

TTC Subsystem Checkout  
 File: H\_FCP\_TTC\_CHECK.xls  
 Author: E. Picallo



## Procedure Summary

### Objectives

This procedure describes the steps needed to verify the overall Telemetry Tracking and Command Subsystem status

### Summary of Constraints

**WARNINGS:**

The telemetry parameters that are part of a periodic housekeeping packet (P1, P4 or P64) are downlinked only when the telemetry bit rate is more then 5 kbps.

If LCL 23 (XPND1) is open it is not possible to acquire the XPND1 1553 telemetries.

If LCL 16 (XPND2) is open it is not possible to acquire the XPND2 1553 telemetries.

### Spacecraft Configuration

**Start of Procedure**

CDMU in default configuration;

**End of Procedure**

CDMU in default configuration;

### Reference File(s)

**Input Command Sequences**

**Output Command Sequences**

HFRCHECK

### Referenced Displays

ANDs	GRDs	SLDs
ZAZ7I999		
ZAZ7J999		
ZAZ7M999		
ZAZ7O999		

### Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
28/01/08		1	Created	E. Picallo	
16/06/08	1	2	ANDs check forms used	E. Picallo	
22/10/08		3	Reference to file "H_ANDs check form_TTC" added.	E. Picallo	
23/12/08	2	4	H_ANDs check form_TTC.xls attached	E. Picallo	
27/02/09	2.1	5	Updated with H-P Flight Satellite Configuration_v2.xls inputs	E. Picallo	

Status : Version 12 - Unchanged  
 Last Checkin: 18/06/09

TTC Subsystem Checkout  
 File: H\_FCP\_TTC\_CHECK.xls  
 Author: E. Picallo

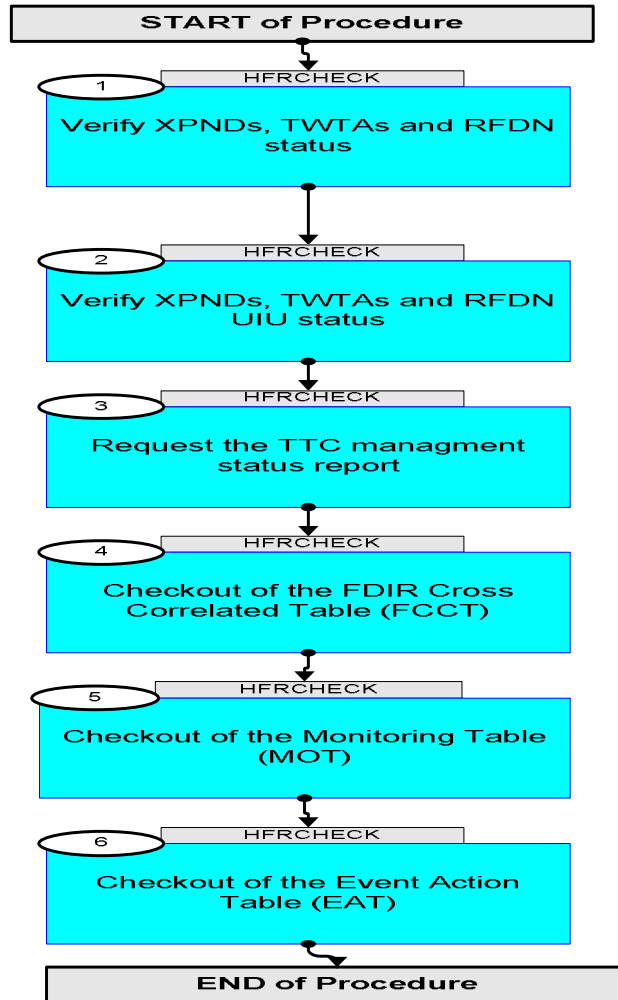


18/03/09		6	Minor AND updates correction	E. Picallo	
23/03/09	2.2	7	Request FFCT, MOT and EAT Reports added	E. Picallo	
30/03/09		8	Launch Mode config updated according to H-P-2-ASP-TS-1780 issue 2	E. Picallo	
16/04/09		9	RXs temp, TXs temp and TWTs Ao limits updated	E. Picallo	
16/04/09		10	ANDs regenerated	E. Picallo	
17/04/09	2.3	11	Launch mode: TWTA_1_L49 ON and TwtAssA ON in UIU	E. Picallo	
18/06/09	2.5	12	update according to new baseline both XPNDs LCLs switch ON	E. Picallo	

TTC Subsystem Checkout  
File: H\_FCP\_TTC\_CHECK.xls  
Author: E. Picallo



### Procedure Flowchart Overview



TTC Subsystem Checkout  
 File: H\_FCP\_TTC\_CHECK.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
<b>Beginning of Procedure</b>				
<p><i>TC Seq. Name : HFRCHECK (TTC Subsystem Check)</i></p> <p><i>TimeTag Type: N</i>  <i>Sub Schedule ID:</i></p> <p style="text-align: center;">□</p>				
1		Verify XPNDs, TWTAs and RFDN status		Next Step: 2
		Refer to Checkform ZAZ7I999 at the back of this document		ANDCK
		Refer to Checkform ZAZ7J999 at the back of this document		ANDCK
		<b>Refer to attachments at the back of this document based on the file "H_ANDs check form_TTC" to check the expected values according to the current spacecraft mode.</b>		
2		Verify XPNDs, TWTAs and RFDN UIU status		Next Step: 3
		Refer to Checkform ZAZ7M999 at the back of this document		ANDCK
		<b>Refer to attachments at the back of this document based on the file "H_ANDs check form_TTC" to check the expected values according to the current spacecraft mode.</b>		
3		Request the TTC management status report		Next Step: 4
		Execute Procedure: H_FCP_TTC_REPO TTC Management Status Report		
		<b>Refer to attachments at the back of this document based on the file "H_ANDs check form_TTC" to check the expected values according to the current spacecraft mode.</b>		
4		Checkout of the FDIR Cross Correlated Table (FCCT)		Next Step: 5
4.1		Request FDIR Management Satus Report		□
		<b>If the report FDIR Management Status Report TM(8,6,116) has already been requested, there is not needed to send the next TC(8,5,116)</b>		

