

HIFI LCU warm-up  
File: H\_FCP\_TCS\_LCU1.xls  
Author: E. Picallo



## Procedure Summary

### Objectives

This procedure describes the steps needed to perform a HIFI LCU warm-up (requires TCT and FCCT thresholds updates of HIFI control loops and a hot thermal environment i.e. SAA = -20° for 24 hs) in order to reach about 11°C on the LCU

### Summary of Constraints

In order to warm up the LCU unit the FHWOH, FHWEH and FHHRH are switch ON and the TCT & FCCT "warm-up" tables settings are used during the previous OD of the actual LCU switch ON.

With a SAA = -20° (hot case) for previous OD the predicted LCU temperature is around 11°C at LCU turn on.

### Spacecraft Configuration

#### Start of Procedure

Default FHWOH, FHWEH, FHHRH, FHLCU and FHLSU TCT thresholds  
Default FHWOH, FHWEH, FHHRH, FHLCU and FHLSU FCCT  
FHWOH, FHWEH, FHHRH, FHLCU and FHLSU set OFF in UIU table

#### End of Procedure

Default FHWOH, FHWEH, FHHRH, FHLCU and FHLSU TCT thresholds  
Default FHWOH, FHWEH, FHHRH, FHLCU and FHLSU FCCT  
FHWOH, FHWEH, FHHRH, FHLCU and FHLSU set ON in UIU table

### Reference File(s)

#### Input Command Sequences

#### Output Command Sequences

HFTLCU1I  
HFTLCU11  
HFTLCU10

### Referenced Displays

ANDs	GRDs	SLDs
	ZGZ2Y999	(None)
	ZGZ2Z999	
	ZGZ2M999	
	ZGZ37999	
	ZGZ3A999	

### Configuration Control Information

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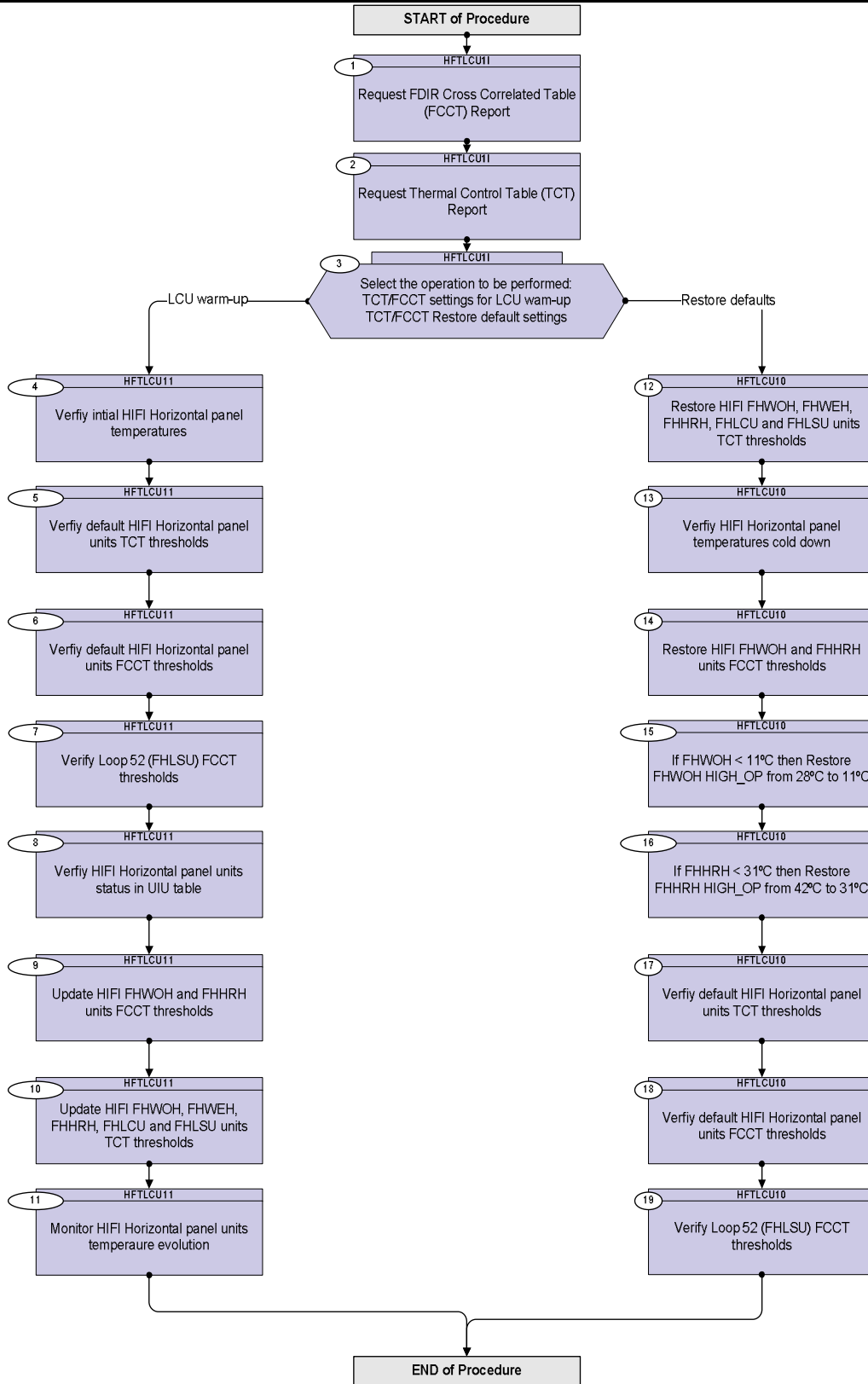


DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
17/12/09		1	Created	E. Picallo	
18/12/09		1.01	Validation : typo in step #16 corrected	E. Picallo	
11/01/10	3	2	FHWOH TCT and FCCT thresholds updated for the WOH= 'ON' case	E. Picallo	

