


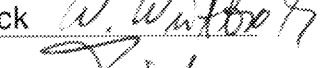
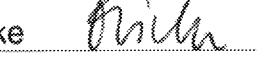


Title: **FM SPIRE Warm Units Electrical Integration Report**

CI-No: 125 200

Prepared by:	A. Koppe 	Date:	04.05.2007
Checked by:	N. Sonn 		07.05.07
Product Assurance:	R. Stritter 		08.05.07
Configuration Control:	W. Wietbrock 		15.05.07
Project Management:	Dr. W. Fricke 		15/05/07

Distribution: See Distribution List (last page)

Copying of this document, and giving it to others and the use or communication of the contents thereof, are forbidden without express authority. Offenders are liable to the payment of damages. All rights are reserved in the event of the grant of a patent or the registration of a utility model or design.

Issue	Date	Sheet	Description of Change	Release
1	04.05.07		Initial issue	

Table of Content

1. SCOPE
2. Test Report Summary
3. Filled-In Procedure

1. Scope

This report describes the as-run integration steps of the SPIRE Warm Units. The incoming inspection and quality verification of the delivered H/W components was performed according to separate procedures and are not part of this document.

All described activities were performed in a clean class 100 000 environment.

The applicable integration procedure is HP-2-ASED-TP-0125, iss. 1.

2. Test Report Summary

Applicable documents (AD) are defined as being documents which are needed to complete the work, they are considered as being integral part of the procedure (see page 15).

Operations

The electrical integration of the SPIRE FM Warm Units (HSDPU, HSDCU, HSFCU) on to the FM H-SVM –Z Lateral Panel, was performed according to the procedure as given below.

Integration Procedure

HP-2-ASED-PR-0125 Issue 1

Integration Readiness Review

HP-ASP-MN-8945

Procedure Variations

Refer to chapter 7.1 of the test procedure (see page 33). All variations were required for proper instrument operation and have no impact on instrument electrical interfaces.

Non Conformances

Refer to chapter 7.2 of the test procedure (see page 34). All NCR's which have been raised during the integration are related to the operation via the CCB and have no impact on the signal quality of the Warm Units electrical interfaces. Hence, the electrical integration of the SPIRE Warm Units is considered successfully completed.

Conclusion

The SPIRE FM warm Units (HSDPU, HSFCU and HSDCU) have been successfully integrated. The following results have been achieved:

	Requirement	Test Result
Bonding Resistance	< 5 mOhm	DPU: 4,3 mOhm FCU: 3,25 mOhm DCU: 1,96 mOhm
FCU Inrush Current	I_{limit} : 5 A $I_{overshoot}$: 11,25 A	I_{limit} : 0,3 A $I_{overshoot}$: 8,8 A
DPU Inrush Current	I_{limit} : 1,2 A $I_{overshoot}$: 2,25 A	I_{limit} : 0,4 A $I_{overshoot}$: 0,5 A
MIL Bus Verification	Rise/Fall Time 100 – 300 nsec	Rise Time: ~ 180 nsec Fall Time: ~ 230 nsec

3. Filled-In Procedure

Title: **FM SPIRE Warm Units Electrical Integration**

CI-No: 125 200

Prepared by:	A. Koppe <i>A. Koppe</i>	Date:	01.03.2007
Checked by:	N. Sonn <i>N. Sonn</i>		02.03.2007
Product Assurance:	for R. Stritter <i>R. Stritter</i>		02.03.07
Configuration Control:	W. Wietbrock <i>W. Wietbrock</i>		05.03.07
Project Management:	Dr. W. Fricke <i>W. Fricke</i>		05/03/2007

Distribution: See Distribution List (last page)

Copying of this document, and giving it to others and the use or communication of the contents thereof, are forbidden without express authority. Offenders are liable to the payment of damages. All rights are reserved in the event of the grant of a patent or the registration of a utility model or design.

Issue	Date	Sheet	Description of Change	Release
1	01.03.07		Initial issue	

Table of Content

1.	Scope	5
1.1	General Overview	5
1.2	Test Specimen	7
1.3	Main Test Flow for Electrical Integration and Test of SPIRE Warm Units (Measurements to be performed with IDAS)	8
2.	Documents/Drawings	9
2.1	Applicable Documents	9
2.2	Reference Documents	9
2.3	Other Documents	9
3.	Requirements to be verified	10
3.1	QA Requirements	10
3.2	Documentation Requirements	10
4.	Configuration	12
4.1	SVM Configuration	12
4.2	EGSE Test Setup	12
4.2.1	Block Diagram of the Test Setups	13
4.2.2	Environment of the Test Set-Up	22
4.2.3	ESD constraints	22
5.	Conditions	23
5.1	Personnel	23
5.2	Environmental	23
5.3	GSE Equipment and Tools	24
5.3.1	EGSE	24
5.3.2	Special Equipment for IDAS:	25
5.3.3	Test Software Status	25
6.	Verification Requirements	26
6.1	Verification Requirements/Tolerances	26
6.1.1	Bonding Verification	26
6.1.2	Voltage/Current Verification:	26

6.1.3	MIL-BUS 1553 Verification	26
6.1.4	MIL-BUS 1553	28
7.	Summary Sheets	29
7.1	Procedure Variation Summary	29
7.2	Non Conformance Report (NCR) Summary	30
7.3	Procedure Sign-Off Sheet	31
8.	Step by Step Procedure	32

1. Scope

This procedure details the general rules and necessary steps to be followed during the electrical integration and test of the Herschel SPIRE Warm Units.

An overview of the SPIRE Warm Units on the SVM Panel is given below.

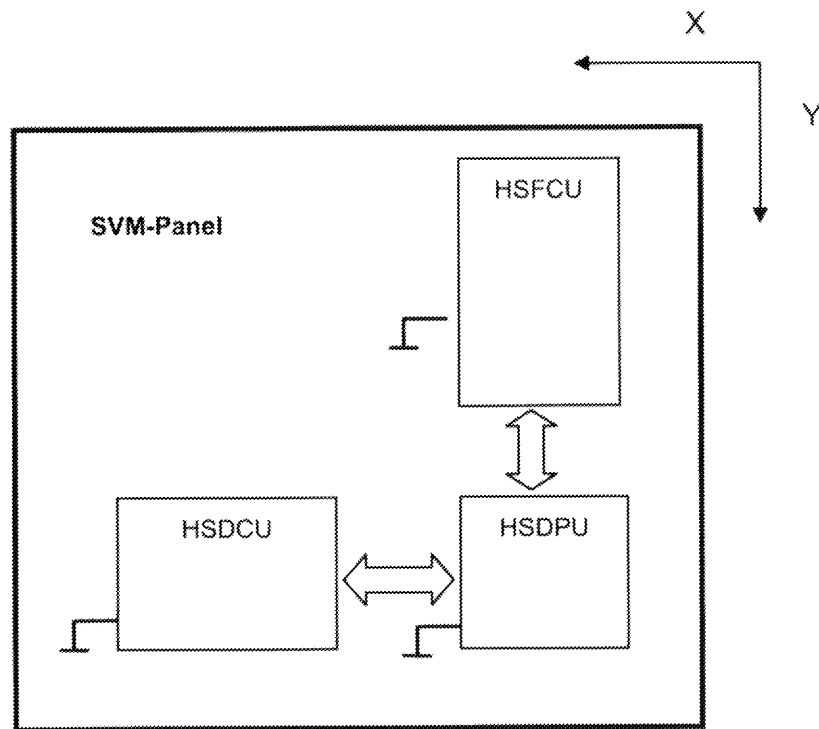


Figure 2-1: SPIRE Warm Units on SVM –Z Panel

1.1 General Overview

The purpose of this integration steps is to install and test the relevant electrical interfaces of the SPIRE Warm Units and to mate the harness connectors to the units. A block diagram of the SPIRE Warm Units is given in Fig. 3-1 below.

The mechanical integration of the SPIRE Warm Units onto the SVM panel is described within the Mechanical and Thermal Integration Procedure of SPIRE WU's (RD1). The WIH integration onto the SVM panel is described within procedure (RD6).

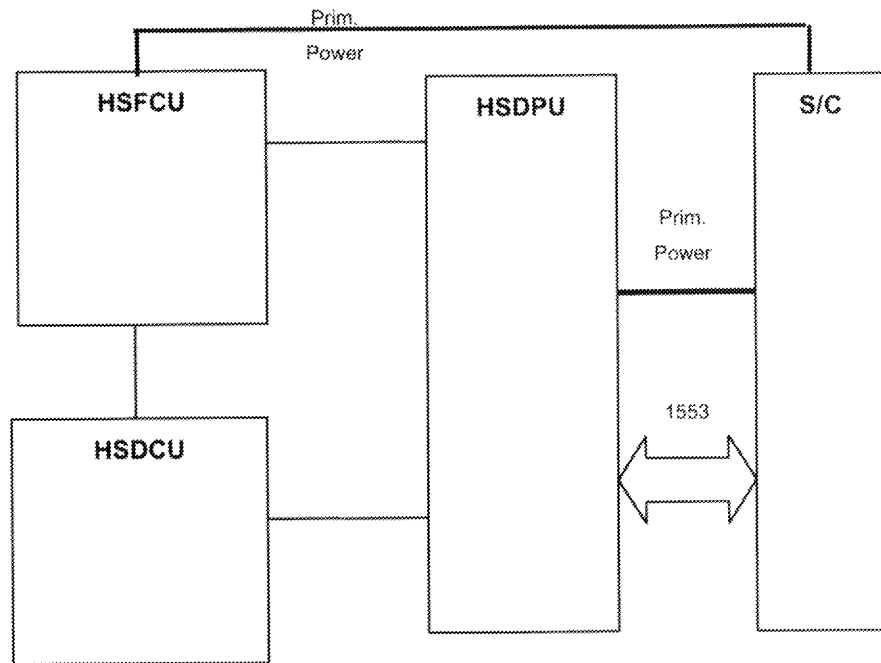


Figure 3-1: Blockdiagram of the Herschel SPIRE Warm Units

1.2 Test Specimen

The test specimen to be integrated by this procedure are the SPIRE Warm Units on the HERSCHEL satellite.

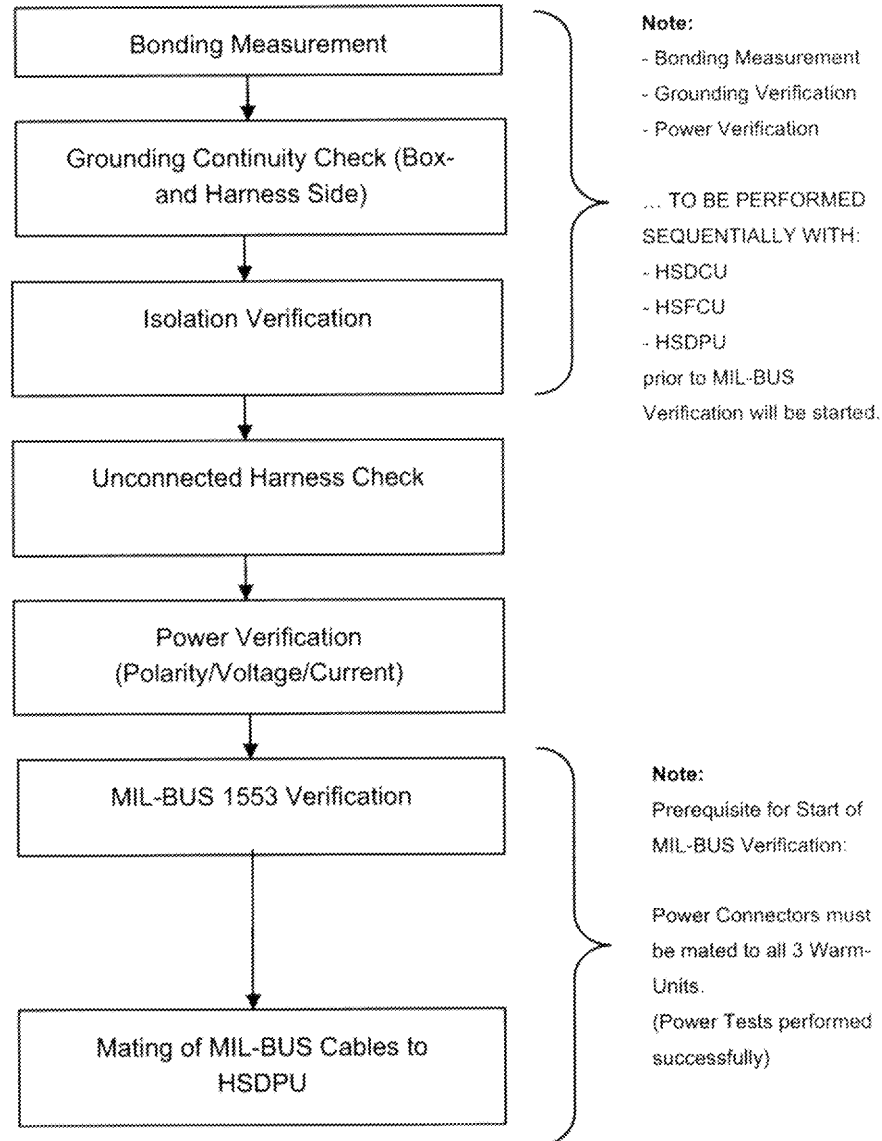
The details are listed in following "Test Article Lists".