TTC Subsystem Checkout  
 File: H\_FCP\_TTC\_CHECK.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		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	
4.2		Verify the FCCT entries related to Receivers Power		<input type="checkbox"/>
		<b>Verify the FCCT entries related to Receivers Power:</b> <b>Chkld_17 FCCT_XPND1_RX_Power</b> <b>Chkld_18 FCCT_XPND2_RX_Power</b>		
		Verify Telemetry <div style="text-align: right;"><b>XpndNRxFc1CuMin</b>      <b>DE502170</b></div>	0	AND=ZAZ70999
		Verify Telemetry <div style="text-align: right;"><b>XpndNRxFc1CuMax</b>      <b>DE503170</b></div>	0.38	AND=ZAZ70999
		Verify Telemetry <div style="text-align: right;"><b>RxNSupVMin</b>      <b>DE504170</b></div>	4.5	AND=ZAZ70999
		Verify Telemetry <div style="text-align: right;"><b>RxNSupVMax</b>      <b>DE505170</b></div>	5.5	AND=ZAZ70999
		Verify Telemetry <div style="text-align: right;"><b>XpndRRxFc1CuMin</b>      <b>DE506170</b></div>	0	AND=ZAZ70999
		Verify Telemetry <div style="text-align: right;"><b>XpndRRxFc1CuMax</b>      <b>DE507170</b></div>	0.38	AND=ZAZ70999
		Verify Telemetry <div style="text-align: right;"><b>RxRedSupplVMin</b>      <b>DE508170</b></div>	4.5	AND=ZAZ70999
		Verify Telemetry <div style="text-align: right;"><b>RxRedSupplVMax</b>      <b>DE509170</b></div>	5.5	AND=ZAZ70999
5		Checkout of the Monitoring Table (MOT)		Next Step: 6
		<b>If the report current monitoring list has already been requested, there is not needed to send the next TC(12,8)</b>		
		Execute Telecommand  <div style="text-align: right;"><b>ReportMonitList</b></div> TC Control Flags :  <div style="text-align: right;">GBM IL DSE --Y -- ---</div> Subsch. ID : 10 Det. descr. : TEMPLATE Report current monitoring list, TC(12,8) no appl. data	DC51F170	

TTC Subsystem Checkout  
 File: H\_FCP\_TTC\_CHECK.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch																
		<p>Verify TTC related entries in the MOT.            In case TTC chain 1 is switch ON, the TTC entries status are as follows:            - Monitoring ID= 17,76,77 (TTC Chain 1) are enabled , and            - Monitoring ID= 18,96,97 (TTC Chain 2) are disabled</p> <p>Where:            MonID Parameter ID            17 XPND1_RX_Power:DID_ASW_CCC_RES_5:6            76 DID_EPC1_HELIX_CURRENT (4.25 mA Threshold)            77 DID_EPC1_HELIX_CURRENT (0.6 mA Threshold)            18 XPND2_RX_Power:DID_ASW_CCC_RES_5:7            96 DID_EPC2_HELIX_CURRENT (4.25 mA Threshold)            97 DID_EPC2_HELIX_CURRENT (0.6 mA Threshold)</p>																		
6		Checkout of the Event Action Table (EAT)		Next Step: END																
		If the report current content of the EAT has already been requested, there is not needed to send the next TC(19,6)																		
		<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																	
		<p>Check that the following EAT entries related to TTC are enabled:</p> <table border="0"> <tr> <td>EventID</td> <td>Event Description</td> </tr> <tr> <td>0x00A0</td> <td>XPND1_NOT_VIT_RT_INV</td> </tr> <tr> <td>0x00A1</td> <td>XPND2_NOT_VIT_RT_INV</td> </tr> <tr> <td>0x9218</td> <td>EPC1_HelixCur_OutHi_Lim</td> </tr> <tr> <td>0x9219</td> <td>EPC2_HelixCur_OutHi_Lim</td> </tr> <tr> <td>0x9228</td> <td>EPC1_HelixCur_OutLo_Lim</td> </tr> <tr> <td>0x9229</td> <td>EPC2_HelixCur_OutLo_Lim</td> </tr> <tr> <td>0x921A</td> <td>XPND1 RX Failure</td> </tr> </table>	EventID	Event Description	0x00A0	XPND1_NOT_VIT_RT_INV	0x00A1	XPND2_NOT_VIT_RT_INV	0x9218	EPC1_HelixCur_OutHi_Lim	0x9219	EPC2_HelixCur_OutHi_Lim	0x9228	EPC1_HelixCur_OutLo_Lim	0x9229	EPC2_HelixCur_OutLo_Lim	0x921A	XPND1 RX Failure		
EventID	Event Description																			
0x00A0	XPND1_NOT_VIT_RT_INV																			
0x00A1	XPND2_NOT_VIT_RT_INV																			
0x9218	EPC1_HelixCur_OutHi_Lim																			
0x9219	EPC2_HelixCur_OutHi_Lim																			
0x9228	EPC1_HelixCur_OutLo_Lim																			
0x9229	EPC2_HelixCur_OutLo_Lim																			
0x921A	XPND1 RX Failure																			
		In nominal TTC configuration (XPND1 in use), the EAT entry 0x921B (XPND2 RX Failure) is disabled																		
<b>End of Procedure</b>																				

