Perform connection test
File: H_FCP_DHS_3040.xls
Author: S. Manganelli

Procedure Summary

Objectives

This procedure describes the steps needed to perform an end-to-end "connection test", at the beginning of the DTCP, between Ground and the S/C.

Summary of Constraints

n/a

Spacecraft Configuration

Start of Procedure

CDMU in default configuration, that is:
- PM A or B ON (nominally A)
- TM Encoder/OBT A or B active (nominally A)
- RM A and B enabled
- MM A and B ON

Up/downlink active, that is:
- TX1 and TWTA1 or TX2 and TWTA2 ON (nominally 1)
- RX1 or RX2 locked (nominally 1)

End of Procedure

CDMU in default configuration, that is:
- PM A or B ON (nominally A)
- TM Encoder/OBT A or B active (nominally A)
- RM A and B enabled
- MM A and B ON

Up/downlink active, that is:
- TX1 and TWTA1 or TX2 and TWTA2 ON (nominally 1)
- RX1 or RX2 locked (nominally 1)

Reference File(s)

Input Command Sequences

Output Command Sequences

HFD3040A
HFD3040B
HFD3040C
HFD3040D
HFD3040E

Referenced Displays

ANDs   GRDs   SLDs

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```
ZAZAG999
ZAZAH999
ZAZAP999
ZAZ08999
ZAZ0D999
ZAZ0C999
```
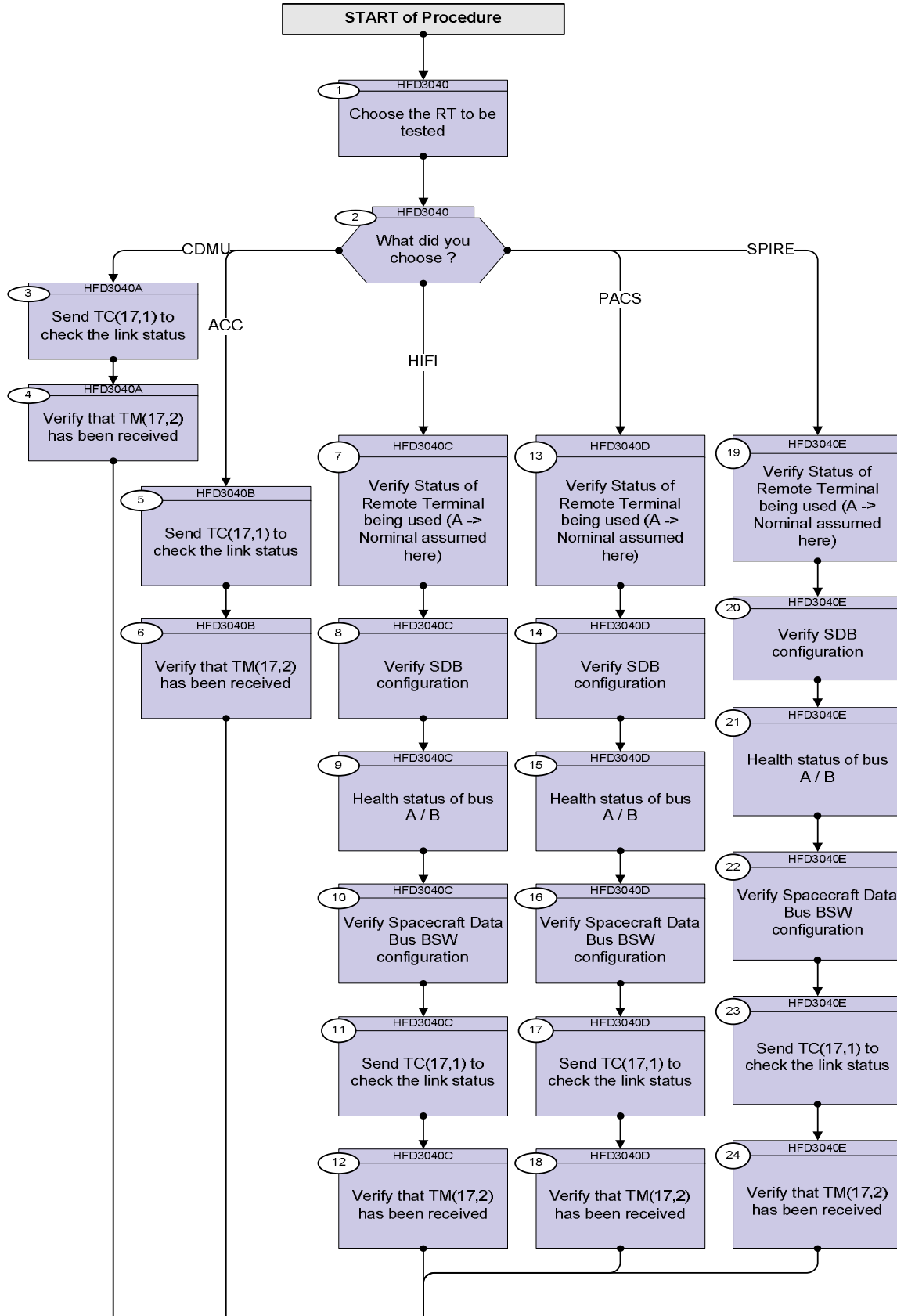
Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
23/11/07		1	Created	cmevi-hp	
03/12/07		2	Minor update.	cmevi-hp	
03/12/07		3	Name of sequences modified.	cmevi-hp	
24/01/08		4	Batch update of TC flags	S. Manganelli	
13/06/08		5	DB check	S. Manganelli	
13/06/08		6	Visio editorial	S. Manganelli	
04/08/08	1	7	Added list of bus profiles	S. Manganelli	
24/10/08		8	TM checks modified for OBSW 3_6_2	S. Manganelli	
02/12/08		9	Added some comments	S. Manganelli	
13/01/09	2	10	Updated following OBSW 3_8	S. Manganelli	
19/03/09	2.2	11	DB changed due to OBSW 3_8_2	S. Manganelli	

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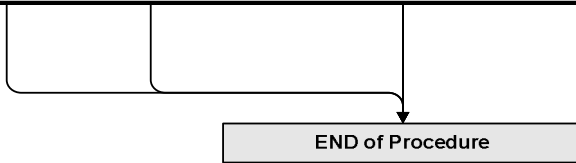File: H_FCP_DHS_3040.xls
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Procedure Flowchart Overview

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Procedure Flowchart Overview

END of Procedure

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Beginning of Procedure		
		TC Seq. Name :HFD3040 (Dummy sequence) TimeTag Type: N Sub Schedule ID:		
1		*Choose the RT to be tested*		Next Step: 2
2		*What did you choose ?*		Next Step: CDMU 3 ACC 5 HIFI 7 PACS 13 SPIRE 19
		TC Seq. Name :HFD3040A (CDMU connection test) TimeTag Type: Sub Schedule ID:		
3		*Send TC(17,1) to check the link status*		Next Step: 4
		At the reception of this TC, the CDMU will generate a TM(17,2) ("link connection report").		

		Execute Telecommand
		                ConnectionTest
		
		TC Control Flags :