Test Article			
Name	HSFCU	CI Number	
Serial No.	01	Model	FM
Drawing No.	SPIR-MX-5200 000	Change. St.	L
Remarks			

Test Article			
Name	HSDCU	CI Number	
Serial No.		Model	TFM
Drawing No.	SPIR-MX-5100 000	Change. St.	I
Remarks			

Test Article			
Name	HSDPU	CI Number	
Serial No.	01	Model	TFM
Drawing No.	20-SPIRE-00.02	Change. St.	
Remarks			

1.3 Main Test Flow for Electrical Integration and Test of SPIRE Warm Units (Measurements to be performed with IDAS)



2. Documents/Drawings

2.1 Applicable Documents

No.	Document Name	Document Number	Issue/Revision
AD1	PA-Plan	HP-2-ASED-PL-0007	2-1
AD2	SPIRE-ICD	SCI-PT-IIDB/SPIRE-02124	4
AD3	SPIRE Warm Units – SVM Electrical Integration Specification	H-P-2-ASP-TS-1160	1
AD4	HERSCHEL PFM WU Mechanical Integration Specification	H-P-2-ASP-SP-1009	2

2.2 Reference Documents

No.	Document Name	Document Number	Issue/Revision
RD1	Mechanical and Thermal Integration Procedure of SPIRE WU's	HP-2-ASED-PR-0076	tbi
RD2	EGSE Configuration Procedure	HP-2-ASED-PR-0035	1
RD3	SPIRE Harness Definition	SPIRE-RAL-PRJ-000608	1.2
RD4	SPIRE ESD Requirements	SPIRE-RAL-NOT-002028	2.0
RD5	SPIRE Warm Electronics Handling and Integration Procedure	SPIRE-RAL-PRC-002181	3
RD6	PFM SVM CCH - SPIRE SIH + WIH Integration and SVM Harness Mating	HP-2-ASED-PR-0073	1
RD7	SPIRE PFM WU Electrical Integration Procedure	SPIRE-RAL-PRC-002807	1.0

2.3 Other Documents

NA

3. Requirements to be verified

3.1 QA Requirements

In general the PA Plan shall be followed (see AD1).

Quality Assurance will be a major part of AIT activities in order to ensure that all activities are performed in a controlled manner and documented in accordance with the corresponding requirements.

The main AIT-QA tasks are as follows:

- assurance that activities are performed in accordance with released procedures
- release of hardware for integration/testing
- witnessing of all AIT activities and environmental conditions
- performance of visual inspections
- application of non-conformance reporting system and relevant logbooks
- preparation and performance of KIP's/MIP's/TRP's and PTR's
- to assure that materials/parts/units etc. are traceable
- hazard identification and tracking.

3.2 Documentation Requirements

All data, results and possible special events received during this test have to be entered into the integration report

- **Sequence Diary**

The obtained records shall be marked with

- date of the test
- title of the procedure
- identification number of procedure
- test article identification number

Each activity and operation has to be entered in the log sheets.

- **Summary of Deviation**

In the event that the specimen exhibits any major failure or deviations from the requirement set forth in this procedure, testing shall be discontinued and a NCR shall be raised. Testing shall be continued only upon authorisation of Product Assurance and Project engineering acc. to the NCR decision.

- **Post Test Documentation**

After performance of the activities the summary sheets must be filled-in.

A copy of the filled-in summary sheets (see para 7.0) has to be incorporated to the summary report for the integration. After end of integration a test report shall be written.

4. Configuration

4.1 SVM Configuration

The Warm -Units are mounted at the SVM Panel acc. to RD1, the S/C Harness is prepared but not connected.

The grounding has to be performed acc. to para. 4.2.1.7.

4.2 EGSE Test Setup

EGSE configuration during tests:

The used EGSE is composed of three main parts:

- TM/TC-DFE (for data handling)
- Power SCOE
- CCS

IDAS-5 Configuration during tests:

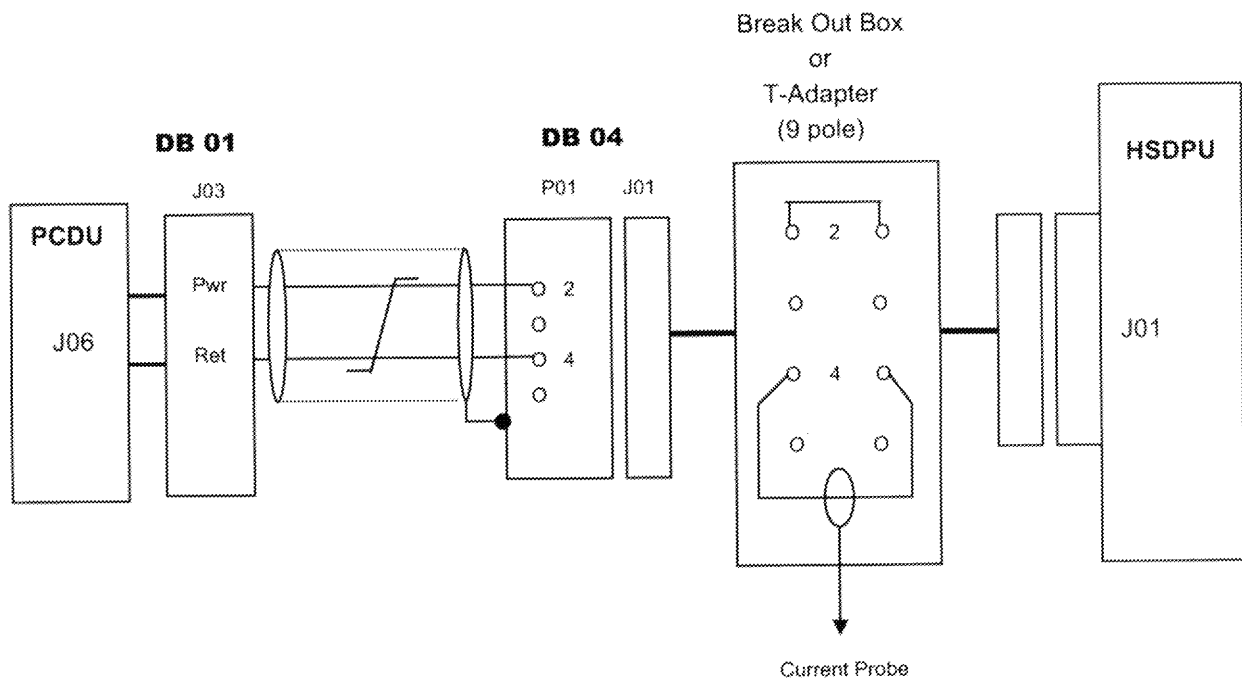
IDAS-5 Test Heads are connected via test adapters to the relevant

"Unit under Test" - Connectors. For current measurements (Inrush and Steady-State) a current probe will be used.

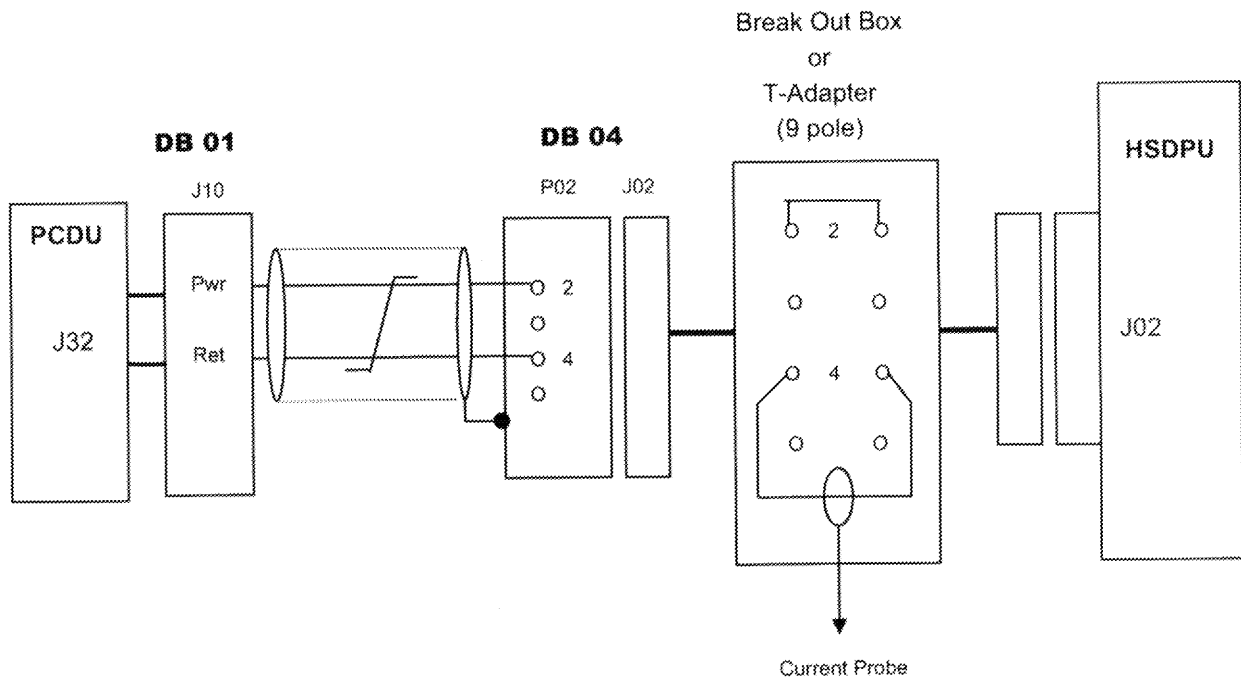
The IDAS-Rack must be grounded acc. to para. 4.2.1.7.

4.2.1 Block Diagram of the Test Setups

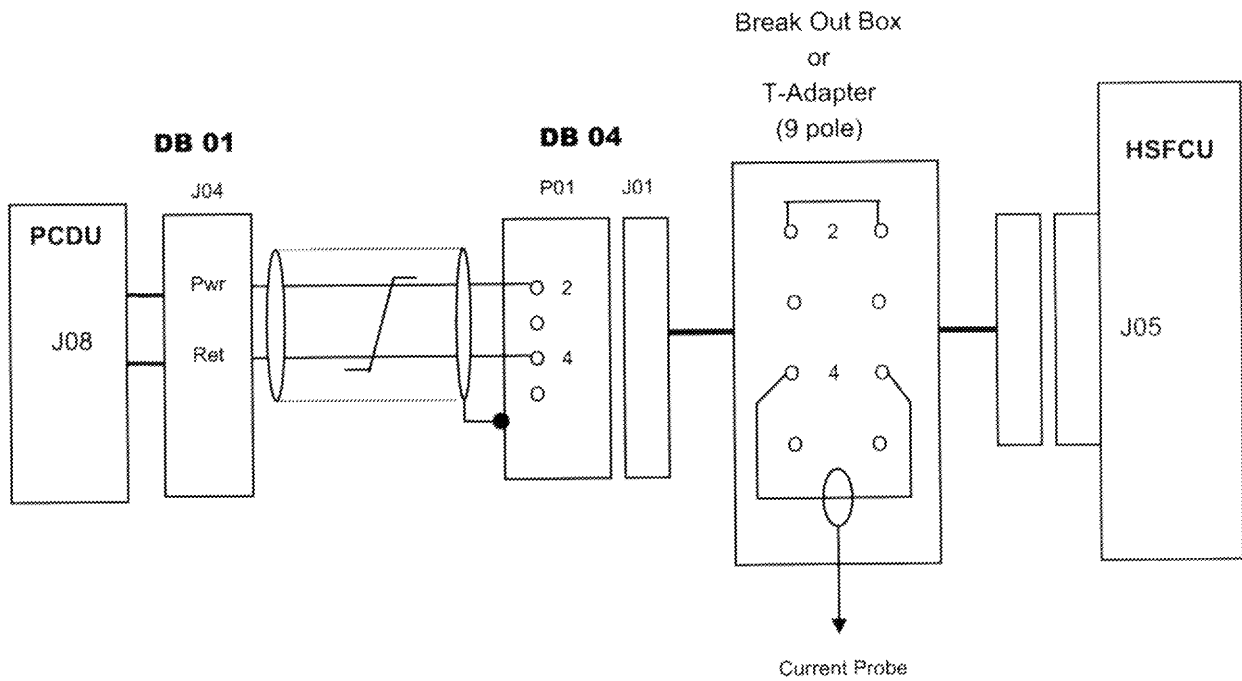
4.2.1.1 Electrical Test Setup for Power Verification of nominal DPU



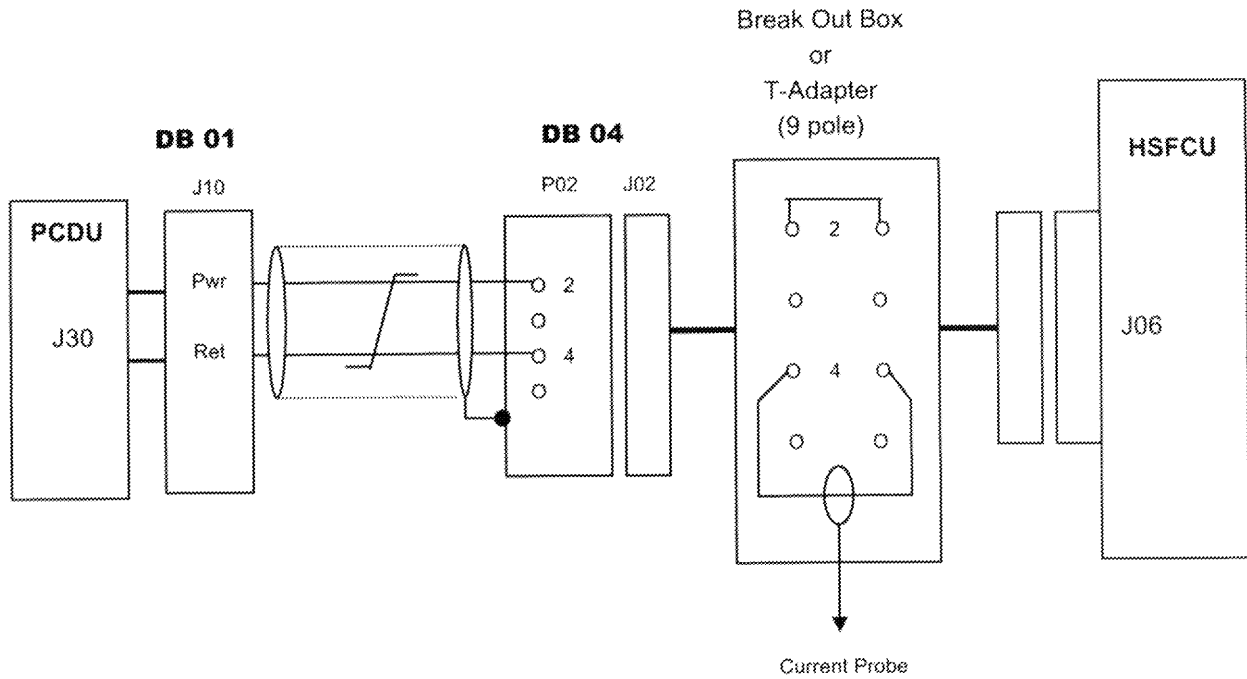
4.2.1.2 Electrical Test Setup for Power Verification of redundant DPU