TTC Subsystem Checkout  
 File: H\_FCP\_TTC\_CHECK.xls  
 Author: E. Picallo



ZAZ7I999 / TTC Parameters 1 of 2

ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
WM12D565	Xpnd1Tx_L23_S			WM92C565	Xpnd2Tx_L16_S		
WM109565	Xpnd1Tx_L23_I			WM908565	Xpnd2Tx_L16_I		
DEFCG160	XPND1On_Off			DEFD1160	XPND2On_Off		
DEFCK160	XPND1Val_Inval			DEFD5160	XPND2Val_Inval		
RMB61442	X1 TcBitRateTCB			RMB62442	X2 TcBitRateTCB		
RMB19442	X1 RX PLL PhErr			RMB40442	X2 RX PLL PhErr		
RMB20442	X1 AGC TMUplnk			RMB41442	X2 AGC TMUplnk		
RMB21442	X1 TLM counter			RMB42442	X2 TLM counter		
RMB22442	X1 Status - XS			RMB43442	X2 Status - XS		
RMB23442	X1 SqIchSt - SS			RMB44442	X2 SqIchSts-SS		
RMB24442	X1 Rx Lock - RL			RMB45442	X2 Rx Lock - RL		
RMB26442	X1 Coher MOD-CM			RMB47442	X2 Coher MOD-CM		
RMB27442	X1 Rang MOD-RM			RMB48442	X2 Rang MD - RM		
RMB28442	X1 HIRateMD-HRM			RMB49442	X2 HIRateMD-HRM		
RMB29442	X1 MedRate-MRM			RMB50442	X2 MedRate-MRM		
RMB30442	X1 LowRate-1 MD			RMB51442	X2 LowRate-1 MD		
RMB31442	X1 LowRate-2 MD			RMB52442	X2 LowRate-2 MD		
RMB32442	X1 RNGMD ID-RMI			RMB53442	X2 RNGMD ID-RMI		
RMB33442	X1 TM MD ID-TMI			RMB54442	X2 TM MD ID-TMI		
RMB35442	X1 OutPowLevSet			RMB56442	X2 OutPowLevSet		
RMB25442	X1 Ext Ref - ER			RMB46442	X2 Ext Ref - ER		
RMB34442	X1 IntBitPatGen			RMB55442	X2 IntBitPatGen		
RMB13442	XPDP1_RF1_OUT_PW			RMB14442	XPDP2_RF2_OUT_PW		
RMB15442	TX1 ON-OFF Stat			RMB16442	TX2 ON-OFF Stat		
RMB17442	RX1 125-4K Stat			RMB18442	RX2 125-4K Stat		
RMB01442	TX1_TEMP			RMB03442	TX2_TEMP		
RMB02442	RX1_TEMP			RMB04442	RX2_TEMP		
RMB07442	XPND1_RX1_SUP_V			RMB08442	XPND2_RX2_SUP_V		
RMB05442	XPND1_TX1_SUP_V			RMB06442	XPND2_TX2_SUP_V		
RMB09442	XPDP1_RX1_AGC_LV			RMB10442	XPDP2_RX2_AGC_LV		
RMB11442	XPDP1_RX1_PLL_SP			RMB12442	XPDP2_RX2_PLL_SP		
WM702565	Xpnd1_Rx_FCL3_I			WM402565	Xpnd2_Rx_FCL4_I		

TTC Subsystem Checkout  
 File: H\_FCP\_TTC\_CHECK.xls  
 Author: E. Picallo



ZAZ7J999 / TTC Parameters 2 of 2							
ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
WM22E565	Twta_1_L49_1S			WM92E565	Twta_2_L50_1S		
WM210565	Twta_1_L49_I			WM910565	Twta_2_L50_I		
RMB05439	EPC1_ONOFF_STS			RMB07439	EPC2_ONOFF_STS		
RMB06439	EPC1_AUT_RSTART			RMB08439	EPC2_AUT_RSTART		
RMB09439	TWT1_ONOFF_STS			RMB10439	TWT2_ONOFF_STS		
RMB02439	EPC1_HELIX_CURR			RMB04439	EPC2_HELIX_CURR		
RMB01439	EPC1_ANODE_VOLT			RMB03439	EPC2_ANODE_VOLT		
RMB11439	EPC1_TEMP			RMB12439	EPC2_TEMP		
RMB05436	RFDN SW1 Pos A			RMB09436	RFDN SW1 Pos B		
RMB06436	RFDN SW2 Pos A			RMB10436	RFDN SW2 Pos B		
RMB07436	RFDN SW3 Pos A			RMB11436	RFDN SW3 Pos B		
RMB08436	RFDN SW4 Pos A			RMB12436	RFDN SW4 Pos B		
XD036992	AntRx1Config			XD037992	AntRx2Config		
XD039992	AntXPNDConfig			DELAF160	BSW_TC_Complete		
RMB01436	RFDN_ISOL1_TEMP			RMB02436	RFDN_ISOL2_TEMP		
RMB03436	RFDN_DIPL1_TEMP			RMB04436	RFDN_DIPL2_TEMP		
DEES2160	FARa_Analysis			DEESH160	FARb_Analysis		
DEES3160	FARa_ill_Reas			DEESJ160	FARb_ill_Reas		
DEES6160	FARa_Type			DEESM160	FARb_Type		
DEES7160	FARa_TCchInput			DEESN160	FARb_TCchInput		
XD163991	VIRTUALCH.IDENT.			XD192991	VIRTUALCH.IDENT.		
XD170991	FARM B CNT.			XD199991	FARM B CNT.		
XD172991	REPORT VALUE			XD201991	REPORT VALUE		
XD167991	LOCK OUT			XD196991	LOCK OUT		
XD169991	RETRANSMIT			XD198991	RETRANSMIT		
XD165991	NO RF AVAIL.			XD195991	NO B/T LOCK		
DEMRF160	TME_BITRATE			DEMRF160	BSW_TM_MODE		



