

Thermal Control loops Reconfiguration from Redundant to Nominal
File: H_COP_TCS_CLRN.xls
Author: E. Picallo



Procedure Summary

Objectives

This procedure describes the steps to be performed to switch from the redundant HPS19-x to the nominal HPSx used in the thermal Control Loop by ground telecommands.

Summary of Constraints

Status of the HPSs assumes the default configuration to be applied, i.e. the HPS 1 to 9 are used as Nominal. Assuming that no TCS failures occurred, this is therefore applicable only for the SM where the default redundant HPSs (i.e. HPS 10 to 18) are used.

This procedure does not take into account any constraints related to decontamination, therefore it is up to Ground to call dedicated decontamination System procedure if necessary.

Note it is possible that switchover to redundant class B heaters could cause some thermal disturbance, so execution of the procedure, if desired, should take place at a time when full STR performance is not needed.

Spacecraft Configuration

Start of Procedure

CDMU in default configuration;
Thermal Control Management function active;
HPSx OFF
HPS19-x ON

End of Procedure

CDMU in default configuration;
Thermal Control Management function active;
HPSx ON
HPS19-x OFF

Reference File(s)

Input Command Sequences

Output Command Sequences

HCTCLRN

Referenced Displays

ANDs GRDs SLDs

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WAHT1584
 WAHT3584
 ZAZ7K999
 WAHT2584
 ZAZ7L999

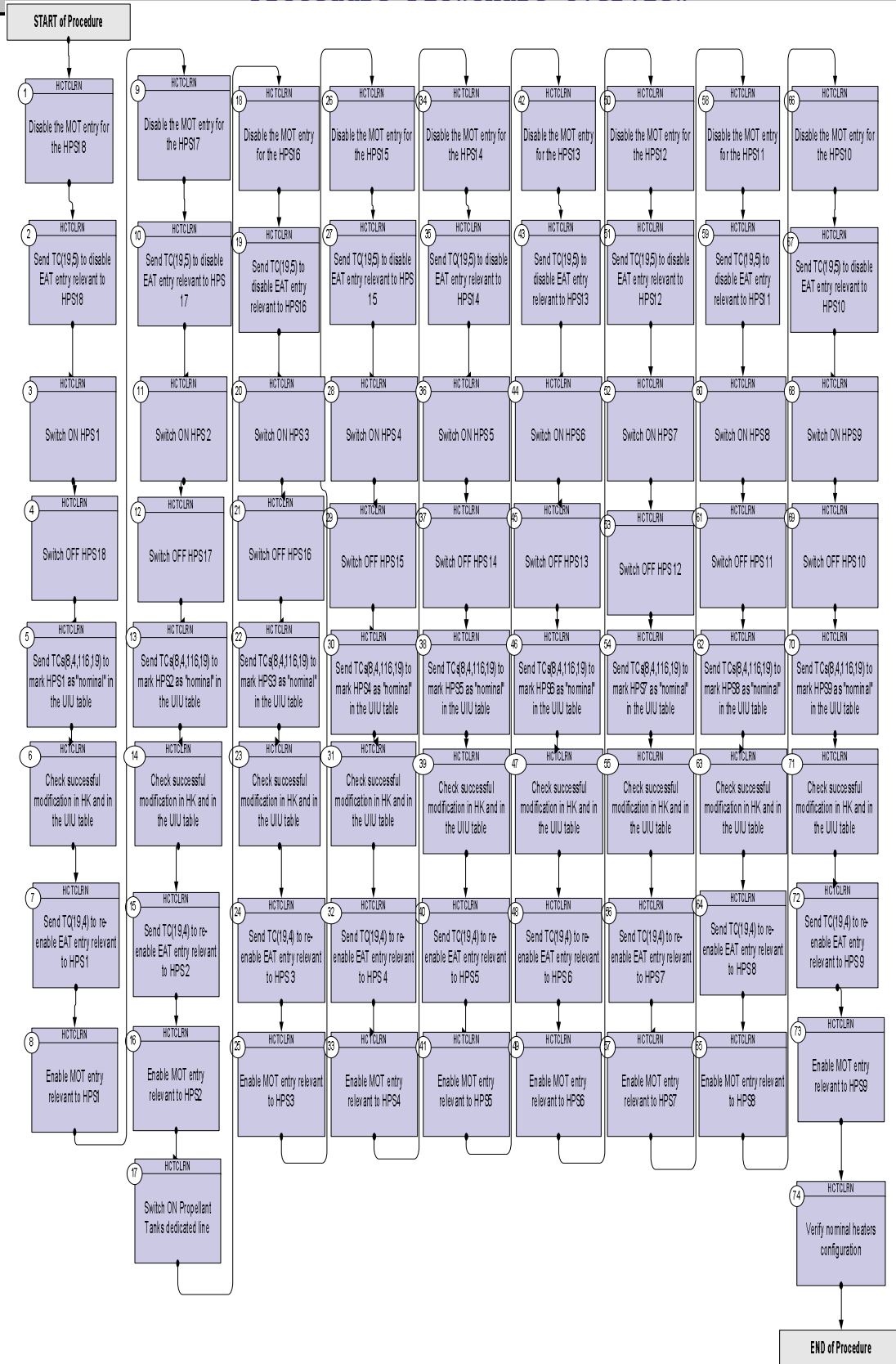
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
29/07/08	1	1	Created	E. Picallo	
10/12/08		2	Disable and re enable MOT entries added Disable TCT entries after Mark unit in UIU steps order changed Enable TCT entries before EAT enabling steps order changed	E. Picallo	
09/01/09	2	3	CDMU ASW V3.8 and BSW V2.4 alignment	E. Picallo	
16/03/09	2.2	4	updated according to SIM-17 outcome no disable/re-enable control loops during reconfig; first Switch Red HPS ON, then Switch Non HPS OFF and finally Mark Red HPS Nominal	E. Picallo	