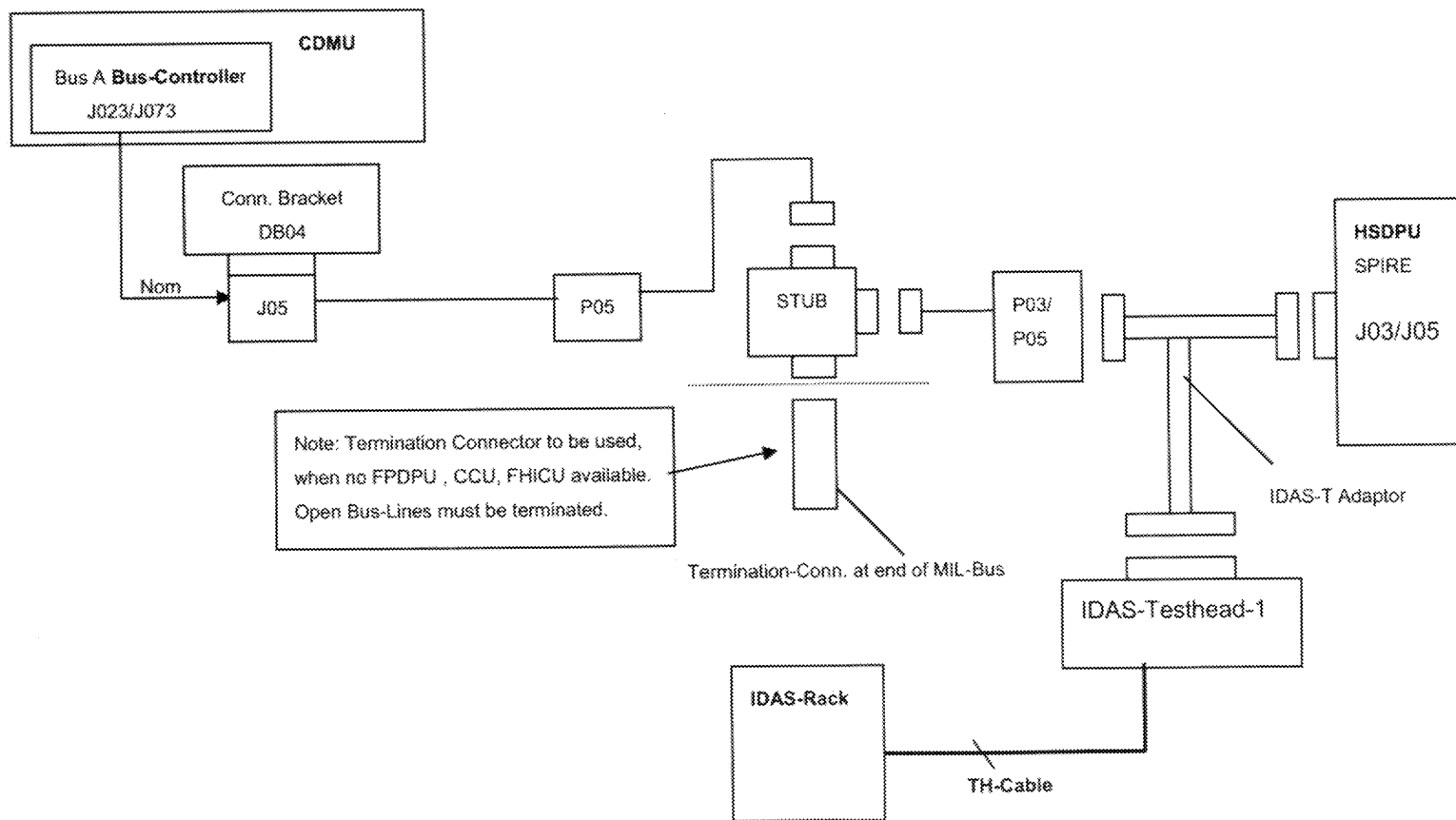
4.2.1.3 Electrical Test Setup for Power Verification of nominal FCU



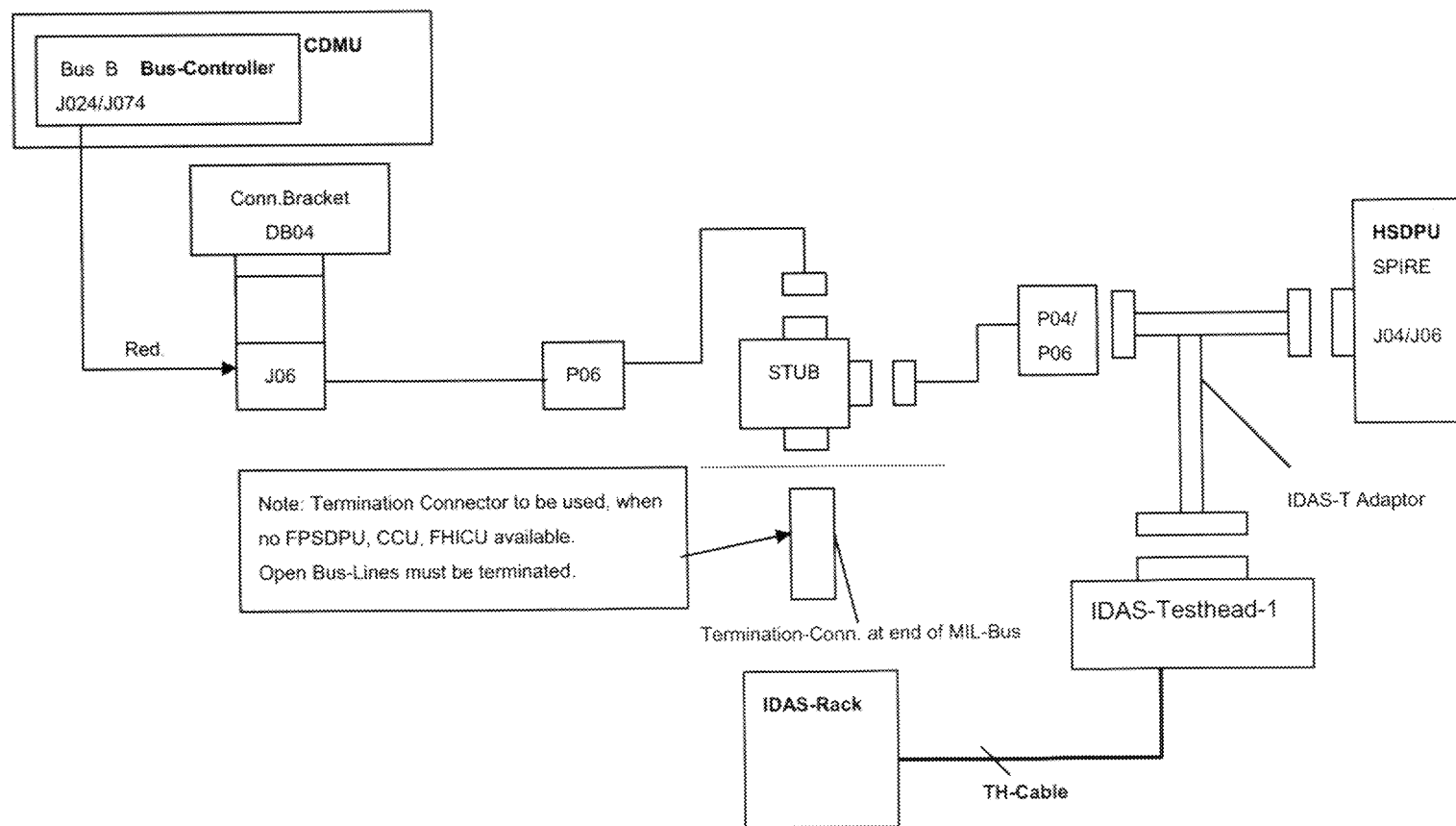
4.2.1.4 Electrical Test Setup for Power Verification of redundant FCU



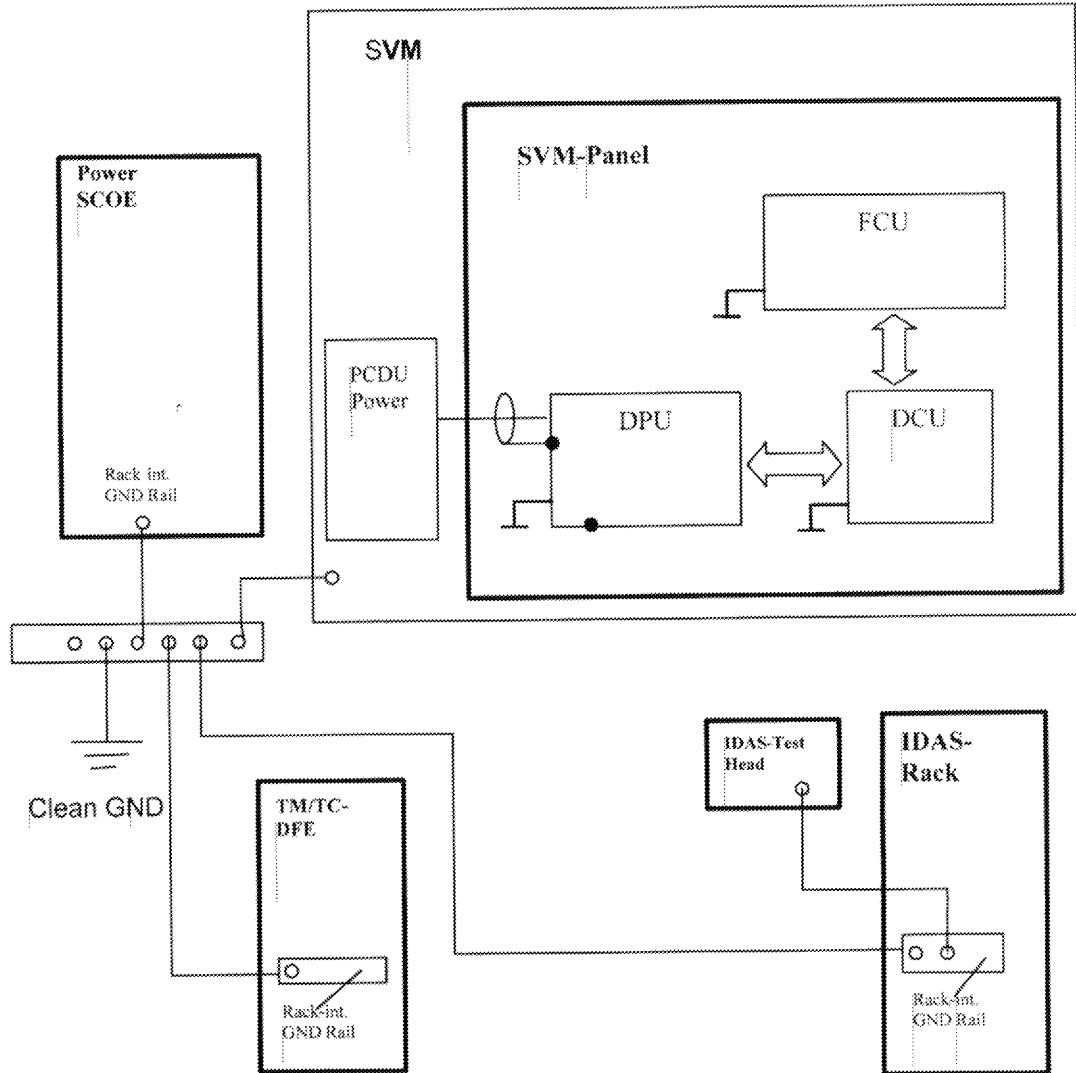
4.2.1.5 Electrical Test-set up for SPIRE MIL-Bus A Verification



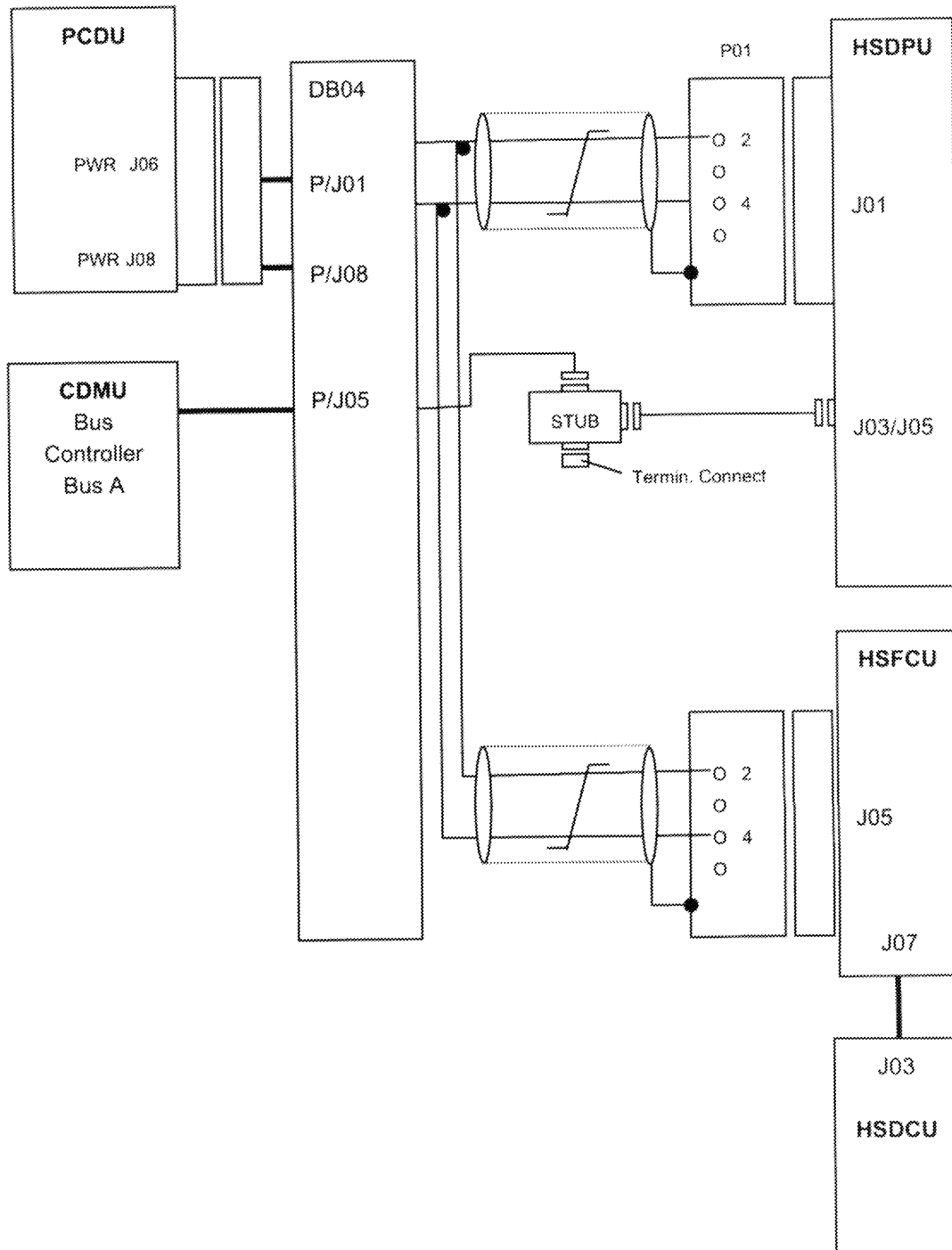
4.2.1.6 Electrical Test-set up for SPIRE MIL-Bus B Verification



