

SPIRE-AST-NOT-001884

Title: **PFM Cryo-Harness Attachment and Coordinate List**

CI-No: 121430

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Issue	Date	Sheet	Description of Change	Release
1.0	21.10. 03		First issue	
2.0	10.02. 04		Implementation of CVV internal Harness attachments and SVM Routing Drawings	

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Annex 3-4: PFM Length of SIH Bundles and Thermal-Bracket Attachments

1 Introduction

The Herschel instruments harness and cryo control harness data summarized within this document have been established as input for harness routing, manufacturing, mass determination, cable quantity and connector size and backshell size definition.

The harness bundle dimensions are calculated in accordance to cable data from GORE (GORE data sheets GSC-05-82-xxx-00).

The cable branch length have been taken from the 3D CATIA CH harness models. For row cable cutting an attrition of 300 mm have been taken on top.

All cable types and quantity of cables are specified in AD1 to AD7

The document contains three Harness Sections.

Cryostat Harness SVM Internal

Cryostat Harness CVV External

Cryostat Harness CVV Internal

Each Section includes a CCH and a SIH Harness. The SIH Harness is split up in the PACS, SPIRE and HIFI Harness. The HIFI Harness have two parts one to the OBA and one to the LOU.

Per CH Branch from Source connector on the Warm Unit to Drain connector on the Cold Unit all Harness attachments per CH Branch are defined in these Listings.

2 Documents

2.1 Applicable Documents

The following documents form a part of this document to the extent specified herein. Unless an issue is quoted for a document, the current issue is deemed to apply. When an issue is quoted, that issue and not other must be used.

- AD-1 Herschel/Planck Instrument Interface Document – Part B, SCI-PT-IIDB/SPIRE-02124
- AD-2 Herschel/Planck Instrument Interface Document – Part B, SCI-PT-IIDB/PACS-02126
- AD-3 Herschel/Planck Instrument Interface Document – Part B, SCI-PT-IIDB/HIFI-02125
- AD-4 PACS Cryo-Harness Interface Meeting
HP-2-ASED-MN-0111
- AD-5 SPIRE Cryo-Harness Interface Meeting
HP-2-ASED-MN-0112
- AD-6 HIFI Cryo-Harness Interface Meeting
HP-2-ASED-MN-0114
- AD-7 HIFI LOU Cryo-Harness Interface Meeting
HP-2-ASED-MN-0123
- AD-8 Herschel Cryo-Harness CIDL
HP-2-ASED-CD-0004 Issue 1.1 (under preparation)
- AD-9 PFM Cryo-Harness Branch Characteristics
HP-2-ASED-TN-0085 Issue 2
- AD 10 PFM Cryo-Harness Mass Breakdown
HP-2-ASED-TN-0054 Issue 2
- AD 11 Drawing Data Package for PFM Cryo-Harness Attachments
HP-2-ASED-DP-0028 Issue 1
- AD 12 Drawing PFM Cryostat Harness SVM CCH & SIH
HP-2-ASED-ID-0083 Issue Draft
- AD13 Drawing PFM Cryostat Harness CVV external CCH & SI
HP-2-ASED-ID-0081 Issue B

AD 14 Drawing PFM Cryostat Harness CVV internal CCH & SIH
HP-2-ASED-ID-0085 Issue A

2.2 Reference Documents

- RD-1 HIFI Interconnection Diagram HP-2-ASED-ID-0090-01-0C
- RD-2 PACS Interconnection Diagram HP-2-ASED-ID-0089-01-0B
- RD-3 SPIRE Interconnection Diagram HP-2-ASED-ID-0091-01-0B
- RD-4 CCH Interconnection Diagram HP-2-ASED-ID-0088-01-0C
CCH Interconnection Diagram HP-2-ASED-ID-0088-02-0C
CCH Interconnection Diagram HP-2-ASED-ID-0088-03-0C
- RD-5 Cryo Harness Wires and Cable Configuration HP-2-ASED-DS-0001 Iss. 1
(under preparation)

3 General Remarks

3.1 Harness Branch Tables

The harness cable data from diameters and mass figures per branch have been used to calculate the harness according to RD-5. For connectors and back-shells, data sheets from the manufactures concerning the mechanical dimensions have been used.

The single harness bundles have been calculated for the following harness sections:

Cryo Harness SVM
Cryo-Harness CVV external
Cryo-Harness CVV internal

After finishing the single harness branches, CASA and ASSE will update the tables upon the H/W measured data taken from the mock-up harness routing, like bundle diameter and routed cable length . The harness wire resistance will be calculated upon the CASA and ASSE measured figures. The harness mass will be controlled by H/W items weighed after the parts incoming inspection. The mass budgets will be provided in AD10.

