EADS Astrium

Test Procedure

Herschel

Title: PFM CVV External CCH & SIH Re-Installation after HPLM to SVM Mating

CI-No: 121431-02 & 121432-02

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1	10.09.07	all	Initial issue	

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Scope

1.1 Objective

This document establish the detailed procedure to be followed for Re-Integration of the PFM CVV ext CCH and SIH bundles, which have been partially de-mated and intermediately stored on CVV ext EPLM lower & upper bulkhead in frame after Mating of HPLM to SVM. The final installation and mating of CVV external CCH and SIH in flight configuration is covered and controlled with this procedure, **else see also AD-21**.

1.2 Flow

- Installation and fixation of CVV external CCH and SIH fixation rails
    - SSD CCH Bundles on HSS struts (in 2 steps)
- Re-Mating of CCH Bundles to lower & upper FTHR connectors
    - CCH connectors to Cryo-Cover & Telescope (in 2 steps)
- Re-Integration of CCH Bundles around CVV external envelopes
- Re-Connection of Cryo-Control-Components
    - CVV Radiator T-Sensors (in 2 steps)
- CCH & CCC functional health-check with Cryo-SCOE
- Re-Integration & Fixation of CVV ext HIFI FPU SIH Bundles
- Re-Mating of HIFI CVV ext SIH Bundles to upper FTHR connectors
    - With PFM HIFI FPU installed on OBA
- Re-Integration & Fixation of CVV ext PACS FPU SIH Bundles
- Re-Mating of PACS CVV ext SIH Bundles to upper FTHR connectors
    - **With partially mated PFM PACS FPU & CVV internal SIH !**
- Re-Mating of PACS CVV ext SIH Bundles to SVM I/F-CB & FPU ESD Protection
    - **With all mated PFM PACS FPU & CVV ext SIH !**
- Re-Integration & Fixation of CVV ext SPIRE FPU SIH Bundles
    - **With mated PFM SPIRE Cold-units & CVV internal SIH !**
- Re-Mating of SPIRE CVV ext SIH Bundles to upper FTHR connectors
    - **To be performed acc. SPIRE-RAL-PRC-002882 & 002951**
        - SPIRE Termination Connector Mating Sequences to be followed !

- Re-Integration & Fixation of CVV ext HIFI LOU SIH after LOU structure integration
    - HIFI LOU Window Heater Harness integration
- Final PFM CVV ext CCH & SIH Bundle Lacing and Connector fixation Locking

2 Documents/Drawings

2.1 Applicable Documents

AD 1	PFM CVV INTERNAL SPIRE SIH ELECTRICAL INTEGRATION PROCEDURE	HP-2-ASED-TP-0150
AD 2	PFM PACS FPU & CVV INT & CVV EXT. SIH ELECTRICAL INTEGRATION	HP-2-ASED-TP-0151
AD 3	PFM CVV INTERNAL HIFI FPU & SIH ELECTRICAL INTEGRATION PROCEDURE	HP-2-ASED-TP-0152
AD 4	PFM CVV EXTERNAL CCH INTEGRATION & TEST PROCEDURE	HP-2-ASED-TP-0076
AD 5	PFM CVV EXTERNAL HIFI SIH INTEGRATION PROCEDURE	HP-2-ASED-TP-0077
AD 6	PFM CVV EXTERNAL PACS SIH INTEGRATION PROCEDURE	HP-2-ASED-TP-0078
AD 7	PFM CRYO HARNESS ATTACHMENT AND COORDINATE LIST	HP-2-ASED-TN-0086
AD 8	EPLM CCH EICD PFM	HP-2-ASED-IC-0013
AD 9	EPLM HIFI SIH EICD PFM	HP-2-ASED-IC-0014
AD 10	EPLM PACS SIH EICD PFM	HP-2-ASED-IC-0015
AD 11	EPLM SPIRE SIH EICD PFM	HP-2-ASED-IC-0016
AD 12	HERSCHEL / PLANCK SVM ELECTRICAL ICD	H-P-IC-AI-0003
AD 13	PFM-CVV INTERNAL SIH ELECTRICAL INTEGRATION AS-RUN FROM 18.04.07	SPIRE-RAL-PRC-002882
AD 14	Making SPIRE ESD Safe	SPIRE-RAL-NOT-002028
AD 15	PFM FINAL SPIRE SIH INTEGFRATION / CHECK-OUT PROCEDURE	SPIRE-RAL-PRC-002951
AD 16	PFM FINAL SPIRE SIH INTEGRATION PROCEDURE	HP-2-ASED-TP-0166
AD 17	MECHANICAL INTEGRATION HIFI SVM UNITS (FM)	SRON-U/HIFI/PR/2006-004
AD 18	Package, Transport Procedure for WE-Boxes (containing PFM PACS SIH handling and mating	PACS-ME-AP-001, Issue: 3

	instructions , § 6,7 & 8)	
AD 19	Herschel PFM ESD PROTECTION ADAPTOR (PACS CVV SIH EXTERNAL)	HP-2-ASSE-DP-0007
AD 20	CRYO-HARNESS TREATMENT PRIOR AND AFTER HPLM MATING ON SVM	HP-2-ASED-TP-0165

2.2 Applicable Drawings

AD 21	CCH EXTERNAL HARNESS (PFM) CRYO HARNESS INTERCONNECTION DIAGRAM	HP-2-ASED-ID-0088-03
AD 22	PACS (PFM) CRYO HARNESS INTERCONNECTION DIAGRAM	HP-2-ASED-ID-0089-01
AD 23	HIFI (PFM) CRYO HARNESS INTERCONNECTION DIAGRAM	HP-2-ASED-ID-0090-01
AD 24	SPIRE (PFM) CRYO HARNESS INTERCONNECTION DIAGRAM	HP-2-ASED-ID-0091-01
AD 25	EXTERNAL HEATABLE LOU BAFFLE ASSEMBLY	HP-2-ASED-DW-0195-01
AD 26	PFM CRYOSTAT HARNESS CVV ext. CCH & SIH	HP-2-ASED-ID-0081-0x_0C
AD 27	PFM CRYOSTAT HARNESS SVM CCH & SIH	HP-2-ASED-ID-0083-0x_0A

2.3 Reference Documents

Number	TITLE	Document Number
RD 1	DOCUMENTATION IDENTIFICATION PROCEDURE AND DOCUMENTATION MANAGEMENT	HP-2-ASED-PR-0001
RD1	CVV EVACUATION AND LEAK TEST PROCEDURE OF HERSCHEL CRYOSTAT	HP-2-ASED-TP-0071
RD2	CVV EXTERNAL CCH INTEGRATION TESTREPORT	HP-2-ASED-RP-0166
RD3	DRAWING DATA PACKAGE FOR PFM CRYO HARNESS BRACKETS AND ATTACHMENTS	HP-2-ASED-DP-0028
RD4	TEMPORARY DEMATING OF PFM CVV EXT CCH / SIH BUNDLES & FIXATION ON DUMMY STRUCTURE – PFM	HP-2-ASED-SD-0153
RD5	PFM CVV EXTERNAL CCH AND SIH RE-MATING FOR STM2	HP-2-ASED-SD-0121

2.4 Reference Drawings

RD6	PACS ESD PROTECTION BRACKET ASSEMBLY	HP-2-ASED-DW-0294-01
RD7	PACS ESD PROTECTION BRACKET BRACKET 313100 MOD.	HP-2-ASED-DW-0295-01
RD8	PACS ESD PROTECTION BRACKET ADAPTOR PLATE	HP-2-ASED-DW-0296-01
RD9	PACS ESD PROTECTION BRACKET BACK WALL	HP-2-ASED-DW-0297-01
RD10	PACS ESD PROTECTION BRACKET COVER LH	HP-2-ASED-DW-0298-01
RD11	PACS ESD PROTECTION BRACKET COVER RH	HP-2-ASED-DW-0299-01
RD12	PACS ESD PROTECTION BRACKET FRONT PLATE LH	HP-2-ASED-DW-0300-01
RD13	PACS ESD PROTECTION BRACKET INNER SIDEWALL LH	HP-2-ASED-DW-0301-01
RD14	PACS ESD PROTECTION BRACKET OUTER SIDEWALL LH	HP-2-ASED-DW-0302-01

2.5 Other Documents

For abbreviations see RD 01

3 Requirements to be verified

Proper HPLM Cryo-Control functional performance record during SFT by Cryo-SCOE and PFM CCU

Instrument & SIH functional performance recorded during Instrument UFT on PLM & SVM level in Instrument procedures and not herein