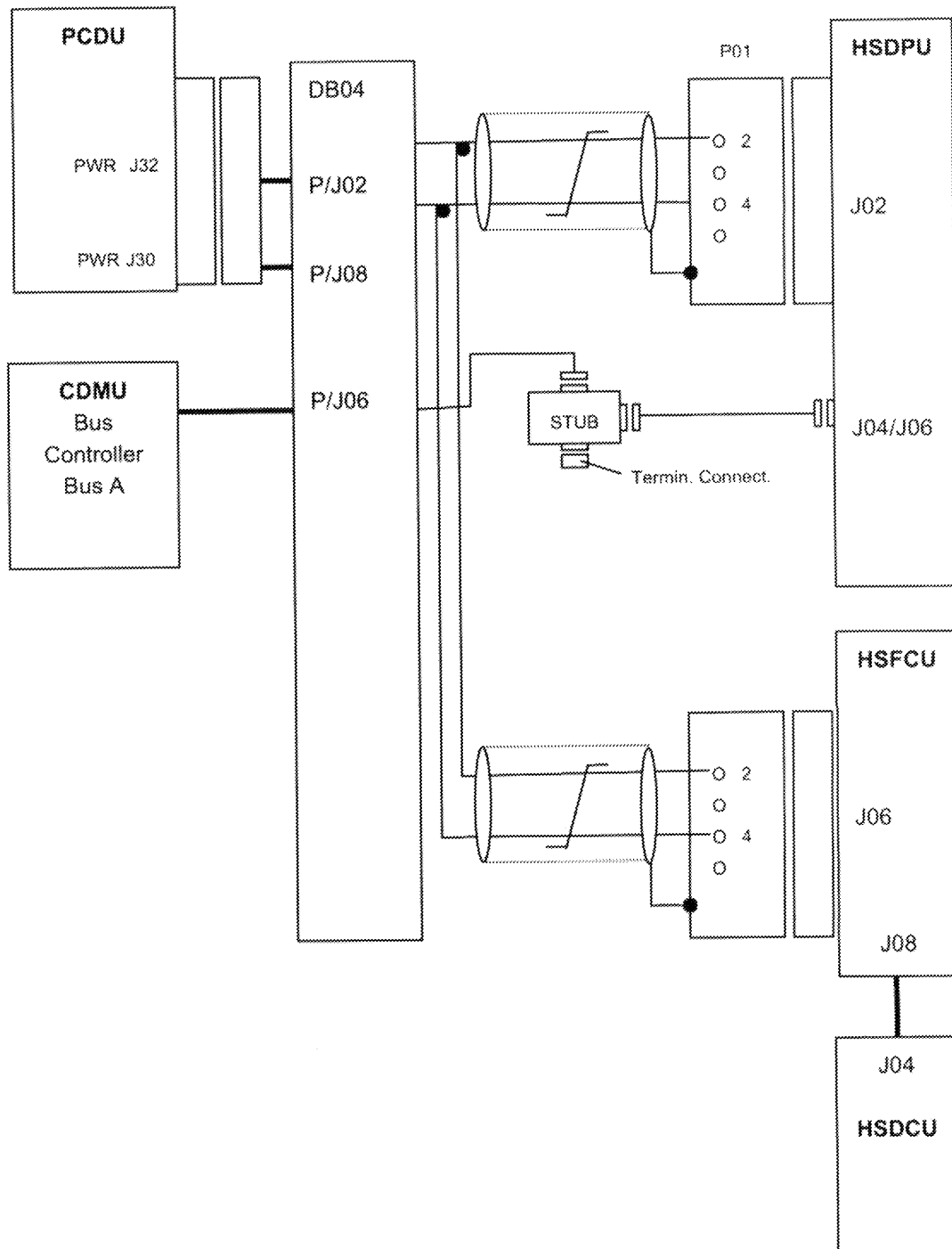
4.2.1.7 Grounding scheme for SPIRE-Warm Units Test-set up



4.2.1.8 Block Diagram of the Electrical Setup after Test Completion (Nominal)



4.2.1.9 Block Diagram of the Electrical Setup after Test Completion (Redundant)



4.2.2 Environment of the Test Set-Up

The tests shall be performed in Cl.100 000 Clean Room.

4.2.3 ESD constraints

During handling and connection at the Warm Units, ESD precautions acc. to RD4 have to be applied, e.g. personnel must be grounded.

ESD caps shall be installed on the SPIRE WU's as required, especially all interfaces to the FPU.

The SVM must be grounded acc. to para 4.2.1.7.

5. Conditions

5.1 Personnel

Responsibility	Name / Organization
Test Manager	A. Koppe / ASED
Test Engineer	A. Koppe / ASED
EGSE Operator	O. Karhin / TERMA
Support Engineer	N. Sonn / ASED
PA Responsible	D. Hendry / TERMA
Customer Representative	A. Galli / ESA

5.2 Environmental

Environmental	Nominal	Actual	P	N
Clean Room Class	100 000	718	✓	
Temperature	(22±3) °C	20.8 °C	✓	
Rel. Humidity	40...60 %	49 %	✓	
Pressure	ambient	965.7 hpa	✓	

5.3 GSE Equipment and Tools

5.3.1 EGSE

EGSE List					
Item	Manuf.	Model No.	SN No.	Invent No.	Next Calib.
Power-SCOE	Sat. Services	-	CI3A 2210-SE840/30	NA	NA
CDMU-SCOE	Sat. Services	-	CI3A 2200-SE841/01	NA	NA
TM/TC DFE					
CCS					

Test Equipment List					
Item	Manuf.	Model No.	SN No.	Invent No.	Next Calib.
IDAS-Rack	ASTRIUM	7			5.10.07
Scope	LeCroy	LC574AM			10.10.07
Current-Probe	Tektronix	AP6302XL			
Probe-Amplifier					
Test-Head 1	ASTRIUM		011		
Test-Head 2	ASTRIUM		013		
Multimeter					

5.3.2 Special Equipment for IDAS:

Test Adaptors for following connector-types shall be available:

- Connector ; DEMA 9s/9p No. 9D

5.3.3 Test Software Status

The actual IDAS Software Status is:

Software Status	Version	Remark
IDAS5.	V.4.6.1.....	(i.e. IDAS5.V4.6.1.exe)
CCS test S/W		
HPSDB		

6. Verification Requirements

6.1 Verification Requirements/Tolerances

6.1.1 Bonding Verification

Each bond strap shall have a resistance of $R \leq 2.5 \text{ mOhm}$.

The bonding requirement to be verified and reported (GDIR-GDEL-045) is:

Bonding Resistance: $R < 5 \text{ mOhm}$ between adjacent box housing and SVM-Panel (AD4).

6.1.2 Voltage/Current Verification:

- DPU: **LCL class I** acc. to SCI-PT-IIDA-04624, issue 4, Tables 5.9.5-3/5

Bus-Voltage: 27.5.....28.14 V

Inrush Current I_{class} : 1 A

$I_{\text{limit, min}}$: 1.2 A

$I_{\text{overshoot}}$: 2.25 A

- FCU: **LCL class III** acc. to SCI-PT-IIDA-04624, issue 4, Tables 5.9.5-3/5

Bus-Voltage: 27.5.....28.14 V

Inrush Current I_{class} : 5 A

$I_{\text{limit, min}}$: 6 A

$I_{\text{overshoot}}$: 11.25 A

6.1.3 MIL-BUS 1553 Verification

- A- Voltage P-P: 1-14V

- B-Voltage P-P: 18-27V

- MIL BUS Verification with:

...Rise-Time: 100-300 nsec

...Fall-Time: 100-300 nsec

- Pin Allocation: HSDPU - J03: BUS A (+): Pin 2 ; BUS A (-): Pin 6

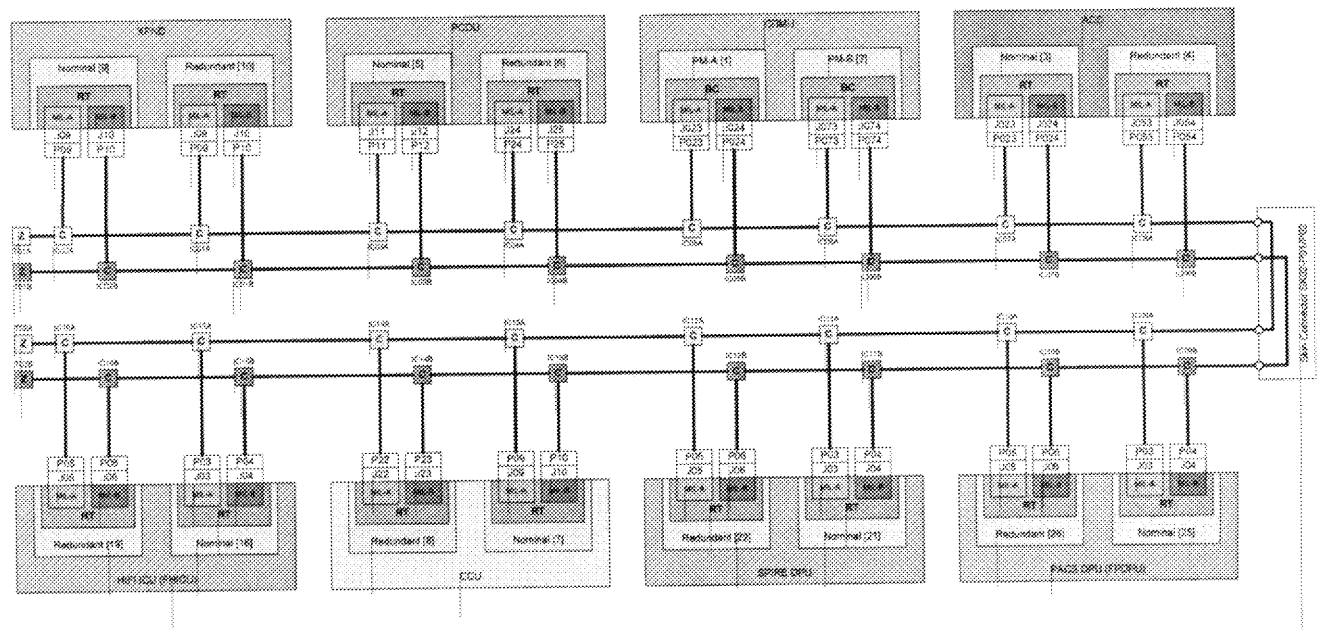
HSDPU - J04: BUS B (+): Pin 2 ; BUS B (-): Pin 6

Note: The Herschel SVM system configuration of the MIL-Bus 1553 is given in chapter 6.1.4

If the MIL-Bus system set-up is not completely available according to 6.1.4, the correct termination of the MIL-Bus with termination connectors must be provided acc. to para. 4.2.1.5 and 4.2.1.6.

6.1.4 MIL-BUS 1553

HERSCHEL CDMS MIL-BUS



7. Summary Sheets

7.1. Procedure Variation Summary

Herein are all changes of the procedure are shown

No.	Para.	Variation Description	Action req.
1	8.3.2.2	Connect IDAS-5 Testhead-1 via 9-pole adapter No. 9D to the interface connector HSDPU P01	none
2	8.4.2.5	Measurement type trigger level changed to 0.2 A	none
3	8.4.2.14	Typo: Record steady state current	none
4	8.5.1.32	Step to be shifted after step 8.5.1.34	none
5	8.5.1.31	The following cmd shall be "Disable FDIR"	none
6	8.5.1.31	Param. F6 changed from 0 to 1	none
7	8.5.1.35	Following step 8.5.1.35 cmd "Enable FDIR" must be included	none
8	8.5.1.40	Param. F6 changed from 0 to 1	none
9	8.5.1.43	Typo: LCL#12 and not #11	none

Table 7.1-1: Procedure Variation Sheet

7.2. Non Conformance Report (NCR) Summary


NCR - No.	NCR - Title	Date	Open Closed	PA sig.
HP-100000-ASED-NC-3204	SPIRE FM DPU could not be started as required during electrical integration	05.04.07	open	
HP-100000-ASED-NC-3205	Redundant side of SPIRE DPU could not be started during electrical integration	05.04.07	open	
HP-100000-ASED-NC-3209	SPIRE DPU_R communication failed	10.04.07	open	

Table 7.2-1: Non-Conformance Record Sheet

7.3 Procedure Sign-Off Sheet

This test has been successfully performed and all open issues are covered by NCR's or Procedure Variations.

