2: 0</p>	PayldMngRun	
		Verify Packet Telemetry (Pkt = PayldMngRun) <p style="text-align: right;"><b>Function_ID</b> DE008170</p>	= Payload_Manag	(None)
		Verify Packet Telemetry (Pkt = PayldMngRun) <p style="text-align: right;"><b>PayldManagActId</b> DE249170</p>	= RunningIdle	(None)
		Verify Packet Telemetry (Pkt = PayldMngRun) <p style="text-align: right;"><b>CCUAMonStatus</b> DEZA4170</p>	= Enabled	(None)
3		Stop monitoring on CCU A		Next Step: 4
3.1		Send TC(8,4,111,1) to stop monitoring on CCUA		<input type="checkbox"/>
		Execute Telecommand <p style="text-align: right;"><b>PerformCcuManag</b></p> Command Parameter(s) : <p style="text-align: right;">CcuUnitCode DH084170 CcuA (Def) Period DH085170 0 &lt;dec&gt; (Def) CcuDataWord2 DH086170 FFFF &lt;hex&gt; CcuDataWord3 DH087170 FFFF &lt;hex&gt; CcuDataWord4 DH088170 FFFF &lt;hex&gt; CcuDataWord5 DH089170 FFFF &lt;hex&gt; CcuDataWord6 DH090170 FFFF &lt;hex&gt;</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p>	DCT53170	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Subsch. ID : 10 Det. descr. : TEMPLATE Perform CCU Management TC(8,4,111,1)		
3.2		Request for the report payload management status		☐
		Execute Telecommand <b>ReportPayloadManagSts</b>  TC Control Flags :  Subsch. ID : 10 Det. descr. : Report Payload Management Status TC(8,5,111)  GBM IL DSE --Y -- --	DC12M170	
3.3		Verify that Payload management is running and CCU A Monitoring "DISABLE"		☐
		Verify Packet Reception <b>TM 8-6-111 Payload Management Status Report - running idle</b> Packet Details:  APID: 16 Type: 8 Subtype: 6 PI1: 28671 PI2: 0	PayldMngRun	
		Verify Packet Telemetry (Pkt = PayldMngRun)  <b>Function_ID DE008170 = Payload_Manag</b>		(None)
		Verify Packet Telemetry (Pkt = PayldMngRun)  <b>PayldManagActId DE249170 = RunningIdle</b>		(None)
		Verify Packet Telemetry (Pkt = PayldMngRun)  <b>CCUAMonStatus DEZA4170 = Disabled</b>		(None)
3.4		Disable CCU A monitoring packet		☐
3.5		Send TC(14,3) to acquire the list of the current enabled TM packets		☐
		<b>Acquire the list of the current enabled TM packets</b>  - Verify if the periodic packet CCUA monit#1 is enabled: <b>CCUA monit#1 -&gt; type=3, subtype=25, packet-ID=68</b>  - Verify if the diagnostic packet CCUA monit#2 is enabled: <b>CCUA monit#2 -&gt; type=3, subtype=26, packet-ID=102</b>		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand  <b>ReportEnabledTm</b>  <i>TC Control Flags :</i>  Subsch. ID : 10 Det. descr. : Report Enabled Telemetry Packets	DC904180	
3.6		Verify that TM(14,4) has been received <input type="checkbox"/>		<input type="checkbox"/>
		Verify Packet Reception <b>TM Packet Generation Status Report</b> <i>Packet Details:</i>  APID: Type: Subtype: PI1: PI2:	TMpktGenRep  16 14 4	
		Verify Packet Telemetry  <b>N</b> <b>DE140180</b>		
		Verify Packet Telemetry  <b>Type</b> <b>DE141180</b>		
		Verify Packet Telemetry  <b>Sub-Type</b> <b>DE142180</b>		
		Verify Packet Telemetry  <b>Packet-ID</b> <b>DE143180</b>		
3.7		If CCU A monit#1 (HK ID=68 SID=0x2618) enabled then disable it  <input type="checkbox"/>		<input type="checkbox"/>
		Execute Telecommand  <b>DisableTmGen</b>  <i>Command Parameter(s) :</i>  <b>N</b> <b>DH017180</b> <b>Sub-Type</b> <b>DH019180</b> <b>Packet-ID</b> <b>DH020180</b>  <i>TC Control Flags :</i>  Subsch. ID : 10 Det. descr. : Disable Generation of Telemetry Packets	DC902180  1 <dec> (Def) HK Report 68 <dec>	
3.8		If CCU A monit#2 (HK ID=102 SID=0x5924) enabled then disable it  <input type="checkbox"/>		<input type="checkbox"/>