Fulfilment of HPLM, SVM and Instrument ESD Requirements

HPLM and SVM Structural Bonding and Grounding

4 Configuration

4.1 PLM Configuration

The EPLM mounted on SVM and Integration stand in clean-room 100. 000
EPLM lower bulkhead is finally closed
PFM CVV int CCH installed and mated to all Cryo components, except UBS1-3
The EPLM upper bulkhead closed without UBS1,2,3 & mated CVV int CCH
PFM CVV ext. CCH & SIH partially fixed in PFM configuration
SCOE Connectors for CVV int. CCC Control is getting intermediately mated
PFM PACS FPU installed on OBA – with partially mated PACS CVV internal SIH
PFM HIFI FPU installed on OBA – with mated HIFI CVV internal SIH
SPIRE PFM Cold-units installed, FPU, JFS and JFP – with mated SPIRE CVV int. SIH
13 SPIRE SIH Termination Connectors mated on CVV int. upper FTHR connectors
PFM CVV int. Global leak Test has been passed

4.2 Set-up

Environmental	Nominal
Clean Room Class	100.000
Temperature	22°C ± 3°C
Rel. Humidity	40% to 60%
Pressure	ambient

5 Conditions

5.1 Personnel

Responsibility	Name / Organization
Harness Operator 1	*)
Harness Operator 2	*)
Test Manager	*)
Test Engineer	*)
EGSE Operator	*)
Support Engineer	*)
ASED Instrument Responsible	*)
HIFI Instrument Responsible	*)
SPIRE Instrument Responsible	*)
PACS Instrument Responsible	*)
ASED PA Responsible	*)
TAS-F PA Responsible	*)
ESA PA Responsible	*)
Customer Representative	*)

*) Names and possible additional personal are to be registered prior to the integration activities.

5.2 Environmental

See § 4.2

5.3 General Precautions and Safety

5.3.1 General Safety Requirements, Precautions

- Respect of the standard technical rules for mechanical and electrical integration and test activities are sufficient.
- Other special hazard precautions are not expected, except for the comments mentioned in the step by step procedure for the relevant item
- The flight H/W has to be handled by authorized personnel only
- During non integration phase the flight H/W has to be protected against contamination by appropriate means like blind flanges, caps or protective foils
- The following tasks have to be regarded before start of any integration/test activity:
- IRR has been successfully held to ensure that the relevant procedures, drawings, applicable documents are available, reviewed and approved
- Formal release to start with activity is given by QA
- The necessary GSE and H/W is available, accepted and applicable for use
- Safe working conditions for personnel and H/W are existing and will be applied
- Skilled and authorized personnel is available
- Incoming inspection of H/W have been performed by QA and engineering

5.3.2 ESD constraints

During all handling activities of the CVV external SIH attention must be paid to the ESD rules for Herschel PLM & S/C Integration Activities.

NOTE for CVV int Instrument Cold units already installed :

The Instrument Cold-units installed are very sensitive to ESD.

These Cold-Units contains very sensitive components that are susceptible to damage by Electro static discharge. On delivery all connectors will be protected by ESD covers or shorting / termination plugs as appropriate.

When handling these units, all personnel shall wear anti static protection (wrist straps or other suitable methods).

The proper wrist-strap function shall be checked prior handling and after handling too.

When Cryo harness is not connected to ESD sensitive units, means the unit is electrically floating and prone to ESD damage. To avoid this, the instrument required shorting / termination plugs shall be connected instead at all time for soft electrical grounding / ESD discharge.

During connector mating the air ionizer shall be placed closed to handling area, that airflow slide over the mating surfaces all time.

Where no permanent shorting plugs can be mated on opposite harness end , the single connector shall be shorted to ground, just before mating the individual PFM CCH / SIH connector to the unit / I/-Brackets connector, e.g. as valid for CCU CCH.

The ESD shorting plug shall be mated to those connectors containing the maximum of wired contacts for ESD discharge.

5.3.3 Special QA Requirements

QA shall monitor all operations (handlings, transportation and installation) as necessary to assure compliance with this procedure and the applicable sections of the PA Plan.

In the course of this procedure QA shall pay particular attention to

- ensure adequate cleanliness conditions
- ensure that all safety aspects are considered
- the application of adequate protections to critical surfaces
- the records in the log sheet
- to ensure that tools and test equipment used is within current calibration cycle

5.4 GSE

All GSE and integration equipment is fit checked and carries valid calibration certificates.

Qty.	Designation/Manufacturer	Provided by	Drawing/Ident. NR:	Calibr. Date
1	Digital Volt Meter	ASED		
set	IDAS Test Adapters	ASED		
1	BOB	ASED		
1	Air ioniser for connector mating	ASED		
4	PACS ESD Terminations	ASED	GREEN-TAG	
11	PACS ESD Shorting-plugs	ASED	RED-TAG	
13	SPIRE Termination-plugs	ASED	RED-TAG	
5	HIFI Termination-plugs	ASED	RED-TAG	
set	ESD protection foils	ASED		

Table 5.4-1: GSE

5.4.1 MGSE

Qty.	Designation/Manufacturer	Provided by	Drawing/Ident. NR:	Calibr. Date
1	Set of Tools	ASED		
1	Set of ESD Tools	ASED		
1	Torque wrench for D-Sub connectors 0,45 Nm	ASED		
1	Torque wrench for SMA Male connectors 1,0 Nm	ASED		
1	Torque wrench for SMA Female-Female Flange connectors 1,5 Nm	ASED		
	Isopropyl alcohol	ASED		

Table 5.4-2: MGSE

6 Verification Requirements and Test Criteria

For instruments see AD-13, AD-15 and AD-17

For Cryo control components, see Cryo-SCOE spread-sheets

6.1 Integration of CVV ext CCH Bundles

The PFM CCH bundles as listed below shall be integrated and fixed according HP-2-ASED-ID-0081 & HP-2-ASED-TN-0086. Record status in tables below.

6.1.1 CCH Bundles to SVM I/F-CB 321100, 312200, 321300 & 321400

Bundle Name	Connector	to	Connector	Note	
ICE-10	315100-J001 SVM-CB		211121-P37 VFTH	SVM-Conn.Bracket to VFTH-Conn.	
ICB-10	321300-J001 SVM-CB		211121-P36 VFTH	SVM-Conn.Bracket to VFTH-Conn.	
ICS-31	314300-P001 SVM-CB		141100-J01		
ICS-36	314300-P002 SVM-CB		141100-J02	Harness SVM-CB to Telescope	
ICA-34	315100-J005 SVM-CB		141100-J03		
ICB-34	315100-J006 SVM-CB		141100-J04		
ICA-41	331100-J01 SVM-CB		21T321	SVM-Shield internal Harness Temp.Sensors connection	
			21T322		
ICB-41	331100-J002 SVM-CB		21T322		
			21T324		
ICA51	231230-J001 Sunshade-CB		21T312-P01	Sunshade Temp.Sensor-Conn.	
			21T314-P01	Temp.Sensor-Conn.	
			21T316-P01	Temp.Sensor-Conn.	
ICB-51	231230-J002 Sunshade-CB		21T311-P01	Temp.Sensor-Conn.	
			21T313-P01	Temp.Sensor-Conn.	
			21T315-P01	Temp.Sensor-Conn.	

Integration of PFM CVV external CCH Bundles continued

Bundle Name	Connector	to	Connector	Note	Start of Integration
ICB-32	321300-J003 SVM-CB		331100-P02	SVM-Shld-CB	
			21T504-P01	Temp.Sensor-Conn.	
			21T506-P01	Temp.Sensor-Conn.	
			214420-P03	ext.Ventline Conn.Bracket	
			21T652-P01	Temp.Sensor-Conn.	
			21T902-P01	Temp.Sensor-Conn.	
			21T908-P01	Temp.Sensor-Conn.	
			21T912-P01	Temp.Sensor-Conn.	
			21P502-P01	Press.Transd.-Conn.	
ICA-33	321200-J004 SVM-CB		231230-P001	Sunshade-CB	
			21T905-P01	Temp.Sensor-Conn.	
			21T909-P01	Temp.Sensor-Conn.	
			21T931-P01	ext.Ventline Conn.Bracket	
			21T933-P01	Temp.Sensor-Conn.	
			21T935-P01	Temp.Sensor-Conn.	