TTC Subsystem Checkout  
 File: H\_FCP\_TTC\_CHECK.xls  
 Author: E. Picallo



ZAZ7M999 / TTC\_UIU

ID	DESCRIPTION	VALUE	UNIT	ID	DESCRIPTION	VALUE	UNIT
DEL10170	Ttr1FuncSts			DEL14170	Ttr2FuncSts		
DEL12170	Ttr1Use			DEL16170	Ttr2Use		
DEL11170	Ttr1LogSts			DEL15170	Ttr2LogSts		
DEL09170	Ttr1FailSts			DEL13170	Ttr2FailSts		
DEL58170	XpndRx1FuncSts			DEL62170	XpndRx2FuncSts		
DEL56170	XpndRx1Use			DEL60170	XpndRx2Use		
DEL57170	XpndRx1LogSts			DEL61170	XpndRx2LogSts		
DEL59170	XpndRx1FailSts			DEL63170	XpndRx2FailSts		
DEL27170	XpndTx1FuncSts			DEL31170	XpndTx2FuncSts		
DEL29170	XpndTx1Use			DEL33170	XpndTx2Use		
DEL28170	XpndTx1LogSts			DEL32170	XpndTx2LogSts		
DEL26170	XpndTx1FailSts			DEL30170	XpndTx2FailSts		
DEL19170	Twta1FuncSts			DEL23170	Twta2FuncSts		
DEL21170	Twta1Use			DEL25170	Twta2Use		
DEL20170	Twta1LogSts			DEL24170	Twta2LogSts		
DEL18170	Twta1FailSts			DEL22170	Twta2FailSts		
DEG25170	Epc1FuncSts			DEG29170	Epc2FuncSts		
DEG27170	Epc1Use			DEG31170	Epc2Use		
DEG26170	Epc1LogSts			DEG30170	Epc2LogSts		
DEG24170	Epc1FailSts			DEG28170	Epc2FailSts		
DEH13170	TwtAmp1FuncSts			DEH17170	TwtAmp2FuncSts		
DEH15170	TwtAmp1Use			DEH19170	TwtAmp2Use		
DEH14170	TwtAmp1LogSts			DEH18170	TwtAmp2LogSts		
DEH12170	TwtAmp1FailSts			DEH16170	TwtAmp2FailSts		
DEH49170	Rfdn1FuncSts			DEH53170	Rfdn2FuncSts		
DEH51170	Rfdn1Use			DEH55170	Rfdn2Use		
DEH50170	Rfdn1LogSts			DEH54170	Rfdn2LogSts		
DEH48170	Rfdn1FailSts			DEH52170	Rfdn2FailSts		
DEH57170	Rfdn3FuncSts			DEH61170	Rfdn4FuncSts		
DEH59170	Rfdn3Use			DEH63170	Rfdn4Use		
DEH58170	Rfdn3LogSts			DEH62170	Rfdn4LogSts		
DEH56170	Rfdn3FailSts			DEH60170	Rfdn4FailSts		