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: right;"><b>DisableTmGen</b></p> Command Parameter(s) : N                  DH017180 Sub-Type      DH019180 Packet-ID     DH020180  TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : Disable Generation of Telemetry Packets	DC902180  1 <dec> (Def) Diag Report 102 <dec>	
4		Send TC (19,5) to disable relevant EAT entry		Next Step: 5
		<p><b>When this request is received, the action-telecommand associated with the event TM (5,x,158) shall be disabled. In the TC(19,5) it is necessary to set the following parameters:</b>  <b>N, number of events to be disabled, equal to 1.</b>  <b>APID, identifier of the Application Process generating this event report, equal to 16 (CDMU).</b>  <b>Event ID, identifier of the event to be disabled, equal to 158.</b></p>		
		Execute Telecommand <p style="text-align: right;"><b>DisableActions</b></p> Command Parameter(s) : N_Repetition      DH041170 APID_for_EAT_TC   DH236170 EventId          DH146170  TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Disable Actions TC(19,5)	DCT85170  1 <dec> (Def) CDMS (Def) 158 <dec>	
4.1		Send TC(19,6) to acquire the detection list □		□
		Execute Telecommand <p style="text-align: right;"><b>ReptEvtActTable</b></p> TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Report The contents of the event/action table TC(19,6)	DCT86170	



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
4.2		Verify that TM(19,7) have been received and that action related to CCU A (non-vital RT) Invalid is disabled		<input type="checkbox"/>
		Verify Packet Reception <b>TM 19-7 Event-Action Table Content Report</b> Packet Details: APID: 16 Type: 19 Subtype: 7 PI1: PI2:	EvtActTblRpt	
5		Disable communication with CCU A		Next Step: 6
		In the TC(8,4,10,1) it is necessary to set, in this case, the following parameters: - Remote terminal address = 7 (CCU A) - RTA ON/OFF status = Off - RTA Valid/Invalid = Invalid  The remaining parameters of the TC have been set but they are not important because are masked.		
		Execute Telecommand ConfigureSDBFDIR  Command Parameter(s) : RTA DH011161 M0 DH030161 M1 DH031161 M2 DH032161 M3 DH033161 M4 DH034161 M5 DH035161 M6 DH036161 M7 DH037161 F0 DH018161 F1 DH019161  F2 DH020161 F3 DH021161 F4 DH022161 F5 DH023161 F6 DH024161 F7 DH025161 M12 DH051161 M_C DH043161 M8 DH038161 M9 DH039161 M10 DH040161 M11 DH041161 F12 DH050161 CNT DH042161 F8 DH026161	DC005161  CCU A Update status Ignore Flag Ignore Flag Ignore Flag Update status Ignore Flag Ignore Flag Ignore Flag OFF Dead  Sick TC Sick TM Invalid Non-vital NOMINAL OFF Ignore Flag Ignore CNT Ignore Flag Ignore Flag Ignore Flag DISABLED LoopCnt1 Bus A	