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### Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
<b>Beginning of Procedure</b>					
HFTLCU11		TC Seq. Name :HFTLCU1I ( HIFI LCU Warm-up )  TimeTag Type: Sub Schedule ID:  <input type="checkbox"/>			
1		Request FDIR Cross Correlated Table (FCCT) Report		Next Step: 2	
		Execute Telecommand <div style="text-align: right;"><b>ReportFdirManagSts</b></div> TC Control Flags : <div style="text-align: right;">GBM IL DSE --Y -- ---</div> Subsch. ID : 10 Det. descr. : Report Fdir Management Status, TC(8,5,116)	DCN02170	TC	
2		Request Thermal Control Table (TCT) Report		Next Step: 3	
		Execute Telecommand <div style="text-align: right;"><b>ReportThCtrlManagSts</b></div> TC Control Flags : <div style="text-align: right;">GBM IL DSE --Y -- ---</div> Subsch. ID : 10 Det. descr. : Report Thermal Control Management Status, TC(8,5,114)	DCN11170	TC	
3		Select the operation to be performed: TCT/FCCT settings for LCU wam-up TCT/FCCT Restore default settings  type: [Switch]		Next Step: LCU warm-up 4 Restore defaults 12	
		End of Sequence TC Seq. Name :HFTLCU11 ( HIFI LCU Warm-up set )  TimeTag Type: N Sub Schedule ID:  <input type="checkbox"/>			
4		Verfiy intial HIFI Horizontal panel temperatures		Next Step: 5	
		Verify Telemetry <div style="text-align: right;"><b>ATemp39_FHWOH</b>      <b>DEA9E170</b></div>		GRD=ZGZ2Y999	
		Verify Telemetry <div style="text-align: right;"><b>ATemp40_FHWEH</b>      <b>DEA9F170</b></div>		GRD=ZGZ2Z999	
		Verify Telemetry <div style="text-align: right;"><b>ATemp26_FHHRH</b>      <b>DEA91170</b></div>		GRD=ZGZ2M999	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify Telemetry <b>ATemp48_FHLCU</b> <b>DEAA7170</b>		GRD=ZGZ37999	
		Verify Telemetry <b>ATemp52_FHLSU</b> <b>DEAAB170</b>		GRD=ZGZ3A999	
5		Verfiy default HIFI Horizontal panel units TCT thresholds		Next Step: 6	
5.1		Verfiy Loop 39 (FHWOH) TCT thresholds			
		Verify Telemetry <b>Tmin_on39</b> <b>DEPRF170</b> = 1.5 <dec>		(None)	
		Verify Telemetry <b>Tmax_on39</b> <b>DEPRE170</b> = 5.5 <dec>		(None)	
		Verify Telemetry <b>Tmin_off39</b> <b>DEPRH170</b> = -3.5 <dec>		(None)	
		Verify Telemetry <b>Tmax_off39</b> <b>DEPRG170</b> = -0.5 <dec>		(None)	
5.2		Verfiy Loop 40 (FHWEH) TCT thresholds			
		Verify Telemetry <b>Tmin_on40</b> <b>DEPS3170</b> = 1.0 <dec>		(None)	
		Verify Telemetry <b>Tmax_on40</b> <b>DEPS2170</b> = 4.0 <dec>		(None)	
		Verify Telemetry <b>Tmin_off40</b> <b>DEPS5170</b> = 1.0 <dec>		(None)	
		Verify Telemetry <b>Tmax_off40</b> <b>DEPS4170</b> = 4.0 <dec>		(None)	
5.3		Verfiy Loop 26 (FHHRH) TCT thresholds			
		Verify Telemetry <b>Tmin_on26</b> <b>DEPG6170</b> = 26.0 <dec>		(None)	
		Verify Telemetry <b>Tmax_on26</b> <b>DEPG5170</b> = 30.0 <dec>		(None)	
		Verify Telemetry <b>Tmin_off26</b> <b>DEPG8170</b> = -9.0 <dec>		(None)	
		Verify Telemetry <b>Tmax_off26</b> <b>DEPG7170</b> = -6.0 <dec>		(None)	
		Verify Telemetry <b>TREF26</b> <b>DEPGE170</b> = 28.0 <dec>		(None)	

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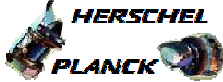

Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
5.4		Verfiy Loop 48 (FHLCU) TCT thresholds			
		Verify Telemetry Tmin_on48            DEP6170	= 11.0 <dec>	(None)	
		Verify Telemetry Tmax_on48            DEP5170	= 14.0 <dec>	(None)	
		Verify Telemetry Tmin_off48           DEP8170	= 11.0 <dec>	(None)	
		Verify Telemetry Tmax_off48           DEP7170	= 14.0 <dec>	(None)	
5.5		Verfiy Loop 52 (FHLSU) TCT thresholds			
		Verify Telemetry Tmin_on52            DEPZR170	= 11.0 <dec>	(None)	
		Verify Telemetry Tmax_on52            DEPZP170	= 14.0 <dec>	(None)	
		Verify Telemetry Tmin_off52           DEPZT170	= 11.0 <dec>	(None)	
		Verify Telemetry Tmax_off52           DEPZS170	= 14.0 <dec>	(None)	
6		Verfiy default HIFI Horizontal panel units FCCT thresholds		Next Step: 7	
6.1		Verfiy Loop 39 (FHWOH) FCCT thresholds			
		FdirLowNOP39        DEZ14170	= -15.0 <dec>		
		FdirHighNOP39       DEZ15170	= 11 <dec>		
		ColdStartTemp39     DEZ17170	= -15.0 <dec>		
		FdirLowOP39           DEZ18170	= 1 <dec>		
		FdirHighOP39         DEZ19170	= 11 <dec>		
6.2		Verfiy Loop 40 (FHWEH) FCCT thresholds			
		FdirLowNOP40         DEZ22170	= -7.0 <dec>		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		FdirHighNOP40	DEZ23170	= 32 <dec>	
		ColdStartTemp40	DEZ25170	= -7.0 <dec>	
		FdirLowNOP40	DEZ26170	= -2 <dec>	
		FdirHighNOP40	DEZ27170	= 32 <dec>	
6.3		Verify Loop 26 (FHHRH) FCCT thresholds			
		FdirLowNOP26	DE710170	= -22 <dec>	
		FdirHighNOP26	DE711170	= 31.0 <dec>	
		ColdStartTemp26	DE713170	= -22 <dec>	
		FdirLowNOP26	DE714170	= 25.0 <dec>	
		FdirHighNOP26	DE715170	= 31.0 <dec>	
6.4		Verify Loop 48 (FHLCU) FCCT thresholds			
		FdirLowNOP48	DEZ86170	= -20.0 <dec>	
		FdirHighNOP48	DEZ87170	= 42 <dec>	
		ColdStartTemp48	DEZ89170	= -20.0 <dec>	
		FdirLowNOP48	DEZ90170	= 8.0 <dec>	
		FdirHighNOP48	DEZ91170	= 42 <dec>	
7		Verify Loop 52 (FHLSU) FCCT thresholds		Next Step: 8	
		FdirLowNOP52	DEY18170	= -13.0 <dec>	
		FdirHighNOP52	DEY19170	= 37.0 <dec>	
		ColdStartTemp52	DEY21170	= -13.0 <dec>	
		FdirLowNOP52	DEY22170	= 8 <dec>	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		FdirHighOP52 DEY23170	= 37.0 <dec>		
8		Verfiy HIFI Horizontal panel units status in UIU table		Next Step: 9	
		Verify Telemetry HifiWohFuncSts DEL40171	= Off		
		Verify Telemetry HifiWehFuncSts DEL48171	= Off		
		Verify Telemetry HifiHrhFuncSts DEL46171	= Off		
		Verify Telemetry HifiLcuFuncSts DEL55171	= Off		
		Verify Telemetry HifiLsuFuncSts DEL42171	= Off		
9		Update HIFI FHWOH and FHHRH units FCCT thresholds		Next Step: 10	
9.1		Update FHWOH (ChkId_57) HIGH_OP from 11°C to 28°C			
		FCCT_FHWOH_HPS7_HCS3 XCL40993 Command Parameter(s) : CCorrParValFlt XH134993 -15.0 <dec> (Def) CCorrParValFlt XH134993 11.0 <dec> (Def) CCorrParValUInt XH133993 64800 <dec> (Def) CCorrParValFlt XH134993 -15.0 <dec> (Def) CCorrParValFlt XH134993 1.0 <dec> (Def) CCorrParValFlt XH134993 28.0 <dec> TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : FCCT_FHWOH_HPS7_HCS3 CrCorrChkPar TC(8,4,116,17) Id=ChkId_57		TC	
9.2		Update FHHRH (ChkId_44) HIGH_OP from 31°C to 42°C			




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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		<p>FCCT_FHHRH_HPS5_HCS2</p> <p>Command Parameter(s) :</p> <p>CCorrParValFlt XH134993 -22.0 &lt;dec&gt; (Def)</p> <p>CCorrParValFlt XH134993 31.0 &lt;dec&gt; (Def)</p> <p>CCorrParValUInt XH133993 64800 &lt;dec&gt; (Def)</p> <p>CCorrParValFlt XH134993 -22.0 &lt;dec&gt; (Def)</p> <p>CCorrParValFlt XH134993 25.0 &lt;dec&gt; (Def)</p> <p>CCorrParValFlt XH134993 42.0 &lt;dec&gt;</p> <p>TC Control Flags :</p> <p>GBM IL DSE            --Y -- ---</p> <p>Subsch. ID : 10</p> <p>Det. descr. : FCCT_FHHRH_HPS5_HCS2 CrCorrChkPar            TC(8,4,116,17) Id=ChkId_44</p>	XCL3M993	TC	
9.3		Request FDIR Cross Correlated Table (FCCT) Report			
		<p>Execute Telecommand</p> <p>ReportFdirManagSts</p> <p>TC Control Flags :</p> <p>GBM IL DSE            --Y -- ---</p> <p>Subsch. ID : 10</p> <p>Det. descr. : Report Fdir Management Status,            TC(8,5,116)</p>	DCN02170	TC	
9.4		Verify FCCT updates (FHWOH HIGH_OP and FHHRH HIGH_OP)			
		<p>Verify Telemetry</p> <p>FdirHighOP39 DEZ19170 = 28.0 &lt;dec&gt;</p> <p>(None)</p> <p>FdirHighOP26 DE715170 = 42.0 &lt;dec&gt;</p>			
10		Update HIFI FHWOH, FHWEH, FHHRH, FHLCU and FHLSU units TCT thresholds		Next Step: 11	
10.1		Update loop 39 (FHWOH) Trefmin/Trefmax & Tref from [1.5,5.5]°C [3.5]°C to [29,31]°C [30]°C			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand <p style="text-align: center;"><b>ModifyTctEntry32_Templ</b></p> <i>Command Parameter(s) :</i> ThCtrlLoopIndex           DH069170    39 <dec> N_Repet_8bit        DH070170    3 <dec> ThCtrlParam32Id    DH082170    ClATmaoClBHiT ThCtrlParVal32     DH079170    31.0 <dec> ThCtrlParam32Id    DH082170    TREF ThCtrlParVal32     DH079170    30.0 <dec> ThCtrlParam32Id    DH082170    ClATmionClBLoT ThCtrlParVal32     DH079170    (Def) 29.0 <dec>  <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE            --Y -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : TEMPLATE Modify Thermal Control Table 32bit entry TC(8,4,114,18)	DCT51170	TC	
10.1.1		Request Thermal Control Table (TCT) Report			
		Execute Telecommand <p style="text-align: center;"><b>ReportThCtrlManagSts</b></p> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE            --Y -- ---</p> <i>Subsch. ID : 10</i> Det. descr. : Report Thermal Control Management Status, TC(8,5,114)	DCN11170	TC	
10.2		Update loop 40 (FHWEH) Tmin/max-on from [1,4]°C to [29,30]°C			
		Execute Telecommand <p style="text-align: center;"><b>ModifyTctEntry32_Templ</b></p> <i>Command Parameter(s) :</i> ThCtrlLoopIndex           DH069170    40 <dec> N_Repet_8bit        DH070170    2 <dec> ThCtrlParam32Id    DH082170    ClATmaoClBHiT ThCtrlParVal32     DH079170    30.0 <dec> ThCtrlParam32Id    DH082170    ClATmionClBLoT ThCtrlParVal32     DH079170    (Def) 29.0 <dec>  <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE            --Y -- ---</p> <i>Subsch. ID : 10</i>  Det. descr. : TEMPLATE Modify Thermal Control Table 32bit entry TC(8,4,114,18)	DCT51170	TC	
10.2.1		Request Thermal Control Table (TCT) Report			

