

 Alcatel Alenia Space Italia S.p.A.	PROGRAM: H-P		Sez 06 PART: 4		LOG. No.:	H-P-ED-AI-0030			
			ACTION REQUESTED No.:	220.3		MODEL:	AVM		
	TITLE:	Herschel Instrument WU integration on AVM				SHEET:	1	of	75

SEQ. No	WORK DESCRIPTION	REFERENCE DOCUMENT	IS.	COMPUTER PROGRAM	IS.	REMARKS	DATE	CONDUCTOR	QA-AIT
	<i>HIFI Interface verification</i>								
10	HIFI Signal Verification								
20	HIFI ICU On and Boot Verification (UFT)								
30	HIFI Check Time Synchronisation mechanism (UFT)								
	<i>PACS Interface verification</i>								
40	PACS Signal Verification								
50	PACS DPU On and Boot Verification (UFT)								
60	PACS Check Time Synchronisation mechanism (UFT)								
	<i>SPIRE Interface Verification</i>								
70	SPIRE Signal Verification								
80	SPIRE DPU On and Boot Verification (UFT)								
90	SPIRE Check Time Synchronisation mechanism (UFT)								

START DATE:				LOCATION:	
Date	TEST CONDUCTOR	Date	AIV MANAGER	Date	Q.A. AIT

HERSCHEL PLANCK

1. HERSCHEL SATELLITE

1.1 HIFI INTERFACE VERIFICATION

1.1.1 HIFI Signal Verification

1.1.2 HIFI ICU On and Boot Verification (UFT)

1.1.3 HIFI Check Time Synchronisation mechanism (UFT)

1.2 PACS INTERFACE VERIFICATION

1.2.1 PACS Signal Verification

1.2.2 PACS DPU On and Boot Verification (UFT)

1.2.3 PACS Check Time Synchronisation mechanism (UFT)

1.3 SPIRE INTERFACE VERIFICATION

1.3.1 SPIRE Signal Verification

1.3.2 SPIRE DPU On and Boot Verification (UFT)

1.3.3 SPIRE Check Time Synchronisation mechanism (UFT)

THE ACTIVITIES DESCRIBED IN THIS PAGE HAVE BEEN PROPERLY PERFORMED	Test Conductor	QA-AIT Stamp and Date
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HERSCHEL PLANCK

1. HERSCHEL SATELLITE

1.1 HIFI Interface verification

1.1.1 HIFI Signal Verification

STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
10	Verify/Install HIFI Unit on "-Y -Z" and on "-Y" side.	OK				
20	Perform/verify that the Unit is correctly grounded.	OK				
30	Verify the RT Add =16 main (19 redundant) for Intelligent Terminal.	OK				Ref IID-A section 5
40	Install the following BOB as reported in the table below: between Harness and Unit connectors (without cross strap)	OK				
	<u>Unloaded Power Bus Verification</u>					

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks																																																																																																																															
50	<table><tr><th>CMD ON</th><th>CMD OFF</th><th>LCL#</th><th>Type</th><th>Class</th><th>PCDU Conn</th><th>Pin+</th><th>Pin-</th><th></th><th>Herschel HIFI Allocation</th><th>Conn</th><th>Pin+</th><th>Pin-</th><th>BOB #</th></tr><tr><td>DC43D170</td><td>DC43B170</td><td>43</td><td>LCL</td><td>II</td><td>J32</td><td>3, 4</td><td>22, 23</td><td></td><td>FHWEH</td><td>J03</td><td>2</td><td>4</td><td>3</td></tr><tr><td>DC44D170</td><td>DC44B170</td><td>44</td><td>LCL</td><td>II</td><td>J06</td><td>3, 4</td><td>22, 23</td><td></td><td>FHWEV</td><td>J03</td><td>2</td><td>4</td><td>4</td></tr><tr><td>DC53D170</td><td>DC53B170</td><td>53</td><td>LCL</td><td>III</td><td>J30</td><td>9, 10</td><td>28, 29</td><td></td><td>FHLCU nom.</td><td>J01</td><td>2</td><td>4</td><td>5</td></tr><tr><td>DC54D170</td><td>DC54B170</td><td>54</td><td>LCL</td><td>III</td><td>J08</td><td>9, 10</td><td>28, 29</td><td></td><td>FHLCU red.</td><td>J121</td><td>2</td><td>4</td><td>5</td></tr><tr><td>DC63D170</td><td>DC63B170</td><td>63</td><td>Par-LCL</td><td>III</td><td>J10</td><td>7, 8</td><td>26, 27</td><td></td><td>FHHRH</td><td>J01</td><td>2</td><td>4</td><td>7</td></tr><tr><td>DC67D170</td><td>DC67B170</td><td>67</td><td>Par-LCL</td><td>III</td><td>J28</td><td>7, 8</td><td>26, 27</td><td></td><td>FHHRV</td><td>J01</td><td>2</td><td>4</td><td>8</td></tr><tr><td>DC64D170</td><td>DC64B170</td><td>64</td><td>Par-LCL</td><td>III</td><td>J10</td><td>9, 10</td><td>28, 29</td><td></td><td>FHICU nom.</td><td>J01</td><td>2</td><td>4</td><td>1</td></tr><tr><td>DC68D170</td><td>DC68B170</td><td>68</td><td>Par-LCL</td><td>III</td><td>J28</td><td>9, 10</td><td>28, 29</td><td></td><td>FHICU red.</td><td>J02</td><td>2</td><td>4</td><td>2</td></tr></table>	CMD ON	CMD OFF	LCL#	Type	Class	PCDU Conn	Pin+	Pin-		Herschel HIFI Allocation	Conn	Pin+	Pin-	BOB #	DC43D170	DC43B170	43	LCL	II	J32	3, 4	22, 23		FHWEH	J03	2	4	3	DC44D170	DC44B170	44	LCL	II	J06	3, 4	22, 23		FHWEV	J03	2	4	4	DC53D170	DC53B170	53	LCL	III	J30	9, 10	28, 29		FHLCU nom.	J01	2	4	5	DC54D170	DC54B170	54	LCL	III	J08	9, 10	28, 29		FHLCU red.	J121	2	4	5	DC63D170	DC63B170	63	Par-LCL	III	J10	7, 8	26, 27		FHHRH	J01	2	4	7	DC67D170	DC67B170	67	Par-LCL	III	J28	7, 8	26, 27		FHHRV	J01	2	4	8	DC64D170	DC64B170	64	Par-LCL	III	J10	9, 10	28, 29		FHICU nom.	J01	2	4	1	DC68D170	DC68B170	68	Par-LCL	III	J28	9, 10	28, 29		FHICU red.	J02	2	4	2						
	CMD ON	CMD OFF	LCL#	Type	Class	PCDU Conn	Pin+	Pin-		Herschel HIFI Allocation	Conn	Pin+	Pin-	BOB #																																																																																																																							
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Table HIFI POWER																																																																																																																																					
60	Install "T" adapter on connector FHICUP03 to FHICUJ03 (do not install "T" adapter side unit FHICUJ03)	OK				Mil BUS A																																																																																																																															
70	Install "T" adapter on connector FHICUP04 to FHICUJ04 (do not install "T" adapter side unit FHICUJ04)	OK				Mil BUS B																																																																																																																															

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Test Conductor

QA-AIT Stamp and Date

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
80	For each unit check, by using the digital ohmmeter, the Unit insulation (Unit Side) between the RTN line and GND (apply the <i>table HIFI POWER</i>): > FHWEH > FHWEV > FHLCU nom. > FHLCU red. > FHHRH > FHHRV > FHICU nom. > FHICU red.	> 1Mohm				
90	Verify/install CDMU SCOE on Mil Bus	OK				
100	Execute satellite power on "POWERON"	OK				
110	Install Digital Voltmeter on Pin (+) & (-) of the BOBs reported in <i>table HIFI POWER</i>	OK				
120	For each unit send the command of "Switch On" using the cmd reported in <i>table HIFI POWER</i>	OK				
130	Switch On FHWEH	OK				
140	Verify by digital Voltmeter the voltage value for power line dedicate to FHWEH units (harness side)	28 Volts +1% and - 4%				