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		F9 DH027161 F10 DH028161 F11 DH029161  TC Control Flags :  Subsch. ID : 10 Det. descr. : Configure SDB FDIR	Unhealthy Unhealthy DISABLED  GBM IL DSE --Y -- ---	
5.1		Verify CCU A status on the 1553 S/C bus  <input type="checkbox"/>		<input type="checkbox"/>
		Verify Telemetry CCUA_OnOff                  DED3G161	= OFF	AND=ZAZ9L999
		Verify Telemetry CCUA_ValidInval                  DED3K161	= Invalid	AND=ZAZ9L999
6		Send TC(8,4,116,25) to update the UIU  Execute Telecommand H_FdirMarkUnitOff_Templ  Command Parameter(s) : H_ConfStsUnitId                  DHZ00170  TC Control Flags :  Subsch. ID : 10 Det. descr. : TEMPLATE FDIR: Mark Unit OFF, TC(8,4,116,25), Herschel Version	DC91H159  CcuA	Next Step: 7
6.1		Verify CCU A status in UIU table  <input type="checkbox"/>		<input type="checkbox"/>
		Verify Telemetry CcuAFuncSts                  DEL97171	= Off	AND=ZAZ9L999
7		Send TC(8,4,112,3) to open the CCU A LCL  Execute Switch LCL37 (CCU A) OFF Telecommand SwOff_Ccu_A_L37  TC Control Flags :  Subsch. ID : 10 Det. descr. : PCDU: TC(8,4,112,3) CCU A - switch LCL_37 off	DC37B170	Next Step: 8
		Verify LCL37 (CCU A) Status Telemetry Ccu_A_L37_S                  WM12A565	= OFF	AND=ZAZ9L999

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify LCL37 (CCU A) current Telemetry Ccu_A_L37_I WM106565	>= 0.00 A <= 0.10 A	AND=ZAZ9L999
8		WARNING		Next Step: END
		<b>The procedure H_FCP_CCU_ACQP assumes that both CCU A &amp; B shall always be used for monitoring, so any action is taken on both CCUs.</b>  <b>Therefore if CCU A is switched permanently OFF after an anomaly, the procedure should be modified to use only the healthy CCU.</b>		
<p>TC Seq. Name :HRKAB002 (CCU B Switch OFF)</p> <p>TimeTag Type: N Sub Schedule ID:</p> <p style="text-align: center;">□</p>				
9		Verify CCU Initial Conditions		Next Step: 10
9.1		Verify CCU B power status		□
		Verify LCL38 (CCU B) Status Telemetry Ccu_B_L38_S WMA2A565	= ON	AND=ZAZ9L999
		Verify LCL38 (CCU B) current Telemetry Ccu_B_L38_I WMA06565		AND=ZAZ9L999
9.2		Verify CCU A power status		□
		Verify LCL37 (CCU A) Status Telemetry Ccu_A_L37_S WM12A565	= ON	AND=ZAZ9L999
		Verify LCL37 (CCU A) current Telemetry Ccu_A_L37_I WM106565		AND=ZAZ9L999
9.3		Verify CCU B status on the 1553 S/C bus □		□
		Verify Telemetry CCUB_OnOff DED41161	= ON	AND=ZAZ9L999
		Verify Telemetry CCUB_ValidInval DED45161	= Valid	AND=ZAZ9L999
9.4		Verify CCU B status in UIU table		□