TTC Subsystem Checkout

File: H\_FCP\_TTC\_CHECK.xls

Author: E. Picallo

	LM	SAM	NM	SAM OW	EAM	SM
Xpnd1Tx_L23_S	ON	ON	ON	ON	ON	ON
Xpnd1Tx_L23_I	[0.41; 0.55]	[0.41; 0.55]	[0.41; 0.55]	[0.41; 0.55]	[0.41; 0.55]	[0.3; 0.4]
XPND1On_Off	ON	ON	ON	ON	ON	OFF
XPND1Val_Invalid	VALID	VALID	VALID	VALID	VALID	INVALID
X1 TcBitRateTCB	High	High	High	Low	High	N/A
X1 RX PLL PhErr	[-130, 130] kHz	[-130, 130] kHz	[-130, 130] kHz	[-130, 130] kHz	[-130, 130] kHz	N/A
X1 AGC TMUplnk	< -141dBmW	> -141dBmW	> -141dBmW	> -141dBmW	> -141dBmW	N/A
X1 TLM counter	Increasing	Increasing	Increasing	Increasing	Increasing	N/A
X1 Status - XS	TM Mode Active	TM Mode Active	TM Mode Active	TM Mode Active	TM Mode Active	N/A
X1 SgchSt - SS	OFF	ON	ON	ON	ON	N/A
X1 Rx Lock - RL	No Locked	Locked	Locked	Locked	Locked	N/A
X1 Coher MOD-CM	OFF	OFF/ON (*)	OFF/ON (*)	OFF/ON (*)	OFF/ON (*)	N/A
X1 Rang MOD-RM	OFF	OFF/ON (*)	OFF/ON (*)	OFF/ON (*)	OFF/ON (*)	N/A
X1 HIRateMD-HRM	OFF	OFF	OFF / ON	OFF	OFF	N/A
X1 MedRate-MRM	OFF	OFF/ON (a)	ON / OFF	OFF	ON	N/A
X1 LowRate-1 MD	OFF	OFF	OFF	ON	OFF	N/A
X1 LowRate-2 MD	ON	ON/OFF (a)	OFF	OFF	OFF	N/A
X1 RINGMD ID-RMI	0.6 rad	0.6 rad	0.6 rad / 0 (**)	0.6 rad	0.6 rad	N/A
X1 TM MD ID-TMI	1.2	1.2	1.2	1.2	1.2	N/A
X1 OutPowLevSet	-4dBmW	-4dBmW	-4dBmW	-4dBmW	-4dBmW	N/A
X1 Ext Ref - ER	OFF	OFF	OFF	OFF	OFF	N/A
X1 IntBitPatGen	OFF	OFF	OFF	OFF	OFF	N/A
XP01_RF1_OUT_PW	<-13 dBmW	[-5.2 -4.2]	[-5.2 -4.2]	[-5.2 -4.2]	[-5.2 -4.2]	<-13 dBmW
TX1 ON-OFF Stat	OFF	ON	ON	ON	ON	OFF
RX1 125-4K Stat	4kbps	4kbps	4kbps	125bps	4kbps	125bps
TX1_TEMP	[-15; 50]	[-15; 50]	[-15; 50]	[-15; 50]	[-15; 50]	[-15; 50]
RX1_TEMP	[-15; 50]	[-15; 50]	[-15; 50]	[-15; 50]	[-15; 50]	[-15; 50]
XPND1_RX1_SUP_V	[4.8; 5.5]	[4.8; 5.5]	[4.8; 5.5]	[4.8; 5.5]	[4.8; 5.5]	[4.8; 5.5]
XPND1_TX1_SUP_V	[6.0; 6.93]	[6.0; 6.93]	[6.0; 6.93]	[6.0; 6.93]	[6.0; 6.93]	[6.0; 6.93]
XP01_RX1_AGC_LV	<-141 dBmW	> -141dBmW	> -141dBmW	> -141dBmW	> -141dBmW	<-141 dBmW
XP01_RX1_PLL_SP	[-130, 130] kHz	[-130, 130] kHz	[-130, 130] kHz	[-130, 130] kHz	[-130, 130] kHz	don't care
FARa_TCchnInput	EGSE	XPND 1	XPND 1	XPND 1	XPND 1	XPND 2
Xpnd2Tx_L16_S	ON	ON	ON	ON	ON	ON
Xpnd2Tx_L16_I	[0.3; 0.4]	[0.3; 0.4]	[0.3; 0.4]	[0.3; 0.4]	[0.3; 0.4]	[0.41; 0.55]
XPND2On_Off	OFF	OFF	OFF	OFF	OFF	ON
XPND2Val_Invalid	INVALID	INVALID	INVALID	INVALID	INVALID	VALID
X2 TcBitRateTCB	N/A	N/A	N/A	N/A	N/A	Low/High
X2 RX PLL PhErr	N/A	N/A	N/A	N/A	N/A	[-130, 130] kHz
X2 AGC TMUplnk	N/A	N/A	N/A	N/A	N/A	> -141dBmW
X2 TLM counter	N/A	N/A	N/A	N/A	N/A	Increasing
X2 Status - XS	N/A	N/A	N/A	N/A	N/A	TM Mode Active
X2 SgchSts-SS	N/A	N/A	N/A	N/A	N/A	ON
X2 Rx Lock - RL	N/A	N/A	N/A	N/A	N/A	Locked
X2 Coher MOD-CM	N/A	N/A	N/A	N/A	N/A	OFF/ON (*)
X2 Rang MD - RM	N/A	N/A	N/A	N/A	N/A	OFF/ON (*)
X2 HIRateMD-HRM	N/A	N/A	N/A	N/A	N/A	OFF
X2 MedRate-MRM	N/A	N/A	N/A	N/A	N/A	OFF
X2 LowRate-1 MD	N/A	N/A	N/A	N/A	N/A	ON/OFF
X2 LowRate-2 MD	N/A	N/A	N/A	N/A	N/A	OFF/ON
X2 RINGMD ID-RMI	N/A	N/A	N/A	N/A	N/A	0.6 rad
X2 TM MD ID-TMI	N/A	N/A	N/A	N/A	N/A	1.2
X2 OutPowLevSet	N/A	N/A	N/A	N/A	N/A	-4dBmW
X2 Ext Ref - ER	N/A	N/A	N/A	N/A	N/A	OFF
X2 IntBitPatGen	N/A	N/A	N/A	N/A	N/A	OFF
XP02_RF2_OUT_PW	<-13 dBmW	<-13 dBmW	<-13 dBmW	<-13 dBmW	<-13 dBmW	[-4.8; -4]dBmW
TX2 ON-OFF Stat	OFF	OFF	OFF	OFF	OFF	ON
RX2 125-4K Stat	125bps/4kbps (i)	4k	125	125	4k	125
TX2_TEMP	[-15; 50]	[-15; 50]	[-15; 50]	[-15; 50]	[-15; 50]	[-15; 50]
RX2_TEMP	[-15; 50]	[-15; 50]	[-15; 50]	[-15; 50]	[-15; 50]	[-15; 50]
XPND2_RX2_SUP_V	[4.8; 5.5]	[4.8; 5.5]	[4.8; 5.5]	[4.8; 5.5]	[4.8; 5.5]	[4.8; 5.5]
XPND2_TX2_SUP_V	[6.0; 6.93]	[6.0; 6.93]	[6.0; 6.93]	[6.0; 6.93]	[6.0; 6.93]	[6.0; 6.93]
XP02_RX2_AGC_LV	<-141 dBmW	> -141dBmW	> -141dBmW	> -141dBmW	> -141dBmW	> -141dBmW
XP02_RX2_PLL_SP	[-130, 130] kHz	[-130, 130] kHz	[-130, 130] kHz	[-130, 130] kHz	[-130, 130] kHz	[-130, 130] kHz
FARb_TCchnInput	7 raw (not cal)	XPND 1	XPND 1	XPND 1	XPND 1	XPND 2