3.2 Harness Branch Length

For the harness branch calculations, length determination performed on the CATIA model have been taken into account according to AD-8.

3.3 CVV internal Harness Length and Thermal Brackets

The CVV internal harness branch routing has been designed in accordance to mechanical, electrical and thermal constraints. For thermal and lifetime reasons, the harness branches have to be thermally bonded either to the Tank Suspension Straps (TSS) or to the OBA structure. To support the thermal control, the harness length have been split in several segments as they are:

- from CVV feed-through connector to TSS thermal bracket
- from TSS thermal bracket to OBA Cold units / Spatial Framework I/F-CB / Sensor I/F-connectors
- from CVV feed-through connectors to thermal bracket within the OBA cut-outs
- from OBA thermal bracket to OBA Cold units / Sensors I/F-connectors.

Each single thermal bracket has its identification number, for proper harness routing.

3.4 Harness Attachment Definitions

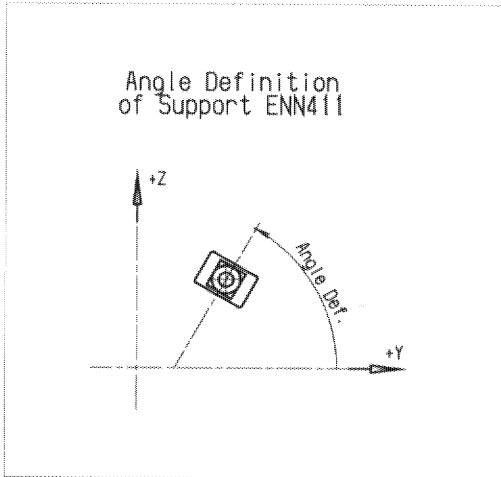


Figure 3.4-1: Harness Anchor Angle orientation

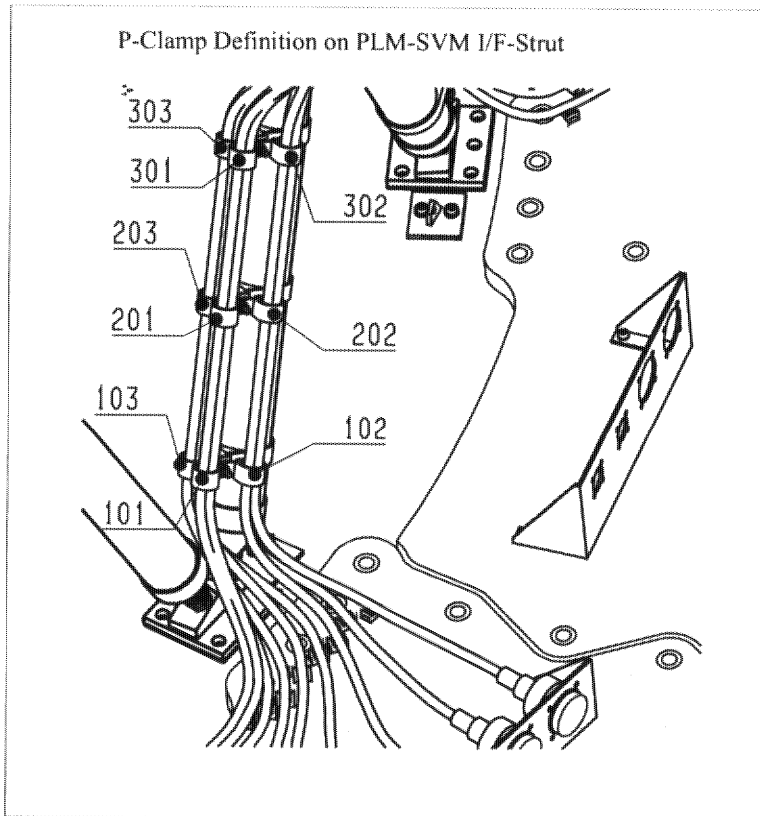


Figure 3.4-2: Harness P-Clamp Anchor Assemblies on SVM I/F-Struts

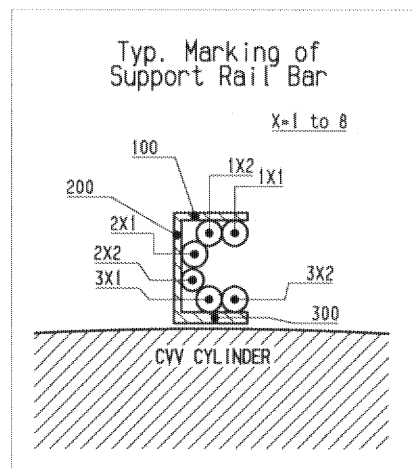
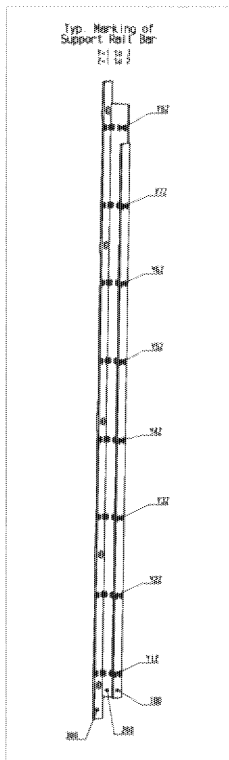


Figure 3.4-3: Harness Routing and Lacing Anchoring within CVV Support-Rail Bars

3.5 CVV internal Harness Attachment Definitions

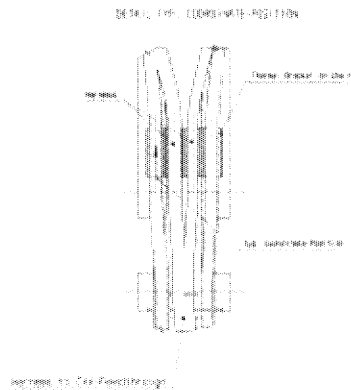