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Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
Beginning of Procedure				
<p>TC Seq. Name : HCTCLRN (Control Loop R to N) Thermal Control loops Reconfiguration from Redundant to Nominal</p> <p>TimeTag Type: N Sub Schedule ID: <input type="checkbox"/></p>				
1		Disable the MOT entry for the HPS18		Next Step: 2
1.1		Arm Disable MOT		<input type="checkbox"/>
		Execute Telecommand <div style="text-align: right;">ArmDisableMon</div> TC Control Flags : <div style="text-align: right;">GBM IL DSE --Y -- ---</div> Subsch. ID : 10 Det. descr. : Arm Disable On Board Monitoring, TC(8,4,106,1)	DC54F170	
1.2		send TC to disable HPS18 monitoring		<input type="checkbox"/>
		Execute Telecommand <div style="text-align: right;">DisMonitOfParam_Templ</div> Command Parameter(s) : <div style="text-align: right;"> N_Repetition DH041170 ParameterId DH042170 MonitorId DH043170 </div> TC Control Flags : <div style="text-align: right;">GBM IL DSE --Y -- ---</div> Subsch. ID : 10 Det. descr. : TEMPLATE Disable Monitoring of Parameter, TC(12,2)	DCT27170	
2		Send TC(19,5) to disable EAT entry relevant to HPS18		Next Step: 3

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: right;">DisableActions</p> <i>Command Parameter(s) :</i> N_Repetition DH041170 APID_for_EAT_TC DH236170 EventId DH146170 <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <i>Subsch. ID : 10</i> <i>Det. descr. : TEMPLATE Disable Actions TC(19,5)</i>	DCT85170 1 <dec> (Def) CDMS (Def) 8013 <hex>	
3		Switch ON HPS 1		Next Step: 4
		Execute Telecommand <p style="text-align: right;">PcduswOnHps1</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE -SY -- ---</p> <i>Subsch. ID : 10</i> <i>Det. descr. : PCDU:TC(8,4,112,5) switch On HPS 1</i>	DCC01170	
4		Switch OFF HPS 18		Next Step: 5
		Execute Telecommand <p style="text-align: right;">PcduswOffHps18</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE -M- -- ---</p> <i>Subsch. ID : 10</i> <i>Det. descr. : PCDU:TC(8,4,112,3) switch Off HPS 18</i>	DCD44170	
5		Send TCs(8,4,116,19) to mark HPS1 as "nominal" in the UIU table		Next Step: 6
		Execute Telecommand <p style="text-align: right;">SelNomUnitA_Hps1</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE -E- -- ---</p> <i>Subsch. ID : 10</i> <i>Det. descr. : Fdir Select Nominal Unit A HPS1, TC(8,4,116,19)</i>	DC15G170	
6		Check successful modification in HK and in the UIU table		Next Step: 7

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry GRP1_HPS_STS WM12G565	= ON	AND=WAHT1584
		Verify Telemetry GRP18_HPS_STS WMA2G565	= OFF	AND=WAHT3584
		Verify Telemetry Hps1LogSts DEG78170	= Nominal	AND=ZAZ7K999
7		Send TC(19,4) to re-enable EAT entry relevant to HPS1		Next Step: 8
		Execute Telecommand EnableActions Command Parameter(s) : N_Repetition DH041170 APID_for_EAT_TC DH236170 EventId DH146170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)	DCT84170 1 <dec> (Def) CDMS (Def) 8013 <hex>	
8		Enable MOT entry relevant to HPS1		Next Step: 9
		Execute Telecommand EnabMonitOfParam_Templ Command Parameter(s) : N_Repetition DH041170 ParameterId DH042170 MonitorId DH043170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Monitoring of Parameter, TC(12,1)	DCT26170 1 <dec> (Def) 2071 <dec> 21 <dec>	
9		Disable the MOT entry for the HPS17		Next Step: 10
9.1		Arm Disable MOT		□