TTC Subsystem Checkout  
 File: H\_FCP\_TTC\_CHECK.xls  
 Author: E. Picallo

	LM	SAM	NM	SAM OW	EAM	SM
Twta_1_L49_1S	ON	ON	ON	ON	ON	OFF
Twta_1_L49_I	[0 ; 0.1]	[2.24 ; 2.8]	[2.24 ; 2.8]	[2.24 ; 2.8]	[2.24 ; 2.8]	[0 ; 0.1]
EPC1_ONOFF_STS	OFF	ON	ON	ON	ON	OFF
EPC1_AUT_RSTART	NOT ACTIVE	NOT ACTIVE	NOT ACTIVE	NOT ACTIVE	NOT ACTIVE	NOT ACTIVE
TWT1_ONOFF_STS	OFF	ON	ON	ON	ON	OFF
EPC1_HELIX_CURR	don't care (INVALID)	[0.19 ; 1.20]	[0.19 ; 1.20]	[0.19 ; 1.20]	[0.19 ; 1.20]	don't care (INVALID)
EPC1_ANODE_VOLT	don't care (INVALID)	[1050 ; 1120]	[1050 ; 1120]	[1050 ; 1120]	[1050 ; 1120]	don't care (INVALID)
EPC1_TEMP	[-15 ; 40]	[-15 ; 40]	[-15 ; 40]	[-15 ; 40]	[-15 ; 40]	[-15 ; 40]
RFDN SW1 Pos A	OFF (=B)	OFF (=B)	ON (=A)	OFF (=B)	ON (=A)	ON (=A)
RFDN SW2 Pos A	OFF (=B)	OFF (=B)	OFF (=B)	OFF (=B)	OFF (=B)	OFF (=B)
RFDN SW3 Pos A	OFF (=B)	OFF (=B)	ON (=A)	ON (=A)	ON (=A)	OFF (=B)
RFDN SW4 Pos A	OFF (=B)	OFF (=B)	OFF (=B)	OFF (=B)	OFF (=B)	OFF (=B)
LockAntRx1	LGA1	LGA1	MGA	LGA1	MGA	LGA2
AntXPNDConfig	LGA1	LGA1	LGA1	LGA1	MGA	LGA1
RFDN_ISOL1_TEMP	[-15 ; 35]	[-15 ; 35]	[-15 ; 35]	[-15 ; 35]	[-15 ; 35]	[-15 ; 35]
RFDN_DIPL1_TEMP	[-15 ; 35]	[-15 ; 35]	[-15 ; 35]	[-15 ; 35]	[-15 ; 35]	[-15 ; 35]
Xpnd1_Rx_FCL3_V	28.0<V<28.7V	28.0<V<28.7V	28.0<V<28.7V	28.0<V<28.7V	28.0<V<28.7V	28.0<V<28.7V
Xpnd1_Rx_FCL3_I	[0.20 ; 0.35]	[0.20 ; 0.35]	[0.20 ; 0.35]	[0.20 ; 0.35]	[0.20 ; 0.35]	[0.20 ; 0.35]
TMC_BITRATE	150kbps (EP) / 5kbps (IP)	5kbps/150kbps (a)	150kbps/1.5Mbps	500bps	150kbps	500bps/5kbps
BSW_TM_MODE	AIIVc	AIIVc	AIIVc	OnlyFilteredVc	AIIVc	OnlyFilteredVc/AIIVc
Twta_2_L50_1S	OFF	OFF	OFF	OFF	OFF	ON
Twta_2_L50_I	[0 ; 0.1]	[0 ; 0.1]	[0 ; 0.1]	[0 ; 0.1]	[0 ; 0.1]	[2.24 ; 2.8]
EPC2_ONOFF_STS	OFF	OFF	OFF	OFF	OFF	ON
EPC2_AUT_RSTART	NOT ACTIVE	NOT ACTIVE	NOT ACTIVE	NOT ACTIVE	NOT ACTIVE	NOT ACTIVE
TWT2_ONOFF_STS	OFF	OFF	OFF	OFF	OFF	ON
EPC2_HELIX_CURR	don't care (INVALID)	don't care (INVALID)	don't care (INVALID)	don't care (INVALID)	don't care (INVALID)	[0.46 ; 1.59]
EPC2_ANODE_VOLT	don't care (INVALID)	don't care (INVALID)	don't care (INVALID)	don't care (INVALID)	don't care (INVALID)	[1100 ; 1180]
EPC2_TEMP	[-15 ; 40]	[-15 ; 40]	[-15 ; 40]	[-15 ; 40]	[-15 ; 40]	[-15 ; 40]
RFDN SW1 Pos B	ON (=B)	ON (=B)	OFF (=A)	ON (=B)	OFF (=A)	OFF (=A)
RFDN SW2 Pos B	ON (=B)	ON (=B)	ON (=B)	ON (=B)	ON (=B)	ON (=B)
RFDN SW3 Pos B	ON (=B)	ON (=B)	OFF (=A)	OFF (=A)	OFF (=A)	ON (=B)
RFDN SW4 Pos B	ON (=B)	ON (=B)	ON (=B)	ON (=B)	ON (=B)	ON (=B)
LockAntRx2	LGA2	LGA2	LGA1	MGA	MGA	LGA1
RFDN_ISOL2_TEMP	[-15 ; 35]	[-15 ; 35]	[-15 ; 35]	[-15 ; 35]	[-15 ; 35]	[-15 ; 35]
RFDN_DIPL2_TEMP	[-15 ; 35]	[-15 ; 35]	[-15 ; 35]	[-15 ; 35]	[-15 ; 35]	[-15 ; 35]
Xpnd2_Rx_FCL4_V	[28.0 ; 28.7]	[28.0 ; 28.7]	[28.0 ; 28.7]	[28.0 ; 28.7]	[28.0 ; 28.7]	[28.0 ; 28.7]
Xpnd2_Rx_FCL4_I	[0.20 ; 0.35]	[0.20 ; 0.35]	[0.20 ; 0.35]	[0.20 ; 0.35]	[0.20 ; 0.35]	[0.20 ; 0.35]