Figure 3.5-1: Harness Length & Coordinate Position of TSS thermal brackets

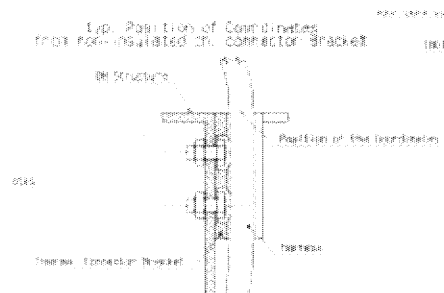


Figure 3.5-2: Typical Position from NON-Isolated Thermal-Brackets

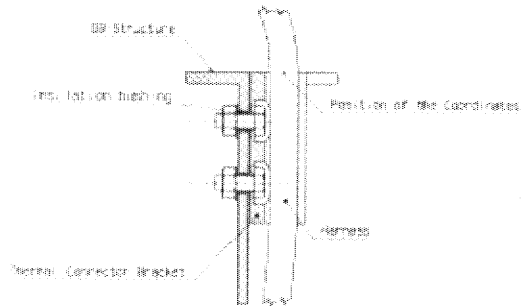


Figure 3.5-3: Typical Position from Isolated Thermal-Brackets

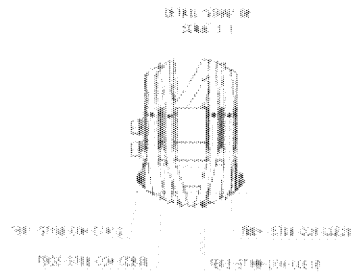


Figure 3.5-4: Thermal-Bracket Allocation and Identification

3.6 Conclusions

Master harness attachment points will be marked in the harness lay-out drawings, on the manufacturing mock-ups, on the single harness branches, to get the integrated PFM harness branches in the correct place.

The Astrium defined harness attachment locations are defined in the CATIA 3D harness Layout / routing models where all this data specified herein have been taken from.

The harness attachments will be verified and adjusted by CASA & ASSE after the harness branches have been once integrated on the CVV internal, CVV external and SVM harness mock-ups.

All defined Data will be controlled by CASA & ASSE and compared with the manufactured harness branch H/W and attachment locations.

This Data have to be provided to ASED for I/F Control and AIT activities for EQM and PFM.

4 Annex 1 : Cryostat Harness SVM Internal CCH & SIH

(to be issued after design freeze in progress, but not yet fixed in certain areas, like PACS BOLC)

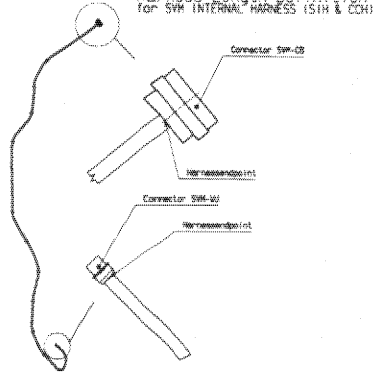
See HP-2-ASED-ID-0083-01- to -05-0A

drawing ref: Herschel PFM Cryostat Harness SVM CCH & SIH 2547-121430-300-01
// -05-0BA.