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		Verify Telemetry <b>CcuBFuncSts</b> <b>DEL96171</b>	= On	AND=ZAZ9L999
9.5		<i>Request for the report payload management status</i>		<input type="checkbox"/>
		Execute Telecommand <b>ReportPayloadManagSts</b>  <i>TC Control Flags :</i>  <b>GBM IL DSE</b> <b>--Y -- --</b>  <i>Subsch. ID : 10</i> <i>Det. descr. : Report Payload Management Status</i> <i>TC(8,5,111)</i>	<b>DC12M170</b>	
9.6		<i>Verify that Payload management is running and CCU B Monitoring "ENABLE"</i>		<input type="checkbox"/>
		Verify Packet Reception <b>TM 8-6-111 Payload Management Status Report - running idle</b> <i>Packet Details:</i>  <b>APID: 16</b> <b>Type: 8</b> <b>Subtype: 6</b> <b>PI1: 28671</b> <b>PI2: 0</b>	<b>PayldMngRun</b>	
		Verify Packet Telemetry (Pkt = PayldMngRun)  <b>Function_ID</b> <b>DE008170</b>	= <b>Payload_Manag</b>	(None)
		Verify Packet Telemetry (Pkt = PayldMngRun)  <b>PayldManagActId</b> <b>DE249170</b>	= <b>RunningIdle</b>	(None)
		Verify Packet Telemetry (Pkt = PayldMngRun)  <b>CCUBMonStatus</b> <b>DEZA5170</b>	= <b>Enabled</b>	(None)
10		<i>Stop monitoring on CCU B</i>		Next Step: 11
10.1		<i>Send TC(8,4,111,1) to stop monitoring on CCU B</i>		<input type="checkbox"/>

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand  <b>PerformCcuManag</b>  Command Parameter(s) : CcuUnitCode          DH084170    CcuB Period               DH085170    0 <dec> (Def) CcuDataWord2         DH086170    FFFF <hex> CcuDataWord3         DH087170    FFFF <hex> CcuDataWord4         DH088170    FFFF <hex> CcuDataWord5         DH089170    FFFF <hex> CcuDataWord6         DH090170    FFFF <hex>  TC Control Flags :  GBM IL DSE --Y -- ---  Subsch. ID : 10 Det. descr. : TEMPLATE Perform CCU Management TC(8,4,111,1)	DCT53170	
10.2		Request for the report payload management status		<input type="checkbox"/>
		Execute Telecommand  <b>ReportPayloadManagSts</b>  TC Control Flags :  GBM IL DSE --Y -- ---  Subsch. ID : 10 Det. descr. : Report Payload Management Status TC(8,5,111)	DC12M170	
10.3		Verify that Payload management is running and CCU B Monitoring "DISABLE"		<input type="checkbox"/>
		Verify Packet Reception <b>TM 8-6-111 Payload Management Status Report - running idle</b> Packet Details:  APID:      16 Type:       8 Subtype:   6 PI1:       28671 PI2:       0	PayldMngRun	
		Verify Packet Telemetry (Pkt = PayldMngRun)  Function_ID          DE008170    = Payload_Manag		(None)
		Verify Packet Telemetry (Pkt = PayldMngRun)  PayldManagActId     DE249170    = RunningIdle		(None)
		Verify Packet Telemetry (Pkt = PayldMngRun)  CCUBMonStatus       DEZA5170    = Disabled		(None)
10.4		Disable CCU B monitoring packet		<input type="checkbox"/>

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
10.5		Send TC(14,3) to acquire the list of the current enabled TM packets		<input type="checkbox"/>
		<b>Acquire the list of the current enabled TM packets</b>  - Verify if the periodic packet CCUB monit#1 is enabled: <b>CCUB monit#1 -&gt; type=3, subtype=25, packet-ID=71</b>  - Verify if the diagnostic packet CCUB monit#2 is enabled: <b>CCUB monit#2 -&gt; type=3, subtype=26, packet-ID=104</b>		
		Execute Telecommand <p style="text-align: right;">ReportEnabledTm</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE            --Y -- --</p> Subsch. ID : 10 Det. descr. : Report Enabled Telemetry Packets	DC904180	
10.6		Verify that TM(14,4) has been received <input type="checkbox"/>		<input type="checkbox"/>
		Verify Packet Reception <p style="text-align: right;">TM Packet Generation Status Report</p> Packet Details: <p style="text-align: right;">APID: 16            Type: 14            Subtype: 4            PI1:            PI2:</p>	TMpktGenRep	
		Verify Packet Telemetry <p style="text-align: right;">N DE140180</p>		
		Verify Packet Telemetry <p style="text-align: right;">Type DE141180</p>		
		Verify Packet Telemetry <p style="text-align: right;">Sub-Type DE142180</p>		
		Verify Packet Telemetry <p style="text-align: right;">Packet-ID DE143180</p>		
10.7		If CCU B monit#1 (HK ID=71 SID=0x2AAA) enabled then disable it		<input type="checkbox"/>