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Test Conductor

QA-AIT Stamp and Date

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
150	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	OK				
160	Switch On FHHRV	OK				
170	Verify by digital Voltmeter the voltage value for power line dedicate to FHHRV units (harness side)	28 Volts +1% and - 4%				
180	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	ON				
190	Switch On FHWEV	OK				
200	Verify by digital Voltmeter the voltage value for power line dedicate to FHWEV units (harness side)	28 Volts +1% and - 4%				
210	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	ON				
220	Switch On FHLCU Nom	Ok				
230	Verify by digital Voltmeter the voltage value for power line dedicate to FHLCU Nom units (harness side)	28 Volts +1% and - 4%				
240	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	Ok				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
250	Switch On FHLCU red	OK				
260	Verify by digital Voltmeter the voltage value for power line dedicate to FHLCU red units (harness side)	28 Volts +1% and - 4%				
270	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	ON				
280	Switch On FHHRH	OK				
290	Verify by digital Voltmeter the voltage value for power line dedicate to FHHRH units (harness side)	28 Volts +1% and - 4%				
300	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	ON				
310	Switch On FHICU nom	OK				
320	Verify by digital Voltmeter the voltage value for power line dedicate to FHICU nom units (harness side)	28 Volts +1% and - 4%				
330	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	ON				
340	Switch On FHICU red	OK				

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HERSCHEL PLANCK

STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
350	Verify by digital Voltmeter the voltage value for power line dedicate to FHICU red .units (harness side)	28 Volts +1% and - 4%				
360	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Herschel" the tlm power status of the relevant LCL	ON				
	<u>Loaded Power Bus Verification</u>					
370	On BOB# depicted in <i>table HIFI POWER</i> connect cross strap to close the lines (+) and (-) in order to connect the harness to the relevant units.	OK				
380	Connect current probe on positive line on pin reported in <i>table HIFI POWER</i> in order to perform the In-Rush current verification	OK				
390	Connect the "T" adapter to FHICUJ03 (side unit) in order to complete the harness link with the ICU unit	OK				
400	Connect the "T" adapter to FHICUJ04 (side unit) in order to complete the harness link with the ICU unit	OK				
410	For each unit send the command of "Switch On" using the cmd reported in <i>table table HIFI POWER</i>					
420	Switch On FHHRV					

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HERSCHEL PLANCK

STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
430	Verify/record the FHHRV inrush current (no LCL intervention has to be verified) I overshoot = 11.0 A max expected, T overshoot = $\leq 50 \mu\text{Sec}$ I nominal after 5 mS 2,54 A ± 100 mA	OK				
440	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	OK				
450	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded in step 430 (± 0.05 Amp)	OK				
460	By keyboard command Switch OFF the power line dedicate to FHHRV :	OK				
470	Switch On FHHRH	OK				
480	Verify/record the FHHRH inrush current (no LCL intervention has to be verified) I overshoot = 11.0 A max expected, T overshoot = $\leq 50 \mu\text{Sec}$ I nominal after 5 mS 2,54 A ± 100 mA	OK				
490	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
500	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded is step 480 (± 0.05 Amp)	OK				
510	By keyboard command Switch OFF the power line dedicate to FHHRH :	OK				
520	Switch On FHWEH	OK				
530	Verify/record the FHWEH inrush current (no LCL intervention has to be verified) I overshoot = 5.50 A max expected T overshoot = ≤ 50 μ Sec I nominal after 5 mS 1,9 A ± 100 mA	OK				
540	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	OK				
550	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded is step 530 (± 0.05 Amp)	OK				
560	By keyboard command Switch OFF the power line dedicate to FHWEH	OK				
570	Switch On FHWEV	OK				

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Test Conductor

QA-AIT Stamp and Date

HERSCHEL PLANCK

STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
580	Verify/record the FHWEV inrush current (no LCL intervention has to be verified) I overshoot = 5.50 A max expected T overshoot = $\leq 50 \mu\text{Sec}$ I nominal after 5 mS 1,9 A $\pm 100 \text{ mA}$	OK				
590	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	OK				
600	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded is step 580 ($\pm 0.05 \text{ Amp}$)	OK				
610	By keyboard command Switch OFF the power line dedicate to FHWEV	OK				
620	Switch On FHLCU nom	OK				
630	Verify/record the FHLCU nom inrush current (no LCL intervention has to be verified) I overshoot = 11.0 A max expected T overshoot = $\leq 50 \mu\text{Sec}$ I nominal after 5 mS 3,7 A $\pm 100 \text{ mA}$	OK				
640	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
650	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded is step 630 (± 0.05 Amp)	OK				
660	By keyboard command Switch OFF the power line dedicate to FHLCU nom	OK				
670	Switch On FHLCU red	OK				
680	Verify/record the FHLCU red inrush current (no LCL intervention has to be verified) I overshoot = 11.0 A max expected T overshoot = ≤ 50 μ Sec I nominal after 5 mS 3,7 A ± 100 mA	OK				
690	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	OK				
700	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded is step 680 (± 0.05 Amp)	OK				
710	By keyboard command Switch OFF the power line dedicate to FHLCU red	OK				
720	Switch On FHLCU nom	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
730	Verify/record the FHICU nom inrush current (no LCL intervention has to be verified) I overshoot = 11.0 A max expected T overshoot = $\leq 50 \mu\text{Sec}$ I nominal after 5 mS 1,8 A $\pm 100 \text{ mA}$	OK				
740	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	OK				
750	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded in step 730 ($\pm 0.05 \text{ Amp}$)	OK				
760	By keyboard command Switch OFF the power line dedicate to FHICU nom	OK				
770	Switch On FHICU red	OK				
780	Verify/record the FHICU red inrush current (no LCL intervention has to be verified) I overshoot = 11.0 A max expected T overshoot = $\leq 50 \mu\text{Sec}$ I nominal after 5 mS 1,8 A $\pm 100 \text{ mA}$	OK				
790	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks																					
800	Using table reported in <i>table HIFI POWER</i> check by Power synoptic "LCL_Herschel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded is step 780 (±0.05Amp)	OK																									
810	By keyboard command Switch OFF the power line dedicate to FHICU red	OK																									
820	Remove all the BOB# and connect to the relevant harness receptacle	OK																									
830	<table><tr><th>Herschel HIFI</th><th>CDMU I/F 1553 Bus</th><th>Conn</th><th>Pin(true)</th><th>Pin(comp)</th></tr><tr><td rowspan="2">FHICU nom.</td><td rowspan="2">1</td><td>J03(Bus A)</td><td>2</td><td>6</td></tr><tr><td>J04(Bus B)</td><td>2</td><td>6</td></tr><tr><td rowspan="2">FHICU red.</td><td rowspan="2">1</td><td>J05(Bus A)</td><td>2</td><td>6</td></tr><tr><td>J06(Bus B)</td><td>2</td><td>6</td></tr></table> <p><u>Table HIFI MiL BUS I/F</u></p>						Herschel HIFI	CDMU I/F 1553 Bus	Conn	Pin(true)	Pin(comp)	FHICU nom.	1	J03(Bus A)	2	6	J04(Bus B)	2	6	FHICU red.	1	J05(Bus A)	2	6	J06(Bus B)	2	6
Herschel HIFI	CDMU I/F 1553 Bus	Conn	Pin(true)	Pin(comp)																							
FHICU nom.	1	J03(Bus A)	2	6																							
		J04(Bus B)	2	6																							
FHICU red.	1	J05(Bus A)	2	6																							
		J06(Bus B)	2	6																							

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
840	Bus A: Set on interrogation protocol Bus A tcsend DC005160 (ICU nom = valid) RTA = 16 F0 = 1 F1 = 1 F2 = 1 F3 = 1 F4 = 1 F5 = Do not Care F6 = 0 F7 = Do not Care F8 = 0 (Bus A = 0 and Bus B =1) F9 = Do not Care F10 = Do not Care F11 = Do not Care M0 = 1 (1 = care or 0 = not care) M1 = 1 (1 = care or 0 = not care) M2 = 1 (1 = care or 0 = not care) M3 = 1 (1 = care or 0 = not care) M4 = 1 (1 = care or 0 = not care) M6 = 1 (1 = care or 0 = not care) M8 = 1 (1 = care or 0 = not care) Set all other parameter "M" = 0 and the parameter "CNT"=1					
850	Configure/set the bus profile (SCPb for HIFI = 2). Use for configuration command DC819160	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
860	Switch On the FHICU nom (see table HIFI POWER)	OK				
870	Check by synoptic LCL_Hershel the correct LCL status. (see table HIFI POWER)					
880	Install the Oscilloscope with differential probe to the "T" adapter (connector reported in Table HIFI Mil Bus I/F) in order to verify the correct 1553B signal amplitude pin: 2(True) and 6(comp)	OK				
890	To start the ASW send the following command: HC000289 HIFI_force_boot					
900	With differential probe, verify the peak to peak voltage levels: Between 1V ÷ 14 V BC in Transmission Between 18V ÷ 27V RT in Transmission Trise and Tfall = 100 nsec ÷ 300 nsec	OK				
910	Switch Off the FHICU nom (see table HIFI POWER)					