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10.3		Update loop 26 (FHHRH) TrefMin/TrefM &Tref from [26,30] [28] °C to [39,40] [39.5]°C																																							
		Execute Telecommand <b>ModifyTctEntry32_Templ</b>  <i>Command Parameter(s) :</i> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"><b>ThCtrlLoopIndex</b></td> <td style="width: 20%;">DH069170</td> <td style="width: 30%;">26 &lt;dec&gt;</td> <td style="width: 20%;"></td> </tr> <tr> <td><b>N_Repet_8bit</b></td> <td>DH070170</td> <td>3 &lt;dec&gt;</td> <td></td> </tr> <tr> <td><b>ThCtrlParam32Id</b></td> <td>DH082170</td> <td>ClATmaoClBHiT</td> <td></td> </tr> <tr> <td><b>ThCtrlParVal32</b></td> <td>DH079170</td> <td>40.0 &lt;dec&gt;</td> <td></td> </tr> <tr> <td><b>ThCtrlParam32Id</b></td> <td>DH082170</td> <td>TREF</td> <td></td> </tr> <tr> <td><b>ThCtrlParVal32</b></td> <td>DH079170</td> <td>39.5 &lt;dec&gt;</td> <td></td> </tr> <tr> <td><b>ThCtrlParam32Id</b></td> <td>DH082170</td> <td>ClATmionClBLot</td> <td></td> </tr> <tr> <td><b>ThCtrlParVal32</b></td> <td>DH079170</td> <td>(Def)</td> <td></td> </tr> <tr> <td></td> <td></td> <td>39.0 &lt;dec&gt;</td> <td></td> </tr> </table> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <i>Subsch. ID :</i> 10 Det. descr. : TEMPLATE Modify Thermal Control Table 32bit entry TC(8,4,114,18)	<b>ThCtrlLoopIndex</b>	DH069170	26 <dec>		<b>N_Repet_8bit</b>	DH070170	3 <dec>		<b>ThCtrlParam32Id</b>	DH082170	ClATmaoClBHiT		<b>ThCtrlParVal32</b>	DH079170	40.0 <dec>		<b>ThCtrlParam32Id</b>	DH082170	TREF		<b>ThCtrlParVal32</b>	DH079170	39.5 <dec>		<b>ThCtrlParam32Id</b>	DH082170	ClATmionClBLot		<b>ThCtrlParVal32</b>	DH079170	(Def)				39.0 <dec>		DCT51170	TC	
<b>ThCtrlLoopIndex</b>	DH069170	26 <dec>																																							
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		Execute Telecommand <b>ReportThCtrlManagSts</b>  <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <i>Subsch. ID :</i> 10 Det. descr. : Report Thermal Control Management Status, TC(8,5,114)	DCN11170	TC																																					
10.4		Update loop 48 (FHLUCU) Tmin/max-off from [11, 14]°C to [35,36]°C																																							
		Execute Telecommand <b>ModifyTctEntry32_Templ</b>  <i>Command Parameter(s) :</i> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"><b>ThCtrlLoopIndex</b></td> <td style="width: 20%;">DH069170</td> <td style="width: 30%;">48 &lt;dec&gt;</td> <td style="width: 20%;"></td> </tr> <tr> <td><b>N_Repet_8bit</b></td> <td>DH070170</td> <td>2 &lt;dec&gt;</td> <td></td> </tr> <tr> <td><b>ThCtrlParam32Id</b></td> <td>DH082170</td> <td>Tmax-off</td> <td></td> </tr> <tr> <td><b>ThCtrlParVal32</b></td> <td>DH079170</td> <td>36.0 &lt;dec&gt;</td> <td></td> </tr> <tr> <td><b>ThCtrlParam32Id</b></td> <td>DH082170</td> <td>Tmin-off</td> <td></td> </tr> <tr> <td><b>ThCtrlParVal32</b></td> <td>DH079170</td> <td>35.0 &lt;dec&gt;</td> <td></td> </tr> </table> <i>TC Control Flags :</i> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <i>Subsch. ID :</i> 10	<b>ThCtrlLoopIndex</b>	DH069170	48 <dec>		<b>N_Repet_8bit</b>	DH070170	2 <dec>		<b>ThCtrlParam32Id</b>	DH082170	Tmax-off		<b>ThCtrlParVal32</b>	DH079170	36.0 <dec>		<b>ThCtrlParam32Id</b>	DH082170	Tmin-off		<b>ThCtrlParVal32</b>	DH079170	35.0 <dec>		DCT51170	TC													
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		Det. descr. : TEMPLATE Modify Thermal Control Table 32bit entry TC(8,4,114,18)			
10.4.1		Request Thermal Control Table (TCT) Report			
		Execute Telecommand  <b>ReportThCtrlManagSts</b>  TC Control Flags :  <b>GBM IL DSE</b> --Y -- ---  Subsch. ID : 10 Det. descr. : Report Thermal Control Management Status, TC(8,5,114)	DCN11170	TC	