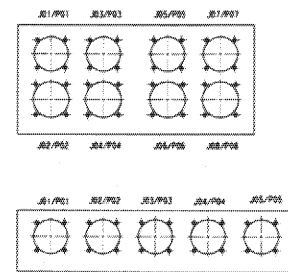
4.1 Annex 1-1 : PFM SVM Length of SIH and CCH Bundle Attachment and Coordinate List

4.2 Annex 1-2 : PFM SVM Cryostat Harness Routing Drawing

Harness Length Definition
for SWM INTERNAL HARNESS (S1H & CCH)



Typ. Marking of SWM Connector Brackets



PANEL 5
INSTRUMENT PANEL -Y (HIF1_1)

PANEL 6
INSTRUMENT PANEL -Y-Z (HIF1_2)

PANEL 7
INSTRUMENT PANEL -Z (SPIRE)

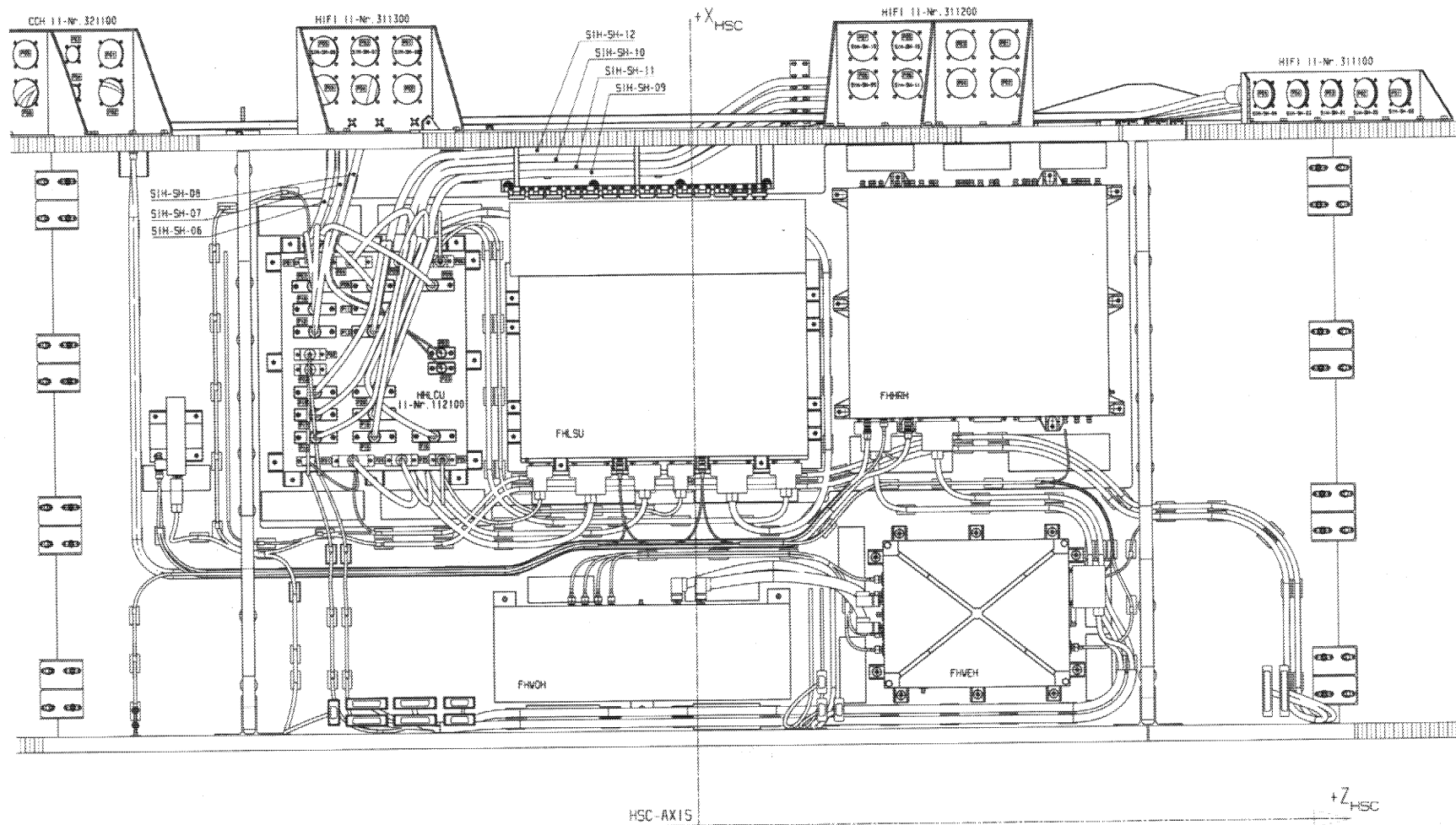
PANEL 8
INSTRUMENT PANEL -Y-Z (PACS)