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <div style="text-align: right;">ArmDisableMon</div> TC Control Flags : Subsch. ID : 10 Det. descr. : Arm Disable On Board Monitoring, TC(8,4,106,1)	DC54F170	
9.2		send TC to disable HPS17 monitoring		☐
		Execute Telecommand <div style="text-align: right;">DisMonitOfParam_Templ</div> Command Parameter(s) : <div style="display: flex; justify-content: space-between;"> <div style="text-align: right;"> N_Repetition ParameterId MonitorId </div> <div style="text-align: left;"> DH041170 DH042170 DH043170 </div> <div style="text-align: left;"> 1 <dec> (Def) 2071 <dec> 27 <dec> </div> </div> TC Control Flags : Subsch. ID : 10 Det. descr. : TEMPLATE Disable Monitoring of Parameter, TC(12,2)	DCT27170	
10		Send TC(19,5) to disable EAT entry relevant to HPS 17		Next Step: 11
		Execute Telecommand <div style="text-align: right;">DisableActions</div> Command Parameter(s) : <div style="display: flex; justify-content: space-between;"> <div style="text-align: right;"> N_Repetition APID_for_EAT_TC EventId </div> <div style="text-align: left;"> DH041170 DH236170 DH146170 </div> <div style="text-align: left;"> 1 <dec> (Def) CDMS (Def) 8023 <hex> </div> </div> TC Control Flags : Subsch. ID : 10 Det. descr. : TEMPLATE Disable Actions TC(19,5)	DCT85170	
11		Switch ON HPS 2		Next Step: 12
		Execute Telecommand <div style="text-align: right;">PcdSwOnHps2</div> TC Control Flags : Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,5) switch On HPS 2	DCC02170	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
12		Switch OFF HPS 17		Next Step: 13
		Execute Telecommand PcduswOffHps17 TC Control Flags : GBM IL DSE -M- -- --- Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,3) switch Off HPS 17	DCD43170	
13		Send TCs(8,4,116,19) to mark HPS2 as "nominal" in the UIU table		Next Step: 14
		Execute Telecommand SelNomUnitA_Hps2 TC Control Flags : GBM IL DSE -E- -- --- Subsch. ID : 10 Det. descr. : Fdir Select Nominal Unit A HPS2, TC(8,4,116,19)	DC16G170	
14		Check successful modification in HK and in the UIU table		Next Step: 15
		Verify Telemetry GRP2_HPS_STS WM22G565	= ON	AND=WAHT1584
		Verify Telemetry GRP17_HPS_STS WM92H565	= OFF	AND=WAHT3584
		Verify Telemetry Hps2LogSts DEG82170	= Nominal	AND=ZAZ7K999
15		Send TC(19,4) to re-enable EAT entry relevant to HPS 2		Next Step: 16
		Execute Telecommand EnableActions Command Parameter(s) : N_Repetition DH041170 APID_for_EAT_TC DH236170 EventId DH146170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)	DCT84170 1 <dec> (Def) CDMS (Def) 8023 <hex>	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
16		Enable MOT entry relevant to HPS2		Next Step: 17
		Execute Telecommand <p style="text-align: right;">EnabMonitOfParam_Templ</p> Command Parameter(s) : <p style="text-align: right;">N_Repetition DH041170</p> <p style="text-align: right;">ParameterId DH042170</p> <p style="text-align: right;">MonitorId DH043170</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE</p> <p style="text-align: right;">--Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Enable Monitoring of Parameter, TC(12,1)	DCT26170 1 <dec> (Def) 2071 <dec> 27 <dec>	
17		Switch ON Propellant Tanks dedicated line		Next Step: 18
		HPS2-HCS6 needs to be switched ON		
		Execute Telecommand <p style="text-align: right;">SwOn_Tanks_G2H6</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE</p> <p style="text-align: right;">--Y -- ---</p> Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,5) switch On Tanks Group 2 HCS 6	DCC30170	
		Verify Telemetry <p style="text-align: right;">tanks_G2H6_S WM21F565</p>	= ON	AND=WAHT1584
18		Disable the MOT entry for the HPS16		Next Step: 19
18.1		Arm Disable MOT		<input type="checkbox"/>
		Execute Telecommand <p style="text-align: right;">ArmDisableMon</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE</p> <p style="text-align: right;">--Y -- ---</p> Subsch. ID : 10 Det. descr. : Arm Disable On Board Monitoring, TC(8,4,106,1)	DC54F170	
18.2		send TC to disable HPS16 monitoring		<input type="checkbox"/>

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: right;">DisMonitOfParam_Templ</p> Command Parameter(s) : N_Repetition DH041170 ParameterId DH042170 MonitorId DH043170 TC Control Flags : <p style="text-align: right;">GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Disable Monitoring of Parameter, TC(12,2)	DCT27170 1 <dec> (Def) 2072 <dec> 33 <dec>	
19		Send TC(19,5) to disable EAT entry relevant to HPS16		Next Step: 20
		Execute Telecommand <p style="text-align: right;">DisableActions</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) 8033 <hex>	
20		Switch ON HPS 3		Next Step: 21
		Execute Telecommand <p style="text-align: right;">PcduSwOnHps3</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE -SY -- ---</p> Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,5) switch On HPS 3	DCC03170	
21		Switch OFF HPS 16		Next Step: 22
		Execute Telecommand <p style="text-align: right;">PcduSwOffHps16</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE -M- -- ---</p> Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,3) switch Off HPS 16	DCD42170	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
22		Send TCs(8,4,116,19) to mark HPS3 as "nominal" in the UIU table		Next Step: 23
		Execute Telecommand SelNomUnitA_Hps3 TC Control Flags : GBM IL DSE -E- -- --- Subsch. ID : 10 Det. descr. : Fdir Select Nominal Unit A HPS3, TC(8,4,116,19)	DC17G170	
23		Check successful modification in HK and in the UIU table		Next Step: 24
		Verify Telemetry GRP3_HPS_STS WM22H565	= ON	AND=WAHT1584
		Verify Telemetry GRP16_HPS_STS WM92G565	= OFF	AND=WAHT3584
		Verify Telemetry Hps3LogSts DEG86170	= Nominal	AND=ZAZ7K999
24		Send TC(19,4) to re-enable EAT entry relevant to HPS3		Next Step: 25
		Execute Telecommand EnableActions Command Parameter(s) : N_Repetition DH041170 1 <dec> (Def) APID_for_EAT_TC DH236170 CDMS (Def) EventId DH146170 8033 <hex> TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)	DCT84170	
25		Enable MOT entry relevant to HPS3		Next Step: 26