Integration of PFM CVV external CCH Bundles continued

Bundle Name	Connector	to	Connector	Note	Start of Integration
ICB-33	321300-J004 SVM-CB		231230-P002	Sunshade-CB	
			21T904-P01	Temp.Sensor-Conn.	
			21T906-P01	Temp.Sensor-Conn.	
			21T910-P01	ext.Ventline Conn.Bracket	
			21T932-P01	Temp.Sensor-Conn.	
			21T934-P01	Temp.Sensor-Conn.	
ICE-32	321100-J04 SVM-CB		21P502	SVM-CB to ext.Ventline Conn.	
ICE-34	321100-J08 SVM-CB		212420-P01	ext.Ventl.CB. For T502	
			321400-P04	UMB-I/F CB	
ICE-33	321100-J07 SVM-CB		212420-P01	ext.Ventl.CB. For H501	
			321400-P03	UMB-I/F CB	
ICE-36	212420-J04 ext.Ventl.CB		21H502-P01	ext.Ventl.CB. For H502	
ICS-32	314200-J03 SVM-CB		211310-P03	Cover-CB (Cover NED N601)	
			314100-P01	SVM-CB	
ICS-33	314200-J05 SVM-CB		211310-P05	Cover-CB (Cover SI 601)	
			314100-P03	SVM-CB	

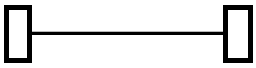
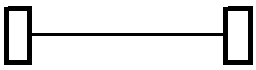
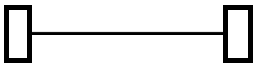
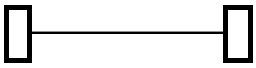
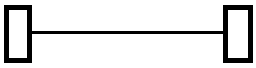
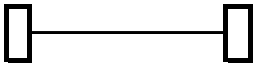
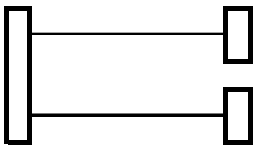
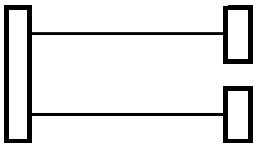
Integration of PFM CVV external CCH Bundles continued

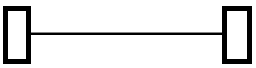
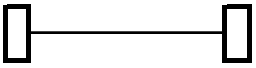
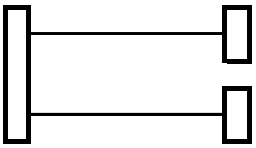
Bundle Name	Connector	to	Connector	Note	Start of Integration
ICS-38	314200-J06 SVM-CB		211310-P06 314100-P04	Cover-CB (Cover SI 602) SVM-CB	
ICS-37	314200-J04 SVM-CB		211310-P04 314100-P02	Cover-CB (Cover NED N602) SVM-CB	
ICE-35	314200-J001 SVM-CB 314200-J002 SVM-CB		211310-P01 211310-P02	Cover Temp.Sensors and Status Switch	
ICA-10	321300-J01 SVM-CB		211121-P35 VFTH	SVM-Conn.Bracket to VFTH-Conn.	
ICA-11	321200-J02 SVM-CB		211123-P09 VFTH	SVM-Conn.Bracket to VFTH-Conn.	
ICA-12	321200-J05 SVM-CB		211123-P07 VFTH	SVM-Conn.Bracket to VFTH-Conn.	
ICA-31	316100-J01 SVM-CB		21V501-P01 21V503-P01	V501-Conn V503-Conn	

Integration of PFM CVV external CCH Bundles continued

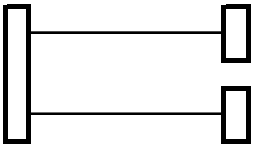
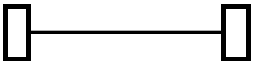
Bundle Name	Connector	to	Connector	Note	Start of Integration

PFM CVV external CCH Bundle Integration Record

Bundle Name	Connector	to	Connector	Note	
ICE-10	315100-J001 SVM-CB		211121-P37 VFTH	SVM-Conn.Bracket to VFTH-Conn.	
ICB-10	321300-J001 SVM-CB		211121-P36 VFTH	SVM-Conn.Bracket to VFTH-Conn.	
ICS-31	314300-P001 SVM-CB		141100-J01		
ICS-36	314300-P002 SVM-CB		141100-J02	Harness SVM-CB to Telescope	
ICA-34	315100-J005 SVM-CB		141100-J03		
ICB-34	315100-J006 SVM-CB		141100-J04		
ICA-41	331100-J01 SVM-CB		21T321 21T322	SVM-Shield internal Harness Temp.Sensors connection	
ICB-41	331100-J002 SVM-CB		21T322 21T324		

ICB-11	321300-J02 SVM-CB		211123-P10 VFTH	SVM-Conn.Bracket to VFTH-Conn.	
ICB-12	321300-J05 SVM-CB		211123-P08 VFTH	SVM-Conn.Bracket to VFTH-Conn.	
ICB-31	316100-J02 SVM-CB		21V503-P01 21V505-P01	V503-Conn V505-Conn	
ICE-11	315100-J03		211123-P01	SVM-Conn.Bracket to VFTH-Conn.	

Integration of PFM CVV external CCH Bundles continued

Bundle Name	Connector	to	Connector	Note	Start of Integration
ICE-14	321100-J02 SVM-CB		211123-P06 VFTH 321400-P02	V503-Conn SVM-Cone UMB.-IF CB	
ICE-31	321100-J03 SVM-CB		212420-P04	ext.Ventline CB	

6.1.2 CCH Screw-lock Assembly Locking after final Mating & Integration

Connector types of Harness bundles to be integrated				
Connector	Type	Locked	passed Yes/No	Remark
Telescope IF-CB				
141100 J01	340104401B-03-14-18SN			Backshell coupling
141100 J02	340104401B-03-14-18SA			Backshell coupling
141100 J03	340104401B-03-14-35SN			Backshell coupling
141100 J04	340104401B-03-14-35SA			Backshell coupling
on SunShade				
21T311 P01	MRN-4194-15P			Fixation Bolts
21T312 P01	MRN-4194-15P			Fixation Bolts
21T313 P01	MRN-4194-15P			Fixation Bolts
21T314 P01	MRN-4194-15P			Fixation Bolts
21T315 P01	MRN-4194-15P			Fixation Bolts
21T316 P01	MRN-4194-15P			Fixation Bolts
on SVM Shield				
21T321 P01	MRN-4194-15P			Fixation Bolts
21T322 P01	MRN-4194-15P			Fixation Bolts
21T323 P01	MRN-4194-15P			Fixation Bolts
21T324 P01	MRN-4194-15P			Fixation Bolts
on Ext. Ventline				
21H501 P01	340104401B-06G-10-06S			Backshell coupling & Strain-relief bolts
21H502 P01	340100101B-DEMA-09S			Fixation Bolts
21H503 P01	340100101B-DEMA-09S			Fixation Bolts
21P501 P01	PT06G-10-06SR-023			Backshell coupling & Strain-relief bolts
21P502 P01	PT06G-10-06SR-023			Backshell coupling & Strain-relief bolts
21V501 P01	MWDM-15P			Fixation Bolts
21V503 P01	MWDM-15P			Fixation Bolts

Connector types of Harness bundles to be integrated				
Connector	Type	Locked	passed Yes/No	Remark
21V504 P01	MWDM-15P			Fixation Bolts
21V505 P01	MWDM-15P			Fixation Bolts
21T501 P01	MRN-4194-15P			Fixation Bolts
21T502 P01	MRN-4194-15P			Fixation Bolts
21T504 P01	MRN-4194-15P			Fixation Bolts
21T505 P01	MRN-4194-15P			Fixation Bolts
21T506 P01	MRN-4194-15P			Fixation Bolts
21T507 P01	MRN-4194-15P			Fixation Bolts
Upper Bulkhead				
21T901 P01	MRN-4194-15P			Fixation Bolts
CVV Cylinder				
21T902 P01	MRN-4194-15P			Fixation Bolts
21T905 P01	MRN-4194-15P			Fixation Bolts
21T906 P01	MRN-4194-15P			Fixation Bolts
Lower Bulkhead				
21T903 P01	MRN-4194-15P			Fixation Bolts
21T904 P01	MRN-4194-15P			Fixation Bolts
CVV Radiators				
21T911 P01	MRN-4194-15P			Fixation Bolts
21T912 P01	MRN-4194-15P			Fixation Bolts
21T907 P01	MRN-4194-15P			Fixation Bolts
21T908 P01	MRN-4194-15P			Fixation Bolts
21T909 P01	MRN-4194-15P			Fixation Bolts
21T910 P01	MRN-4194-15P			Fixation Bolts
LOU Baseplate				
21T931 P01	MRN-4194-15P			Fixation Bolts
21T932 P01	MRN-4194-15P			Fixation Bolts