		                GBM IL DSE
		                --Y -- ---
		
		Subsch. ID : 10
		Det. descr. : Perform Connection Test
			DC810180	

4		*Verify that TM(17,2) has been received*		Next Step: END

		Verify Packet Reception
		                Link Connection Report
		Packet Details:
		                APID:
		                Type:
		                Subtype:
		                PI1:
		                PI2:
			LnkConnecRep
			
			16
			17
			2	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		TC Seq. Name :HFD3040B (ACC connection test) *TimeTag Type: N* *Sub Schedule ID:*		
5		*Send TC(17,1) to check the link status* **At the reception of this TC, the ACC will generate a TM(17,2) ("link connection report").**		Next Step: 6

		Execute Telecommand
		       ConnectionTest
		
		 TC Control Flags :
		       GBM IL DSE
		       --Y -- ---
		 Subsch. ID : 20
		 Det. descr. : Perform Connection Test
			AC810070	

6		*Verify that TM(17,2) has been received*		Next Step: END

		Verify Packet Reception
		       Link Connection Report
		 Packet Details:
		        APID:
		        Type:
		       Subtype:
		        PI1:
		        PI2:
			LnkConnecRep
			
			 512
			 17
			 2	

		TC Seq. Name :HFD3040C (HIFI connection tes) *TimeTag Type: N* *Sub Schedule ID:*		
7		*Verify Status of Remote Terminal being used (A -> Nominal assumed here)*		Next Step: 8
		Verify RT HW status **HIFIA_OnOff** DEDZG161	**= ON**	AND=ZAZAG999
		Verify RT soft status **HIFIA_DeadAlive** DEDZH161	**= Alive**	AND=ZAZAG999
		Verify RT TC Link **HIFIA_WellSicTC** DEDZZ161	**= Well**	AND=ZAZAG999
		Verify RT TM Link **HIFIA_WellSicTM** DEDZJ161	**= Well**	AND=ZAZAG999
		Verify RT validity **HIFIA_ValidInv** DEDZK161	**= Valid**	AND=ZAZAG999

Status   : Version 11 - Unchanged
Last Checkin: 19/03/09

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Step No.	Time	Activity/Remarks		TC/TLM	Display/ Branch
		Verify RT HW status			
		HIFIB_OnOff	DED11161	= OFF	AND=ZAZAG999
		Verify RT soft status			
		HIFIB_DeadAlive	DED12161	= Alive	AND=ZAZAG999
		Verify Telemetry			
		HIFIB_WellSicTC	DED13161	= Well	AND=ZAZAG999
		Verify Telemetry			
		HIFIB_WellSicTM	DED14161	= Well	AND=ZAZAG999
		Verify Telemetry			
		HIFIB_ValidInv	DED15161	= Invalid	AND=ZAZAG999
		Verify Telemetry			
		HIFI_NomRed	DED4H161	= NOMINAL	AND=ZAZAH999
		Verify Telemetry			
		HIFIA_TFLTM	DEDZL161	= ENABLED	AND=ZAZAP999
		Verify Telemetry			
		HIFIB_TFLTM	DED16161	= DISABLED	AND=ZAZAP999
8		*Verify SDB configuration*			Next Step: 9
		See bus profile list at end of procedure			
		Verify :Index of currently active bus profile			
		BSW_SDB_ActProf	DEF5F160	**as required**	AND=ZAZ08999