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand EnabMonitOfParam_Templ Command Parameter(s) : N_Repetition DH041170 ParameterId DH042170 MonitorId DH043170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Monitoring of Parameter, TC(12,1)	DCT26170 1 <dec> (Def) 2072 <dec> 33 <dec>	
26		Disable the MOT entry for the HPS15		Next Step: 27
26.1		Arm Disable MOT		<input type="checkbox"/>
		Execute Telecommand ArmDisableMon TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : Arm Disable On Board Monitoring, TC(8,4,106,1)	DC54F170	
26.2		send TC to disable HPS15 monitoring		<input type="checkbox"/>
		Execute Telecommand DisMonitOfParam_Templ Command Parameter(s) : N_Repetition DH041170 ParameterId DH042170 MonitorId DH043170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Disable Monitoring of Parameter, TC(12,2)	DCT27170 1 <dec> (Def) 2072 <dec> 39 <dec>	
27		Send TC(19,5) to disable EAT entry relevant to HPS 15		Next Step: 28

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: right;">DisableActions</p> <i>Command Parameter(s) :</i> N_Repetition DH041170 APID_for_EAT_TC DH236170 EventId DH146170 <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : TEMPLATE Disable Actions TC(19,5)	DCT85170 1 <dec> (Def) CDMS (Def) 8043 <hex>	
28		Switch ON HPS 4		Next Step: 29
		Execute Telecommand <p style="text-align: right;">PcduswOnHps4</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE -SY -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : PCDU:TC(8,4,112,5) switch On HPS 4	DCC04170	
29		Switch OFF HPS 15		Next Step: 30
		Execute Telecommand <p style="text-align: right;">PcduswOffHps15</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE -M- -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : PCDU:TC(8,4,112,3) switch Off HPS 15	DCD41170	
30		Send TCs(8,4,116,19) to mark HPS4 as "nominal" in the UIU table		Next Step: 31
		Execute Telecommand <p style="text-align: right;">SelNomUnitA_Hps4</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE -E- -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : Fdir Select Nominal Unit A HPS4, TC(8,4,116,19)	DC18G170	
31		Check successful modification in HK and in the UIU table		Next Step: 32

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry GRP4_HPS_STS WM32G565	= ON	AND=WAHT1584
		Verify Telemetry GRP15_HPS_STS WM82H565	= OFF	AND=WAHT3584
		Verify Telemetry Hps4LogSts DEG90170	= Nominal	AND=ZAZ7K999
32		Send TC(19,4) to re-enable EAT entry relevant to HPS4		Next Step: 33
		Execute Telecommand EnableActions Command Parameter(s) : N_Repetition DH041170 APID_for_EAT_TC DH236170 EventId DH146170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)	DCT84170 1 <dec> (Def) CDMS (Def) 8043 <hex>	
33		Enable MOT entry relevant to HPS4		Next Step: 34
		Execute Telecommand EnabMonitOfParam_Templ Command Parameter(s) : N_Repetition DH041170 ParameterId DH042170 MonitorId DH043170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Monitoring of Parameter, TC(12,1)	DCT26170 1 <dec> (Def) 2072 <dec> 39 <dec>	
34		Disable the MOT entry for the HPS14		Next Step: 35
34.1		Arm Disable MOT		□

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <div style="text-align: right;">ArmDisableMon</div> TC Control Flags : Subsch. ID : 10 Det. descr. : Arm Disable On Board Monitoring, TC(8,4,106,1)	DC54F170	
34.2		send TC to disable HPS14 monitoring		☐
		Execute Telecommand <div style="text-align: right;">DisMonitOfParam_Templ</div> Command Parameter(s) : <div style="display: flex; justify-content: space-between;"> <div style="text-align: right;"> N_Repetition ParameterId MonitorId </div> <div style="text-align: left;"> DH041170 DH042170 DH043170 </div> <div style="text-align: left;"> 1 <dec> (Def) 2073 <dec> 45 <dec> </div> </div> TC Control Flags : Subsch. ID : 10 Det. descr. : TEMPLATE Disable Monitoring of Parameter, TC(12,2)	DCT27170	
35		Send TC(19,5) to disable EAT entry relevant to HPS14		Next Step: 36
		Execute Telecommand <div style="text-align: right;">DisableActions</div> Command Parameter(s) : <div style="display: flex; justify-content: space-between;"> <div style="text-align: right;"> N_Repetition APID_for_EAT_TC EventId </div> <div style="text-align: left;"> DH041170 DH236170 DH146170 </div> <div style="text-align: left;"> 1 <dec> (Def) CDMS (Def) 8053 <hex> </div> </div> TC Control Flags : Subsch. ID : 10 Det. descr. : TEMPLATE Disable Actions TC(19,5)	DCT85170	
36		Switch ON HPS 5		Next Step: 37
		Execute Telecommand <div style="text-align: right;">PcdSwOnHps5</div> TC Control Flags : Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,5) switch On HPS 5	DCC05170	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
37		Switch OFF HPS 14		Next Step: 38
		Execute Telecommand PcduswOffHps14 TC Control Flags : GBM IL DSE -M- -- --- Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,3) switch Off HPS 14	DCD40170	
38		Send TCs(8,4,116,19) to mark HPS5 as "nominal" in the UIU table		Next Step: 39
		Execute Telecommand SelNomUnitA_Hps5 TC Control Flags : GBM IL DSE -E- -- --- Subsch. ID : 10 Det. descr. : Fdir Select Nominal Unit A HPS5, TC(8,4,116,19)	DC19G170	
39		Check successful modification in HK and in the UIU table		Next Step: 40
		Verify Telemetry GRP5_HPS_STS WM32H565	= ON	AND=WAHT1584
		Verify Telemetry GRP14_HPS_STS WM82G565	= OFF	AND=WAHT3584
		Verify Telemetry Hps5LogSts DEG94170	= Nominal	AND=ZAZ7K999
40		Send TC(19,4) to re-enable EAT entry relevant to HPS 5		Next Step: 41
		Execute Telecommand EnableActions Command Parameter(s) : N_Repetition DH041170 APID_for_EAT_TC DH236170 EventId DH146170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)	DCT84170 1 <dec> (Def) CDMS (Def) 8053 <hex>	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
41		Enable MOT entry relevant to HPS5		Next Step: 42
		Execute Telecommand <p style="text-align: right;">EnabMonitOfParam_Templ</p> Command Parameter(s) : N_Repetition DH041170 1 <dec> (Def) ParameterId DH042170 2073 <dec> MonitorId DH043170 45 <dec> TC Control Flags : <p style="text-align: right;"> GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Enable Monitoring of Parameter, TC(12,1)	DCT26170	
42		Disable the MOT entry for the HPS13		Next Step: 43
42.1		Arm Disable MOT		<input type="checkbox"/>
		Execute Telecommand <p style="text-align: right;">ArmDisableMon</p> TC Control Flags : <p style="text-align: right;"> GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : Arm Disable On Board Monitoring, TC(8,4,106,1)	DC54F170	
42.2		send TC to disable HPS13 monitoring		<input type="checkbox"/>
		Execute Telecommand <p style="text-align: right;">DisMonitOfParam_Templ</p> Command Parameter(s) : N_Repetition DH041170 1 <dec> (Def) ParameterId DH042170 2073 <dec> MonitorId DH043170 51 <dec> TC Control Flags : <p style="text-align: right;"> GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Disable Monitoring of Parameter, TC(12,2)	DCT27170	
43		Send TC(19,5) to disable EAT entry relevant to HPS13		Next Step: 44