Connector types of Harness bundles to be integrated				
Connector	Type	Locked	passed Yes/No	Remark
21T933 P01	MRN-4194-15P			Fixation Bolts
LOU WaveGuide				
21T934 P01	MRN-4194-15P			Fixation Bolts
21T935 P01	MRN-4194-15P			Fixation Bolts
CVV FTHR Ring Top				
211121P35	197-012P22-35-S-429			Backshell coupling
211121P36	197-012P22-35-S-429			Backshell coupling
211121P37	197-012P22-35-S-429			Backshell coupling
211121 P38	197-012P22-35-S-429			Backshell coupling
CVV FTHR Ring Bottom				
211123 P01	197-012P22-35-S-429			Backshell coupling
211123 P02	197-012P22-35-S-429			Backshell coupling
211123 P03	197-012P22-35-S-429			Backshell coupling
211123 P05	197-012P22-35-S-429			Backshell coupling
211123 P06	197-012P22-35-S-429			Backshell coupling
211123 P07	197-012P22-35-S-429			Backshell coupling
211123 P08	197-012P22-35-S-429			Backshell coupling
211123 P09	197-012P22-35-S-429			Backshell coupling
211123 P10	197-012P22-35-S-429			Backshell coupling
Cryo-Cover-CB				
211310 P01	340104401B-06G-12-35SA			Backshell coupling
211310 P02	340104401B-06G-12-35SA			Backshell coupling
211310 P03	340104401B-06G-12-98SA			Backshell coupling
211310 P04	340104401B-06G-12-98SB			Backshell coupling
211310 P05	340104401B-06G-12-35SA			Backshell coupling
211310 P06	340104401B-06G-12-35SB			Backshell coupling
Ventline Unit-CB				
212420 J01	340104401B-03-12-98PA			
212420 J02	340100101B-DEMA-09P			

Connector types of Harness bundles to be integrated				
Connector	Type	Locked	passed Yes/No	Remark
212420 J03	340100101B-DEMA-09P			
212420 J04	340100101B-DEMA-09P			
212420 P01	340104401B-06G-12-98SA			
212420 P02	340100101B-DEMA-09S			
212420 P03	340100101B-DEMA-09S			
212420 P04	340100101B-DEMA-09S			
SunShade I/F-CB				
231230 J01	340100101B-DAMA-15P			
231230 J02	340100101B-DAMA-15P			
231230 P01	340100101B-DAMA-15S			
231230 P02	340100101B-DAMA-15S			
SVM I/F-CB HIFI				
311200 J02	340104401B-03-22-35PN			CCH SPARE , not integrated
SVM-Cone-CB	**to Cryo-Cover & Umbilical**			
314100 P01	340100101B-DEMA-09P			
314100 P02	340100101B-DEMA-09P			
321400 P03	340100101B-DAMA-15P			
321400 P04	340100101B-DAMA-15P			
SVM I/F-CB	**to Cryo-Cover,EGSE,SVM**			
314200 J01	340104401B-03-10-35PA			
314200 J02	340104401B-03-10-35PB			
314200 J03	340104401B-03-14-18SA			
314200 J04	340104401B-03-14-18SB			
314200 J05	340104401B-03-10-35SA			
314200 J06	340104401B-03-10-35SB			
SVM-Cone IF-CB	**to Telescope**			
314300 P01	340104401B-06G-14-35PA			
314300 P02	340104401B-06G-14-35PB			
SVM I/F-CB	**EGSE to CVV FTHR Top**			

Connector types of Harness bundles to be integrated				
Connector	Type	Locked	passed Yes/No	Remark
315100 J01	340104401B22-35PN			
315100 J02	340104401B22-35PN			
315100 J03	340104401B22-35PN			
315100 J04	340104401B22-35PN			
	CCU to ext Ventline			
316100 J01	340104401B-03-12-35PA			
316100 J02	340104401B-03-12-35PB			
	EGSE & to Umbilical			
321100 J01	340104401B22-35PN			
321100 J02	340104401B-03-22-35PN			
321100 J03	340104401B03-12-35PN			
321100 J04	340104401B03-12-35PA			
321100 J05	340104401B-03-22-35PN			
321100 J06	340104401B-03-22-35PN			
321100 J07	340104401B03-12-35PN			
321100 J08	340104401B03-12-35PB			
	CCU Sensor I/Fs			
321200 J01	340104401B-03-22-35PN			
321200 J02	340104401B-03-22-35PN			
321200 J03	340104401B-03-22-35PN			
321200 J04	340104401B-03-22-35PN			
321200 J05	340104401B-03-22-35PN			
	CCU Sensor I/Fs			
321300 J01	340104401B-03-22-35PN			
321300 J03	340104401B-03-22-35PN			
321300 J04	340104401B-03-22-35PN			
321300 J05	340104401B-03-22-35PN			
SVM Shield-CB				

Connector types of Harness bundles to be integrated				
Connector	Type	Locked	passed Yes/No	Remark
331100 J01	MWDM-15S			
331100 J02	MWDM-15S			
331100 P01	MWDM-15P			
331100 P02	MWDM-15P			

Date:	Date:
Name:	PA:

6.2 Integration of CVV ext PACS SIH Bundles

6.2.1 CVV ext SVM I/F-CB 313100 for PACS FPU PFM ESD Protection

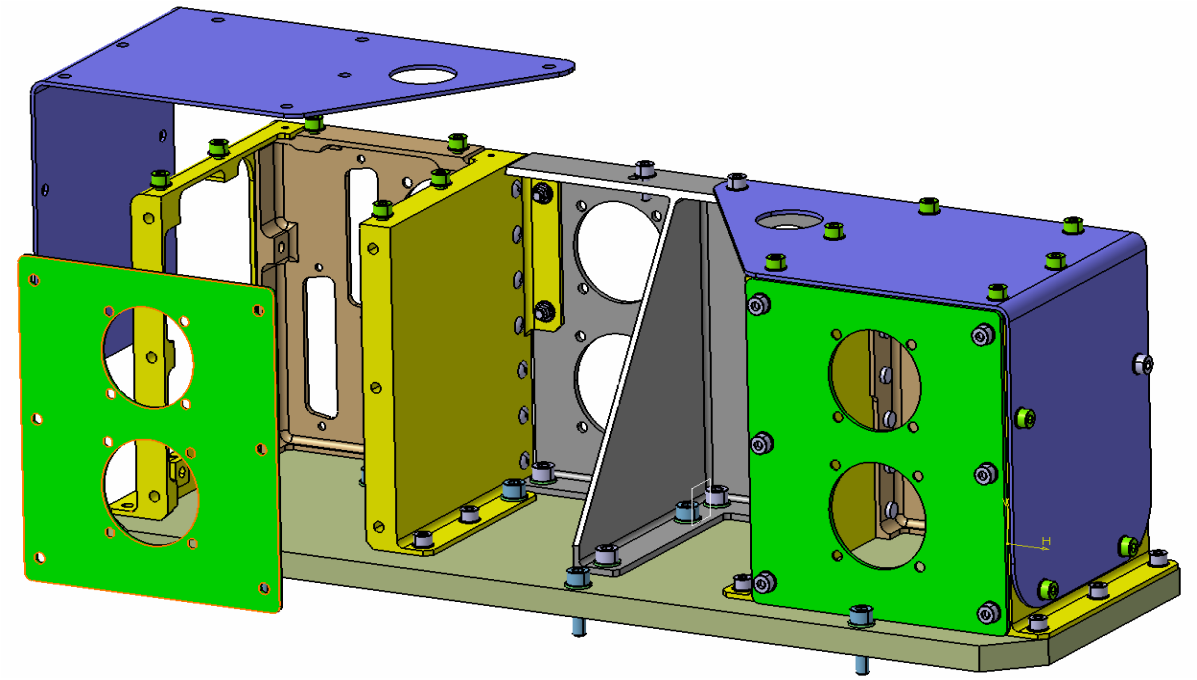


Figure 6.2-1: General mechanical Design view from CVV ext SIH side

6.2.2 Principle Wiring of PACS FPU ESD Protection at SVM I/F-CB 313100

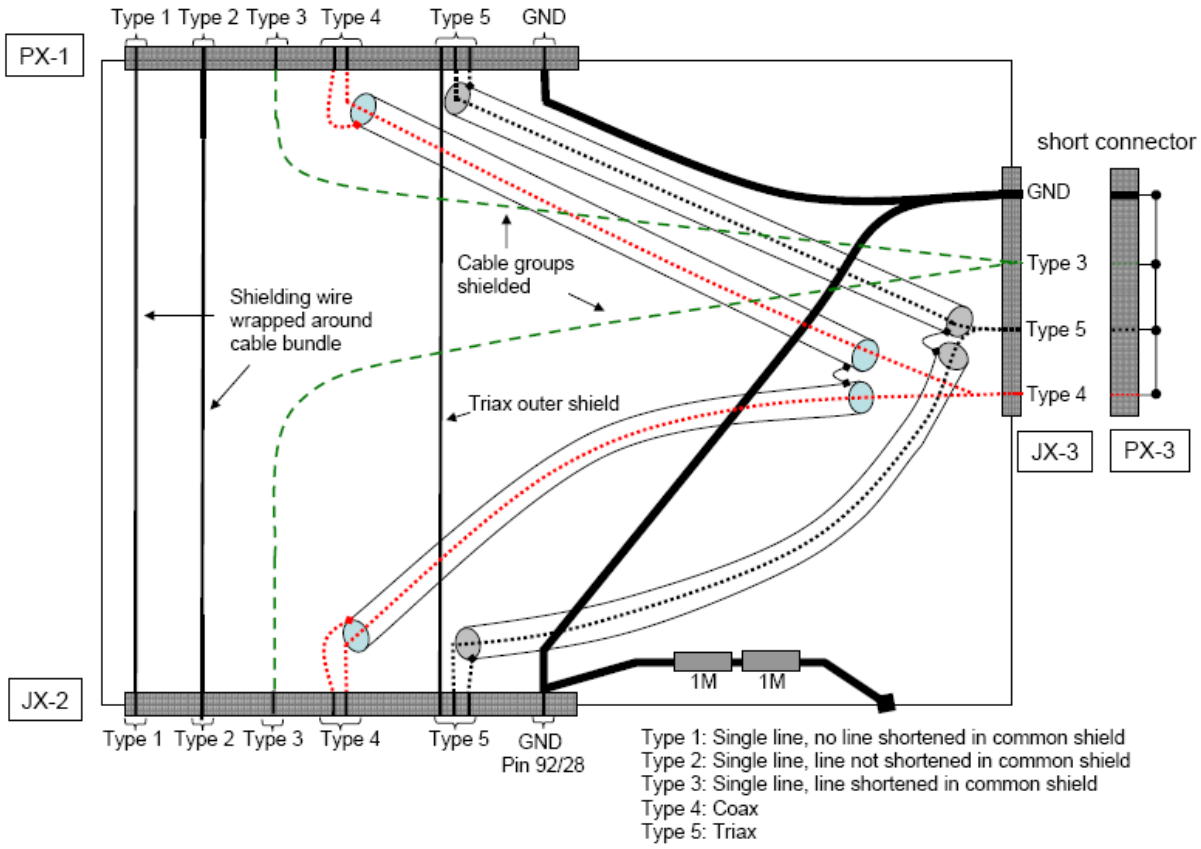


Figure 6.2-2: General electrical Design

6.2.3 PACS SIH Bundles to SVM I/F-CB 313100

SVM-CB	Con	Type	SIH Bundle	CVV or	SIH Plug	Type	Bundle Integrated		Date:	Operator:
							Y	N		
313100	**J01-1**	22-35P	SIH-IP-04	**211121**	P01	**22**-35S				
313100	J01-2	22-35P	SIH-IP-04	ESDU						
313100	J01-3	50S	SIH-IP-04	ESDU						
313100	P01-3	50P	SIH-IP-04	ESDU						
313100	**J02-1**	24-35P	SIH-IP-03	211121	P02	24-35S				
313100	J02-2	24-35P	SIH-IP-03	ESDU						
313100	J02-3	50S	SIH-IP-03	ESDU						
313100	P02-3	50P	SIH-IP-03	ESDU						
313100	**J03**	NC								
313100	**J04**	24-35P	SIH-IP-14	211121	P03	24-35S				
313100	**J05**	22-35P	SIH-IP-15	211121	P04	22-35S				
313100	**J06**	24-35P	SIH-IP-13	211121	P07	24-35S				
313100	**J07-1**	22-35P	SIH-IP-02	211121	P08	22-35S				
313100	J07-2	22-35P	SIH-IP-02	ESDU						
313100	J07-3	50S	SIH-IP-02	ESDU						
313100	P07-3	50P	SIH-IP-02	ESDU						
313100	**J08-1**	24-35P	SIH-IP-01	211121	P09	24-35S				
313100	J08-2	24-35P	SIH-IP-01	ESDU						
313100	J08-3	50S	SIH-IP-01	ESDU						
313100	P08-3	50P	SIH-IP-01	ESDU						
Date:				Date:						
Name:				PA:						

6.2.4 PACS SIH Bundles to SVM I/F-CB 313200

SVM-CB	Con	Type	SIH Bundle	CVV or	SIH Plug	Type	Bundle Integrated		Date:	Operator:
							Y	N		
313200	**J01**	22-35P	SIH-IP-09	211121	P12	22-35S				
313200	**J02**	24-35P	SIH-IP-08	211121	P11	24-35S				
313200	**J03**	22-35P	SIH-IP-10	211121	P13	22-35S				
313200	**J04**	24-35P	SIH-IP-05	211121	P05	24-35S				
313200	**J05**	22-35P	SIH-IP-11	211121	P14	22-35S				
313200	**J06**	24-35P	SIH-IP-06	211121	P06	24-35S				
313200	**J07**	22-35P	SIH-IP-12	211121	P15	22-35S				
313200	**J08**	24-35P	SIH-IP-07	211121	P10	24-35S				
Date:				Date:						
Name:				PA:						

Note:

The PACS ESD Unit as shown in § 7.1, shall be installed in between the CVV external SIH connector 313200 J01 – J02 – J07 & J08.

6.2.5 PACS SIH Screw-lock Assembly Locking after final Mating & Integration

Connector types of Harness bundles to be integrated				
Connector	Type	Locked	passed Yes/No	Remark
211121P01	197-012P22-35-S-429			Backshell coupling
211121P02	197-012P24-35-S-429			Backshell coupling
211121P03	197-012P24-35-S-429			Backshell coupling
211121 P04	197-012P22-35-S-429			Backshell coupling
211121P05	197-012P24-35-S-429			Backshell coupling
211121P06	197-012P24-35-S-429			Backshell coupling
211121P07	197-012P24-35-S-429			Backshell coupling
211121P08	197-012P22-35-S-429			Backshell coupling
211121P09	197-012P24-35-S-429			Backshell coupling
211121P10	197-012P24-35-S-429			Backshell coupling
211121P11	197-012P24-35-S-429			Backshell coupling
211121P12	197-012P22-35-S-429			Backshell coupling
211121P13	197-012P22-35-S-429			Backshell coupling
211121P14	197-012P22-35-S-429			Backshell coupling
211121P15	197-012P22-35-S-429			Backshell coupling
313100 J01	03-22-35 PN			Backshell coupling
313100 J02	03-24-35 PN			Backshell coupling
313100 J03	NC			
313100 J04	03-24-35 PN			Backshell coupling
313100 J05	03-22-35 PN			Backshell coupling
313100 J06	03-24-35 PN			Backshell coupling
313200 J07	03-22-35 PN			Backshell coupling
313200 J08	03-24-35 PN			Backshell coupling

Connector types of Harness bundles to be integrated				
Connector	Type	Locked	passed Yes/No	Remark
313200 J01	03-22-35 PN			Backshell coupling
313200 J02	03-24-35 PN			Backshell coupling
313200 J03	03-22-35 PN			Backshell coupling
313200 J04	03-24-35 PN			Backshell coupling
313200 J05	03-22-35 PN			Backshell coupling
313200 J06	03-24-35 PN			Backshell coupling
313200 J07	03-22-35 PN			Backshell coupling
313200 J08	03-24-35 PN			Backshell coupling
313100 J01	03-22-35 PN			Receptacle fix.-nuts torqued
313100 J02	03-24-35 PN			Receptacle fix.-nuts torqued
313100 J03	NC			
313100 J04	03-24-35 PN			Receptacle fix.-nuts torqued
313100 J05	03-22-35 PN			Receptacle fix.-nuts torqued
313100 J06	03-24-35 PN			
				Receptacle fix.-nuts torqued
313200 J01	03-22-35 PN			Receptacle fix.-nuts torqued
313200 J02	03-24-35 PN			Receptacle fix.-nuts torqued
313200 J03	03-22-35 PN			Receptacle fix.-nuts torqued
313200 J04	03-24-35 PN			Receptacle fix.-nuts torqued
313200 J05	03-22-35 PN			Receptacle fix.-nuts torqued
313200 J06	03-24-35 PN			Receptacle fix.-nuts torqued
313200 J07	03-22-35 PN			Receptacle fix.-nuts torqued
313200 J08	03-24-35 PN			Receptacle fix.-nuts torqued

Date:	Date:
Name:	PA:

6.3 Integration of CVV ext SPIRE SIH Bundles

6.3.1 SPIRE SIH Bundles to SVM I/F-CB 312100

SVM-CB	Con	Type	SIH Bundle	CVV or	SIH Plug	Type	Bundle Integrated		Date:	Operator:
							Y	N		
312100	J1A	D09P	SIH-IS-02	J1B						
312100	J1B	D09S	SIH-IS-02	J1A						
312100	J02	24-35P	SIH-IS-07	211121	P23	24-35S				
312100	J03	24-35P	SIH-IS-04	211121	P22	24-35S				
312100	J04	24-35P	SIH-IS-03	211121	P26	24-35S				
Date:				Date:						
Name:				PA:						