10.5		Update loop 52 (FHLSU) Tmin/max-off from [11, 14]°C to [35,36]°C			
		Execute Telecommand  <b>ModifyTctEntry32_Templ</b>  Command Parameter(s) : <b>ThCtrlLoopIndex</b> DH069170    52 <dec> <b>N_Repet_8bit</b> DH070170    2 <dec> <b>ThCtrlParam32Id</b> DH082170    Tmax-off <b>ThCtrlParVal32</b> DH079170    36.0 <dec> <b>ThCtrlParam32Id</b> DH082170    Tmin-off <b>ThCtrlParVal32</b> DH079170    35.0 <dec>  TC Control Flags :  <b>GBM IL DSE</b> --Y -- ---  Subsch. ID : 10  Det. descr. : TEMPLATE Modify Thermal Control Table 32bit entry TC(8,4,114,18)	DCT51170	TC	
10.5.1		Request Thermal Control Table (TCT) Report			
		Execute Telecommand  <b>ReportThCtrlManagSts</b>  TC Control Flags :  <b>GBM IL DSE</b> --Y -- ---  Subsch. ID : 10 Det. descr. : Report Thermal Control Management Status, TC(8,5,114)	DCN11170	TC	
11		Monitor HIFI Horizontal panel units temperaure evolution		Next Step: END	
		Verify Telemetry  <b>ATemp39_FHWOH</b> DEA9E170    < 23.4 <dec>		GRD=ZGZ2Y999	
		Verify Telemetry  <b>ATemp40_FHWEH</b> DEA9F170    < 30.1 <dec>		GRD=ZGZ2Z999	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify Telemetry <b>ATemp26_FHRRH</b> <b>DEA91170</b>	< 37.3 <dec>	GRD=ZGZ2M999	
		Verify Telemetry <b>ATemp48_FHLCU</b> <b>DEAA7170</b>	< 11.0 <dec>	GRD=ZGZ37999	
		Verify Telemetry <b>ATemp52_FHLSU</b> <b>DEAAB170</b>	< 23.1 <dec>	GRD=ZGZ3A999	
		<b>Note: Maximum temperature reached at steady state condition based on TMM simulation #3.1 (with WOH =ON) for SAA=-20 @EOL</b>			
11.1		Wait for HIFI switch ON procedure to update FHWOH, FHWEH and FHRRH UIU status and keep monitoring temperatures up to the end of the pass			
		Verify Telemetry <b>HifiWohFuncSts</b> <b>DEL40171</b>	= On	(None)	
		Verify Telemetry <b>HifiWehFuncSts</b> <b>DEL48171</b>	= On		
		Verify Telemetry <b>HifiHrhFuncSts</b> <b>DEL46171</b>	= On		
End of Sequence					
TC Seq. Name :HFTLCU10 ( HIFI LCU Default set )					
<b>HFTLCU10</b>					
TimeTag Type: N Sub Schedule ID:  <input type="checkbox"/>					
12		Restore HIFI FHWOH, FHWEH, FHRRH, FHLCU and FHLSU units TCT thresholds		Next Step: 13	
12.1		Restore loop 39 (FHWOH) Trefmin/refmax & Tref from [29,31]°C [30]°C to [1.5,5.5]°C [3.5]°C			
		Execute Telecommand <b>ModifyTctEntry32_Templ</b> <b>DCT51170</b>  Command Parameter(s) : <b>ThCtrlLoopIndex</b> <b>DH069170</b> <b>39 &lt;dec&gt;</b> <b>N_Repet_8bit</b> <b>DH070170</b> <b>3 &lt;dec&gt;</b> <b>ThCtrlParam32Id</b> <b>DH082170</b> <b>ClATmionClBLot</b> <b>ThCtrlParVal32</b> <b>DH079170</b> (Def) <b>ThCtrlParam32Id</b> <b>DH082170</b> <b>1.5 &lt;dec&gt;</b> <b>ThCtrlParVal32</b> <b>DH079170</b> <b>TREF</b> <b>ThCtrlParam32Id</b> <b>DH082170</b> <b>3.5 &lt;dec&gt;</b> <b>ThCtrlParVal32</b> <b>DH079170</b> <b>ClATmaoClBHIT</b> <b>TC Control Flags :</b> <b>GBM IL DSE</b>  <b>--Y -- ---</b>  Subsch. ID : 10 Det. descr. : TEMPLATE Modify Thermal Control Table 32bit entry TC(8,4,114,18)		TC	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
12.1.1		Request Thermal Control Table (TCT) Report			
		Execute Telecommand <b>ReportThCtrlManagSts</b>  <i>TC Control Flags :</i> <b>GBM IL DSE</b> <b>--Y -- ---</b>  <i>Subsch. ID : 10</i> Det. descr. : Report Thermal Control Management Status, TC(8,5,114)	DCN11170	TC	
12.2		Restore loop 40 (FHWEH) Tmin/max-on from [29,30]°C to [1,4]°C			