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: right;">DisableActions</p> <i>Command Parameter(s) :</i> N_Repetition DH041170 APID_for_EAT_TC DH236170 EventId DH146170 <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : TEMPLATE Disable Actions TC(19,5)	DCT85170 1 <dec> (Def) CDMS (Def) 8063 <hex>	
44		Switch ON HPS 6		Next Step: 45
		Execute Telecommand <p style="text-align: right;">PcduswOnHps6</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE -SY -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : PCDU:TC(8,4,112,5) switch On HPS 6	DCC06170	
45		Switch OFF HPS 13		Next Step: 46
		Execute Telecommand <p style="text-align: right;">PcduswOffHps13</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE -M- -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : PCDU:TC(8,4,112,3) switch Off HPS 13	DCD39170	
46		Send TCs(8,4,116,19) to mark HPS6 as "nominal" in the UIU table		Next Step: 47
		Execute Telecommand <p style="text-align: right;">SelNomUnitA_Hps6</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE -E- -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : Fdir Select Nominal Unit A HPS6, TC(8,4,116,19)	DC20G170	
47		Check successful modification in HK and in the UIU table		Next Step: 48

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry GRP6_HPS_STS WM42G565	= ON	AND=WAHT1584
		Verify Telemetry GRP13_HPS_STS WM72H565	= OFF	AND=WAHT3584
		Verify Telemetry Hps6LogSts DEG98170	= Nominal	AND=ZAZ7K999
48		Send TC(19,4) to re-enable EAT entry relevant to HPS6		Next Step: 49
		Execute Telecommand EnableActions Command Parameter(s) : N_Repetition DH041170 APID_for_EAT_TC DH236170 EventId DH146170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)	DCT84170 1 <dec> (Def) CDMS (Def) 8063 <hex>	
49		Enable MOT entry relevant to HPS6		Next Step: 50
		Execute Telecommand EnabMonitOfParam_Templ Command Parameter(s) : N_Repetition DH041170 ParameterId DH042170 MonitorId DH043170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Monitoring of Parameter, TC(12,1)	DCT26170 1 <dec> (Def) 2073 <dec> 51 <dec>	
50		Disable the MOT entry for the HPS12		Next Step: 51
50.1		Arm Disable MOT		□