6.3.2 SPIRE SIH Bundles to SVM I/F-CB 312200

SVM-CB	Con	Type	SIH Bundle	CVV or	SIH Plug	Type	Bundle Integrated		Date:	Operator:
							Y	N		
312200	J01	24-35P	SIH-IS-08	211121	P27	24-35S				
312200	J02	24-35P	SIH-IS-09	211121	P28	24-35S				
312200	J03	24-35P	SIH-IS-06	211121	P24	24-35S				
312200	J04	24-35P	SIH-IS-07	211121	P25	24-35S				
312200	J05	24-35P	SIH-IS-01	211121	P32	24-35S				
312200	J06	24-35P	SIH-IS-02	211121	P31	24-35S				
Date:				Date:						
Name:				PA:						

6.3.3 SPIRE SIH Bundles to SVM I/F-CB 312200

SVM-CB	Con	Type	SIH Bundle	CVV or	SIH Plug	Type	Bundle Integrated		Date:	Operator:
							Y	N		
312300	J01	10-35P	Greentag							
312300	J02	10-35P	Greentag							
312300	J03	24-35P	SIH-IS-13	211121	P29	24-35S				
312300	J04	24-35P	SIH-IS-11	211121	P30	24-35S				
312300	J05	24-35P	SIH-IS-12	211121	P33	24-35S				
312300	J06	24-35P	SIH-IS-10	211121	P34	24-35S				
Date:				Date:						
Name:				PA:						

6.3.4 SPIRE SIH Screw-lock Assembly Locking after final Mating & Integration

Connector types of Harness bundles to be integrated				
Connector	Type	Locked	passed Yes/No	Remark
211121P22	197-012P24-35-S-429			Backshell coupling
211121P23	197-012P24-35-S-429			Backshell coupling
211121P24	197-012P24-35-S-429			Backshell coupling
211121 P25	197-012P22-35-S-429			Backshell coupling
211121P26	197-012P24-35-S-429			Backshell coupling
211121P27	197-012P24-35-S-429			Backshell coupling
211121P28	197-012P24-35-S-429			Backshell coupling
211121P29	197-012P22-35-S-429			Backshell coupling
211121P30	197-012P24-35-S-429			Backshell coupling
211121P31	197-012P24-35-S-429			Backshell coupling
211121P32	197-012P24-35-S-429			Backshell coupling
211121P33	197-012P24-35-S-429			Backshell coupling
211121P34	197-012P24-35-S-429			Backshell coupling
312100 J1A	D09P			Female screw-lock ASSY
312100 J1B	D09S			Female screw-lock ASSY
312100 J02	24-35P			Backshell coupling
312100 J03	24-35P			Backshell coupling
312100 J04	24-35P			Backshell coupling
312100 J02	24-35P			Receptacle fix.-nuts torqued
312100 J03	24-35P			Receptacle fix.-nuts torqued
312100 J04	24-35P			Receptacle fix.-nuts torqued

Connector types of Harness bundles to be integrated				
Connector	Type	Locked	passed Yes/No	Remark
312200 J01	24-35P			Backshell coupling
312200 J02	24-35P			Backshell coupling
312200 J03	24-35P			Backshell coupling
312200 J04	24-35P			Backshell coupling
312200 J05	24-35P			Backshell coupling
312200 J06	24-35P			Backshell coupling
312200 J01	24-35P			Receptacle fix.-nuts torqued
312200 J02	24-35P			Receptacle fix.-nuts torqued
312200 J03	24-35P			Receptacle fix.-nuts torqued
312200 J04	24-35P			Receptacle fix.-nuts torqued
312200 J05	24-35P			Receptacle fix.-nuts torqued
312200 J06	24-35P			Receptacle fix.-nuts torqued
312300 J01	10-35P			Backshell coupling
312300 J02	10-35P			Backshell coupling
312300 J03	24-35P			Backshell coupling
312300 J04	24-35P			Backshell coupling
312300 J05	24-35P			Backshell coupling
312300 J06	24-35P			Backshell coupling
312300 J01	10-35P			Receptacle fix.-nuts torqued
312300 J02	10-35P			Receptacle fix.-nuts torqued
312300 J03	24-35P			Receptacle fix.-nuts torqued
312300 J04	24-35P			Receptacle fix.-nuts torqued
312300 J05	24-35P			Receptacle fix.-nuts torqued
312300 J06	24-35P			Receptacle fix.-nuts torqued
Date:		Date:		
Name:		PA:		

6.4 Integration of CVV ext HIFI SIH Bundles

6.4.1 HIFI SIH Bundles to SVM I/F-CB 311100

SVM-CB	Con	Type	SIH Bundle	CVV or LOU	SIH Plug		Bundle Integrated		Date:	Operator:
							Y	N		
311100	J01	22-35P	SIH-IH-02	211121	P16	22-35S				
311100	J02	24-35P	SIH-IH-05	211121	P17	24-35S				
311100	J03	22-35P	SIH-IH-01	211121	P18	22-35S				
311100	J04	22-35P	SIH-IH-03	211121	P19	22-35S				
311100	J05	22-35P	SIH-IH-04	211121	P20	22-35S				
Date:				Date:						
Name:				PA:						

6.4.2 HIFI SIH Bundles to SVM I/F-CB 311200

SVM-CB	Con	Type	SIH Bundle	CVV or LOU	SIH Plug		Bundle Integrated		Date:	Operator:
							Y	N		
311200	J05	24-35P	SIH-IH-06	111200	P01	D50P				
311200	J05		SIH-IH-06	111200	P03	D50P				
311200	J06	24-35P	SIH-IH-10	111200	P02	D50P				
311200	J06		SIH-IH-10	111200	P04	D50P				
311200	J07	24-35P	SIH-IH-07	111200	P05	D50P				
311200	J07		SIH-IH-07	111200	P07	D50P				
311200	J08	24-35P	SIH-IH-11	111200	P06	D50P				
311200	J08		SIH-IH-11	111200	P08	D50P				
Date:				Date:						
Name:				PA:						

6.4.3 HIFI SIH Bundles to SVM I/F-CB 311300

SVM-CB	Con	Type	SIH Bundle	CVV or LOU	SIH Plug		Bundle Integrated		Date:	Operator:
							Y	N		
311300	J01	24-35P	SIH-IH-08	111200	P09	D50P				
311300	J01		SIH-IH-08	111200	P11	D50P				
311300	J01		SIH-IH-08	111200	P15	D09S				
311300	J03	24-35P	SIH-IH-12	111200	P10	D50P				
311300	J03		SIH-IH-12	111200	P12	D50P				
311300	J03		SIH-IH-12	111200	P16	D09S				
311300	J05	24-35P	SIH-IH-09	111200	P13	D50P				
311300	J05		SIH-IH-09	111200	P14	D50P				
311300	J07	SMA-F	SIH-IH-21	211121	P21-A	SMA-M				
311300	J08	SMA-F	SIH-IH-22	211121	P21-B	SMA-M				
311300	J09	SMA-F	SIH-IH-23	211121	P21-C	SMA-M				
311300	J10	SMA-F	SIH-IH-24	211121	P21-D	SMA-M				
311300	J11	D15P	SIH-IH-25	111200	P17	D15S				
311300	J12	D15P	SIH-IH-26	111200	P18	D15S				
311300	J13	D15S	SIH-IH-27	111200	P19	D15P				
Date:				Date:						
Name:				PA:						

6.4.4 HIFI SIH Screw-lock Assembly Locking after final Mating & Integration

Connector types of Harness bundles to be integrated				
Connector	Type	Locked	passed Yes/No	Remark
211121P16	197-012P22-35-S-429			Backshell coupling
211121P17	197-012P24-35-S-429			Backshell coupling
211121P18	197-012P22-35-S-429			Backshell coupling
211121 P19	197-012P22-35-S-429			Backshell coupling
211121P20	197-012P22-35-S-429			Backshell coupling
211121J21-A	SMA female-female			Fixation bolt torqued
211121J21-B	SMA female-female			Fixation bolt torqued
211121J21-C	SMA female-female			Fixation bolt torqued
211121J21-D	SMA female-female			Fixation bolt torqued
211121P21-A	SMA-Male			Hex-nut to cable
211121P21-B	SMA-Male			Hex-nut to cable
211121P21-C	SMA-Male			Hex-nut to cable
211121P21-D	SMA-Male			Hex-nut to cable
111200 P01	DDMA-50P-NMB			Screw-locks
111200 P02	DDMA-50P-NMB			Screw-locks
111200 P03	DDMA-50P-NMB			Screw-locks
111200 P04	DDMA-50P-NMB			Screw-locks
111200 P05	DDMA-50P-NMB			Screw-locks
111200 P06	DDMA-50P-NMB			Screw-locks
111200 P07	DDMA-50P-NMB			Screw-locks
111200 P08	DDMA-50P-NMB			Screw-locks