9		*Health status of bus A / B*			Next Step: 10
		Verify :bus-side A Healthy/Unhealthy			
		BusA_HealthySts	DEFJ2160	= Healthy	AND=ZAZ08999
		Verify :bus-side B Healthy/Unhealthy			
		BusB_HealthySts	DEFJ3160	= Healthy	AND=ZAZ08999
10		*Verify Spacecraft Data Bus BSW configuration*			Next Step: 11
		Verify : active 1553 bus			
		Active_Bus_A_B	DEFJ1160	= BUS_A	AND=ZAZ08999
		Verify : 1553 bus FDIR status			
		SDB_FDIR	DEFJ4160	= ENABLED	AND=ZAZ08999
		Verify :SDB handling enabled or disabled.			
		BSW_SDB_ENAB	DEF60160	= ENABLED	AND=ZAZ08999
11		*Send TC(17,1) to check the link status*			Next Step: 12

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		At the reception of this TC, HIFI will generate a TM(17,2) ("link connection report").		

		Execute Telecommand
		
		     HIFI_connection_test
		
		TC Control Flags :
		     GBM IL DSE
		     --Y -- ---
		Subsch. ID : 70
		Det. descr. : Generate a connection test report
			HC176289	

12		*Verify that TM(17,2) has been received*		Next Step: END

		Verify Packet Reception
		     HIFI_Connection_report
		Packet Details:
		     APID:
		     Type:
		     Subtype:
		     PI1:
		     PI2:
			H_HIFI_Conn
			
			1024
			17
			2	

		TC Seq. Name :HFD3040D (PACS connection test) *TimeTag Type:* *Sub Schedule ID:*		
13		*Verify Status of Remote Terminal being used (A -> Nominal assumed here)*		Next Step: 14
		Verify RT HW status **PACSA_OnOff** **DED2G161**	**= ON**	AND=ZAZ0D999
		Verify RT soft status **PACSA_DeadAliv** **DED2H161**	**= Alive**	AND=ZAZ0D999
		Verify RT TC Link **PACSA_WellSiTC** **DED2Z161**	**= Well**	AND=ZAZ0D999
		Verify RT TM Link **PACSA_WellSiTM** **DED2J161**	**= Well**	AND=ZAZ0D999
		Verify RT validity **PACSA_ValidInv** **DED2K161**	**= Valid**	AND=ZAZ0D999
		Verify RT HW status **PACSB_OnOff** **DED31161**	**= OFF**	AND=ZAZ0C999
		Verify RT soft status **PACSB_DeadAliv** **DED32161**	**= Alive**	AND=ZAZ0C999
		Verify RT TC Link **PACSB_WellSiTC** **DED33161**	**= Well**	AND=ZAZ0C999

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Step No.	Time	Activity/Remarks		TC/TLM	Display/ Branch
		Verify RT TM Link			
		PACSB_WellSiTM	DED34161	= Well	AND=ZAZ0C999
		Verify RT validity			
		PACSB_ValidInv	DED35161	= Invalid	AND=ZAZ0C999
		Verify Telemetry			
		PACS_NomRed	DED5H161	= NOMINAL	AND=ZAZAH999
		Verify Telemetry			
		PACSA_TFLTM	DED2L161	= ENABLED	AND=ZAZAP999
		Verify Telemetry			
		PACSB_TFLTM	DED36161	= DISABLED	AND=ZAZAP999
14		*Verify SDB configuration*			Next Step: 15
		See bus profile list at end of procedure			
		Verify :Index of currently active bus profile			
		BSW_SDB_ActProf	DEF5F160	**as required**	AND=ZAZ08999
15		*Health status of bus A / B*			Next Step: 16