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <div style="text-align: right;">ArmDisableMon</div> TC Control Flags : Subsch. ID : 10 Det. descr. : Arm Disable On Board Monitoring, TC(8,4,106,1)	DC54F170	
50.2		send TC to disable HPS12 monitoring		☐
		Execute Telecommand <div style="text-align: right;">DisMonitOfParam_Templ</div> Command Parameter(s) : <div style="display: flex; justify-content: space-between;"> <div style="text-align: right;"> N_Repetition ParameterId MonitorId </div> <div style="text-align: left;"> DH041170 DH042170 DH043170 </div> <div style="text-align: left;"> 1 <dec> (Def) 2160 <dec> 57 <dec> </div> </div> TC Control Flags : Subsch. ID : 10 Det. descr. : TEMPLATE Disable Monitoring of Parameter, TC(12,2)	DCT27170	
51		Send TC(19,5) to disable EAT entry relevant to HPS12		Next Step: 52
		Execute Telecommand <div style="text-align: right;">DisableActions</div> Command Parameter(s) : <div style="display: flex; justify-content: space-between;"> <div style="text-align: right;"> N_Repetition APID_for_EAT_TC EventId </div> <div style="text-align: left;"> DH041170 DH236170 DH146170 </div> <div style="text-align: left;"> 1 <dec> (Def) CDMS (Def) 8073 <hex> </div> </div> TC Control Flags : Subsch. ID : 10 Det. descr. : TEMPLATE Disable Actions TC(19,5)	DCT85170	
52		Switch ON HPS 7		Next Step: 53
		Execute Telecommand <div style="text-align: right;">PcdSwOnHps7</div> TC Control Flags : Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,5) switch On HPS 7	DCC07170	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
53		Switch OFF HPS 12		Next Step: 54
		Execute Telecommand PcduswOffHps12 TC Control Flags : GBM IL DSE -M- -- --- Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,3) switch Off HPS 12	DCD38170	
54		Send TCs(8,4,116,19) to mark HPS7 as "nominal" in the UIU table		Next Step: 55
		Execute Telecommand SelNomUnitA_Hps7 TC Control Flags : GBM IL DSE -E- -- --- Subsch. ID : 10 Det. descr. : Fdir Select Nominal Unit A HPS7, TC(8,4,116,19)	DC21G170	
55		Check successful modification in HK and in the UIU table		Next Step: 56
		Verify Telemetry GRP7_HPS_STS WM42H565	= ON	AND=WAHT2584
		Verify Telemetry GRP12_HPS_STS WM72G565	= OFF	AND=WAHT2584
		Verify Telemetry Hps7LogSts DEH02170	= Nominal	AND=ZAZ7K999
56		Send TC(19,4) to re-enable EAT entry relevant to HPS 7		Next Step: 57
		Execute Telecommand EnableActions Command Parameter(s) : N_Repetition DH041170 APID_for_EAT_TC DH236170 EventId DH146170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)	DCT84170 1 <dec> (Def) CDMS (Def) 8073 <hex>	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
57		Enable MOT entry relevant to HPS7		Next Step: 58
		Execute Telecommand <p style="text-align: right;">EnabMonitOfParam_Templ</p> Command Parameter(s) : N_Repetition DH041170 1 <dec> (Def) ParameterId DH042170 2160 <dec> MonitorId DH043170 57 <dec> TC Control Flags : <p style="text-align: right;"> GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Enable Monitoring of Parameter, TC(12,1)	DCT26170	
58		Disable the MOT entry for the HPS11		Next Step: 59
58.1		Arm Disable MOT		<input type="checkbox"/>
		Execute Telecommand <p style="text-align: right;">ArmDisableMon</p> TC Control Flags : <p style="text-align: right;"> GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : Arm Disable On Board Monitoring, TC(8,4,106,1)	DC54F170	
58.2		send TC to disable HPS11 monitoring		<input type="checkbox"/>
		Execute Telecommand <p style="text-align: right;">DisMonitOfParam_Templ</p> Command Parameter(s) : N_Repetition DH041170 1 <dec> (Def) ParameterId DH042170 2160 <dec> MonitorId DH043170 63 <dec> TC Control Flags : <p style="text-align: right;"> GBM IL DSE --Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Disable Monitoring of Parameter, TC(12,2)	DCT27170	
59		Send TC(19,5) to disable EAT entry relevant to HPS11		Next Step: 60

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <p style="text-align: right;">DisableActions</p> <i>Command Parameter(s) :</i> N_Repetition DH041170 APID_for_EAT_TC DH236170 EventId DH146170 <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : TEMPLATE Disable Actions TC(19,5)	DCT85170 1 <dec> (Def) CDMS (Def) 8083 <hex>	
60		Switch ON HPS 8		Next Step: 61
		Execute Telecommand <p style="text-align: right;">PcduswOnHps8</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE -SY -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : PCDU:TC(8,4,112,5) switch On HPS 8	DCC08170	
61		Switch OFF HPS 11		Next Step: 62
		Execute Telecommand <p style="text-align: right;">PcduswOffHps11</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE -M- -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : PCDU:TC(8,4,112,3) switch Off HPS 11	DCD37170	
62		Send TCs(8,4,116,19) to mark HPS8 as "nominal" in the UIU table		Next Step: 63
		Execute Telecommand <p style="text-align: right;">SelNomUnitA_Hps8</p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE -E- -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : Fdir Select Nominal Unit A HPS8, TC(8,4,116,19)	DC22G170	
63		Check successful modification in HK and in the UIU table		Next Step: 64

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Telemetry GRP8_HPS_STS WM52G565	= ON	AND=WAHT2584
		Verify Telemetry GRP11_HPS_STS WM62H565	= OFF	AND=WAHT2584
		Verify Telemetry Hps8LogSts DEH06170	= Nominal	AND=ZAZ7K999
64		Send TC(19,4) to re-enable EAT entry relevant to HPS 8		Next Step: 65
		Execute Telecommand EnableActions Command Parameter(s) : N_Repetition DH041170 APID_for_EAT_TC DH236170 EventId DH146170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)	DCT84170 1 <dec> (Def) CDMS (Def) 8083 <hex>	
65		Enable MOT entry relevant to HPS8		Next Step: 66
		Execute Telecommand EnabMonitOfParam_Templ Command Parameter(s) : N_Repetition DH041170 ParameterId DH042170 MonitorId DH043170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Monitoring of Parameter, TC(12,1)	DCT26170 1 <dec> (Def) 2160 <dec> 63 <dec>	
66		Disable the MOT entry for the HPS10		Next Step: 67
66.1		Arm Disable MOT		□