Connector types of Harness bundles to be integrated				
Connector	Type	Locked	passed Yes/No	Remark
111200 P09	DDMA-50P-NMB			Screw-locks
111200 P10	DDMA-50P-NMB			Screw-locks
111200 P11	DDMA-50P-NMB			Screw-locks
111200 P12	DDMA-50P-NMB			Screw-locks
311100 J01	03-22-35 PN			Backshell coupling
311100 J02	03-24-35 PN			Backshell coupling
311100 J03	03-22-35 PN			Backshell coupling
311100 J04	03-22-35 PN			Backshell coupling
311100 J05	03-22-35 PN			Backshell coupling
311200 J05	03-24-35 PN			Backshell coupling
311200 J06	03-24-35 PN			Backshell coupling
311200 J07	03-24-35 PN			Backshell coupling
311200 J08	03-24-35 PN			Backshell coupling
311300 J01	03-24-35 PN			Backshell coupling
311300 J03	03-24-35 PN			Backshell coupling
311300 J05	03-24-35 PN			Backshell coupling
311100 J01	03-22-35 PN			Receptacle fix.-nuts torqued
311100 J02	03-24-35 PN			Receptacle fix.-nuts torqued
311100 J03	03-22-35 PN			Receptacle fix.-nuts torqued
311100 J04	03-22-35 PN			Receptacle fix.-nuts torqued
311100 J05	03-22-35 PN			Receptacle fix.-nuts torqued

Connector types of Harness bundles to be integrated				
Connector	Type	Locked	passed Yes/No	Remark
311200 J05	03-24-35 PN			Receptacle fix.-nuts torqued
311200 J06	03-24-35 PN			Receptacle fix.-nuts torqued
311200 J07	03-24-35 PN			Receptacle fix.-nuts torqued
311200 J08	03-24-35 PN			Receptacle fix.-nuts torqued
311300 J01	03-24-35 PN			Receptacle fix.-nuts torqued
311300 J03	03-24-35 PN			Receptacle fix.-nuts torqued
311300 J05	03-24-35 PN			Receptacle fix.-nuts torqued
311300 J07	SMA-Female			Connector-flange fix.-nuts
311300 J08	SMA-Female			Connector-flange fix.-nuts
311100 J09	SMA-Female			Connector-flange fix.-nuts
311300 J10	SMA-Female			Connector-flange fix.-nuts
313300 J11	D15P			Female screw-lock assy
313300 J12	D15P			Female screw-lock assy
313300 J13	D15S			Female screw-lock assy
112200 P17	D15S			Srew-lock assembly
112200 P18	D15S			Srew-lock assembly
112200 P19	D15P			Srew-lock assembly
Date:		Date:		
Name:		PA:		

7 Step by Step Procedure

7.1 PLM with temporary closed Upper Bulkhead

Step-No.	Integration-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
001	Check all CVV profiles installed and torqued, except Cryo-cover CCH profile installed on upper bulkhead, to be removed for PACS FPU final mating & upper bulkhead opening						
002	**CVV external CCH**						
003	De-integrate Telescope CCH from CVV ext surfaces, for alternative harness routing and attachment in an area outside CVV covering MLI blankets				Re-routing currently under investigation at ASED Thermal		
004	Perform CCH bundle routing and fixation according AD-22 and record status						
005	Remove upper bulkhead CCH FTHR savers & Mate CVV ext CCH direct on CVV int. FTHR plugs except 211121 J38 and record status						
006	Cover CVV int upper FTHR by use of metal EMC cover Remark: CVV int. ACC I/F for direct ACC Test-harness mating of Hydra-shaker at ESTEC						

Step-No.	Integration-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
007	Store CVV ext. Radiator CCH sensor harness on CVV in suitable places and perform temporary fixation						
008	Store Cryo-cover Baffel sensor CCH temporary on CVV upper bulkhead surfaces						
009	**CVV external HIFI FPU SIH**						
010	Check HIFI SVM I/F-CB`s properly installed, screw-locks torque performed and record in AD-24						
011	Perform HIFI FPU SIH routing & fixation on CVV ext. surfaces and record status **Note:** Do not disconnect any HIFI FPU SIH connector from SVM I/F-CB 311100				FPU ESD Termination connectors mated		
012	Check CVV ext. HIFI FPU SIH connector fixation, torque & screw-lock locking. Record status in log-sheets						
013	**CVV external HIFI LOU SIH**						
014	**Note 1:** For PLM mating to SVM , HIFI LOU structures & SIH have been not installed **Note 2:** HIFI LOU Heater Harness not yet installed						

Step-No.	Integration-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
015	**After final installation of LOU Supporting structures & LOU base plate**						
016	Perform HIFI LOU SIH routing & fixation on CVV struts, LOU supporting structures & LOU Heater baffle I/F-CB and record status **Note:** Do not mate any LOU SIH connector, but fix SIH connectors close to LOU connector front-face by use of lacing cords						
017	Any PFM HIFI SIH connector mating & de-mating shall be instructed and controlled via the Instrument integration procedure, applicable for subject SIH section						
018	Perform final HIFI SIH mating & connector coupling / fixation / locking control and record in log-sheets herein						
019	Check CVV ext. HIFI SIH connector fixation, torque & screw-lock locking. Record status in log-sheets						
020	**CVV external HIFI LOU Window Heater Harness**						

Step-No.	Integration-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
021	Perform HIFI LOU Window Heater Harness routing & fixation on same paths than LOU SIH acc. AD-22 and record status.						
022	Perform mating of LOU Window heater connectors to I/F-CB **after** SVM PCDU / CDMU electrical I/F-check and record mating						
023	Check CVV ext. HIFI LOU Heater Harness connector fixations, torque & screw-lock locking.						
024	**CVV external SPIRE SIH**						
025	Check SPIRE SVM I/F-CB`s properly installed, screw-locks torque performed and record in AD-24						
026	Perform SPIRE SIH routing & fixation on CVV ext. surfaces and record status **Note:** Do not remove any CVV ext FTHR mated Terminations on the CVV upper ring FTHR`s						
027	Any PFM SPIRE SIH connector mating & de-mating shall be instructed and controlled via the Instrument integration procedure, applicable for subject SIH section						

Step-No.	Integration-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
028	Check CVV ext. SPIRE SIH connector fixation, torque & screw-lock locking. Record status in log-sheets						
029	**CVV external PACS SIH**						
030	Check PACS SVM I/F-CB`s properly installed, screw-locks torque performed and record in AD-24						
031	Perform PACS SIH routing & fixation on CVV ext. surfaces and record status **Note:** Do not remove any CVV ext PACS SIH Termination / Shorting-plug mated during PACS electrical integration						
032	Check PACS FPU ESD Protection finally accepted for integration & IRR performed successfully						
033	Install PACS FPU ESD Protection at SVM I/F-CB 313100. Record status						
034	Install SVM I/F-CB 313100 J03 to J06 acc. AD-22 and record status						
035	Adjust PACS CVV ext. SIH bundles 313100 J01, J02, J07, and J08 and record status						

Step-No.	Integration-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
036	Check CVV ext. PACS SIH connector fixation, torque & screw-lock locking. Record status in log sheets						
037	**Note to PACS SIH connector Mating / De-Mating:** Do not mate any SVM PACS SIH connector to SVM I/F-CB, except instructed by PACS Instrument !						