		Verify :bus-side A Healthy/Unhealthy			
		BusA_HealthySts	DEFJ2160	= Healthy	AND=ZAZ08999
		Verify :bus-side B Healthy/Unhealthy			
		BusB_HealthySts	DEFJ3160	= Healthy	AND=ZAZ08999
16		*Verify Spacecraft Data Bus BSW configuration*			Next Step: 17
		Verify : active 1553 bus			
		Active_Bus_A_B	DEFJ1160	= BUS_A	AND=ZAZ08999
		Verify : 1553 bus FDIR status			
		SDB_FDIR	DEFJ4160	= ENABLED	AND=ZAZ08999
		Verify :SDB handling enabled or disabled.			
		BSW_SDB_ENAB	DEF60160	= ENABLED	AND=ZAZ08999
17		*Send TC(17,1) to check the link status*			Next Step: 18
		At the reception of this TC, the PACS will generate a TM(17,2) ("link connection report").			

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch

		Execute Telecommand
		
		                      DPU_TEST_CONN
		
		TC Control Flags :
		                           GBM IL DSE
		                           --Y -- ---
		Subsch. ID : 90
		Det. descr. : DPU STARTS THE ARE YOU ALIVE PROCEDURE
			PC023380	

18		*Verify that TM(17,2) has been received*		Next Step: END

		Verify Packet Reception
		                     PACS_LINK_CONNECTION
		Packet Details:
		                              APID:
		                              Type:
		                     Subtype:
		                             PI1:
		                             PI2:
			LINK_CONNECT
			
			1152
			17
			2	

		TC Seq. Name :HFD3040E (SPIREconnection test) *TimeTag Type:* *Sub Schedule ID:*		
19		*Verify Status of Remote Terminal being used (A -> Nominal assumed here)*		Next Step: 20
		Verify RT HW status SPIREA_OnOff DED1G161	= ON	AND=ZAZ0D999
		Verify RT soft status SPIREA_DeadAliv DED1H161	= Alive	AND=ZAZ0D999
		Verify RT TC Link SPIREA_WellSiTC DED1Z161	= Well	AND=ZAZ0D999
		Verify RT TM Link SPIREA_WellSiTM DED1J161	= Well	AND=ZAZ0D999
		Verify RT validity SPIREA_ValidInv DED1K161	= Valid	AND=ZAZ0D999
		Verify RT HW status SPIREB_OnOff DED21161	= OFF	AND=ZAZ0C999
		Verify RT soft status SPIREB_DeadAliv DED22161	= Alive	AND=ZAZ0C999
		Verify RT TC Link SPIREB_WellSiTC DED23161	= Well	AND=ZAZ0C999
		Verify RT TM Link SPIREB_WellSiTM DED24161	= Well	AND=ZAZ0C999

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify RT validity **SPIREB_ValidInv** **DED25161**	**= Invalid**	AND=ZAZ0C999
		Verify Telemetry **SPIRE_NomRed** **DED53161**	**= NOMINAL**	AND=ZAZAH999
		Verify Telemetry **SPIREA_TFLTM** **DED1L161**	**= ENABLED**	AND=ZAZAP999
		Verify Telemetry **SPIREB_TFLTM** **DED26161**	**= DISABLED**	AND=ZAZAP999
20		*Verify SDB configuration*		Next Step: 21
		See bus profile list at end of procedure		
		Verify :Index of currently active bus profile **BSW_SDB_ActProf** **DEF5F160**	**as required**	AND=ZAZ08999