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Telecommand <div style="text-align: right;">ArmDisableMon</div> TC Control Flags : Subsch. ID : 10 Det. descr. : Arm Disable On Board Monitoring, TC(8,4,106,1)	DC54F170	
66.2		send TC to disable HPS10 monitoring		□
		Execute Telecommand <div style="text-align: right;">DisMonitOfParam_Templ</div> Command Parameter(s) : <div style="display: flex; justify-content: space-between;"> <div style="text-align: right;"> N_Repetition ParameterId MonitorId </div> <div style="text-align: left;"> DH041170 DH042170 DH043170 </div> <div style="text-align: left;"> 1 <dec> (Def) 2074 <dec> 69 <dec> </div> </div> TC Control Flags : Subsch. ID : 10 Det. descr. : TEMPLATE Disable Monitoring of Parameter, TC(12,2)	DCT27170	
67		Send TC(19,5) to disable EAT entry relevant to HPS10		Next Step: 68
		Execute Telecommand <div style="text-align: right;">DisableActions</div> Command Parameter(s) : <div style="display: flex; justify-content: space-between;"> <div style="text-align: right;"> N_Repetition APID_for_EAT_TC EventId </div> <div style="text-align: left;"> DH041170 DH236170 DH146170 </div> <div style="text-align: left;"> 1 <dec> (Def) CDMS (Def) 8093 <hex> </div> </div> TC Control Flags : Subsch. ID : 10 Det. descr. : TEMPLATE Disable Actions TC(19,5)	DCT85170	
68		Switch ON HPS 9		Next Step: 69
		Execute Telecommand <div style="text-align: right;">PcdSwOnHps9</div> TC Control Flags : Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,5) switch On HPS 9	DCC09170	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
69		Switch OFF HPS 10		Next Step: 70
		Execute Telecommand PcduswOffHps10 TC Control Flags : GBM IL DSE -M- -- --- Subsch. ID : 10 Det. descr. : PCDU:TC(8,4,112,3) switch Off HPS 10	DCD36170	
70		Send TCs(8,4,116,19) to mark HPS9 as "nominal" in the UIU table		Next Step: 71
		Execute Telecommand SelNomUnitA_Hps9 TC Control Flags : GBM IL DSE -E- -- --- Subsch. ID : 10 Det. descr. : Fdir Select Nominal Unit A HPS9, TC(8,4,116,19)	DC23G170	
71		Check successful modification in HK and in the UIU table		Next Step: 72
		Verify Telemetry GRP9_HPS_STS WM52H565	= ON	AND=WAHT2584
		Verify Telemetry GRP10_HPS_STS WM62G565	= OFF	AND=WAHT2584
		Verify Telemetry Hps9LogSts DEH10170	= Nominal	AND=ZAZ7L999
72		Send TC(19,4) to re-enable EAT entry relevant to HPS 9		Next Step: 73
		Execute Telecommand EnableActions Command Parameter(s) : N_Repetition DH041170 APID_for_EAT_TC DH236170 EventId DH146170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Enable Actions TC(19,4)	DCT84170 1 <dec> (Def) CDMS (Def) 8093 <hex>	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
73		Enable MOT entry relevant to HPS9		Next Step: 74
		Execute Telecommand <p style="text-align: right;">EnabMonitOfParam_Templ</p> Command Parameter(s) : <p style="text-align: right;">N_Repetition DH041170</p> <p style="text-align: right;">ParameterId DH042170</p> <p style="text-align: right;">MonitorId DH043170</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE</p> <p style="text-align: right;">--Y -- ---</p> Subsch. ID : 10 Det. descr. : TEMPLATE Enable Monitoring of Parameter, TC(12,1)	DCT26170 1 <dec> (Def) 2074 <dec> 69 <dec>	
74		Verify nominal heaters configuration		Next Step: END
		Refer to Checkform ZAZ7K999 at the back of this document		ANDCK
		Refer to Checkform ZAZ7L999 at the back of this document		ANDCK
74.1		Send TC(12,8) to acquire the current monitoring list		<input type="checkbox"/>
		When the CDMU ASW receives this request, it issues one or several reports with the current static contents of the Monitoring List (TM packet type (12,9)). When the dump of TM(12,9) has ended, an Event Report TM(5,1,106,1) indicating the number of reported TM(12,9) shall be issued.		
		Execute Telecommand <p style="text-align: right;">ReportMonitList</p> TC Control Flags : <p style="text-align: right;">GBM IL DSE</p> <p style="text-align: right;">--Y -- ---</p> Subsch. ID : 10 Det. descr. : Report current monitoring list, TC(12,8), no appl. data	DC20L170	
74.2		Verify that one or more TM(12,9) have been received		<input type="checkbox"/>
		Verify Packet Reception <p style="text-align: center;">TM 12-9 Current Monitoring List Report</p> Packet Details: <p style="text-align: right;">APID: 16</p> <p style="text-align: right;">Type: 12</p> <p style="text-align: right;">Subtype: 9</p> <p style="text-align: right;">PI1:</p> <p style="text-align: right;">PI2:</p>	CurMonLstRpt	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<p>Verify that the following monitoring are enabled in line with the actual HPS configuration:</p> <p>HPS1_Thermal_Control_Failure Event Id 21 HPS2_Thermal_Control_Failure Event Id 27 HPS3_Thermal_Control_Failure Event Id 33 HPS4_Thermal_Control_Failure Event Id 39 HPS5_Thermal_Control_Failure Event Id 45 HPS6_Thermal_Control_Failure Event Id 51 HPS7_Thermal_Control_Failure Event Id 57 HPS8_Thermal_Control_Failure Event Id 63 HPS9_Thermal_Control_Failure Event Id 69</p>		
74.3		Send TC(19,6) to acquire the detection list		<input type="checkbox"/>
		Report Event Detection List telecommand is a request for a complete detection list; when this request is received, one or more TM(19,7) are generated.		
		<p>Execute Telecommand</p> <p style="text-align: right;">ReptEvtActTable</p> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10 Det. descr. : TEMPLATE Report The contents of the event/action table TC(19,6)</p>	DCT86170	
74.4		Verify that one or more TM(19,7) have been received		<input type="checkbox"/>
		<p>Verify Packet Reception</p> <p style="text-align: center;">TM 19-7 Event-Action Table Content Report</p> <p>Packet Details:</p> <p style="text-align: right;">APID: 16 Type: 19 Subtype: 7 PI1: PI2:</p>	EvtActTblRpt	
		<p>Verify that the following action are enabled:</p> <p>HPS1_Th_Cntrl_Failure 0x8013 HPS2_Th_Cntrl_Failure 0x8023 HPS3_Th_Cntrl_Failure 0x8033 HPS4_Th_Cntrl_Failure 0x8043 HPS5_Th_Cntrl_Failure 0x8053 HPS6_Th_Cntrl_Failure 0x8063 HPS7_Th_Cntrl_Failure 0x8073 HPS8_Th_Cntrl_Failure 0x8083 HPS9_Th_Cntrl_Failure 0x8093</p>		
74.5		Request the current TCT status report		<input type="checkbox"/>
		All TCT entries enabled except loop index 1, 7,12,19, 31 and 49		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Execute Procedure: H_FCP_TCS_REPO Thermal Control Status Report		
End of Procedure				