		Execute Telecommand <b>ModifyTctEntry32_Templ</b>  <i>Command Parameter(s) :</i> <b>ThCtrlLoopIndex DH069170</b> <b>N_Repet_8bit DH070170</b> <b>ThCtrlParam32Id DH082170</b> <b>ThCtrlParVal32 DH079170</b> <b>ThCtrlParam32Id DH082170</b> <b>ThCtrlParVal32 DH079170</b>  <i>TC Control Flags :</i> <b>GBM IL DSE</b> <b>--Y -- ---</b>  <i>Subsch. ID : 10</i>  Det. descr. : TEMPLATE Modify Thermal Control Table 32bit entry TC(8,4,114,18)	DCT51170	TC	
12.2.1		Request Thermal Control Table (TCT) Report			
		Execute Telecommand <b>ReportThCtrlManagSts</b>  <i>TC Control Flags :</i> <b>GBM IL DSE</b> <b>--Y -- ---</b>  <i>Subsch. ID : 10</i> Det. descr. : Report Thermal Control Management Status, TC(8,5,114)	DCN11170	TC	
12.3		Restore loop 26 (FHHRH) TrefMin/TrefM &Tref from [39,40] [39.5]°C to [26,30] [28] °C			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand <b>ModifyTctEntry32_Templ</b> Command Parameter(s) : ThCtrlLoopIndex           DH069170 N_Repet_8bit               DH070170 ThCtrlParam32Id           DH082170 ThCtrlParVal32            DH079170 ThCtrlParam32Id           DH082170 ThCtrlParVal32            DH079170 ThCtrlParam32Id           DH082170 ThCtrlParVal32            DH079170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Modify Thermal Control Table 32bit entry TC(8,4,114,18)	DCT51170  26 <dec> 3 <dec> ClATmionClBLot (Def) 26.0 <dec> TREF 28.0 <dec> ClATmaoClBHiT 30.0 <dec>	TC	
12.3.1		Request Thermal Control Table (TCT) Report			
		Execute Telecommand <b>ReportThCtrlManagSts</b> TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : Report Thermal Control Management Status, TC(8,5,114)	DCN11170	TC	
12.4		Restore loop 48 (FHLCU) Tmin/max-off from [35,36]°C to [11,14]°C			
		Execute Telecommand <b>ModifyTctEntry32_Templ</b> Command Parameter(s) : ThCtrlLoopIndex           DH069170 N_Repet_8bit               DH070170 ThCtrlParam32Id           DH082170 ThCtrlParVal32            DH079170 ThCtrlParam32Id           DH082170 ThCtrlParVal32            DH079170 TC Control Flags : GBM IL DSE --Y -- --- Subsch. ID : 10 Det. descr. : TEMPLATE Modify Thermal Control Table 32bit entry TC(8,4,114,18)	DCT51170  48 <dec> 2 <dec> Tmin-off 11.0 <dec> Tmax-off 14.0 <dec>	TC	
12.4.1		Request Thermal Control Table (TCT) Report			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Execute Telecommand <b>ReportThCtrlManagSts</b>  <i>TC Control Flags :</i> GBM IL DSE --Y -- ---  <i>Subsch. ID : 10</i> Det. descr. : Report Thermal Control Management Status, TC(8,5,114)	DCN11170	TC	
12.5		Restore loop 52 (PHLSU) Tmin/max-off from [35,36]°C to [11,14]°C			
		Execute Telecommand <b>ModifyTctEntry32_Templ</b>  <i>Command Parameter(s) :</i> ThCtrlLoopIndex DH069170 52 <dec> N_Repet_8bit DH070170 2 <dec> ThCtrlParam32Id DH082170 Tmin-off ThCtrlParVal32 DH079170 11.0 <dec> ThCtrlParam32Id DH082170 Tmax-off ThCtrlParVal32 DH079170 14.0 <dec>  <i>TC Control Flags :</i> GBM IL DSE --Y -- ---  <i>Subsch. ID : 10</i>  Det. descr. : TEMPLATE Modify Thermal Control Table 32bit entry TC(8,4,114,18)	DCT51170	TC	
12.5.1		Request Thermal Control Table (TCT) Report			
		Execute Telecommand <b>ReportThCtrlManagSts</b>  <i>TC Control Flags :</i> GBM IL DSE --Y -- ---  <i>Subsch. ID : 10</i> Det. descr. : Report Thermal Control Management Status, TC(8,5,114)	DCN11170	TC	
13		Verfiy HIFI Horizontal panel temperatures cold down		Next Step: 14	
		Verify Telemetry <b>ATemp39_FHWOH</b> DEA9E170		GRD=ZGZ2Y999	
		<b>Verify FHWOH temp &lt; 9 °C ("Unit ON high" requirement) before operate FHWOH</b>			
		Verify Telemetry <b>ATemp40_FHWEH</b> DEA9F170		GRD=ZGZ2Z999	
		<b>Verify FHWEH temp &lt;30 °C ("Unit ON high" requirement) before operate FHWEH</b>			
		Verify Telemetry <b>ATemp26_FHHRH</b> DEA91170		GRD=ZGZ2M999	
		<b>Verify FHHRH temp &lt;40 °C ("Unit ON high" requirement) before operate FHHRH</b>			