21		*Health status of bus A / B*		Next Step: 22
		Verify :bus-side A Healthy/Unhealthy **BusA_HealthySts** **DEFJ2160**	**= Healthy**	AND=ZAZ08999
		Verify :bus-side B Healthy/Unhealthy **BusB_HealthySts** **DEFJ3160**	**= Healthy**	AND=ZAZ08999
22		*Verify Spacecraft Data Bus BSW configuration*		Next Step: 23
		Verify : active 1553 bus **Active_Bus_A_B** **DEFJ1160**	**= BUS_A**	AND=ZAZ08999
		Verify : 1553 bus FDIR status **SDB_FDIR** **DEFJ4160**	**= ENABLED**	AND=ZAZ08999
		Verify :SDB handling enabled or disabled. **BSW_SDB_ENAB** **DEF60160**	**= ENABLED**	AND=ZAZ08999
23		*Send TC(17,1) to check the link status*		Next Step: 24
		At the reception of this TC, the SPIRE will generate a TM(17,2) ("link connection report").		

		Execute Telecommand
		        TEST_CONNECTION
		
		TC Control Flags :
		        GBM IL DSE
		        --Y -- ---
		Subsch. ID : 370
		Det. descr. : PERFORM CONNECTION TEST
			SCL00500	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
24		*Verify that TM(17,2) has been received*		Next Step: END

		Verify Packet Reception
		                    Test_Service_Report
		Packet Details:
		                              APID:
		                              Type:
		                         Subtype:
		                              PI1:
		                              PI2:
			STESTSERV500
			
			1280
			17
			2	

End of Procedure	

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Bus Profiles

HERSCHEL: 9 Operative Bus Profiles

- Launch : index 0 and defined by TC(8,4,6,1) identified by C001 to C064.

- Earth Acquisition : index 1 and defined by TC(8,4,6,1) identified by C101 to C164.

- HIFI Prime : index 2 and defined by TC(8,4,6,1) identified by C201 to C264.

- SPIRE Prime : index 3 and defined by TC(8,4,6,1) identified by C301 to C364.

- PACS Prime : index 4 and defined by TC(8,4,6,1) identified by C401 to C464.

- Sun Acquisition : index 5 and defined by TC(8,4,6,1) identified by C501 to C564.

- Survival : index 6 and defined by TC(8,4,6,1) identified by C601 to C664.

- Burst : index 7 and defined by TC(8,4,6,1) identified by C701 to C764.

- Parallel Mode : index 8 and defined by TC(8,4,6,1) identified by C801 to C864.

PLANCK: 5 Operative Bus Profiles

- Launch : index 0 and defined by TC(8,4,6,1) identified by C001 to C064.

- Earth Acquisition : index 1 and defined by TC(8,4,6,1) identified by C101 to C164.

- Science : index 2 and defined by TC(8,4,6,1) identified by C201 to C264.

- Sun Acquisition : index 3 and defined by TC(8,4,6,1) identified by C301 to C364.

- Survival : index 4 and defined by TC(8,4,6,1) identified by C401 to C464.