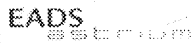
	Date	Signature
Test Manager	12.04.07	<i>[Signature]</i>
Operator	12.04.07	<i>[Signature]</i>
PA Responsible	12.04.07	<i>[Signature]</i>
ESA Representative		

8. Step by Step Procedure

Step by Step Procedure created with IDAS.

The following abbreviations in the column for the Control Statement (C-St) are used:

- MA = Manual measurement
- CM = Continuous measurement
- PM = Measurement with Plot



EADS
Astrium GmbH
Herschel

Test Procedure

Doc. No.: HP-2-ASED-TP-0125

Unit: SPIRE Warm Units

Filename: HP-2-ASED-TP-0125-1.doc

Issuer: 1

Date: 01.03.2007

Model: FM Par: 8.1 Bonding Measurement

Sheet: 33

St-No	Sub-St	Test – Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.1		Preconditions:							
1.2		Ensure that the SPIRE WIH is connected to all units							
1.3		Ensure that the SPIRE SIH is not connected							
1.4		Control that all ESD caps are installed on the unit interfaces to the FPU							
1.5		Measure according to a four-point measurement the resistance between: - HSDPU and SVM panel GND							
	1	RESISTANCE	000.007	0,00	5,00	mOhm	4,30	MA	P
1.6		Measure according to a four-point measurement the resistance between: - HSFCU and SVM panel GND							
	1	RESISTANCE	000.007	0,00	5,00	mOhm	3,25	MA	P
1.7		Measure according to a four-point measurement the resistance between: - HSDCU and SVM panel GND							
	1	RESISTANCE	000.007	0,00	5,00	mOhm	1,96	MA	P

Test-Location:
Astrium FN

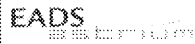
PA_Resp.: D. Hendry

Test-Eng.: A. Koppe
 OCOE-Operator: O. Martin

Test_Manager:
A. Koppe

Date:
04.04.2007

St-No	Sub-St	Test – Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.1		Connect IDAS-5 Testhead-1 via 9-pole adapter No. 9D to the interface connector HSDPU J01							
1.2	1	Measure Gnd-resistance between the listed pin and the starpoint. aConnector: HSDPU J01 04 GND RESISTANCE	010.002	1,00	101,00	MOhm	100,10	CM	P
1.3		Disconnect IDAS-5 Testead-1 from HSDPU J01 and connect it via 9-pole adapter No. 9D to the interface connector HSDPU J02							
1.4	1	Measure Gnd-resistance between the listed pin and the starpoint. aConnector: HSDPU J02 04 GND RESISTANCE	010.002	1,00	101,00	MOhm	100,10	CM	P
1.5		Disconnect IDAS-5 Testead-1 from HSDPU J02 and connect it via 9-pole adapter No. 9D to the interface connector HSFCU J05							
1.6	1	Measure Gnd-resistance between the listed pin and the starpoint. aConnector: HSFCU J05 04 GND RESISTANCE	010.002	1,00	101,00	MOhm	100,10	CM	P
1.7		Disconnect IDAS-5 Testead-1 from HSFCU J05 and connect it via 9-pole adapter No. 9D to the interface connector HSFCU J06							
1.8	1	Measure Gnd-resistance between the listed pin and the starpoint. aConnector: HSFCU J06 04 GND RESISTANCE	010.002	1,00	101,00	MOhm	100,10	CM	P



EADS
Astrium GmbH
Herschel

Test Procedure

Doc. No.: HP-2-ASED-TP-0125

Unit: SPIRE Warm Units

Filename: HP-2-ASED-TP-0125-1.doc

Issue: 1

Date: 01.03.2007

Model: FM Par: 8.2 Isolation Resistance Check

Sheet: 35

St-No	Sub-St	Test – Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
2.1		Before start of unloaded power measurements all 4 MIL-Bus adapters shall be mated to avoid an additional power down/up of the SVM in advance to the MIL-Bus measurements (loss of about 1 hour).							
2.2		Mate a 9-pole adapter No. 9D to the HS DPU interface between connectors P/J03.							
2.3		Mate a 9-pole adapter No. 9D to the HS DPU interface between connectors P/J04.							
2.4		Mate a 9-pole adapter No. 9D to the HS DPU interface between connectors P/J05.							
2.5		Mate a 9-pole adapter No. 9D to the HS DPU interface between connectors P/J06.							

Test-Location:
Astrium FN

PA_Resp.: D. Hendry

Test-Eng.: A. Koppe
 OCOE-Operator: O. Martin

Test_Manager:
A. Koppe

Date:
04.04.2007

St-No	Sub-St	Test – Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.1		Verification of unloaded Power input to the SPIRE FCU (HSFCU)							
1.2		Switch ON SVM							
1.3		Measurements on connector interface HSFCU P05 and P06							
1.4		Connect IDAS-5 Testhead-1 via 9-pole adapter No. 9D to the interface connector HSFCU P05							
1.5		Connect IDAS-5 Testhead -2 via 9-pole adapter No. 9D to the interface connector HSFCU P06							
1.6		Check that the SPIRE FCU (J05, J06) is not connected							
1.7		Switch ON LCL #51 for the Nominal FCU Power issue TC: DC51D170							
1.8		Switch ON LCL #52 for the Redundant FCU Power issue TC: DC52D170							
1.9		Measure the voltage between the following pins aConnector: HSFCU P05 02 04 VOLTAGE-DC	020.018	27,50	28,14	_Volt	28,06	SM	P
1.10		Measure the voltage between the following pins bConnector: HSFCU P06 02 04 VOLTAGE-DC	020.018	27,50	28,14	_Volt	28,06	SM	P
1.11		Switch OFF LCL #51 for the Nominal FCU Power issue TC: DC51B170							
1.12		Switch OFF LCL #52 for the Redundant FCU Power issue TC: DC52B170							

St-No	Sub-St	Test – Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.13	1	Measure the voltage between the following pins aConnector: HSFCU P05 02 04 VOLTAGE-DC	020.017	-0,50	0,50	_Volt	0,33	SM	P
1.14	1	Measure the voltage between the following pins bConnector: HSFCU P06 02 04 VOLTAGE-DC	020.017	-0,50	0,50	_Volt	0,32	SM	P
1.15		Remove Testhead-1 and T-Adapter from the interface connector HSFCU P05							
1.16		Remove Testhead-2 and T-Adapter from the interface connector HSFCU P06							
2.1		Measurements on connector interface HSDPU P01 and P02							
2.2		Connect IDAS-5 Testhead-1 via 9-pole adapter No. 9D to the interface connector HSDPU P01							
2.3		Connect IDAS-5 Testhead -2 via 9-pole adapter No. 9D to the interface connector HSDPU P02							
2.4		Mate a 9-pole adapter No. 9D to the HS DPU interface between connectors P/J05.							
2.5		Mate a 9-pole adapter No. 9D to the HS DPU interface between connectors P/J06.							
2.6		Switch ON LCL #12 for the Redundant DPU Power issue TC: DC12D170							
2.7	1	Measure the voltage between the following pins aConnector: HSDPU P01 02 04 VOLTAGE-DC	020.018	27,50	28,14	_Volt	27,99	SM	P



EADS
Astrium GmbH
Herschel

Test Procedure

Doc. No.: HP-2-ASED-TP-0125

Unit: SPIRE Warm Units

Filename: HP-2-ASED-TP-0125-1.doc

Issue: 1

Date: 01.03.2007

Model: FM Par: 8.3 Unloaded Power Input Verification

Sheet: 38

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
2.8	1	Measure the voltage between the following pins bConnector: HSDPU P02 02 04 VOLTAGE-DC	020.018	27,50	28,14	_Volt	27,99	SM	P
2.9		Switch OFF LCL #11 for the Nominal DPU Power issue TC: DC11B170							
2.10		Switch OFF LCL #12 for the Redundant DPU Power issue TC: DC12B170							
2.11	1	Measure the voltage between the following pins aConnector: HSDPU P01 02 04 VOLTAGE-DC	020.017	-0,50	0,50	_Volt	0,00	SM	P
2.12	1	Measure the voltage between the following pins bConnector: HSDPU P02 02 04 VOLTAGE-DC	020.017	-0,50	0,50	_Volt	0,00	SM	P
2.13		Remove Testhead-1and T-Adapter from the interface connector HSDPU P01							
2.14		Remove Testhead-2 and T-Adapter from the interface connector HSDPU P02							
2.15		End of Unloaded Power Verification							

Test-Location:
Astrium FN

PA_Resp.: D. Hendry

Test-Eng.: A. Koppe
 OCOE-Operator: O. Martin

Test_Manager:
A. Koppe

Date:
05.04.2007

St-No	Sub-St	Test – Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.1		Verification of loaded Power input to the SPIRE FCU (HSFCU)							
1.2		Measurements on connector interface HSFCU P/J05 and P/J06							
1.3		Connect IDAS-5 Testhead-1 via 9-pole adapter No. 9D to the interface connector HSFCU P05/J05							
1.4		Clip current probe to pin 02 of the adapter, direction: into box							
1.5		Record inrush and steady state current on TC request							

St-No	Sub-St	Test – Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.1		Verification of loaded Power input to the SPIRE FCU (HSFCU)							
1.2		Measurements on connector interface HSFCU P/J05 and P/J06							
1.3		Connect IDAS-5 Testhead-1 via 9-pole adapter No. 9D to the interface connector HSFCU P05/J05							
1.4		Clip current probe to pin 02 of the adapter, direction: into box							
1.5		Record inrush and steady state current on TC request							

Test Procedure

Unit: SPIRE Warm Units

Filename: HP-2-ASED-TP-0125-1.doc

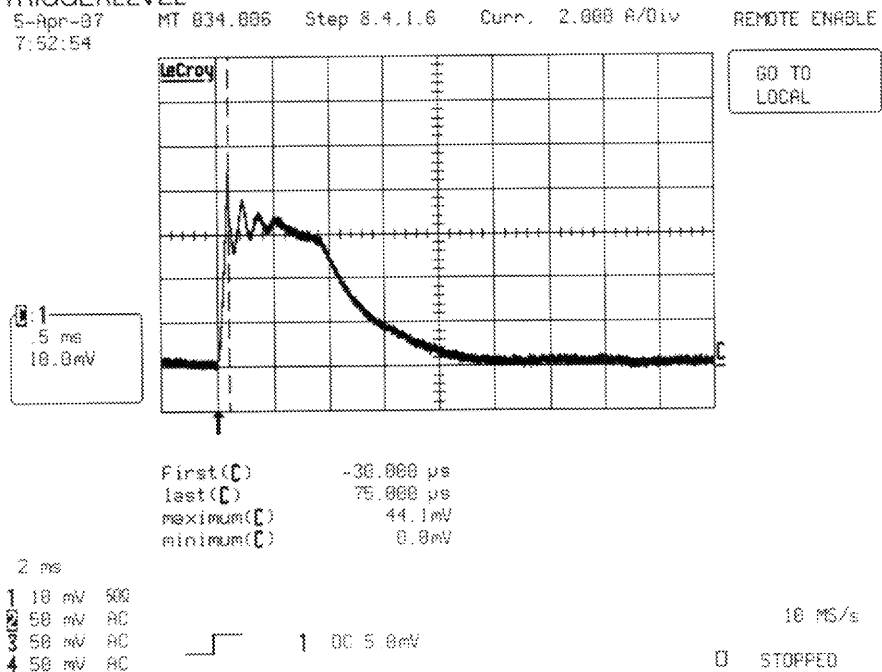
Issue: 1

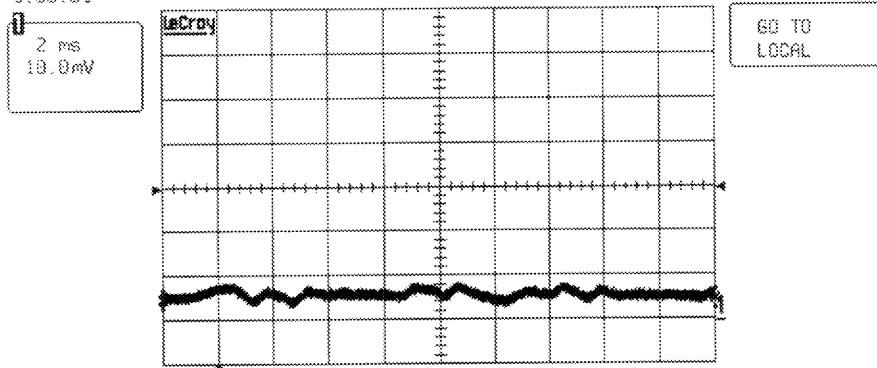
Date: 01.03.2007

Model: FM Par: 8.4 Loaded Power Input Verification

Sheet: 41

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.6		Inrush current measurement after request of IDAS Switch ON LCL #51 for the Nominal FCU Power issue TC: DC51D170 aConnector: HSFCU J05 02 ---							
	1	CURR-dt/dt	034.006	0,00	1,00	_A/μs	0,08	PM	P
	2	CURRENT-PEAK	034.006	0,00	11,25	_Amp	8,82	PM	P
	3	CURRENT-DC	034.006	0,00	5,00	_Amp	0,18	PM	P
	4	TRIGGERLEVEL	034.006	1,00	1,00	_Amp	1,00	PM	P



St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.7	1	<p>Record steady state current after request of IDAS</p> <p>aConnector: HSFCU J05 02</p> <p>--- CURRENT-DC 5-Apr-07 MT 030.003 Step 8.4.1.7 Curr. 0.500 A/Div REMOTE ENABLE 8:00:01</p>  <p>pkpk(1) 6.2mV mean(1) 5.70mV sdev(1) 0.81mV rms(1) 5.75mV amp(1) 2% 5.2mV</p> <p>2 ms 10 mV 500 2 50 mV AC 3 50 mV AC 4 50 mV AC</p> <p>1 DC 30.0mV 16 MS/s AUTO</p>	030.003	0.00	2.80	_Amp	0.29	PM	P
1.8		Switch OFF LCL #51 for the Nominal FCU Power issue TC: DC51B170							
1.9		Confirm by Telemetry that LCL #51 is OFF							
1.10		Remove current probe							