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment																		
		Verify Telemetry <b>ATemp48_FHLCU</b> <b>DEAA7170</b>		GRD=ZGZ37999																			
		Verify Telemetry <b>ATemp52_FHLSU</b> <b>DEAAB170</b>		GRD=ZGZ3A999																			
14		Restore HIFI FHWOH and FHHRH units FCCT thresholds		Next Step: 15																			
15		If FHWOH < 11°C then Restore FHWOH HIGH_OP from 28°C to 11°C		Next Step: 16																			
15.1		Restore FHWOH (ChkId_57) HIGH_OP from 28°C to 11°C																					
		<p style="text-align: center;"><b>FCCT_FHWOH_HPS7_HCS3</b></p> <p style="text-align: center;"><b>XCL40993</b></p> <p>Command Parameter(s) :</p> <table style="margin-left: 40px;"> <tr><td>CCorrParValFlt</td><td>XH134993</td><td>-15.0 &lt;dec&gt; (Def)</td></tr> <tr><td>CCorrParValFlt</td><td>XH134993</td><td>11.0 &lt;dec&gt; (Def)</td></tr> <tr><td>CCorrParValUInt</td><td>XH133993</td><td>64800 &lt;dec&gt; (Def)</td></tr> <tr><td>CCorrParValFlt</td><td>XH134993</td><td>-15.0 &lt;dec&gt; (Def)</td></tr> <tr><td>CCorrParValFlt</td><td>XH134993</td><td>1.0 &lt;dec&gt; (Def)</td></tr> <tr><td>CCorrParValFlt</td><td>XH134993</td><td>11.0 &lt;dec&gt; (Def)</td></tr> </table> <p>TC Control Flags :</p> <p style="margin-left: 100px;"><b>GBM IL DSE</b> --Y -- ---</p> <p>Subsch. ID : 10</p> <p>Det. descr. : FCCT_FHWOH_HPS7_HCS3 CrCorrChkPar TC(8,4,116,17) Id=ChkId_57</p>	CCorrParValFlt	XH134993	-15.0 <dec> (Def)	CCorrParValFlt	XH134993	11.0 <dec> (Def)	CCorrParValUInt	XH133993	64800 <dec> (Def)	CCorrParValFlt	XH134993	-15.0 <dec> (Def)	CCorrParValFlt	XH134993	1.0 <dec> (Def)	CCorrParValFlt	XH134993	11.0 <dec> (Def)		TC	
CCorrParValFlt	XH134993	-15.0 <dec> (Def)																					
CCorrParValFlt	XH134993	11.0 <dec> (Def)																					
CCorrParValUInt	XH133993	64800 <dec> (Def)																					
CCorrParValFlt	XH134993	-15.0 <dec> (Def)																					
CCorrParValFlt	XH134993	1.0 <dec> (Def)																					
CCorrParValFlt	XH134993	11.0 <dec> (Def)																					
15.2		Request FDIR Cross Correlated Table (FCCT) Report																					
		<p style="text-align: center;"><b>ReportFdirManagSts</b></p> <p style="text-align: center;"><b>DCN02170</b></p> <p>TC Control Flags :</p> <p style="margin-left: 100px;"><b>GBM IL DSE</b> --Y -- ---</p> <p>Subsch. ID : 10</p> <p>Det. descr. : Report Fdir Management Status, TC(8,5,116)</p>		TC																			
		Verify Telemetry <b>FdirHighOP39</b> <b>DEZ19170</b>	= 11.0 <dec>	(None)																			
16		If FHHRH < 31°C then Restore FHHRH HIGH_OP from 42°C to 31°C		Next Step: 17																			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment																		
16.1		Restore FHHRH (ChkId_44) HIGH_OP from 42°C to 31°C																					
		<p style="text-align: center;"><b>FCCT_FHHRH_HPS5_HCS2</b></p> <p style="text-align: center;"><b>XCL3M993</b></p> <p>Command Parameter(s) :</p> <table border="0"> <tr><td>CCorrParValFlt</td><td>XH134993</td><td>-22.0 &lt;dec&gt; (Def)</td></tr> <tr><td>CCorrParValFlt</td><td>XH134993</td><td>31.0 &lt;dec&gt; (Def)</td></tr> <tr><td>CCorrParValUInt</td><td>XH133993</td><td>64800 &lt;dec&gt; (Def)</td></tr> <tr><td>CCorrParValFlt</td><td>XH134993</td><td>-22.0 &lt;dec&gt; (Def)</td></tr> <tr><td>CCorrParValFlt</td><td>XH134993</td><td>25.0 &lt;dec&gt; (Def)</td></tr> <tr><td>CCorrParValFlt</td><td>XH134993</td><td>31.0 &lt;dec&gt; (Def)</td></tr> </table> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10</p> <p>Det. descr. : FCCT_FHHRH_HPS5_HCS2 CrCorrChkPar TC(8,4,116,17) Id=ChkId_44</p>	CCorrParValFlt	XH134993	-22.0 <dec> (Def)	CCorrParValFlt	XH134993	31.0 <dec> (Def)	CCorrParValUInt	XH133993	64800 <dec> (Def)	CCorrParValFlt	XH134993	-22.0 <dec> (Def)	CCorrParValFlt	XH134993	25.0 <dec> (Def)	CCorrParValFlt	XH134993	31.0 <dec> (Def)	XCL3M993	TC	
CCorrParValFlt	XH134993	-22.0 <dec> (Def)																					
CCorrParValFlt	XH134993	31.0 <dec> (Def)																					
CCorrParValUInt	XH133993	64800 <dec> (Def)																					
CCorrParValFlt	XH134993	-22.0 <dec> (Def)																					
CCorrParValFlt	XH134993	25.0 <dec> (Def)																					
CCorrParValFlt	XH134993	31.0 <dec> (Def)																					
16.2		Request FDIR Cross Correlated Table (FCCT) Report																					