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		Execute Telecommand  DisableTmGen  <i>Command Parameter(s) :</i> N                  DH017180 Sub-Type          DH019180 Packet-ID         DH020180  <i>TC Control Flags :</i>  GBM IL DSE --Y -- ---  <i>Subsch. ID : 10</i> Det. descr. : Disable Generation of Telemetry Packets	DC902180  1 <dec> (Def) HK Report 71 <dec>	
10.8		If CCU B monit#2 (HK ID=104 SID=0x5C30) enabled then disable it		<input type="checkbox"/>
		Execute Telecommand  DisableTmGen  <i>Command Parameter(s) :</i> N                  DH017180 Sub-Type          DH019180 Packet-ID         DH020180  <i>TC Control Flags :</i>  GBM IL DSE --Y -- ---  <i>Subsch. ID : 10</i> Det. descr. : Disable Generation of Telemetry Packets	DC902180  1 <dec> (Def) Diag Report 104 <dec>	
11		Send TC (19,5) to disable relevant EAT entry		Next Step: 12
		<b>When this request is received, the action-telecommand associated with the event TM (5,x,159) shall be disabled. In the TC(19,5) it is necessary to set the following parameters:</b> <b>N, number of events to be disabled, equal to 1.</b> <b>APID, identifier of the Application Process generating this event report, equal to 16 (CDMU).</b> <b>Event ID, identifier of the event to be disabled, equal to 159.</b>		

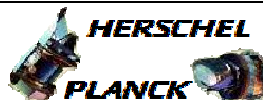
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		Execute Telecommand <p style="text-align: right;"><b>DisableActions</b></p> <i>Command Parameter(s) :</i> <b>N_Repetition</b> DH041170 <b>APID_for_EAT_TC</b> DH236170 <b>EventId</b> DH146170  <i>TC Control Flags :</i> <p style="text-align: right;"><b>GBM IL DSE</b>                                              --Y -- ---</p> <i>Subsch. ID : 10</i> <i>Det. descr. : TEMPLATE Disable Actions TC(19,5)</i>	DCT85170  1 <dec> (Def) CDMS (Def) 159 <dec>	
11.1		Send TC(19,6) to acquire the detection list <input type="checkbox"/>		<input type="checkbox"/>
		Execute Telecommand <p style="text-align: right;"><b>ReptEvtActTable</b></p> <i>TC Control Flags :</i> <p style="text-align: right;"><b>GBM IL DSE</b>                                              --Y -- ---</p> <i>Subsch. ID : 10</i> <i>Det. descr. : TEMPLATE Report The contents of the event/action table TC(19,6)</i>	DCT86170	
11.2		Verify that TM(19,7) have been received and that action related to CCU B (non-vital RT) Invalid is disabled		<input type="checkbox"/>
		Verify Packet Reception <b>TM 19-7 Event-Action Table Content Report</b> <i>Packet Details:</i> <p style="text-align: right;"><b>APID:</b>          16                              <b>Type:</b>          19                              <b>Subtype:</b>      7                              <b>PI1:</b>                              <b>PI2:</b></p>	EvtActTblRpt	
12		Disable communication with CCU B		Next Step: 13
		<b>In the TC(8,4,10,1) it is necessary to set, in this case, the following parameters:</b> - Remote terminal address = 8 (CCU B) - RTA ON/OFF status = Off - RTA Valid/Invalid = Invalid  <b>The remaining parameters of the TC have been set but they are not important because are masked.</b>		