EADS
Astrium GmbH
Herschel

Test Procedure

Doc. No.: HP-2-ASED-TP-0125

Unit: SPIRE Warm Units

Filename: HP-2-ASED-TP-0125-1.doc

Issue: 1

Date: 01.03.2007

Model: FM Par: 8.4 Loaded Power Input Verification

Sheet: 43

St-No	Sub-St	Test – Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.11		Remove Testhead-1 and T-Adapter from connector HSFCU P/J05 and connect P/J05 directly.							
1.12		Connect IDAS-5 Testhead-1 via 9-pole adapter No. 9D to the interface connector HSFCU P/J06							
1.13		Clip current probe to pin 02 of the adapter, direction: into box							
1.14		Record inrush and steady state current on TC request							

Test-Location:
Astrium FN

PA_Resp.: D. Hendry

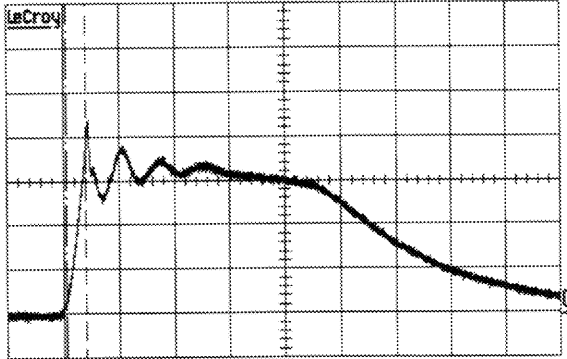
Test-Eng.: A. Koppe
 OCOE-Operator: O. Martin

Test_Manager:
A. Koppe

Date:
05.04.2007

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.15		Inrush current measurement after request of IDAS Switch ON LCL #52 for the Redundant FCU Power issue TC: DC52D170 aConnector: HSFCU J06 02 --- 1 CURR-dl/dt 2 CURRENT-PEAK 3 CURRENT-DC 4 TRIGGERLEVEL 5-Apr-07 MT 834.886 Step 8.4.1.15 Curr. 2.000 A/Div REMOTE ENABLE 8:09:08							
	1		034.006	0,00	1,00	_A/us	0,10	PM	P
	2		034.006	0,00	11,25	_Amp	8,76	PM	P
	3		034.006	0,00	5,00	_Amp	-0,02 *)	PM	N
	4		034.006	1,00	1,00	_Amp	1,00	PM	P
<p>*) the negative level is caused by the small ripple and is hence not to be considered as NC</p>									

1
 .2 ms
 10.0mV



GO TO LOCAL

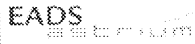
First(C) -12.880 us
 last(C) 62.880 us
 maximum(C) 38.4mV
 minimum(C) 0.9mV

2 ms
 1 10 mV 500
 2 50 mV AC
 3 50 mV AC
 4 50 mV AC

1 DC 5.0mV

10 MS/s

STOPPED



EADS
Astrium GmbH
Herschel

Test Procedure

Doc. No.: HP-2-ASED-TP-0125

Unit: SPIRE Warm Units

Filename: HP-2-ASED-TP-0125-1.doc

Issue: 1

Date: 01.03.2007

Model: FM Par: 8.4 Loaded Power Input Verification

Sheet: 45

St-No	Sub-St	Test – Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.16	1	Record steady state current after request of IDAS aConnector: HSFCU J06 02 --- CURRENT-DC TM Parameter = 0.4 A	030.003	0,00	2,80	_Amp	0,31	CM	P
1.17		Switch OFF LCL #52 for the Redundant FCU Power issue TC: DC52B170							
1.18		Confirm by Telemetry that LCL #52 is OFF							
1.19		Remove current probe							
1.20		Remove Testhead-1 and T-Adapter from connector HSFCU P/J06 and connect P/J06 directly.							
2.1		Measurements on connector interface HSDPU P/J01 and P/J02							
2.2		Record inrush and steady state current on TC request							
2.3		Connect IDAS-5 Testhead-1 via 9-pole adapter No. 9D to the interface connector HSDPU P/J01							
2.4		Clip current probe to pin 02 of the adapter, direction: into box							

Test-Location:
Astrium FN

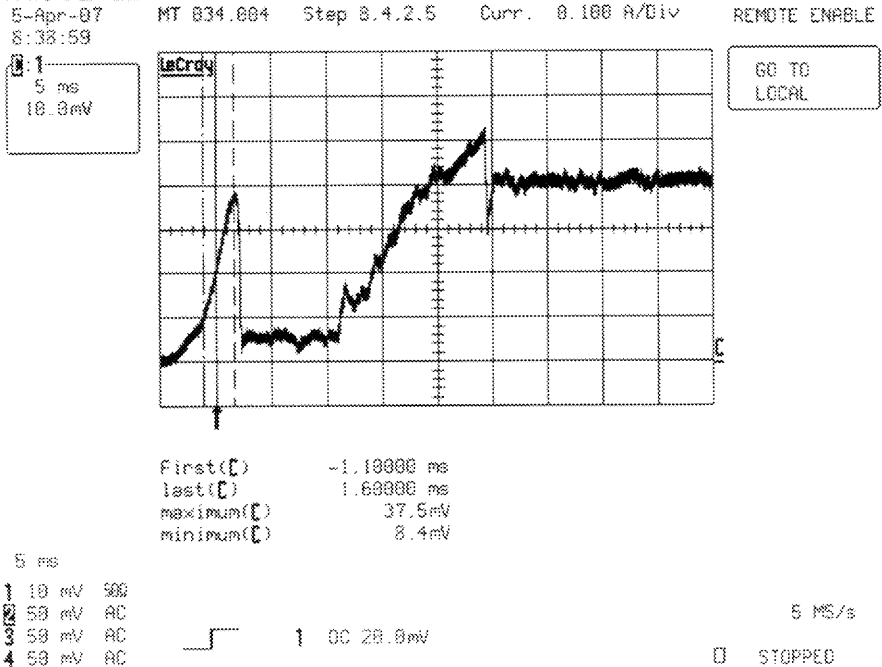
PA_Resp.: D. Hendry

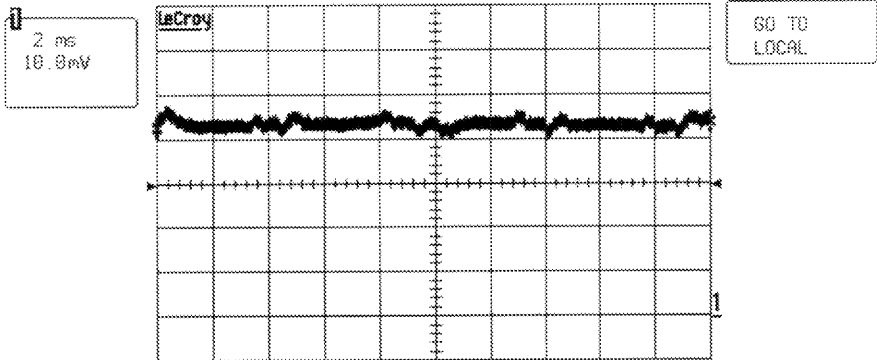
Test-Eng.: A. Koppe
 OCOE-Operator: O. Martin

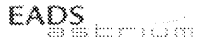
Test_Manager:
A. Koppe

Date:
05.04.2007

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
2.5		Inrush current measurement after request of IDAS Switch ON LCL #11 for the Nominal DPU Power issue TC: DC11D170 aConnector: HSDPU J01 02 ---							
	1	CURR-dl/dt	034.004	0,00	1,00	_A/us	0,00	PM	P
	2	CURRENT-PEAK	034.004	0,00	2,25	_Amp	0,53	PM	P
	3	CURRENT-DC	034.004	0,00	1,00	_Amp	0,41	PM	P
	4	TRIGGERLEVEL	034.004	0,20	0,20	_Amp	0,20	PM	P



St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
2.6	1	<p>Record steady state current aConnector: HSDPU J01 02 ---</p> <p>CURRENT-DC 5-Apr-07 NT 830.002 Step 8.4.2.6 Curr. 0.100 A/DIV REMOTE ENABLE 8:39:36</p>  <p>pkpk (1) 8.1 mV mean (1) 43.22 mV sdev (1) 0.92 mV rms (1) 43.23 mV amp (1) 8.1 mV</p> <p>2 ms 10 mV 500 2 50 mV AC 3 50 mV AC 4 50 mV AC</p> <p>1 DC 39.6 mV 10 MS/s D AUTO</p> <p>TM Parameter = 0.43 A</p>	030.002	0,00	600,00	mAmp	434,10	PM	P
2.7		Switch OFF LCL #11 for the Nominal DPU Power issue TC: DC11B170							
2.8		Confirm by Telemetry that LCL #11 is OFF							
2.9		Remove current probe							



EADS
Astrium GmbH
Herschel

Test Procedure

Doc. No.: HP-2-ASED-TP-0125

Unit: SPIRE Warm Units

Filename: HP-2-ASED-TP-0125-1.doc

Issue: 1

Date: 01.03.2007

Model: FM Par: 8.4 Loaded Power Input Verification

Sheet: 48

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
2.10		Remove Testhead-1 and T-Adapter from interface connector HSDPU P/J01 and connect P/J01 directly							
2.11		Connect IDAS-5 Testhead-1 via 9-pole adapter No. 9D to the interface connector HSDPU P/J02							
2.12		Clip current probe to pin 02 of adapter, direction: into box							

Test-Location:
Astrium FN

PA_Resp.: D. Hendry

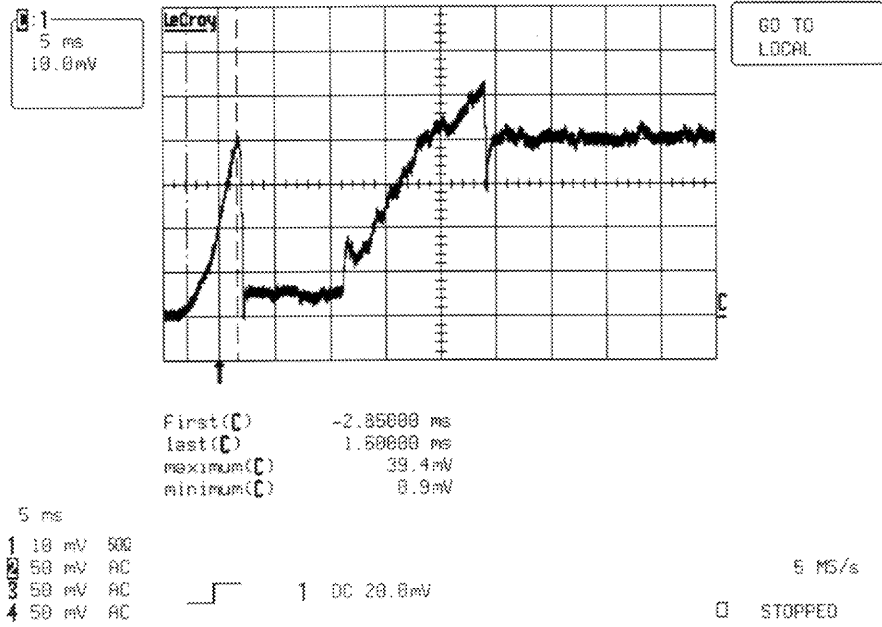
Test-Eng.: A. Koppe
 OCOE-Operator: O. Martin

Test_Manager:
A. Koppe

Date:
05.04.2007

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
2.13		Inrush current measurement after request of IDAS Switch ON LCL #12 for the Redundant DPU Power issue TC: DC12D170 aConnector: HSDPU J02 02 ---							
	1	CURR-dI/dt	034.004	0,00	1,00	_A/μs	0,00	PM	P
	2	CURRENT-PEAK	034.004	0,00	2,25	_Amp	0,53	PM	P
	3	CURRENT-DC	034.004	0,00	1,00	_Amp	0,40	PM	P
	4	TRIGGERLEVEL	034.004	0,20	0,20	_Amp	0,20	PM	P

5-Apr-07 MT 034.004 Step 8.4.2.13 Curr. 0.100 A/Div REMOTE ENABLE
8:46:32





EADS
Astrium GmbH
Herschel

Test Procedure

Doc. No.: HP-2-ASED-TP-0125

Unit: SPIRE Warm Units

Filename: HP-2-ASED-TP-0125-1.doc

Issue: I

Date: 01.03.2007

Model: FM Par: 8.4 Loaded Power Input Verification

Sheet: 50

St-No	Sub-St	Test – Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
2.14	1	Record steady state current aConnector: HSDPU J02 02 --- CURRENT-DC TM Parameter = 0.44 A	030.002	0,00	600,00	mAmp	433,20	CM	P
2.15		Switch OFF LCL #12 for the Redundant DPU Power issue TC: DC12B170							
2.16		Confirm by Telemetry that LCL #12 is OFF							
2.17		Remove current probe							
2.18		Remove Testhead-1and T-Adapter from interface connector HSDPU P/J02 and connect P/J02 directly.							
2.19		End of Loaded Power Input Verification							

Test-Location:
Astrium FN

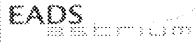
PA_Resp.: D. Hendry

Test-Eng.: A. Koppe
 OCOE-Operator: O. Martin

Test_Manager:
A. Koppe

Date:
05.04.2007

EADS Astrium GmbH Herschel		Integration Report				Doc. No.: HP-2-ASED-TP-0125			
Unit: SPIRE Warm Units		Filename: HP-2-ASED-TP-0125-1.doc				Issue: 1	Date: 01.03.2007		
Model: FM		Par: 8.5 MIL-Bus 1553 Verification				Sheet: 51			
St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.1		MIL-Bus verification at SPIRE DPU Conn. J03 and J05 for Bus A & DPU Conn. J04 and J06 for Bus B							
1.2		The goal is to verify the MIL-Bus signal w.r.t. voltage levels and pulse performance							
1.3		The verification shall be performed without the MIL-Bus probe (CDMU-SCOE) connected to the skin connector SK02.							
1.4		Connect the skin connector (arming plug) SK02/P01 to its receptacle SK02/J01.							
1.5		Connect the skin connector (arming plug) SK02/P02 to its receptacle SK02/J02.							
1.6		Prepare test set-up acc. to sketch 5.2.1.5 for MIL-Bus A							
1.7		Prerequisite for MIL-Bus verification: Power verification passed							
1.8		All MIL-Bus connectors of the complete S/C MIL-Bus harness must be terminated							
1.9		Check that PCDU and CDMS are switched ON according to procedure HP-2-ASED-PR-0070, § 7.5. Use nominal settings: - PFM Spacecraft - PM A - nominal (BS + SAS)							
1.10		Prepare EGSE for transmit of CMD word on Bus A							
1.11		Connect IDAS-5 Testhead-1 to the T-Adapter No. 9D mated between HSDPU P/J03							
1.12		Connect Testhead-1 GND to box structure (bonding stud of unit)							
1.14		Switch ON LCL #11, nominal DPU Power, Issue LCL #11 Switch ON TC code: DC11D170							
Test-Location: Astrium FN		PA_Resp.: D. Hendry	Test-Eng.: A. Koppe OCOE-Operator: O. Martin		Test_Manager: A. Koppe		Date: 05.04.2007		