		<p>Execute Telecommand</p> <p style="text-align: center;"><b>ReportFdirManagSts</b></p> <p style="text-align: center;"><b>DCN02170</b></p> <p>TC Control Flags :</p> <p style="text-align: right;">GBM IL DSE --Y -- ---</p> <p>Subsch. ID : 10</p> <p>Det. descr. : Report Fdir Management Status, TC(8,5,116)</p>	DCN02170	TC																			
		<p style="text-align: center;"><b>FdirHighOP26</b></p> <p style="text-align: center;"><b>DE715170</b></p> <p style="text-align: center;">= 31.0 &lt;dec&gt;</p>																					
17		Verfiy default HIFI Horizontal panel units TCT thresholds		Next Step: 18																			
17.1		Verfiy Loop 39 (FHWOH) TCT thresholds																					
		<p>Verify Telemetry</p> <p style="text-align: center;"><b>Tmin_on39</b></p> <p style="text-align: center;"><b>DEPRF170</b></p> <p style="text-align: center;">= 1.5 &lt;dec&gt;</p>		(None)																			
		<p>Verify Telemetry</p> <p style="text-align: center;"><b>Tmax_on39</b></p> <p style="text-align: center;"><b>DEPRE170</b></p> <p style="text-align: center;">= 5.5 &lt;dec&gt;</p>		(None)																			
		<p>Verify Telemetry</p> <p style="text-align: center;"><b>Tmin_off39</b></p> <p style="text-align: center;"><b>DEPRH170</b></p> <p style="text-align: center;">= -3.5 &lt;dec&gt;</p>		(None)																			
		<p>Verify Telemetry</p> <p style="text-align: center;"><b>Tmax_off39</b></p> <p style="text-align: center;"><b>DEPRG170</b></p> <p style="text-align: center;">= -0.5 &lt;dec&gt;</p>		(None)																			
		<p>Verify Telemetry</p> <p style="text-align: center;"><b>TREF39</b></p> <p style="text-align: center;"><b>DEPRP170</b></p> <p style="text-align: center;">= 3.5 &lt;dec&gt;</p>		(None)																			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
17.2		Verfiy Loop 40 (FHWEH) TCT thresholds			
		Verify Telemetry Tmin_on40 DEPS3170	= 1.0 <dec>	(None)	
		Verify Telemetry Tmax_on40 DEPS2170	= 4.0 <dec>	(None)	
		Verify Telemetry Tmin_off40 DEPS5170	= 1.0 <dec>	(None)	
		Verify Telemetry Tmax_off40 DEPS4170	= 4.0 <dec>	(None)	
17.3		Verfiy Loop 26 (FHHRH) TCT thresholds			
		Verify Telemetry Tmin_on26 DEPG6170	= 26.0 <dec>	(None)	
		Verify Telemetry Tmax_on26 DEPG5170	= 30.0 <dec>	(None)	
		Verify Telemetry Tmin_off26 DEPG8170	= -9.0 <dec>	(None)	
		Verify Telemetry Tmax_off26 DEPG7170	= -6.0 <dec>	(None)	
		Verify Telemetry TREF26 DEPGE170	= 28.0 <dec>	(None)	
17.4		Verfiy Loop 48 (FHLCU) TCT thresholds			
		Verify Telemetry Tmin_on48 DEPX6170	= 11.0 <dec>	(None)	
		Verify Telemetry Tmax_on48 DEPX5170	= 14.0 <dec>	(None)	
		Verify Telemetry Tmin_off48 DEPX8170	= 11.0 <dec>	(None)	
		Verify Telemetry Tmax_off48 DEPX7170	= 14.0 <dec>	(None)	
17.5		Verfiy Loop 52 (FHLSU) TCT thresholds			
		Verify Telemetry Tmin_on52 DEPZR170	= 11.0 <dec>	(None)	
		Verify Telemetry Tmax_on52 DEPZP170	= 14.0 <dec>	(None)	
		Verify Telemetry Tmin_off52 DEPZT170	= 11.0 <dec>	(None)	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
		Verify Telemetry Tmax_off52 DEPZS170	= 14.0 <dec>	(None)	
18		Verfiy default HIFI Horizontal panel units FCCT thresholds		Next Step: 19	
18.1		Verfiy Loop 39 (FHWOH) FCCT thresholds			
		FdirLowNOP39 DEZ14170	= -15.0 <dec>		
		FdirHighNOP39 DEZ15170	= 11 <dec>		
		ColdStartTemp39 DEZ17170	= -15.0 <dec>		
		FdirLowOP39 DEZ18170	= 1 <dec>		
		FdirHighOP39 DEZ19170	= 11 <dec>		
18.2		Verfiy Loop 40 (FHWEH) FCCT thresholds			
		FdirLowNOP40 DEZ22170	= -7.0 <dec>		
		FdirHighNOP40 DEZ23170	= 32 <dec>		
		ColdStartTemp40 DEZ25170	= -7.0 <dec>		
		FdirLowOP40 DEZ26170	= -2 <dec>		
		FdirHighOP40 DEZ27170	= 32 <dec>		
18.3		Verify Loop 26 (FHHRH) FCCT thresholds			
		FdirLowNOP26 DE710170	= -22 <dec>		
		FdirHighNOP26 DE711170	= 31.0 <dec>		
		ColdStartTemp26 DE713170	= -22 <dec>		
		FdirLowOP26 DE714170	= 25.0 <dec>		
		FdirHighOP26 DE715170	= 31.0 <dec>		

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	AIT Comment
18.4		Verify Loop 48 (FHLCU) FCCT thresholds			
		FdirLowNOP48 DEZ86170	= -20.0 <dec>		
		FdirHighNOP48 DEZ87170	= 42 <dec>		
		ColdStartTemp48 DEZ89170	= -20.0 <dec>		
		FdirLowOP48 DEZ90170	= 8.0 <dec>		
		FdirHighOP48 DEZ91170	= 42 <dec>		
19		Verify Loop 52 (FHLSU) FCCT thresholds		Next Step: END	
		FdirLowNOP52 DEY18170	= -13.0 <dec>		
		FdirHighNOP52 DEY19170	= 37.0 <dec>		
		ColdStartTemp52 DEY21170	= -13.0 <dec>		
		FdirLowOP52 DEY22170	= 8 <dec>		
		FdirHighOP52 DEY23170	= 37.0 <dec>		
End of Sequence					
<b>End of Procedure</b>					