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
920	Bus A Set on interrogation protocol Bus A tcsend DC005160 (ICU red = valid) RTA = 19 F0 = 1 F1 = 1 F2 = 1 F3 = 1 F4 = 1 F5 = Do not Care F6 = 0 F7 = Do not Care F8 = 0 (Bus A = 0 and Bus B =1) F9 = Do not Care F10 = Do not Care F11 = Do not Care M0 = 1 (1 = care or 0 = not care) M1 = 1 (1 = care or 0 = not care) M2 = 1 (1 = care or 0 = not care) M3 = 1 (1 = care or 0 = not care) M4 = 1 (1 = care or 0 = not care) M6 = 1 (1 = care or 0 = not care) M8 = 1 (1 = care or 0 = not care) Set all other parameter "M" = 0 and the parameter "CNT"=1					
930	Switch On the FHICU red (see table HIFI POWER)					

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
940	Check by synoptic LCL_Hershel the correct LCL status. (see table HIFI POWER)					
950	Install the Oscilloscope with differential probe to the "T" adapter (connector reported in table Table HIFI Mil Bus I/F) in order to verify the correct 1553B signal amplitude pin: 2(True) and 6(comp)					
960	To start the ASW send the following command: HC000289 HIFI_force_boot					
970	With differential probe, verify the peak to peak voltage levels: Between 1V ÷ 14 V BC in Transmission Between 18V ÷ 27V RT in Transmission Trise and Tfall = 100 nsec ÷ 300 nsec					
980	Switch Off the FHICU red (see table HIFI POWER)					

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
990	Bus B Set on interrogation protocol Bus B tcsend DC005160 (ICU nom = valid) RTA = 16 F0 = 1 F1 = 1 F2 = 1 F3 = 1 F4 = 1 F5 = Do not Care F6 = 0 F7 = Do not Care F8 = 1 (Bus A = 0 and Bus B =1) F9 = Do not Care F10 = Do not Care F11 = Do not Care M0 = 1 (1 = care or 0 = not care) M1 = 1 (1 = care or 0 = not care) M2 = 1 (1 = care or 0 = not care) M3 = 1 (1 = care or 0 = not care) M4 = 1 (1 = care or 0 = not care) M6 = 1 (1 = care or 0 = not care) M8 = 1 (1 = care or 0 = not care) Set all other parameter "M" = 0 and the parameter "CNT"=1					
1000	Switch On the FHICU nom (see table in <i>table HIFI POWER</i>)					

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
1010	Check by synoptic LCL_Herschel the correct LCL status. (see table in <i>table HIFI POWER</i>)					
1020	Install the Oscilloscope with differential probe to the "T" adapter (connector reported in table Table HIFI Mil Bus I/F) in order to verify the correct 1553B signal amplitude pin: 2(True) and 6(comp)					
1030	To start the ASW send the following command: HC000289 HIFI_force_boot					
1040	With differential probe, verify the peak to peak voltage levels: Between 1V ÷ 14 V BC in Transmission Between 18V ÷ 27V RT in Transmission Trise and Tfall = 100 nsec ÷ 300 nsec					
1050	Switch Off the FHICU nom (see <i>table HIFI POWER</i>)					

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
1060	Bus B Set on interrogation protocol Bus B tcsend DC005160 (ICU red = valid) RTA = 19 F0 = 1 F1 = 1 F2 = 1 F3 = 1 F4 = 1 F5 = Do not Care F6 = 0 F7 = Do not Care F8 = 1 (Bus A = 0 and Bus B =1) F9 = Do not Care F10 = Do not Care F11 = Do not Care M0 = 1 (1 = care or 0 = not care) M1 = 1 (1 = care or 0 = not care) M2 = 1 (1 = care or 0 = not care) M3 = 1 (1 = care or 0 = not care) M4 = 1 (1 = care or 0 = not care) M6 = 1 (1 = care or 0 = not care) M8 = 1 (1 = care or 0 = not care) Set all other parameter "M" = 0 and the parameter "CNT"=1					
1070	Switch On the FHICU red (see table HIFI POWER)					

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
1080	Check by synoptic LCL_Herschel the correct LCL status. (see table in <i>table HIFI POWER</i>)					
1090	Install the Oscilloscope with differential probe to the "T" adapter (connector reported in table Table HIFI Mil Bus I/F) in order to verify the correct 1553B signal amplitude pin: 2(True) and 6(comp)					
1100	To start the ASW send the following command: HC000289 HIFI_force_boot					
1110	With differential probe, verify the peak to peak voltage levels: Between 1V ÷ 14 V BC in Transmission Between 18V ÷ 27V RT in Transmission Trise and Tfall = 100 nsec ÷ 300 nsec					
1120	Switch Off the FHICU red (see <i>table HIFI POWER</i>)					
1130	Stop the interrogation for RT 19: tcsend DC005160 with following TC parameters F4 = 0 M4 = 1					
1140	Remove all the T adapter and connect the harness directly to the unit					

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1.1.2 HIFI ICU On and Boot Verification (UFT)

STEP N.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
10	Configure the Bus A: Set on interrogation protocol Bus A tcsend DC005160 (ICU nom = valid) RTA = 16 F0 = 1 F1 = 1 F2 = 1 F3 = 1 F4 = 1 F5 = Do not Care F6 = 0 F7 = Do not Care F8 = 0 (Bus A = 0 and Bus B =1) F9 = Do not Care F10 = Do not Care F11 = Do not Care M0 = 1 (1 = care or 0 = not care) M1 = 1 (1 = care or 0 = not care) M2 = 1 (1 = care or 0 = not care) M3 = 1 (1 = care or 0 = not care) M4 = 1 (1 = care or 0 = not care) M6 = 1 (1 = care or 0 = not care) M8 = 1 (1 = care or 0 = not care) Set all other parameter "M" = 0 and the parameter "CNT"=1	OK				

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STEP N.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
20	Configure/set the bus profile (SCPB for HIFI = 2). Use for configuration command DC819160	OK				
30	Switch On the HIFI Unit (<i>see table HIFI POWER</i>)	OK				
40	Check by synoptic LCL_Herschel the correct LCL status. (<i>see table in table HIFI POWER</i>)	OK				
50	Verify the OEM TM(5,2) APID 1024 issued by the ICU	OK				
60	To start the ASW send the following command: HC000289 HIFI_force_boot	OK				
70	Verify that the TM(3,25) APID 1026 (#402) is generated at rate of 0.33Hz (one pkt/3sec): SID = TBD Length = TBD OBSID = TBD BBID = TBD Software Version = TBD	OK				

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STEP N.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
80	Verify that the TM(3,25) APID 1024 (#400) is generated at rate of 0.33 Hz (one Pkt/3sec) SID = TBD Length = TBD OBSID = TBD BBID = TBD	OK				
90	Verify on TM packets header that corresponds Time field (0xTBD) correspond with time reported in packets with APID 16 coming from the CDMU.	OK				

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1.1.3 HIFI Check Time Synchronisation mechanism (UFT)

STEP N.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
10	Send TC(9,6) "Enable time verification" (not accepted by ICU)	OK				
20	Verify the correspondent [APID1024 (#400).] TM(9,8) - Time Verification Report (CDMU) TM(9,9) - Time Verification Report (ICU)	OK				
30	Verify the TM (1,1) packet service "TC Acceptance Report" = Success	OK				
40	By CCS verify that on TM packets header the correspond Time field APID 1026 TM(3,25)	OK				
50	Switch Off the HIFI Unit (see table HIFI POWER)					
60	Stop the interrogation for RT 19: tcsend DC005160 with following TC parameters F4 = 0 M4 = 1					

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1.2 PACS Interface verification

1.2.1 PACS Signal Verification

STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
10	Verify/Install PACS Unit on "+Y -Z"	OK				
20	Perform/verify that the Unit is correctly grounded.	OK				
30	Verify the RT Add =25 main (26 redundant) for Intelligent Terminal.	OK				
40	Install the following BOB as reported in the table below: between Harness and Unit connectors (without cross strap)	OK				
	<u>Unloaded Power Bus Verification</u>					