EADS
Astrium GmbH
Herschel

Integration Report

Doc. No.: HP-2-ASED-TP-0125

Unit: SPIRE Warm Units

Filename: HP-2-ASED-TP-0125-1.doc

Issue: 1

Date: 01.03.2007

Model: FM Par: 8.5 MIL-Bus 1553 Verification

Sheet: 52

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.15		CCS-Operator: start acquisition of CDMU-A on MIL-Bus A. Issue: DC005161 with the following parameters: RTA=21 (SPIRE DPU nom.) F0 to F4=1 F5 to F7=0 F8=0 (0=Bus A, 1=Bus B) F9 to F11=0 M0 to M4=1 M5=0 M6=1 M7=0 M8=1 M9 to M11=0 M_C=0 CNT=1							
1.16		Configure/set the bus profile (SCPB for SPIRE = 3). Use for configuration command DC819160							
1.17		To start the application SW send the following command: SCD09505 (DPULLSW_Force_Boot)							

Test-Location:
Astrium FN

PA_Resp.: D. Hendry

Test-Eng.: A. Koppe
 OCOE-Operator: O. Martin

Test_Manager:
A. Koppe

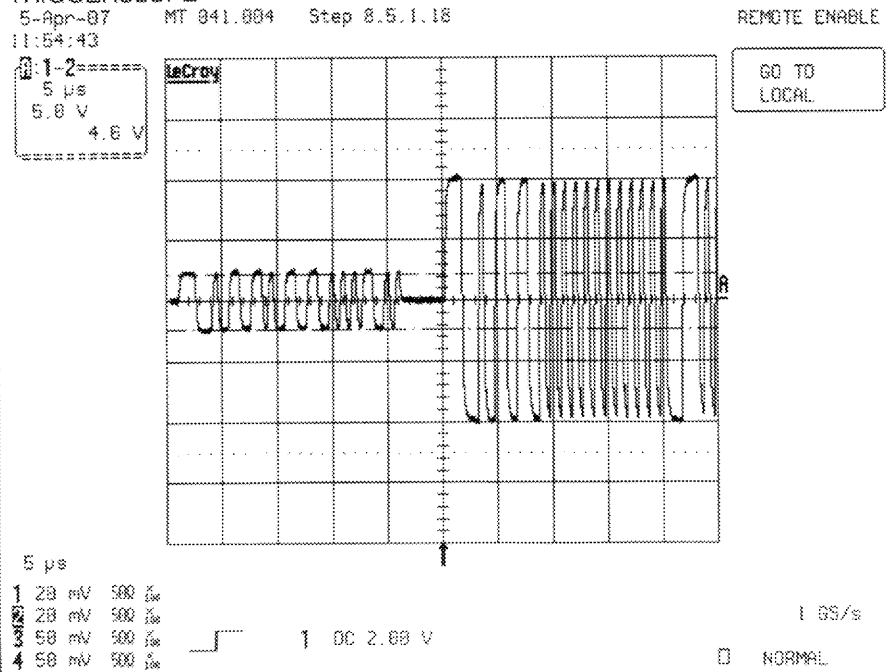
Date:
05.04.2007

Integration Report

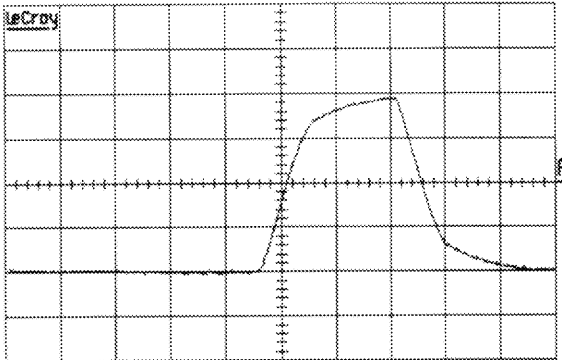
Unit: SPIRE Warm Units Filename: HP-2-ASED-TP-0125-1.doc
Model: FM Par: 8.5 MIL-Bus 1553 Verification

Issue: I Date: 01.03.2007
Sheet: 53

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1,18		Plot MIL-BUS A Signal - Interrogation and Response: aConnector: HSDPU J03 02 06							
	1	PULSDURATION	041.004	0,00	2,00	µsec	0,64	PM	P
	2	UPPER-LEVEL	041.004	0,50	13,50	_Volt	9,87	PM	P
	3	LOWER-LEVEL	041.004	-13,50	-0,50	_Volt	-10,08	PM	P
	4	RISE-TIME	041.004	100,00	300,00	nsec	179,70	PM	P
	5	FALL-TIME	041.004	100,00	300,00	nsec	234,10	PM	P
	6	TRIGGERLEVEL	041.004	2,00	2,00	_Volt	2,00	PM	P
	7	TRIGGERSLOPE	041.004	1,00	1,00	_Pos	1,00	PM	P



Integration Report

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
		5-Apr-07 MT 041.004 Step 8.5.1.18 11:55:32 1-2 .2 μ s 5.0 V  r@level(1) 183.1 ns .2 μ s 1 20 mV 500 ns 2 20 mV 500 ns 3 50 mV 500 ns 4 50 mV 500 ns 1 DC -1.80 V 1 GS/s <input type="checkbox"/> STOPPED							

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.19		<p>5-Apr-07 MT 041.004 Step 8.5.1.10 11:56:10 REMOTE ENABLE</p> <p>F@level(A) 226.8 ns</p> <p>.2 μs</p> <p>1 20 mV 500 Ω 2 20 mV 500 Ω 3 50 mV 500 Ω 4 50 mV 500 Ω</p> <p>1 DC -1.00 V 1 GS/s</p> <p><input type="checkbox"/> STOPPED</p>							
		Disconnect IDAS Testhead-1 from the adapter mated between HSDPU P/J03							
		Prepare test set-up acc. to sketch 5.2.1.6 for MIL-Bus B							
		Connect Testhead-1 to the adapter mated between HSDPU P/J04							
		<p>CCS-Operator: start acquisition of CDMU-A on MIL-Bus B. Issue: DC005161 with the following parameters: RTA=21 (SPIRE DPU nom.) F0 to F4=1 F5 to F7=0 F8=1 (0=Bus A, 1=Bus B) F9 to F11=0 M0 to M4=1 M5=0 M6=1 M7=0</p>							



EADS
Astrium GmbH

Herschel

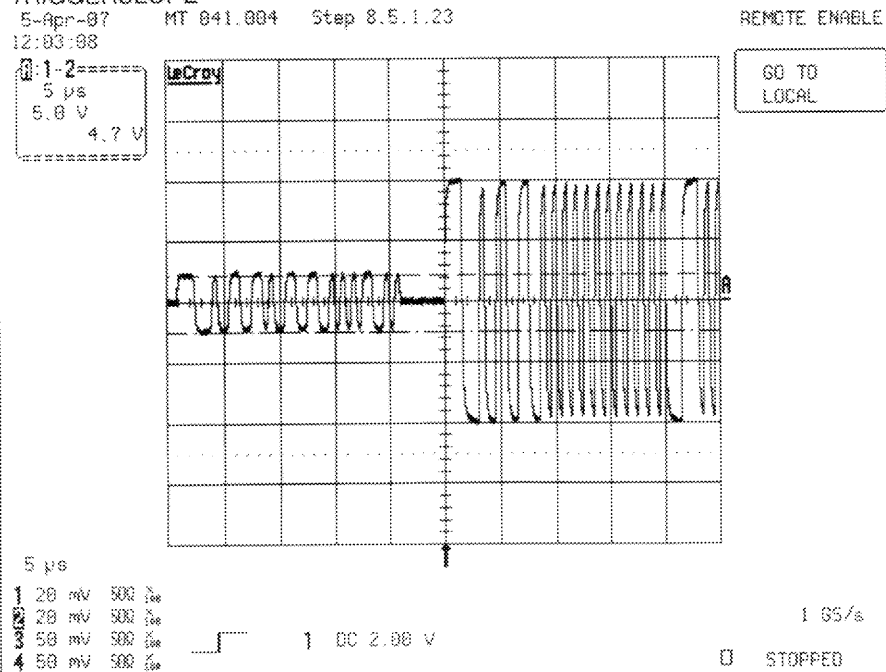
Integration Report

Unit: SPIRE Warm Units Filename: HP-2-ASED-TP-0125-1.doc
 Model: FM Par: 8.5 MIL-Bus 1553 Verification

Doc. No.: HP-2-ASED- TP-0125
 Issue: 1 Date: 01.03.2007
 Sheet: 56

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
		M8=1 M9 to M11=0 M_C=0 CNT=1							

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.23		Plot MIL-BUS B Signal - Interrogation and Response: aConnector: HSDPU J04 02 06							
	1	PULSDURATION	041.004	0,00	2,00	µsec	0,70	PM	P
	2	UPPER-LEVEL	041.004	0,50	13,50	_Volt	9,87	PM	P
	3	LOWER-LEVEL	041.004	-13,50	-0,50	_Volt	-10,08	PM	P
	4	RISE-TIME	041.004	100,00	300,00	nsec	181,30	PM	P
	5	FALL-TIME	041.004	100,00	300,00	nsec	231,00	PM	P
	6	TRIGGERLEVEL	041.004	2,00	2,00	_Volt	2,00	PM	P
	7	TRIGGERSLOPE	041.004	1,00	1,00	_Pos	1,00	PM	P





EADS
Astrium GmbH

Herschel

Integration Report

Doc. No.: HP-2-ASED-TP-0125

Unit: SPIRE Warm Units

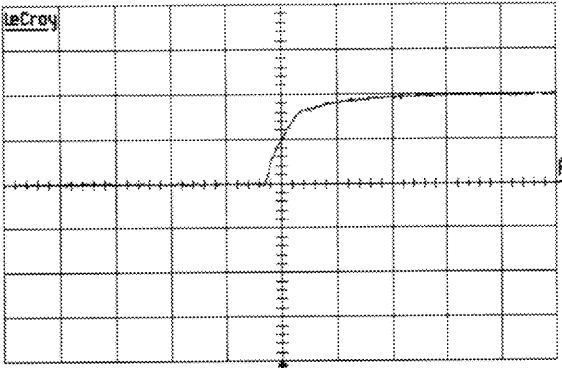
Filename: HP-2-ASED-TP-0125-1.doc

Issue: 1

Date: 01.03.2007

Model: FM Par: 8.5 MIL-Bus 1553 Verification

Sheet: 58

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
		5-Apr-97 MT 041.004 Step 8.5.1.23 12:03:21 1-2 .2 μ s 5.0 V  n@level(0) 181.3 ns .2 μ s 1 20 mV 500 % 2 20 mV 500 % 3 50 mV 500 % 4 50 mV 500 % 1 DC 2.00 V 1 GS/s STOPPED							

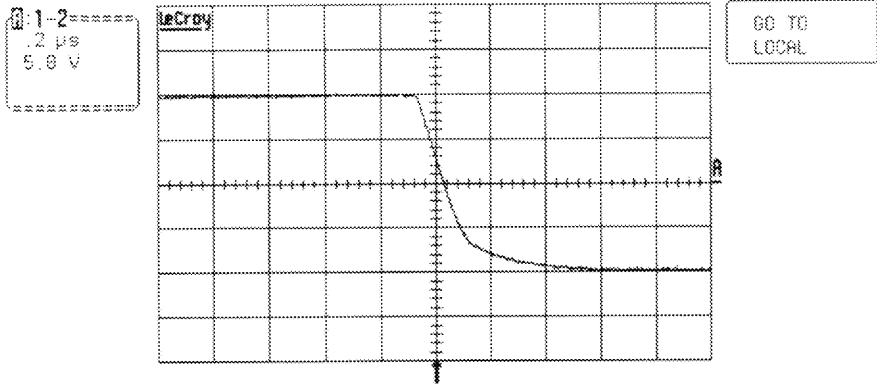
Test-Location:
Astrium FN

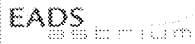
PA_Resp.: D. Hendry

Test-Eng.: A. Koppe
OCOE-Operator: O. Martin

Test_Manager:
A. Koppe

Date:
05.04.2007

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.24		<p>5-Apr-07 MT 041.004 Step 8.5.1.23 12:03:27</p> <p>REMOTE ENABLE</p>  <p>1 20 mV 500 ns 2 20 mV 500 ns 3 50 mV 900 ns 4 50 mV 900 ns</p> <p>1 DC 2.00 V 1 GS/s <input type="checkbox"/> STOPPED</p> <p>Stop the interrogation for RT 21: tcsend DC005161 with following TC parameters RTA=21 F4 = 0 M4 = 1</p>							
1.25		Switch OFF LCL #11, nominal DPU Power, Issue LCL #11 Switch OFF TC code: DC11B170							
1.26		Disconnect IDAS Testhead-1 from the adapter mated between HSDPU P/J04							
1.27		Measurements on HSDPU-B:							
1.28		Prepare test set-up acc. to sketch 5.2.1.5 for MIL-Bus A							
1.29		Prepare EGSE for transmit of CMD word on Bus A							