TTC Subsystem Checkout

File: H\_FCP\_TTC\_CHECK.xls

Author: E. Picallo

DPC NAME		LM	SAM	NM	SAM OW	EAM	SM
DEL10170	Ttr1FuncSts	ON	ON	ON	ON	ON	ON
DEL12170	Ttr1Use	IN USE	IN USE	IN USE	IN USE	IN USE	NOT IN USE
DEL11170	Ttr1LogSts	NOMINAL	NOMINAL	NOMINAL	NOMINAL	NOMINAL	REDUNDANT
DEL09170	Ttr1FailSts	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED
DEL58170	XpndRx1FuncSts	ON	ON	ON	ON	ON	ON
DEL56170	XpndRx1Use	IN USE	IN USE	IN USE	IN USE	IN USE	NOT IN USE
DEL57170	XpndRx1LogSts	NOMINAL	NOMINAL	NOMINAL	NOMINAL	NOMINAL	REDUNDANT
DEL59170	XpndRx1FailSts	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED
DEL27170	XpndTx1FuncSts	OFF	ON	ON	ON	ON	OFF
DEL29170	XpndTx1Use	IN USE	IN USE	IN USE	IN USE	IN USE	NOT IN USE
DEL28170	XpndTx1LogSts	NOMINAL	NOMINAL	NOMINAL	NOMINAL	NOMINAL	REDUNDANT
DEL26170	XpndTx1FailSts	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED
DEL19170	Twta1FuncSts	ON	ON	ON	ON	ON	OFF
DEL21170	Twta1Use	IN USE	IN USE	IN USE	IN USE	IN USE	NOT IN USE
DEL20170	Twta1LogSts	NOMINAL	NOMINAL	NOMINAL	NOMINAL	NOMINAL	REDUNDANT
DEL18170	Twta1FailSts	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED
DEG25170	Epc1FuncSts	OFF	ON	ON	ON	ON	OFF
DEG27170	Epc1Use	IN USE	IN USE	IN USE	IN USE	IN USE	NOT IN USE
DEG26170	Epc1LogSts	NOMINAL	NOMINAL	NOMINAL	NOMINAL	NOMINAL	REDUNDANT
DEG24170	Epc1FailSts	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED
DEH13170	TwtAmp1FuncSts	OFF	OFF/ON (*)	ON	ON	ON	OFF
DEH15170	TwtAmp1Use	IN USE	IN USE	IN USE	IN USE	IN USE	NOT IN USE
DEH14170	TwtAmp1LogSts	NOMINAL	NOMINAL	NOMINAL	NOMINAL	NOMINAL	REDUNDANT
DEH12170	TwtAmp1FailSts	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED
DEH49170	Rfdn1FuncSts	POSB	POSB	POSA	POSB	POSA	POSA
DEH51170	Rfdn1Use	IN USE	IN USE	IN USE	IN USE	IN USE	IN USE
DEH50170	Rfdn1LogSts	NOMINAL	NOMINAL	NOMINAL	NOMINAL	NOMINAL	NOMINAL
DEH48170	Rfdn1FailSts	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED
DEH57170	Rfdn3FuncSts	POSB	POSB	POSA	POSA	POSA	POSB
DEH59170	Rfdn3Use	IN USE	IN USE	IN USE	IN USE	IN USE	IN USE
DEH58170	Rfdn3LogSts	NOMINAL	NOMINAL	NOMINAL	NOMINAL	NOMINAL	NOMINAL
DEH56170	Rfdn3FailSts	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED
DEL14170	Ttr2FuncSts	ON	ON	ON	ON	ON	ON
DEL16170	Ttr2Use	NOT IN USE	NOT IN USE	NOT IN USE	NOT IN USE	NOT IN USE	IN USE
DEL15170	Ttr2LogSts	REDUNDANT	REDUNDANT	REDUNDANT	REDUNDANT	REDUNDANT	NOMINAL
DEL13170	Ttr2FailSts	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED
DEL62170	XpndRx2FuncSts	ON	ON	ON	ON	ON	ON
DEL60170	XpndRx2Use	NOT IN USE	NOT IN USE	NOT IN USE	NOT IN USE	NOT IN USE	IN USE
DEL61170	XpndRx2LogSts	REDUNDANT	REDUNDANT	REDUNDANT	REDUNDANT	REDUNDANT	NOMINAL
DEL63170	XpndRx2FailSts	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED
DEL31170	XpndTx2FuncSts	OFF	OFF	OFF	OFF	OFF	ON
DEL33170	XpndTx2Use	NOT IN USE	NOT IN USE	NOT IN USE	NOT IN USE	NOT IN USE	IN USE
DEL32170	XpndTx2LogSts	REDUNDANT	REDUNDANT	REDUNDANT	REDUNDANT	REDUNDANT	NOMINAL
DEL30170	XpndTx2FailSts	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED
DEL23170	Twta2FuncSts	OFF	OFF	OFF	OFF	OFF	ON
DEL25170	Twta2Use	NOT IN USE	NOT IN USE	NOT IN USE	NOT IN USE	NOT IN USE	IN USE
DEL24170	Twta2LogSts	REDUNDANT	REDUNDANT	REDUNDANT	REDUNDANT	REDUNDANT	NOMINAL
DEL22170	Twta2FailSts	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED
DEG29170	Epc2FuncSts	OFF	OFF	OFF	OFF	OFF	ON
DEG31170	Epc2Use	NOT IN USE	NOT IN USE	NOT IN USE	NOT IN USE	NOT IN USE	IN USE
DEG30170	Epc2LogSts	REDUNDANT	REDUNDANT	REDUNDANT	REDUNDANT	REDUNDANT	NOMINAL
DEG28170	Epc2FailSts	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED
DEH17170	TwtAmp2FuncSts	OFF	OFF	OFF	OFF	OFF	ON
DEH19170	TwtAmp2Use	NOT IN USE	NOT IN USE	NOT IN USE	NOT IN USE	NOT IN USE	IN USE
DEH18170	TwtAmp2LogSts	REDUNDANT	REDUNDANT	REDUNDANT	REDUNDANT	REDUNDANT	NOMINAL
DEH16170	TwtAmp2FailSts	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED
DEH53170	Rfdn2FuncSts	POSB	POSB	POSB	POSB	POSB	POSB
DEH55170	Rfdn2Use	NOT IN USE	NOT IN USE	NOT IN USE	NOT IN USE	NOT IN USE	NOT IN USE
DEH54170	Rfdn2LogSts	REDUNDANT	REDUNDANT	REDUNDANT	REDUNDANT	REDUNDANT	REDUNDANT
DEH52170	Rfdn2FailSts	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED
DEH61170	Rfdn4FuncSts	POSB	POSB	POSB	POSB	POSB	POSB
DEH63170	Rfdn4Use	NOT IN USE	NOT IN USE	NOT IN USE	NOT IN USE	NOT IN USE	NOT IN USE
DEH62170	Rfdn4LogSts	REDUNDANT	REDUNDANT	REDUNDANT	REDUNDANT	REDUNDANT	REDUNDANT
DEH60170	Rfdn4FailSts	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED	NOT FAILED