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STEP No.	Step Description									Required Value	Actual Value	Conductor Sign			Date	Remarks
50		CMD ON	CMD OFF	LCL#	Type	Class	PCDU Conn	Pin+	Pin-		Herschel PACS Allocation	Conn	Pin+	Pin-	BOB #	
		DC27D170	DC27B170	27	LCL	II	J32	9, 10	28, 29		FPBOLC nom.	J25	2, 7	4, 9	3	
		DC28D170	DC28B170	28	LCL	II	J06	9, 10	28, 29		FPBOLC red.	J26	2, 7	4, 9	4	
		DC35D170	DC35B170	35	LCL	II	J10	3, 4	22, 23		FPSPU1	J11	2, 1	4, 5	5	
		DC36D170	DC36B170	36	LCL	II	J28	3, 4	22, 23		FPSPU2	J11	2, 1	4, 5	6	
		DC41D170	DC41B170	41	LCL	II	J30	5, 6	24, 25		FPDPU nom.	J01	2, 7	4, 9	1	
		DC42D170	DC42B170	42	LCL	II	J08	5, 6	24, 25		FPDPU red.	J02	2, 7	4, 9	2	
		DC65D170	DC65B170	65	Par-LCL	III	J10	11, 12	30, 31		FPMEC1	J30	2, 7	4, 9	7	
		DC69D170	DC69B170	69	Par-LCL	III	J28	11, 12	30, 31		FPMEC2	J130	2, 7	4, 9	7	
Table PACS POWER																
60	Install "T" adapter on connector FPDPU03 to FPDPUJ03									OK						<i>Mil Bus A</i>
70	Install "T" adapter on connector FPDPU04 to FPDPUJ04									OK						<i>Mil Bus B</i>
80	Install "T" adapter on connector FPDPU05 to FPDPUJ05									OK						<i>Mil Bus A</i>
90	Install "T" adapter on connector FPDPU06 to FPDPUJ06									OK						<i>Mil Bus B</i>
100	Install "T" adapter on connector FPMEC1P31 to FPMEC1J31 (do not install "T" adapter side unit FPMEC1J31)									OK						<i>OBT signal</i>

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
110	Install "T" adapter on connector FPMEC2P131 to FPMEC2J131 (do not install "T" adapter side unit FPMEC2J131)	OK				<i>OBT signal</i>
120	For each unit check, by using the digital ohmmeter, the Unit insulation (Unit Side) between the RTN line and GND (apply the Table PACS POWER) FPBOLC nom. FPBOLC red. FPSPU1 FPSPU2 FPDPU nom. FPDPU red. FPMEC1 FPMEC2	> 1Mohm				
130	Verify/install CDMU SCOE on Mil Bus	OK				
140	Execute satellite power on "POWERON"	OK				
150	Install Digital Voltmeter on Pin (+) & (-) of the BOBs reported in Table PACS POWER	OK				
160	For each unit send the command of "Switch On" using the cmd reported in Table PACS POWER	OK				
170	Switch On FPBOLC nom	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
180	Verify by digital Voltmeter the voltage value for power line dedicate to FPBOLC nom units (harness side)	28 Volts +1% and - 4%				
190	Using table reported in Table PACS POWER check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	OK				
200	Switch On FPBOLC red	OK				
210	Verify by digital Voltmeter the voltage value for power line dedicate to FPBOLC red units (harness side)	28 Volts +1% and - 4%				
220	Using table reported in Table PACS POWER check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	ON				
230	Switch On FPSPU1	OK				
240	Verify by digital Voltmeter the voltage value for power line dedicate to FPSPU1 units (harness side)	28 Volts +1% and - 4%				
250	Using table reported in Table PACS POWER check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	ON				
260	Switch On FPSPU2	Ok				
270	Verify by digital Voltmeter the voltage value for power line dedicate to FPSPU2 units (harness side)	28 Volts +1% and - 4%				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
280	Using table reported in Table PACS POWER check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	Ok				
290	Switch On FPDPU nom	OK				
300	Verify by digital Voltmeter the voltage value for power line dedicate to FPDPU nom units (harness side)	28 Volts +1% and - 4%				
310	Using table reported in Table PACS POWER check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	ON				
320	Switch On FPDPU red	OK				
330	Verify by digital Voltmeter the voltage value for power line dedicate to FPDPU red units (harness side)	28 Volts +1% and - 4%				
340	Using table reported in Table PACS POWER check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	ON				
350	Switch On FPMEC1	OK				
360	Verify by digital Voltmeter the voltage value for power line dedicate to FPMEC1 units (harness side)	28 Volts +1% and - 4%				
370	Using table reported in Table PACS POWER check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	ON				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
380	Switch On FPMEC2	OK				
390	Verify by digital Voltmeter the voltage value for power line dedicate to FPMEC2 .units (harness side)	28 Volts +1% and - 4%				
400	Using table reported in Table PACS POWER check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	ON				
	<u>Loaded Power Bus Verification</u>					
410	On BOB# depicted in Table PACS POWER connect cross strap to close the lines (+) and (-) in order to connect the harness to the relevant units.	OK				
420	Connect current probe on positive line on pin reported in Table PACS POWER in order to perform the In-Rush current verification	OK				
430	For each unit send the command of "Switch On" using the cmd reported in table Table PACS POWER	OK				
440	Switch On FPBOLC nom	OK				
450	Verify/record the FPBOLC nom inrush current (no LCL intervention has to be verified) I overshoot = 5.5 A max expected, T overshoot $\leq 50 \mu\text{Sec}$ I nominal after 5 mS 1,36 A $\pm 100 \text{ mA}$	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
460	Using table reported in Table PACS POWER check by Power synoptic "LCL_Herschel" the tlm power status of the relevant LCL	OK				
470	Using table reported in Table PACS POWER check by Power synoptic "LCL_Herschel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded is step 450 (± 0.05 Amp)	OK				
480	By keyboard command Switch OFF the power line dedicate to FPBOLC nom	OK				
490	Switch On FPBOLC red	OK				
500	Verify/record the FPBOLC red inrush current (no LCL intervention has to be verified) I overshoot = 5.5 A max expected, T overshoot $\leq 50 \mu\text{Sec}$ I nominal after 5 mS 1,36 A ± 100 mA	OK				
510	Using table reported in Table PACS POWER check by Power synoptic "LCL_Herschel" the tlm power status of the relevant LCL	OK				
520	Using table reported in Table PACS POWER check by Power synoptic "LCL_Herschel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded is step 500 (± 0.05 Amp)	OK				
530	By keyboard command Switch OFF the power line dedicate to FPBOLC red	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
540	Switch On FPSPU1	OK				
550	Verify/record the FPSPU1 inrush current (no LCL intervention has to be verified) I overshoot = 5.50 A max expected T overshoot $\leq 50 \mu\text{Sec}$ I nominal after 5 mS 1,2 A $\pm 100 \text{ mA}$	OK				
560	Using table reported in Table PACS POWER check by Power synoptic "LCL_Herschel" the tlm power status of the relevant LCL	OK				
570	Using table reported in Table PACS POWER check by Power synoptic "LCL_Herschel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded is step 550 ($\pm 0.05 \text{ Amp}$)	OK				
580	By keyboard command Switch OFF the power line dedicate to FPSPU1	OK				
590	Switch On FPSPU2	OK				
600	Verify/record the FPSPU2 inrush current (no LCL intervention has to be verified) I overshoot = 5.50 A max expected T overshoot $\leq 50 \mu\text{Sec}$ I nominal after 5 mS 1,2 A $\pm 100 \text{ mA}$	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
610	Using table reported in Table PACS POWER check by Power synoptic "LCL_Herschel" the tlm power status of the relevant LCL	OK				
620	Using table reported in Table PACS POWER check by Power synoptic "LCL_Herschel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded is step 600 (± 0.05 Amp)	OK				
630	By keyboard command Switch OFF the power line dedicate to FPSPU2	OK				
640	Switch On FPDPU nom	OK				
650	Verify/record the FPDPU nom inrush current (no LCL intervention has to be verified) I overshoot = 5.5 A max expected T overshoot = ≤ 50 μ Sec I nominal after 5 mS 534 mA ± 100 mA	OK				
660	Using table reported in Table PACS POWER check by Power synoptic "LCL_Herschel" the tlm power status of the relevant LCL	OK				
670	Using table reported in Table PACS POWER check by Power synoptic "LCL_Herschel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded is step 650 (± 0.05 Amp)	OK				
680	By keyboard command Switch OFF the power line dedicate to FPDPU nom	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
690	Switch On FPDPU red	OK				
700	Verify/record the FPDPU red inrush current (no LCL intervention has to be verified) I overshoot = 5.5 A max expected T overshoot = $\leq 50 \mu\text{Sec}$ I nominal after 5 mS 534 mA ± 100 mA	OK				
710	Using table reported in Table PACS POWER check by Power synoptic "LCL_Herschel" the tlm power status of the relevant LCL	OK				
720	Using table reported in Table PACS POWER check by Power synoptic "LCL_Herschel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded is step 700 ($\pm 0.05\text{Amp}$)	OK				
730	By keyboard command Switch OFF the power line dedicate to FPDPU red	OK				
740	Switch On FPMEC1	OK				
750	Verify/record the FPMEC1 inrush current (no LCL intervention has to be verified) I overshoot = 11.0 A max expected T overshoot $\leq 50 \mu\text{Sec}$ I nominal after 5 mS 1,83 A ± 100 mA	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
760	Using table reported in Table PACS POWER check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	OK				
770	Using table reported in Table PACS POWER check by Power synoptic "LCL_Hershel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded is step 750 ($\pm 0.05\text{Amp}$)	OK				
780	Verify OBT unloaded Verify by digital probe on connector J31 ["T" adapter pin 5 (OBT+) and 9 (OBT-)], the OBT characteristics: ➤ Differential Output Voltage $2.0\text{V} \leq V \leq 5.5\text{V}$ ➤ Frequency 131.072 KHz	OK				
790	Connect the Test adapter to the Unit and verify the loaded signal	OK				
800	Verify by digital probe on connector J31 ["T" adapter pin 5 (OBT+) and 9 (OBT-)], the OBT characteristics: ➤ Differential Output Voltage $2.0\text{V} \leq V \leq 5.5\text{V}$ ➤ Frequency 131.072 KHz ➤ Rise Time $0.1\mu\text{S} \leq T_{\text{rise}} \leq 0.8\mu\text{S}$ ➤ Fall Time $0.1\mu\text{S} \leq T_{\text{fall}} \leq 0.3\mu\text{S}$	OK				
810	By keyboard command Switch OFF the power line dedicate to FPMEC1	OK				
820	Switch On FPMEC2	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
830	Verify/record the FPMEC2 inrush current (no LCL intervention has to be verified) I overshoot = 11.0 A max expected T overshoot $\leq 50 \mu\text{Sec}$ I nominal after 5 mS 1,83 A $\pm 100 \text{ mA}$	OK				
840	Using table reported in Table PACS POWER check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	OK				
850	Using table reported in Table PACS POWER check by Power synoptic "LCL_Hershel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded in step 830 ($\pm 0.05 \text{ Amp}$)	OK				
860	Verify OBT unloaded Verify by digital probe on connector J131 ["T" adapter pin 5 (OBT+) and 9 (OBT-)], the OBT characteristics: <ul style="list-style-type: none"> ➤ Differential Output Voltage $2.0\text{V} \leq V \leq 5.5\text{V}$ ➤ Frequency 131.072 KHz 	OK				
870	Connect the Test adapter to the Unit and verify the loaded signal	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks																					
880	Verify by digital probe on connector J131 ["T" adapter pin 5 (OBT+) and 9 (OBT-)], the OBT characteristics: ➤ Differential Output Voltage 2.0V ≤ V ≤ 5.5V ➤ Frequency 131.072 KHz ➤ Rise Time 0.1μS ≤ T _{rise} ≤ 0.8μS ➤ Fall Time 0.1μS ≤ T _{fall} ≤ 0.3μS	OK																									
890	By keyboard command Switch OFF the power line dedicate to FPMEC2	OK																									
900	Remove all the BOB# and connect to the relevant harness receptacle	OK																									
910	<table><tr><th>Herschel HIFI</th><th>CDMU I/F 1553 Bus</th><th>Conn</th><th>Pin(true)</th><th>Pin(comp)</th></tr><tr><td rowspan="2">FPDPU nom.</td><td rowspan="2">1</td><td>J03(Bus A)</td><td>2</td><td>6</td></tr><tr><td>J04(Bus B)</td><td>2</td><td>6</td></tr><tr><td rowspan="2">FPDPU red.</td><td rowspan="2">1</td><td>J05(Bus A)</td><td>2</td><td>6</td></tr><tr><td>J06(Bus B)</td><td>2</td><td>6</td></tr></table> <p style="text-align: center;"><u>Table PACS MIL BUS I/F</u></p>						Herschel HIFI	CDMU I/F 1553 Bus	Conn	Pin(true)	Pin(comp)	FPDPU nom.	1	J03(Bus A)	2	6	J04(Bus B)	2	6	FPDPU red.	1	J05(Bus A)	2	6	J06(Bus B)	2	6
Herschel HIFI	CDMU I/F 1553 Bus	Conn	Pin(true)	Pin(comp)																							
FPDPU nom.	1	J03(Bus A)	2	6																							
		J04(Bus B)	2	6																							
FPDPU red.	1	J05(Bus A)	2	6																							
		J06(Bus B)	2	6																							