7.2 PLM with final closed Upper Bulkhead

Step-No.	Integration-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
Step-No.	Integration-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
038	**PLM with Finally closed UB**						
039	Install and torque upper bulkhead C-profile for Cryo-cover CCH						
040	**Note:** mechanical CVV external Radiator & A-Frame installation is not part of this procedure						
041	**CVV external CCH**						
042	Store SSD CCH to be routed later over HSS struts to SSD IF-CB 231230 on upper bulkhead surfaces acc. AD-22						
043	Perform final routing & Fixation to Cryo-cover Baffel CCH Sensors on CVV upper bulkhead surfaces acc. AD-22						

Step-No.	Integration-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
Step-No.	Integration-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
044	Perform final CCH routing and fixation to UB & Radiator Sensors						
045	Control & refurbish where necessary, the wrapped CCH bundle bonding foils in area of UB harness anchors. **Note**: CCH bundles with less than 6 mm dia. shall be laced to one ENN411 anchor side only.						
046	Check CVV UB finally installed and Cryo-cover CCH profile installed , bundles routed & CC connector plugs mated to Cryo-cover						
047	Perform PFM Routing and fixation on upper bulkhead to **Cryo-cover** (CC) and CC Baffle acc. AD-22						
048	Perform ty-base attachment gluing for new **Telescope** CCH routing CVV ext and record in gluing record sheets						
049	Integrate Telescope CCH on CVV ext surface outside CVV covering MLI blankets (new path)						

Step-No.	Integration-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
Step-No.	Integration-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
050	Check CVV ext **Radiators** installed and properly fixed						
	Connect CCH sensors attached on CVV Radiators and record integration status						
051	Check **A-Frame** installed and properly fixed						
052	Connect CCH sensors to A-Frame attached sensors and perform final routing, fixation & locking						
053	**CVV ext. External Vent-line CCH Integration**						
054	Route CVV ext. CCH to CVV ext. components and record status						
055	CVV ext. CCH OPEN WORK Closures						
056	Check open work items Cvv ext. CCH of & perform close out						
057	**CVV ext. SVM Shield Integration**						

Step-No.	Integration-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
Step-No.	Integration-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
058	Check SVM shield installed and properly fixed						
059	Interconnect T-Sensors on SVM Shield panel halves acc. AD-22						
060	Connect SVM Shield CCH with CVV ext. CCH and record status						
061	**SSD CCH Integration**						
062	Perform Routing & attachment of SSD CCH along UB , SSD Struts and record integration status						
063	Check, that SSD CCH over-shield stay isolated from SSD I/F-CB & structural ground. Record						
064	**CVV ext CCH Functional Test**						
065	Perform CCH Cryo-control component function by use of the CRYO-SCOE, see read-outs , which are not part of this procedure						

Step-No.	Integration-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
Step-No.	Integration-Step-Description	Nominal Value	Tolerance	Actual Value	Remarks	P	N
066	**CVV ext Instrument SIH Functional Test**						
067	CVV ext SIH functionality will be tested in frame of the subject UFT acc. Instrument Integration Procedures, see Applicable Documents & Drawings						
068	**General document status control**						
O69	Check all steps performed & signed by harness integration operators						
070	Perform photo documentation and include herein						
071	Check all step by steps completed and signed by PA						
072	**End**						

8 Summary Sheets

8.1 Generic Gluing Report

EADS astrium		**HERSCHEL**

Gluing Report

Panel / Unit **PFM UCP**

Adhesive Mixture No.	**Date**:
Start of mixing : **Date:** **Time:**	**End of mixing :** **Date: .** **Time:**
Start of gluing : **Date:** **Time:**	**End of gluing :** **Date: .** **Time:**

Items to be glued:

Mass of mixture at Start of attachment: _____

Mass of mixture rest after securing time : _____

Note:

1. **Securing time for EC2216 A/B glued base-plates with bolted SOT afterwards: => 30 h**
2. **Securing time for EC 2216 A/B glued SO height > 20 mm & anchor on top : => 30 h**
3. **Securing time for EC2216 A/B glued TC-105 & ENN 411 : => 24 h**

Securing time for Eccobond 57 C : => 24 h

Operator: Date:	PA: Date:

8.2 Anchor / Stand-off Attachment Bonding Resistance Control

Anchor ID	Stand-off ID	Mixture Batch	R_ Bonding [m Ω]	Y/N	PA sig.

Table 8.2-1: Anchor / Stand-off Attachment Bonding Resistance Control

8.3 Mounting Torques

Item	Material	size	Torque	Torque
			[Nm]	[c Nm]
srew	A2/70	M 2	0,20	
srew	A2/70	M 2.5	0,50	
srew	A2/70	M 3	0,80	
srew	A2/70	M 4	2,50	
Srew with wespel isolation washers underneath	A2/70	M 4	2,00	
srew	A2/70	M 5	4,60	
srew	A2/70	M 6	7,00	
srew	A2/70	M 8	20,00	
Nanonix Connectors				5,00
MWDM Connectosr*			0,25	
Connector to Bracket			0,44	
Connector to Connector			0,30	

Table 8.3-1: Mounting Torques

Note *:

For Instrument units, the individual torque values see instrument integration procedures.

8.4 CVV ext. Fixation Bolt Torque & Bundle Fixation

Anchor ID	M4 x 8 Installed - not torqued	M4 x 8 [2,0 Nm]	Y/N	Bundles finally fixed	PA sig.

Table 8.4-1: Fixation Bolt Torque & Bundle fixation Control sheet

8.5 Mass Record of additional integrated Items

No of Items	Item	Mass/Item_g	Mass/__Items_g	Date:	Name:

Table 8.5-1: Mass Record

8.6 Procedure Variation Summary

	Test Change	Curr. No.: Date Page of

Test designation	Test Procedure HP-2-ASED-TP-0158	Issue 1.0	Rev.

Test step changed	Reason for Change

Prepared by:	Resp. Test Leader	Project Engineer
PA/QA	Prime	Customer

Table 8.6-1: Procedure Variation Sheet

8.7 Non Conformance Report (NCR) Summary

NCR - No.	NCR - Title	Date	Open Closed	PA sig.

Table 8.7-1: Non-Conformance Record Sheet

9 CVV external CCH & SIH Integration Pictures

Incorporate as-built integration pictures of CVV ext. CCH & SIH routing and fixation.

9.1 Sign-off Sheet

	Date	Signature
AIT Harness Operator		
AIT Mechanical Operator		
ASED Instrument Responsible		
HIFI Instrument Responsible		
SPIRE Instrument Responsible		
PACS Instrument Responsible		
ESA Instrument Responsible		
Test Manager		
Test Operator		
ASED PA Responsible		
TASF PA Responsible		
ESA PA Representative		

END OF DOCUMENT

	Name	Dep./Comp.		Name	Dep./Comp.
	Alberti von Mathias Dr.	ASG23	X	Schmidt Thomas	AED15
	Baldock Richard	FAE12		Schuler Günter	ASA42
X	Barlage Bernhard	AED13	X	Schweickert Gunn	ASG23
X	Bayer Thomas	ASA42	X	Sonn Nico	ASG51
	Brune Holger	ASA45		Steininger Eric	AED32
	Edelhoff Dirk	AED2	X	Stritter Rene	AED11
	Fehringer Alexander	ASG13		Suess Rudi	OTN/ASA44
X	Fricke Wolfgang Dr.	AED 65		Theunissen Martijn	DSSA
X	Geiger Hermann	ASA42		Vascotto Riccardo	HE Space
X	Grasl Andreas	OTN/ASA44		Wagner Klaus	ASG23
X	Grasshoff Brigitte	AET12	X	Wietbrock Walter	AET12
X	Hamer Simon	Terma		Wöhler Hans	ASG23
	Hendrikse Jeffrey	HE Space	X	Wössner Ulrich	ASE252
X	Hendry David	Terma	X	Zumstein Armin	ASQ42
X	Hengstler Reinhold	ASA42			
X	Hinger Jürgen	ASG23			
X	Hohn Rüdiger	AED65			
	Hölzle Edgar Dr.	AED32			
X	Hopfgarten Michael	AED32			
	Huber Johann	ASA42			
X	Hund Walter	ASE252			
X	Idler Siegmund	AED312			
X	Ivády von András	FAE12			
X	Jahn Gerd Dr.	ASG23			
X	Kalde Clemens	ASM2			
	Kameter Rudolf	OTN/ASA42	X	ESA/ESTEC	ESA
X	Kettner Bernhard	AET42	X	Thales Alenia Space Cannes	TAS-F
X	Knoblauch August	AET32		Thales Alenia Space Torino	TAS-I
X	Koelle Markus	ASA43			
X	Koppe Axel	AED312		**Instruments:**	
X	Kroeker Jürgen	AED65	X	MPE (PACS)	MPE
X	La Gioia Valentina	Terma	X	RAL (SPIRE)	RAL
X	Lang Jürgen	ASE252	X	SRON (HIFI)	SRON
X	Langenstein Rolf	AED15			
X	Langfermann Michael	ASA41			
	Martin Olivier	ASA43		**Subcontractors:**	
	Maukisch Jan	ASA43		Austrian Aerospace	AAE
	Much Christoph	ASA43		Austrian Aerospace	AAEM
	Müller Jörg	ASA42		BOC Edwards	BOCE
X	Müller Martin	ASA43		Dutch Space Solar Arrays	DSSA
	Peltz Heinz-Willi	ASG13		EADS Astrium Sub-Subsyst. & Equipment	ASSE
	Pietroboni Karin	AED65		EADS CASA Espacio	CASA
X	Platzer Wilhelm	AED2		EADS CASA Espacio	ECAS
X	Reichle Konrad	ASA42		European Test Services	ETS
X	Runge Axel	OTN/ASA44		Patria New Technologies Oy	PANT
	Sauer Maximilian Dr.	AED65		SENER Ingenieria SA	SEN
X	Schink Dietmar	AED32		Thales Alenia Space, Antwerp	TAS-ETCA