TTC Subsystem Checkout  
 File: H\_FCP\_TTC\_CHECK.xls  
 Author: E. Picallo

	LM	SAM	NM	SAM OW	EAM	SM
Function_ID	TTC_Manag	TTC_Manag	TTC_Manag	TTC_Manag	TTC_Manag	TTC_Manag
ActivityId	Running Idle	Running Idle	Running Idle	Running Idle	Running Idle	Running Idle
SID	0	0	0	0	0	0
TmEncSubSsts	TmEncSubSmpOn	TmEncSubSmpOff	TmEncSubSmpOff	TmEncSubSmpOn	TmEncSubSmpOff	TmEncSubSmpOn/Off
TmEncAConfId	TmMod150KbpsM (EP) / TmMod5KbpsLow2 (IP)	TmMod5KbpsLow2 / TmMod150KbpsM (a)	TmMod150KbpsM / TmMod1_5MbpsH	TmMod500BpsLo1	TmMod150KbpsM	(TmMod500BpsLo1)
TmEncBConfId	don't care (TmMod500BpsLo1)	TmMod500BpsLo1	TmMod500BpsLo1	don't care	don't care	TmMod500BpsLo1 / TmMod5KbpsLo2
Xpnd1RxBitRate	rate_4_kbps	rate_4_kbps	rate_4_kbps	rate_125_bps	rate_4_kbps	rate_125_bps/4kbps
Xpnd2RxBitRate	rate_4_kbps	rate_4_kbps	rate_125_bps	rate_125_bps	rate_4_kbps	rate_125_bps/4kbps
Xpnd1CfgDW1Unus	don't care	don't care	don't care	don't care	don't care	don't care
Xpnd1CfgDW1Unus	don't care	don't care	don't care	don't care	don't care	don't care
Xpnd1CfgDW1_ER	OFF	OFF	OFF	OFF	OFF	don't care (OFF)
Xpnd1CfgDW1_CM	OFF	ON	OFF/ON (*)	OFF/ON (*)	OFF/ON (*)	don't care (OFF)
Xpnd1CfgDW1_RM	OFF	OFF	OFF/ON (*)	OFF/ON (*)	OFF/ON (*)	don't care (OFF)
Xpnd1CfgDW1_HRM	OFF	OFF	OFF / ON	OFF	OFF	don't care (OFF)
Xpnd1CfgDW1_MRM	OFF	ON	ON / OFF	OFF	ON	don't care (OFF)
Xpnd1CfgDW1LRM1	OFF	OFF	OFF	ON	OFF	don't care (OFF)
Xpnd1CfgDW1LRM2	ON	OFF	OFF	OFF	OFF	don't care (0 rad)
Xpnd1CfgDW1_RMI	0.6 rad	0.6 rad	0.6 rad / 0 (**)	0.6 rad	0.6 rad	don't care (0 rad)
Xpnd1CfgDW1_TMI	1.2	1.2	1.2	1.2	1.2	don't care (OFF)
Xpnd1CfgDW2_Pc	OFF	OFF	OFF	OFF	OFF	don't care (OFF)
Xpnd1CfgDW2Unus	don't care	don't care	don't care	don't care	don't care	don't care
Xpnd1CfgDW2OPLS	-4	-4	-4	-4	-4	don't care (-7)
Xpnd2CfgDW1Unus	don't care	don't care	don't care	don't care	don't care	don't care
Xpnd2CfgDW1Unus	don't care	don't care	don't care	don't care	don't care	don't care
Xpnd2CfgDW1_ER	don't care (OFF)	don't care (OFF)	don't care (OFF)	don't care (OFF)	don't care (OFF)	OFF
Xpnd2CfgDW1_CM	don't care (OFF)	don't care (OFF)	don't care (OFF)	don't care (OFF)	don't care (OFF)	OFF/ON (*)
Xpnd2CfgDW1_RM	don't care (OFF)	don't care (OFF)	don't care (OFF)	don't care (OFF)	don't care (OFF)	OFF/ON (*)
Xpnd2CfgDW1_HRM	don't care (OFF)	don't care (OFF)	don't care (OFF)	don't care (OFF)	don't care (OFF)	OFF
Xpnd2CfgDW1_MRM	don't care (OFF)	don't care (OFF)	don't care (OFF)	don't care (OFF)	don't care (OFF)	OFF
Xpnd2CfgDW1LRM1	don't care (OFF)	don't care (OFF)	don't care (OFF)	don't care (OFF)	don't care (OFF)	ON/OFF
Xpnd2CfgDW1LRM2	don't care (0 rad)	don't care (0 rad)	don't care (0 rad)	don't care (0 rad)	don't care (0 rad)	OFF/ON
Xpnd2CfgDW1_RMI	don't care (0 rad)	don't care (0 rad)	don't care (0 rad)	don't care (0 rad)	don't care (0 rad)	0.6 rad
Xpnd2CfgDW1_TMI	don't care (OFF)	don't care (OFF)	don't care (OFF)	don't care (OFF)	don't care (OFF)	1.2
Xpnd2CfgDW2_Pc	don't care (OFF)	don't care (OFF)	don't care (OFF)	don't care (OFF)	don't care (OFF)	OFF
Xpnd2CfgDW2Unus	don't care	don't care	don't care	don't care	don't care	don't care
Xpnd2CfgDW2OPLS	don't care (-7)	don't care (-7)	don't care (-7)	don't care (-7)	don't care (-7)	-4
ArmRfdnSwCode	NONE	NONE	NONE	NONE	NONE	NONE
RfdnSwStatus	Not armed	Not armed	Not armed	Not armed	Not armed	Not armed