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
920	Bus A: Set on interrogation protocol Bus A tcsend DC005160 (DPU nom= valid) RTA = 25 F0 = 1 F1 = 1 F2 = 1 F3 = 1 F4 = 1 F5 = Do not Care F6 = 0 F7 = Do not Care F8 = 0 (Bus A = 0 and Bus B =1) F9 = Do not Care F10 = Do not Care F11 = Do not Care M0 = 1 (1 = care or 0 = not care) M1 = 1 (1 = care or 0 = not care) M2 = 1 (1 = care or 0 = not care) M3 = 1 (1 = care or 0 = not care) M4 = 1 (1 = care or 0 = not care) M6 = 1 (1 = care or 0 = not care) M8 = 1 (1 = care or 0 = not care) Set all other parameter "M" = 0 and the parameter "CNT"=1					
930	Configure/set the bus profile (SCPb for PACS = 4). Use for configuration command DC819160	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
940	Switch On the FPDPU nom (see table in Table PACS POWER)	OK				
950	Check by synoptic LCL_Hershel the correct LCL status. (see table in Table PACS POWER)					
960	Install the Oscilloscope with differential probe to the "T" adapter (connector reported in Table PACS MIL BUS I/F) in order to verify the correct 1553B signal amplitude pin: 2(True) and 6(comp)	OK				
970	To start the ASW send the following command: PC032380 DPULLSW_force_boot	OK				
980	With differential probe, verify the peak to peak voltage levels: Between 1V ÷ 14 V BC in Transmission Between 18V ÷ 27V RT in Transmission Trise and Tfall = 100 nsec ÷ 300 nsec	OK				
990	Switch Off the FPDPU nom (see Table PACS POWER)	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
1000	Bus A Set on interrogation protocol Bus A tcsend DC005160 (DPU red = valid) RTA = 26 F0 = 1 F1 = 1 F2 = 1 F3 = 1 F4 = 1 F5 = Do not Care F6 = 0 F7 = Do not Care F8 = 0 (Bus A = 0 and Bus B =1) F9 = Do not Care F10 = Do not Care F11 = Do not Care M0 = 1 (1 = care or 0 = not care) M1 = 1 (1 = care or 0 = not care) M2 = 1 (1 = care or 0 = not care) M3 = 1 (1 = care or 0 = not care) M4 = 1 (1 = care or 0 = not care) M6 = 1 (1 = care or 0 = not care) M8 = 1 (1 = care or 0 = not care) Set all other parameter "M" = 0 and the parameter "CNT"=1	OK				
1010	Switch On the FPDPU red (see Table PACS POWER)	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
1020	Check by synoptic LCL_Herschel the correct LCL status. (see Table PACS POWER)	OK				
1030	Install the Oscilloscope with differential probe to the "T" adapter (connector reported in Table PACS MIL BUS I/F) in order to verify the correct 1553B signal amplitude pin: 2(True) and 6(comp)	OK				
1040	With differential probe, verify the peak to peak voltage levels: Between 1V ÷ 14 V BC in Transmission Between 18V ÷ 27V RT in Transmission Trise and Tfall = 100 nsec ÷ 300 nsec	OK				
1050	Switch Off the FPDPU red (see table in Table PACS POWER)	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
1060	Bus B Set on interrogation protocol Bus B tcsend DC005160 (DPU nom = valid) RTA = 25 F0 = 1 F1 = 1 F2 = 1 F3 = 1 F4 = 1 F5 = Do not Care F6 = 0 F7 = Do not Care F8 = 1 (Bus A = 0 and Bus B =1) F9 = Do not Care F10 = Do not Care F11 = Do not Care M0 = 1 (1 = care or 0 = not care) M1 = 1 (1 = care or 0 = not care) M2 = 1 (1 = care or 0 = not care) M3 = 1 (1 = care or 0 = not care) M4 = 1 (1 = care or 0 = not care) M6 = 1 (1 = care or 0 = not care) M8 = 1 (1 = care or 0 = not care) Set all other parameter "M" = 0 and the parameter "CNT"=1	OK				
1070	Switch On the FPDPU nom (see Table PACS POWER)	OK				

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Test Conductor

QA-AIT Stamp and Date

HERSCHEL PLANCK

STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
1080	Check by synoptic LCL_Herschel the correct LCL status. (see table in Table PACS POWER)	OK				
1090	Install the Oscilloscope with differential probe to the "T" adapter (connector reported in Table PACS MIL BUS I/F) in order to verify the correct 1553B signal amplitude pin: 2(True) and 6(comp)	OK				
1100	With differential probe, verify the peak to peak voltage levels: Between 1V ÷ 14 V BC in Transmission Between 18V ÷ 27V RT in Transmission Trise and Tfall = 100 nsec ÷ 300 nsec	OK				
1110	Switch Off the FPDPU nom (see Table PACS POWER)	OK				