EADS
Astrium GmbH
Herschel

Integration Report

Doc. No.: HP-2-ASED- TP-0125

Unit: SPIRE Warm Units

Filename: HP-2-ASED-TP-0125-1.doc

Issue: 1

Date: 01.03.2007

Model: FM Par: 8.5 MIL-Bus 1553 Verification

Sheet: 60

St-No	Sub-St	Test – Step - Description	Meas. Type	Min.Norm. Value	Max.Norm. Value	Phys. Unit	Actual Value	C-St	P N
1.30		Connect IDAS-5 Testhead-1 to the T-Adapter No. 9d mated between HSDPU P/J05							
1.31		Connect Testhead-1 GND to box structure (bonding stud of unit)							
1.31a		Disable FDIR							
1.32		deleted							
1.33		Configure/set the bus profile (SCPB for SPIRE = 3). Use for configuration command DC819160							

Test-Location:
Astrium FN

PA_Resp.: D. Hendry

Test-Eng.: A. Koppe
 OCOE-Operator: O. Martin

Test_Manager:
A. Koppe

Date:
05.04.2007



EADS
Astrium GmbH

Herschel

Integration Report

Doc. No.: HP-2-ASED-TP-0125

Unit: SPIRE Warm Units

Filename: HP-2-ASED-TP-0125-1.doc

Issue: 1

Date: 01.03.2007

Model: FM Par: 8.5 MIL-Bus 1553 Verification

Sheet: 61

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.34		CCS-Operator: start acquisition of CDMU-B on MIL-Bus A. Issue: DC005161 with the following parameters: RTA=22 (SPIRE DPU red.) F0 to F4=1 F5=0, F6=1, F7=0 F8=0 (0=Bus A, 1=Bus B) F9 to F11=0 M0 to M4=1 M5=0 M6=1 M7=0 M8=1 M9 to M11=0 M_C=0 CNT=1							
1.34a		Switch ON LCL #12, redundant DPU Power, Issue LCL #12 Switch ON TC code: DC12D170							
1.35		To start the application SW send the following command: SCD09505 (DPULLSW_Force_Boot)							
1.35a		Enable FDIR							

Test-Location:
Astrium FN

PA_Resp.: D. Hendry

Test-Eng.: A. Koppe
OCOE-Operator: O. Martin

Test_Manager:
A. Koppe

Date:
05.04.2007

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.36		Plot MIL-BUS B Signal - Interrogation and Response: aConnector: HSDPU J05 02 06							
	1	PULSDURATION	041.004	0,00	2,00	µsec	0,62	PM	P
	2	UPPER-LEVEL	041.004	0,50	13,50	_Volt	9,87	PM	P
	3	LOWER-LEVEL	041.004	-13,50	-0,50	_Volt	-9,87	PM	P
	4	RISE-TIME	041.004	100,00	300,00	nsec	190,70	PM	P
	5	FALL-TIME	041.004	100,00	300,00	nsec	87,10 *)	PM	N
	6	TRIGGERLEVEL	041.004	2,00	2,00	_Volt	2,00	PM	P
	7	TRIGGERSLOPE	041.004	1,00	1,00	_Pos	1,00	PM	P
		11-Apr-07 MT 041.004 Step 8.5.1.35 15:28:52							
		REMOTE ENABLE							
		*) this is due to marker setting, no NC							
		<p>5 µs</p> <p>1 20 mV 500 Ω</p> <p>2 20 mV 500 Ω</p> <p>3 50 mV 500 Ω</p> <p>4 50 mV 500 Ω</p> <p>1 DC 2.00 V</p> <p>1 GS/s</p> <p>STOPPED</p>							

Integration Report

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
		<p>11-Apr-07 15:21:45 MT 041.004 Step 8.5.1.36</p> <p>REMOTE ENABLE</p> <p>leCroy</p> <p>GO TO LOCAL</p> <p>1-2 .2 μs 5.0 V</p> <p>r@level(0) 83.7 ns</p> <p>.2 μs</p> <p>1 20 mV 500 % 2 20 mV 500 % 3 50 mV 500 % 4 50 mV 500 %</p> <p>1 DC 2.00 V</p> <p>1 GS/s</p> <p>STOPPED</p>							

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
		<p>11-Apr-07 MT 041.004 Step 8.5.1.36 15:22:09</p> <p>REMOTE ENABLE</p> <p>GO TO LOCAL</p> <p>F@level: (H) 142.8 ns</p> <p>0.2 µs 5.0 V</p> <p>1 20 mV 500 ns 2 20 mV 500 ns 3 50 mV 500 ns 4 50 mV 500 ns</p> <p>1 00 2.00 V</p> <p>STOPPED</p>							
1.37		Disconnect IDAS Testhead-1 from the adapter mated between HSDPU P/J05							
1.38		Prepare test set-up acc. to sketch 5.2.1.6 for MIL-Bus B							
1.39		Connect Testhead-1 to the adapter mated between HSDPU P/J06							
1.40		<p>CCS-Operator: start acquisition of CDMU-B on MIL-Bus B. Issue: DC005161 with the following parameters: RTA=22 (SPIRE DPU red.) F0 to F4=1 F5=0, F6=1, F7=0 F8=1 (0=Bus A, 1=Bus B) F9 to F11=0 M0 to M4=1 M5=0 M6=1 M7=0</p>							



EADS
Astrium GmbH
Herschel

Integration Report

Doc. No.: HP-2-ASED- TP-0125

Unit: SPIRE Warm Units

Filename: HP-2-ASED-TP-0125-1.doc

Issue: I

Date: 01.03.2007

Model: FM Par: 8.5 MIL-Bus 1553 Verification

Sheet: 65

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
		M8=1 M9 to M11=0 M_C=0 CNT=1							

Test-Location:
Astrium FN

PA_Resp.: D. Hendry

Test-Eng.: A. Koppe
 OCOE-Operator: O. Martin

Test_Manager:
A. Koppe

Date:
05.04.2007

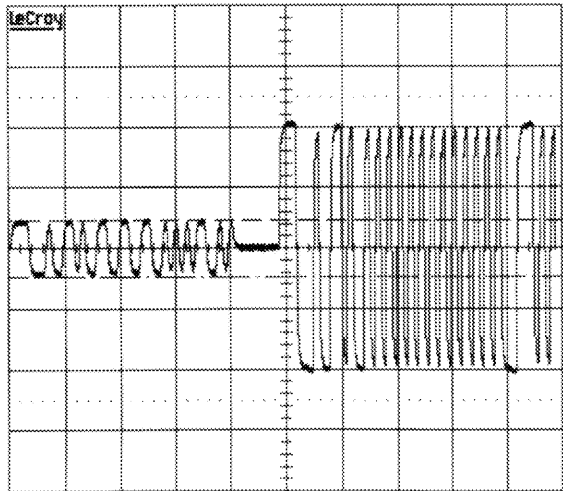
Integration Report

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.41		Plot MIL-BUS B Signal - Interrogation and Response: aConnector: HSDPU J06 02 06							
	1	PULSDURATION	041.004	0,00	2,00	µsec	0,57	PM	P
	2	UPPER-LEVEL	041.004	0,50	13,50	_Volt	9,34	PM	P
	3	LOWER-LEVEL	041.004	-13,50	-0,50	_Volt	-9,34	PM	P
	4	RISE-TIME	041.004	100,00	300,00	nsec	188,30	PM	P
	5	FALL-TIME	041.004	100,00	300,00	nsec	244,40	PM	P
	6	TRIGGERLEVEL	041.004	2,00	2,00	_Volt	2,00	PM	P
	7	TRIGGERSLOPE	041.004	1,00	1,00	_Pos	1,00	PM	P

11-Apr-97 MT 041.004 Step 8.5.1.41
15:31:02

REMOTE ENABLE

1-2
5 µs
5.6 V
4.7 V



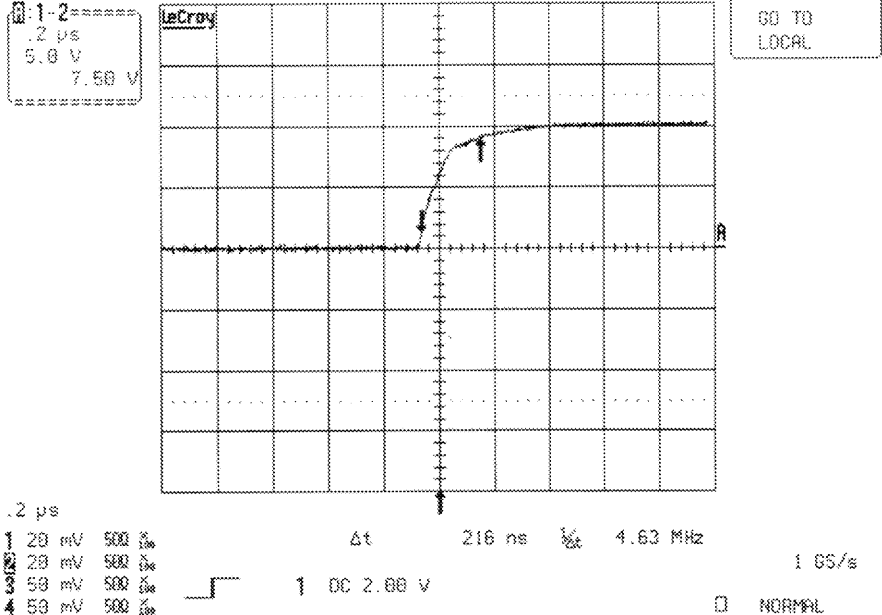
GO TO LOCAL

5 µs
1 20 mV 500 Ω
2 20 mV 500 Ω
3 50 mV 500 Ω
4 50 mV 500 Ω

1 DC 2.00 V

1 GS/s

NORMAL

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
		11-Apr-07 15:32:43 NT 041.004 Step 8.5.1.41 REMOTE ENABLE 							

St-No	Sub-St	Test - Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.42		<p>11-Apr-07 MT 041.004 Step 8.5.1.41</p> <p>15:33:11</p> <p>1-2 .2 ps 5.0 V</p> <p>REMOTE ENABLE</p> <p>F@level(0) 146.7 ns</p> <p>.2 ps</p> <p>1 20 mV 500 ns</p> <p>2 20 mV 500 ns</p> <p>3 50 mV 500 ns</p> <p>4 50 mV 500 ns</p> <p>1 DC 2.00 V</p> <p>1 GS/s</p> <p><input type="checkbox"/> NORMAL</p> <p>Stop the interrogation for RT 22: tcsend DC005161 with following TC parameters RTA=22 F4 = 0 M4 = 1</p>							
1.43		Switch OFF LCL #12, redundant DPU Power, Issue LCL #12 Switch OFF TC code: DC12B170							
1.44		Disconnect IDAS Testhead-1 from the adapter mated between HSDPU P/J06							
1.45		Swith OFF SVM							
1.46		Remove the adapters from HSDPU P/J03, P/J04, P/J05 and P/J06.							
1.47		Connect harness plug HSDPU P03 to its receptacle J03 directly.							

Integration Report

St-No	Sub-St	Test – Step - Description	Meas. Type	Min.Nom. Value	Max.Nom. Value	Phys. Unit	Actual Value	C-St	P N
1.48		Connect harness plug HSDPU P04 to its receptacle J04 directly.							
1.49		Connect harness plug HSDPU P05 to its receptacle J05 directly.							
1.50		Connect harness plug HSDPU P06 to its receptacle J06 directly.							
1.51		==== END OF MIL-BUS INTERFACE CHECK ====							

END OF DOCUMENT

	Name	Dep./Comp.		Name	Dep./Comp.
x	Alberti von Mathias Dr.	ASG22		Schweickert Gunn	ASG22
	Baldock Richard	FAE12	x	Sonn Nico	ASG51
	Barlage Bernhard	AED13		Steininger Eric	AED32
	Bayer Thomas	ASA42	x	Stritter Rene	AED11
	Brune Holger	ASA45		Suess Rudi	OTN/ASA44
	Edelhoff Dirk	AED2		Wagner Klaus	ASG22
	Fehringer Alexander	ASG13	x	Wietbrock Walter	AET12
x	Fricke Wolfgang Dr.	AED 65		Wöhler Hans	ASG22
	Geiger Hermann	ASA42		Wössner Ulrich	ASE252
	Grasl Andreas	OTN/ASA44			
	Grasshoff Brigitte	AET12			
	Hamer Simon	Terma			
	Hendry David	Terma			
	Hengstler Reinhold	ASA42			
	Hinger Jürgen	ASG22			
x	Hohn Rüdiger	AED65			
	Hölzie Edgar Dr.	AED32			
	Huber Johann	ASA42			
	Hund Walter	ASE252			
x	Idler Siegmund	AED312			
	Ivány von András	FAE12			
	Jahn Gerd Dr.	ASG22			
	Kalde Clemens	ASM2			
	Kameter Rudolf	OTN/ASA42			
	Kettner Bernhard	AET42			
x	Knoblauch August	AET32	x	Alcatel Alenia Space Cannes	AAS-F
x	Koelle Markus	ASA43		Alcatel Alenia Space Torino	AAS-I
x	Koppe Axel	AED312	x	ESA/ESTEC	ESA
x	Kroeker Jürgen	AED65			
	La Gioia Valentina	Terma		Instruments:	
	Lang Jürgen	ASE252		MPE (PACS)	MPE
	Langenstein Rolf	AED15	X	RAL (SPIRE)	RAL
	Langfermann Michael	ASA41		SRON (HIFI)	SRON
	Maukisch Jan	ASA43			
	Much Christoph	ASA43			
	Müller Jörg	ASA42		Subcontractors:	
x	Müller Martin	ASA43		Alcatel Alenia Space Antwerp	ABSP
	Peltz Heinz-Willi	ASG13		Austrian Aerospace	AAE
	Pietroboni Karin	AED65		Austrian Aerospace	AAEM
	Platzer Wilhelm	AED2		BOC Edwards	BOCE
	Reichle Konrad	ASA42		Dutch Space Solar Arrays	DSSA
	Runge Axel	OTN/ASA44		EADS Astrium Sub-Subsyst. & Equipment	ASSE
x	Schink Dietmar	AED32		EADS CASA Espacio	CASA
	Schlosser Christian	OTN/ASA44		EADS CASA Espacio	ECAS
	Schmidt Rudolf	FAE12		European Test Services	ETS
	Schmidt Thomas	ASA42		Patria New Technologies Oy	PANT
	Schuler Günter	ASA42		SENER Ingenieria SA	SEN