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ZAZ7K999 / EPS_UIU1

ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
DEG77170	Hps1FuncSts	On		DEG73170	Hps18FuncSts	Off	
DEG79170	Hps1Use	In_Use		DEG75170	Hps18Use	Not_In_Use	
DEG78170	Hps1LogSts	Nominal		DEG74170	Hps18LogSts	Redundant	
DEG76170	Hps1FailSts	Not_Failed		DEG72170	Hps18FailSts	Not_Failed	
DEG81170	Hps2FuncSts	On		DEG69170	Hps17FuncSts	Off	
DEG83170	Hps2Use	In_Use		DEG71170	Hps17Use	Not_In_Use	
DEG82170	Hps2LogSts	Nominal		DEG70170	Hps17LogSts	Redundant	
DEG80170	Hps2FailSts	Not_Failed		DEG68170	Hps17FailSts	Not_Failed	
DEG85170	Hps3FuncSts	On		DEG65170	Hps16FuncSts	Off	
DEG87170	Hps3Use	In_Use		DEG67170	Hps16Use	Not_In_Use	
DEG86170	Hps3LogSts	Nominal		DEG66170	Hps16LogSts	Redundant	
DEG84170	Hps3FailSts	Not_Failed		DEG64170	Hps16FailSts	Not_Failed	
DEG89170	Hps4FuncSts	On		DEG61170	Hps15FuncSts	Off	
DEG91170	Hps4Use	In_Use		DEG63170	Hps15Use	Not_In_Use	
DEG90170	Hps4LogSts	Nominal		DEG62170	Hps15LogSts	Redundant	
DEG88170	Hps4FailSts	Not_Failed		DEG60170	Hps15FailSts	Not_Failed	
DEG93170	Hps5FuncSts	On		DEG57170	Hps14FuncSts	Off	
DEG95170	Hps5Use	In_Use		DEG59170	Hps14Use	Not_In_Use	
DEG94170	Hps5LogSts	Nominal		DEG58170	Hps14LogSts	Redundant	
DEG92170	Hps5FailSts	Not_Failed		DEG56170	Hps14FailSts	Not_Failed	
DEG97170	Hps6FuncSts	On		DEG53170	Hps13FuncSts	Off	
DEG99170	Hps6Use	In_Use		DEG55170	Hps13Use	Not_In_Use	
DEG98170	Hps6LogSts	Nominal		DEG54170	Hps13LogSts	Redundant	
DEG96170	Hps6FailSts	Not_Failed		DEG52170	Hps13FailSts	Not_Failed	
DEH01170	Hps7FuncSts	On		DEG49170	Hps12FuncSts	Off	
DEH03170	Hps7Use	In_Use		DEG51170	Hps12Use	Not_In_Use	
DEH02170	Hps7LogSts	Nominal		DEG50170	Hps12LogSts	Redundant	
DEH00170	Hps7FailSts	Not_Failed		DEG48170	Hps12FailSts	Not_Failed	
DEH05170	Hps8FuncSts	On		DEG45170	Hps11FuncSts	Off	
DEH07170	Hps8Use	In_Use		DEG47170	Hps11Use	Not_In_Use	
DEH06170	Hps8LogSts	Nominal		DEG46170	Hps11LogSts	Redundant	
DEH04170	Hps8FailSts	Not_Failed		DEG44170	Hps11FailSts	Not_Failed	

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ZAZ7L999 / EPS_UIU2

ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
DEH09170	Hps9FuncSts	On		DEG41170	Hps10FuncSts	Off	
DEH11170	Hps9Use	In_Use		DEG43170	Hps10Use	Not_In_Use	
DEH10170	Hps9LogSts	Nominal		DEG42170	Hps10LogSts	Redundant	
DEH08170	Hps9FailSts	Not_Failed		DEG40170	Hps10FailSts	Not_Failed	
DEG03170	Pcdu1FuncSts			DEG02170	Pcdu2FuncSts		
DEN00170	Pcdu1Use			DEN03170	Pcdu2Use		
DEN01170	Pcdu1LogSts			DEN04170	Pcdu2LogSts		
DEN02170	Pcdu1FailSts			DEN05170	Pcdu2FailSts		