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Test Conductor

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
1120	Bus B Set on interrogation protocol Bus B tcsend DC005160 (DPU red = valid) RTA = 26 F0 = 1 F1 = 1 F2 = 1 F3 = 1 F4 = 1 F5 = Do not Care F6 = 0 F7 = Do not Care F8 = 1 (Bus A = 0 and Bus B =1) F9 = Do not Care F10 = Do not Care F11 = Do not Care M0 = 1 (1 = care or 0 = not care) M1 = 1 (1 = care or 0 = not care) M2 = 1 (1 = care or 0 = not care) M3 = 1 (1 = care or 0 = not care) M4 = 1 (1 = care or 0 = not care) M6 = 1 (1 = care or 0 = not care) M8 = 1 (1 = care or 0 = not care) Set all other parameter "M" = 0 and the parameter "CNT"=1	OK				
1130	Switch On the FPDPU red (see table in Table PACS POWER)	OK				

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Test Conductor

QA-AIT Stamp and Date

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
1140	Check by synoptic LCL_Herschel the correct LCL status. (see table in Table PACS POWER)	OK				
1150	Install the Oscilloscope with differential probe to the "T" adapter (connector reported in Table PACS MIL BUS I/F) in order to verify the correct 1553B signal amplitude pin: 2(True) and 6(comp)	OK				
1160	With differential probe, verify the peak to peak voltage levels: Between 1V ÷ 14 V BC in Transmission Between 18V ÷ 27V RT in Transmission Trise and Tfall = 100 nsec ÷ 300 nsec	OK				
1170	Switch Off the FPDPU red (see table in Table PACS POWER)	OK				
1180	Stop the interrogation for RT 26: tcsend DC005160 with following TC parameters F4 = 0 M4 = 1	OK				
1190	Remove all the T adapter dedicate to the Mil Bus and connect the harness directly to the unit	OK				

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1.2.2 PACS DPU On and Boot Verification (UFT)

STEP N.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
10	Configure the Bus A: Set on interrogation protocol Bus A tcsend DC005160 (DPU nom = valid) RTA = 25 F0 = 1 F1 = 1 F2 = 1 F3 = 1 F4 = 1 F5 = Do not Care F6 = 0 F7 = Do not Care F8 = 0 (Bus A = 0 and Bus B =1) F9 = Do not Care F10 = Do not Care F11 = Do not Care M0 = 1 (1 = care or 0 = not care) M1 = 1 (1 = care or 0 = not care) M2 = 1 (1 = care or 0 = not care) M3 = 1 (1 = care or 0 = not care) M4 = 1 (1 = care or 0 = not care) M6 = 1 (1 = care or 0 = not care) M8 = 1 (1 = care or 0 = not care) Set all other parameter "M" = 0 and the parameter "CNT"=1	OK				

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STEP N.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
20	Configure/set the bus profile (SCPb for PACS = 4). Use for configuration command DC819160	OK				
30	Switch On the PACS Unit (see table in Table PACS POWER)	OK				
40	Check by synoptic LCL_Herschel the correct LCL status. (see table in Table PACS POWER)	OK				
50	Verify that the "Execution Report" TM (5, 2) has been issued by DPU.	OK				
60	To start the ASW send the following command: DPULLSW_Force_Boot TC PC032380	OK				
70	During the execution of boot, verify on DPU Housekeeping Parameter Report TM (3,25) APID 1154 (#482) contains the following value: <ul style="list-style-type: none"> ➤ SID = TBD ➤ Length = TBD ➤ OBSID = TBD ➤ BBID = TBD ➤ Software Version = TBD 	OK				
80	Verify that the TM(3,25) APID 1154 (#482) is generated at rate of 2Hz (one Pkt/2sec)	OK				

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STEP N.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
90	During the execution of boot, verify on DPU Housekeeping Parameter Report TM (3,25) APID 1152 (#480) contains the following value: <ul style="list-style-type: none"> ➤ SID = TBD ➤ Length = TBD ➤ OBSID = TBD ➤ BBID = TBD ➤ Software Version = TBD 	OK				
100	Verify that the TM(3,25) APID 1152 (#480) is generated at rate of 10Hz (one Pkt/10sec)	OK				
110	Verify on TM packets header that corresponds Time field (0xTBD) correspond with time reported in packets with APID 16 coming from the CDMU.	OK				

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1.2.3 PACS Check Time Synchronisation mechanism (UFT)

STEP N.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
70	By CCS verify that on TM packets header the correspond Time field APID 1154 TM(3,25)	OK				
80	Send TC(9,6) "Enable time verification"	OK				
90	Verify the correspondent [APID 1152 (#480).] TM(9,8) - Time Verification Report (CDMU) TM(9,9) - Time Verification Report (DPU)	OK				
100	Verify the TM (1,1) packet service "TC Acceptance Report" = Success	OK				
110	Send TC(9,6) "Enable time verification"	OK				
120	Verify the correspondent TM(9,8) - Time Verification Report (CDMU) TM(9,9) - Time Verification Report (DPU)	OK				
130	Verify the TM (1,1) APID 1152 (#480) packet service "TC Acceptance Report" = Success	OK				
140	By CCS verify that on TM packets header the correspond Time field APID 1154 TM(3,25)	OK				

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STEP N.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
150	Switch Off the PACS Unit (see table in Table PACS POWER)	OK				
160	Stop the interrogation for RT 25 tcsend DC005160 with following TC parameters F4 = 0 M4 = 1	OK				

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1.3 SPIRE Interface Verification

WARNING: There should ALWAYS be an interval of at least 5 minutes between OFF/ON power cycles of the DPU.
 Prior to the start of the tests the DRCU-DPU harness should be connected and the simulator application started.

1.3.1 SPIRE Signal Verification

STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
10	Install SPIRE DPU unit on "-Z" side panel	OK				
20	Perform/verify that the Unit is correctly grounded.	OK				
30	Verify the RT Add =21 (main) and 22 (redundant)	OK				
40	Install BOB#1Main between connectors HSDPUP01 to HSDPUJ01 (without cross strap)	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks																																																																											
50	<table><tr><th>CMD ON</th><th>CMD OFF</th><th>LCL#</th><th>Type</th><th>Class</th><th>PCDU Conn</th><th>Pin+</th><th>Pin-</th><th></th><th>Herschel SPIRE Allocation</th><th>Conn</th><th>Pin+</th><th>Pin-</th><th>BOB#</th></tr><tr><td>DC11D170</td><td>DC11B170</td><td>11</td><td>LCL</td><td>I</td><td>J06</td><td>7, 8</td><td>26, 27</td><td></td><td>HSDPU nom.</td><td>J01</td><td>2</td><td>4</td><td>1</td></tr><tr><td>DC12D170</td><td>DC12B170</td><td>12</td><td>LCL</td><td>I</td><td>J32</td><td>7, 8</td><td>26, 27</td><td></td><td>HSDPU red.</td><td>J02</td><td>2</td><td>4</td><td>2</td></tr><tr><td>DC51D170</td><td>DC51B170</td><td>51</td><td>LCL</td><td>III</td><td>J08</td><td>7, 8</td><td>26, 27</td><td></td><td>HSFCU nom.</td><td>J05</td><td>2</td><td>4</td><td>3</td></tr><tr><td>DC52D170</td><td>DC52B170</td><td>52</td><td>LCL</td><td>III</td><td>J30</td><td>7, 8</td><td>26, 27</td><td></td><td>HSFCU red.</td><td>J06</td><td>2</td><td>4</td><td>4</td></tr></table>						CMD ON	CMD OFF	LCL#	Type	Class	PCDU Conn	Pin+	Pin-		Herschel SPIRE Allocation	Conn	Pin+	Pin-	BOB#	DC11D170	DC11B170	11	LCL	I	J06	7, 8	26, 27		HSDPU nom.	J01	2	4	1	DC12D170	DC12B170	12	LCL	I	J32	7, 8	26, 27		HSDPU red.	J02	2	4	2	DC51D170	DC51B170	51	LCL	III	J08	7, 8	26, 27		HSFCU nom.	J05	2	4	3	DC52D170	DC52B170	52	LCL	III	J30	7, 8	26, 27		HSFCU red.	J06	2	4	4					
	CMD ON	CMD OFF	LCL#	Type	Class	PCDU Conn	Pin+	Pin-		Herschel SPIRE Allocation	Conn	Pin+	Pin-	BOB#																																																																			
	DC11D170	DC11B170	11	LCL	I	J06	7, 8	26, 27		HSDPU nom.	J01	2	4	1																																																																			
	DC12D170	DC12B170	12	LCL	I	J32	7, 8	26, 27		HSDPU red.	J02	2	4	2																																																																			
	DC51D170	DC51B170	51	LCL	III	J08	7, 8	26, 27		HSFCU nom.	J05	2	4	3																																																																			
	DC52D170	DC52B170	52	LCL	III	J30	7, 8	26, 27		HSFCU red.	J06	2	4	4																																																																			
	Table SPIRE POWER																																																																																
	60						Install "T" adapter on connector HSDPUP03 to HSDPUJ03	OK						MIL Bus A																																																																			
	70						Install "T" adapter on connector HSDPUP04 to HSDPUJ04	OK						MIL Bus B																																																																			
	80						Install "T" adapter on connector HSDPUP05 to HSDPUJ05	OK						MIL Bus A																																																																			
	90						Install "T" adapter on connector HSDPUP06 to HSDPUJ06	OK						MIL Bus B																																																																			
	100						On BOB#1Main using the digital ohmmeter check the Unit insulation (Unit Side): RTN line (pin 4) and GND Value Required > 1Mohm	OK																																																																									