CCU Switch OFF  
File: H\_CRP\_CCU\_AB00.xls  
Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	
		Execute Telecommand			
		ConfigureSDBFDIR	DC005161		
		Command Parameter(s) :			
		RTA	DH011161	CCU B	
		M0	DH030161	Update status	
		M1	DH031161	Ignore Flag	
		M2	DH032161	Ignore Flag	
		M3	DH033161	Ignore Flag	
		M4	DH034161	Update status	
		M5	DH035161	Ignore Flag	
		M6	DH036161	Ignore Flag	
		M7	DH037161	Ignore Flag	
		F0	DH018161	OFF	
		F1	DH019161	Dead	
		F2	DH020161	Sick TC	
		F3	DH021161	Sick TM	
		F4	DH022161	Invalid	
		F5	DH023161	Non-vital	
		F6	DH024161	NOMINAL	
		F7	DH025161	OFF	
		M12	DH051161	Ignore Flag	
		M_C	DH043161	Ignore CNT	
		M8	DH038161	Ignore Flag	
		M9	DH039161	Ignore Flag	
		M10	DH040161	Ignore Flag	
		M11	DH041161	Ignore Flag	
		F12	DH050161	DISABLED	
		CNT	DH042161	LoopCnt1	
		F8	DH026161	Bus A	
		F9	DH027161	Unhealthy	
		F10	DH028161	Unhealthy	
		F11	DH029161	DISABLED	
		TC Control Flags :			
			GBM IL DSE --Y -- --		
		Subsch. ID : 10 Det. descr. : Configure SDB FDIR			
12.1		Verify CCU B status on the 1553 S/C bus <input type="checkbox"/>		<input type="checkbox"/>	
		Verify Telemetry			
		CCUB_OnOff	DED41161	= OFF	AND=ZAZ9L999
		Verify Telemetry			
		CCUB_ValidInval	DED45161	= Invalid	AND=ZAZ9L999
13		Send TC(8,4,116,25) to update the UIU		Next Step: 14	

CCU Switch OFF  
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <b>H_FdirMarkUnitOff_Templ</b>  Command Parameter(s) : <b>H_ConfStsUnitId</b> <b>DHZ00170</b>  TC Control Flags :  <b>GBM IL DSE</b> <b>--Y -- ---</b>  Subsch. ID : 10 Det. descr. : TEMPLATE FDIR: Mark Unit OFF, TC(8,4,116,25), Herschel Version	DC91H159  CcuB	
13.1		Verify CCU B status in UIU table		☐
		Verify Telemetry  <b>CcuBFuncSts</b> <b>DEL96171</b>	<b>= Off</b>	AND=ZAZ9L999
14		Send TC(8,4,112,3) to open the CCU B LCL		Next Step: 15
		Execute Switch LCL38 (CCU B) OFF Telecommand <b>SwOff_Ccu_B_L38</b>  TC Control Flags :  <b>GBM IL DSE</b> <b>--Y -- ---</b>  Subsch. ID : 10 Det. descr. : PCDU: TC(8,4,112,3) CCU B - switch LCL_38 off	DC38B170	
		Verify LCL38 (CCU B) Status Telemetry  <b>Ccu_B_L38_S</b> <b>WMA2A565</b>	<b>= OFF</b>	AND=ZAZ9L999
		Verify LCL38 (CCU B) current Telemetry  <b>Ccu_B_L38_I</b> <b>WMA06565</b>	<b>&gt;= 0.00 A</b> <b>&lt;= 0.10 A</b>	AND=ZAZ9L999
15		WARNING		Next Step: END
		<b>The procedure H_FCP_CCU_ACQP assumes that both CCU A &amp; B shall always be used for monitoring, so any action is taken on both CCUs.</b>  <b>Therefore if CCU B is switched permanently OFF after an anomaly, the procedure should be modified to use only the healthy CCU.</b>		
<b>End of Procedure</b>				