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Test Conductor

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
110	For each unit check, by using the digital ohmmeter, the Unit insulation (Unit Side) between the RTN line and GND (apply the Table SPIRE Power): <ul style="list-style-type: none"> ➤ HSDPU nom. ➤ HSDPU red. ➤ HSFCU nom. ➤ HSFCU red 	OK				
120	Verify/install CDMU SCOE on Mil Bus	OK				
130	Execute satellite power on "POWERON"	OK				
140	Install Digital Voltmeter on Pin (+) & (-) of the BOBs reported in Table SPIRE Power	OK				
150	For each unit send the command of "Switch On" using the cmd reported in Table SPIRE Power	OK				
160	Switch On HSDPU nom	OK				
170	Verify by digital Voltmeter the voltage value for power line dedicate to HSDPU nom units (harness side)	28 Volts +1% and - 4%				
180	Using table reported in Table SPIRE Power check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	OK				
190	Switch On HSDPU red	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
200	Verify by digital Voltmeter the voltage value for power line dedicate to HSDPU red units (harness side)	28 Volts +1% and - 4%				
210	Using table reported in Table SPIRE Power check by Power synoptic "LCL_Herschel" the tlm power status of the relevant LCL	ON				
220	Switch On HSFCU nom	OK				
230	Verify by digital Voltmeter the voltage value for power line dedicate to HSFCU nom units (harness side)	28 Volts +1% and - 4%				
240	Using table reported in Table SPIRE Power check by Power synoptic "LCL_Herschel" the tlm power status of the relevant LCL	ON				
250	Switch On HSFCU red	Ok				
260	Verify by digital Voltmeter the voltage value for power line dedicate to HSFCU red units (harness side)	28 Volts +1% and - 4%				
270	Using table reported in Table SPIRE Power check by Power synoptic "LCL_Herschel" the tlm power status of the relevant LCL	Ok				
280	<u>Loaded Power Bus Verification</u>					
290	On BOB# depicted in Table SPIRE Power connect cross strap to close the lines (+) and (-) in order to connect the harness to the relevant units.	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
300	Connect current probe on positive line on pin reported in Table SPIRE Power in order to perform the In-Rush current verification	OK				
310	For each unit send the command of "Switch On" using the cmd reported in Table SPIRE Power	OK				
320	Switch On HSDPU nom	OK				
330	Verify/record the HSDPU nom inrush current (no LCL intervention has to be verified) I overshoot = 2.1 A max T overshoot $\leq 50 \mu\text{Sec}$ I nominal after 5 mS 556 mA $\pm 100 \text{ mA}$	OK				
340	Using table reported in Table SPIRE Power check by Power synoptic "LCL_Herschel" the tlm power status of the relevant LCL	OK				
350	Using table reported in Table SPIRE Power check by Power synoptic "LCL_Herschel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded is step 330 ($\pm 0.05 \text{ Amp}$)	OK				
360	By keyboard command Switch OFF the power line dedicate to HSDPU nom	OK				
370	Switch On HSDPU red	OK				

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Test Conductor

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
380	Verify/record the HSDPU red inrush current (no LCL intervention has to be verified) I overshoot = 2.1 A max T overshoot $\leq 50 \mu\text{Sec}$ I nominal after 5 mS 556 mA ± 100 mA	OK				
390	Using table reported in Table SPIRE Power check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	OK				
400	Using table reported in Table SPIRE Power check by Power synoptic "LCL_Hershel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded in step 380 (± 0.05 Amp)	OK				
410	By keyboard command Switch OFF the power line dedicate to HSDPU red	OK				
420	Switch On HSFCU nom	OK				
430	Verify/record the HSFCU nom inrush current (no LCL intervention has to be verified) I overshoot = 11 A max T overshoot $\leq 50 \mu\text{Sec}$ I nominal after 5 mS 2,9 A ± 100 mA	OK				
440	Using table reported in Table SPIRE Power check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	OK				

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HERSCHEL PLANCK

STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
450	Using table reported in Table SPIRE Power check by Power synoptic "LCL_Hershel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded is step 430 (± 0.05 Amp)	OK				
460	By keyboard command Switch OFF the power line dedicate to HSFCU nom	OK				
470	Switch On HSFCU red	OK				
480	Verify/record the HSFCU red inrush current (no LCL intervention has to be verified) I overshoot = 11 A max T overshoot ≤ 50 μ Sec I nominal after 5 mS 2,9 A ± 100 mA	OK				
490	Using table reported in Table SPIRE Power check by Power synoptic "LCL_Hershel" the tlm power status of the relevant LCL	OK				
500	Using table reported in Table SPIRE Power check by Power synoptic "LCL_Hershel" the tlm current monitor of the relevant LCL Verify that the nominal current recorded with the oscilloscope is compliant with the nominal one recorded is step 480 (± 0.05 Amp)	OK				
510	By keyboard command Switch OFF the power line dedicate to HSFCU red	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks																					
520	<table><tr><th>Herschel HIFI</th><th>CDMU I/F 1553 Bus</th><th>Conn</th><th>Pin(true)</th><th>Pin(comp)</th></tr><tr><td rowspan="2">FPDPU nom.</td><td rowspan="2">1</td><td>J03(Bus A)</td><td>2</td><td>6</td></tr><tr><td>J04(Bus B)</td><td>2</td><td>6</td></tr><tr><td rowspan="2">FPDPU red.</td><td rowspan="2">1</td><td>J05(Bus A)</td><td>2</td><td>6</td></tr><tr><td>J06(Bus B)</td><td>2</td><td>6</td></tr></table> <p><u>Table SPIRE Mil Bus I/F</u></p>						Herschel HIFI	CDMU I/F 1553 Bus	Conn	Pin(true)	Pin(comp)	FPDPU nom.	1	J03(Bus A)	2	6	J04(Bus B)	2	6	FPDPU red.	1	J05(Bus A)	2	6	J06(Bus B)	2	6
							Herschel HIFI	CDMU I/F 1553 Bus	Conn	Pin(true)	Pin(comp)																
							FPDPU nom.	1	J03(Bus A)	2	6																
									J04(Bus B)	2	6																
							FPDPU red.	1	J05(Bus A)	2	6																
									J06(Bus B)	2	6																

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HERSCHEL PLANCK

STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
530	Bus A: Set on interrogation protocol Bus A tcsend DC005160 (DPU nom= valid) RTA = 21 F0 = 1 F1 = 1 F2 = 1 F3 = 1 F4 = 1 F5 = Do not Care F6 = 0 F7 = Do not Care F8 = 0 (Bus A = 0 and Bus B =1) F9 = Do not Care F10 = Do not Care F11 = Do not Care M0 = 1 (1 = care or 0 = not care) M1 = 1 (1 = care or 0 = not care) M2 = 1 (1 = care or 0 = not care) M3 = 1 (1 = care or 0 = not care) M4 = 1 (1 = care or 0 = not care) M6 = 1 (1 = care or 0 = not care) M8 = 1 (1 = care or 0 = not care) Set all other parameter "M" = 0 and the parameter "CNT"=1	OK				
540	Configure/set the bus profile (SCPb for SPIRE = 3). Use for configuration command DC819160	OK				

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Test Conductor

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
550	Switch On the HSDPU nom (see table in Table SPIRE Power)	OK				
560	Check by synoptic LCL_Herschel the correct LCL status. (see table in Table SPIRE Power)	OK				
570	Install the Oscilloscope with differential probe to the "T" adapter (connector reported in Table SPIRE Mil Bus I/F) in order to verify the correct 1553B signal amplitude pin: 2(True) and 6(comp)	OK				
580	To start the ASW send the following command: SCD09505 DPULLSW_force_boot	OK				
590	With differential probe, verify the peak to peak voltage levels: Between 1V ÷ 14 V BC in Transmission Between 18V ÷ 27V RT in Transmission Trise and Tfall = 100 nsec ÷ 300 nsec	OK				
600	Switch Off the HSDPU nom (see table in Table SPIRE Power)	OK				

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Test Conductor

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
610	Bus A Set on interrogation protocol Bus A tcsend DC005160 (DPU red = valid) RTA = 22 F0 = 1 F1 = 1 F2 = 1 F3 = 1 F4 = 1 F5 = Do not Care F6 = 0 F7 = Do not Care F8 = 0 (Bus A = 0 and Bus B =1) F9 = Do not Care F10 = Do not Care F11 = Do not Care M0 = 1 (1 = care or 0 = not care) M1 = 1 (1 = care or 0 = not care) M2 = 1 (1 = care or 0 = not care) M3 = 1 (1 = care or 0 = not care) M4 = 1 (1 = care or 0 = not care) M6 = 1 (1 = care or 0 = not care) M8 = 1 (1 = care or 0 = not care) Set all other parameter "M" = 0 and the parameter "CNT"=1	OK				
620	Switch On the HSDPU red (see table in Table SPIRE Power)	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
630	Check by synoptic LCL_Herschel the correct LCL status. (see table in Table SPIRE Power)	OK				
640	Install the Oscilloscope with differential probe to the "T" adapter (connector reported in table Table SPIRE Mil Bus I/F) in order to verify the correct 1553B signal amplitude pin: 2(True) and 6(comp)	OK				
650	With differential probe, verify the peak to peak voltage levels: Between 1V ÷ 14 V BC in Transmission Between 18V ÷ 27V RT in Transmission Trise and Tfall = 100 nsec ÷ 300 nsec	OK				
660	Switch Off the HSDPU red (see table in Table SPIRE Power)	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
670	Bus B Set on interrogation protocol Bus B tcsend DC005160 (DPU nom = valid) RTA = 21 F0 = 1 F1 = 1 F2 = 1 F3 = 1 F4 = 1 F5 = Do not Care F6 = 0 F7 = Do not Care F8 = 1 (Bus A = 0 and Bus B =1) F9 = Do not Care F10 = Do not Care F11 = Do not Care M0 = 1 (1 = care or 0 = not care) M1 = 1 (1 = care or 0 = not care) M2 = 1 (1 = care or 0 = not care) M3 = 1 (1 = care or 0 = not care) M4 = 1 (1 = care or 0 = not care) M6 = 1 (1 = care or 0 = not care) M8 = 1 (1 = care or 0 = not care) Set all other parameter "M" = 0 and the parameter "CNT"=1	OK				
680	Switch On the HSDPU nom (see table in Table SPIRE Power)	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
690	Check by synoptic LCL_Herschel the correct LCL status. (see table in Table SPIRE Power)	OK				
700	Install the Oscilloscope with differential probe to the "T" adapter (connector reported in table Table SPIRE Mil Bus I/F) in order to verify the correct 1553B signal amplitude pin: 2(True) and 6(comp)	OK				
710	With differential probe, verify the peak to peak voltage levels: Between 1V ÷ 14 V BC in Transmission Between 18V ÷ 27V RT in Transmission Trise and Tfall = 100 nsec ÷ 300 nsec	OK				
720	Switch Off the HSDPU nom (see table in Table SPIRE Power)	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
730	Bus B Set on interrogation protocol Bus B tcsend DC005160 (DPU red = valid) RTA = 22 F0 = 1 F1 = 1 F2 = 1 F3 = 1 F4 = 1 F5 = Do not Care F6 = 0 F7 = Do not Care F8 = 1 (Bus A = 0 and Bus B =1) F9 = Do not Care F10 = Do not Care F11 = Do not Care M0 = 1 (1 = care or 0 = not care) M1 = 1 (1 = care or 0 = not care) M2 = 1 (1 = care or 0 = not care) M3 = 1 (1 = care or 0 = not care) M4 = 1 (1 = care or 0 = not care) M6 = 1 (1 = care or 0 = not care) M8 = 1 (1 = care or 0 = not care) Set all other parameter "M" = 0 and the parameter "CNT"=1	OK				
740	Switch On the HSDPU red (see table in Table SPIRE Power)	OK				

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STEP No.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
750	Check by synoptic LCL_Hershel the correct LCL status. (see table in Table SPIRE Power)	OK				
760	Install the Oscilloscope with differential probe to the "T" adapter (connector reported in table Table SPIRE Mil Bus I/F) in order to verify the correct 1553B signal amplitude pin: 2(True) and 6(comp)	OK				
770	With differential probe, verify the peak to peak voltage levels: Between 1V ÷ 14 V BC in Transmission Between 18V ÷ 27V RT in Transmission Trise and Tfall = 100 nsec ÷ 300 nsec	OK				
780	Switch Off the HSDPU red (see table in Table SPIRE Power)	OK				
790	Stop the interrogation for RT 22: tcsend DC005160 with following TC parameters F4 = 0 M4 = 1	OK				
800	Remove all the T adapter dedicate to the Mil Bus and connect the harness directly to the unit	OK				

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1.3.2 SPIRE DPU On and Boot Verification (UFT)

STEP N.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
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STEP N.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
10	Configure the Bus A: Set on interrogation protocol Bus A tcsend DC005160 (DPU nom = valid) RTA = 21 F0 = 1 F1 = 1 F2 = 1 F3 = 1 F4 = 1 F5 = Do not Care F6 = 0 F7 = Do not Care F8 = 0 (Bus A = 0 and Bus B =1) F9 = Do not Care F10 = Do not Care F11 = Do not Care M0 = 1 (1 = care or 0 = not care) M1 = 1 (1 = care or 0 = not care) M2 = 1 (1 = care or 0 = not care) M3 = 1 (1 = care or 0 = not care) M4 = 1 (1 = care or 0 = not care) M6 = 1 (1 = care or 0 = not care) M8 = 1 (1 = care or 0 = not care) Set all other parameter "M" = 0 and the parameter "CNT"=1	OK				
20	Configure/set the bus profile (SCPb for SPIRE = 3). Use for configuration command DC819160	OK				

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Test Conductor

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STEP N.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
30	Switch On the SPIRE Unit (see table in Table SPIRE Power)	OK				
40	Check by synoptic LCL_Herschel the correct LCL status. (see table in Table SPIRE Power)	OK				
50	Verify that the "Execution Report" TM (5, 1) has been issued by DPU APID 1280.	OK				
60	To start the ASW send the following command: DPULLSW_Force_Boot TC SCD09505	OK				
70	During the execution of boot, verify on DPU Housekeeping Parameter Report TM (3,25) APID 1280 (#500) contains the following value: > SID = TBD > Length = TBD > OBSID = TBD > BBID = TBD > Software Version = TBD	OK				
80	Verify that the TM(3,25) APID 1280 (#500) is generated at rate of 0,5Hz (one Pkt/2sec)	OK				

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Test Conductor

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STEP N.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
90	During the execution of boot, verify on DPU Housekeeping Parameter Report TM (3,25) APID 1282 (#502) contains the following value: <ul style="list-style-type: none"> ➤ SID = TBD ➤ Length = TBD ➤ OBSID = TBD ➤ BBID = TBD ➤ Software Version = TBD 	OK				
100	Verify that the TM(3,25) APID 1282 (#502) is generated at rate of 1Hz (one Pkt/sec)	OK				
110	Verify on TM packets header that corresponds Time field (0xTBD) correspond with time reported in packets with APID 16 coming from the CDMU.	OK				

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1.3.3 SPIRE Check Time Synchronisation mechanism (UFT)

STEP N.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
10	By CCS verify that on TM packets header the correspond Time field APID 1280 TM(3,25)	OK				
20	Send TC(9,6) "Enable time verification"	OK				
30	Verify that a TM (1,1) APID 1280(0x500) packet service "TC Acceptance Report" = Success is received in CCS	OK				
40	Verify that a TM (1,3) APID 1280(0x500) packet service "TC Execution Start Report" = Success is received in CCS	OK				
50	Verify that a TM (1,7) APID 1280(0x500) packet service "TC Execution Completion Report" = Success is received in CCS	OK				
60	Verify the correspondent [APID 1280(0x500)] TM(9,8) - Time Verification Report (CDMU) TM(9,9) - Time Verification Report (DPU)	OK				
70	Check the contents of TM(9,9): Words 5,6,7 and 8,9,10 (counting from 0) should be identical within 2 units.	OK				
80	Switch Off the SPIRE Unit (see table in Table SPIRE Power)	OK				

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STEP N.	Step Description	Required Value	Actual Value	Conductor Sign	Date	Remarks
90	Stop the interrogation for RT 21 tcsend DC005160 with following TC parameters F4 = 0 M4 = 1	OK				

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