NO.	REV.	DATE	BY	CHKD.	APP.	DESCRIPTION
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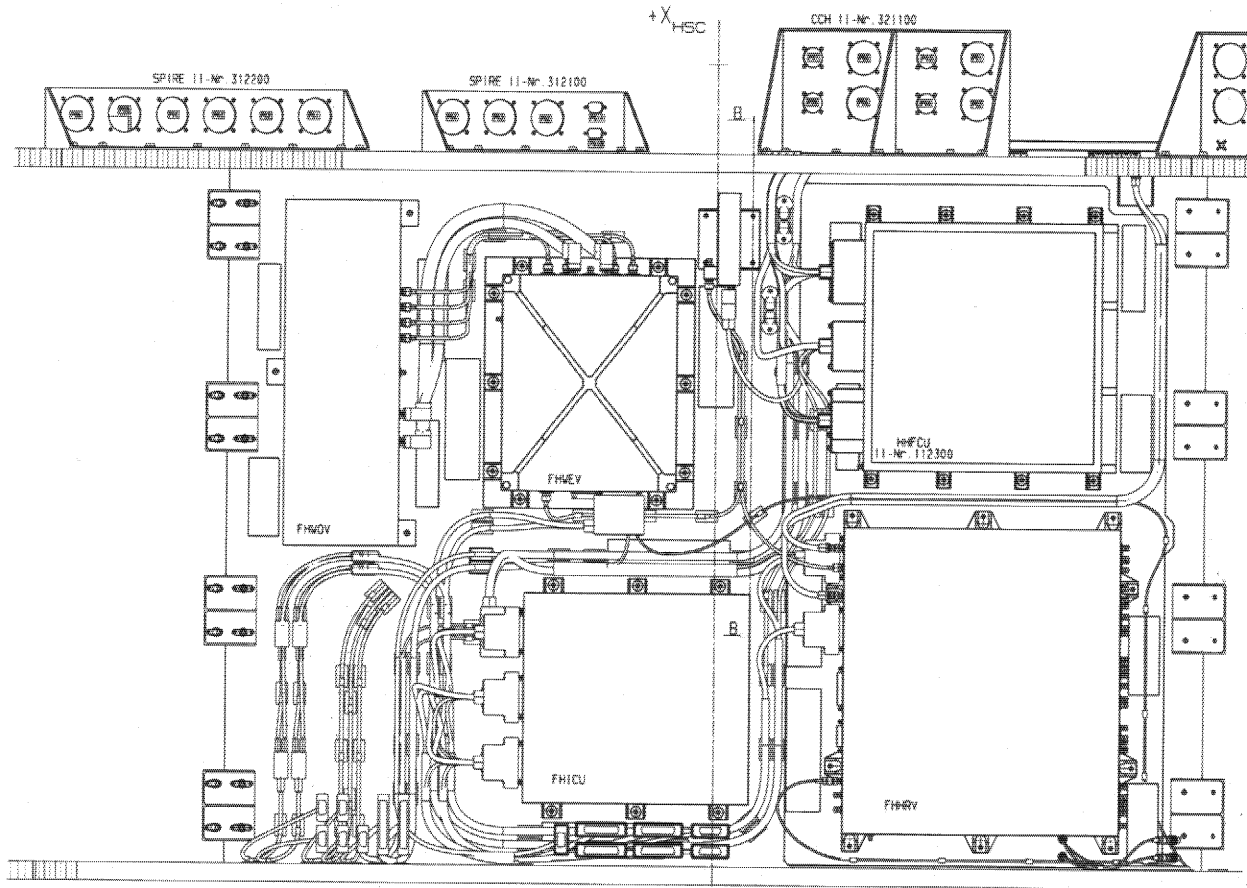
CRYSTAL
CRYSTAL SYSTEMS
SWM INTERNAL HARNESS
2547-121430-001-0A
REV. 1

PANEL 5
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(SHOWN WITHOUT LOU WAVEGUIDE)

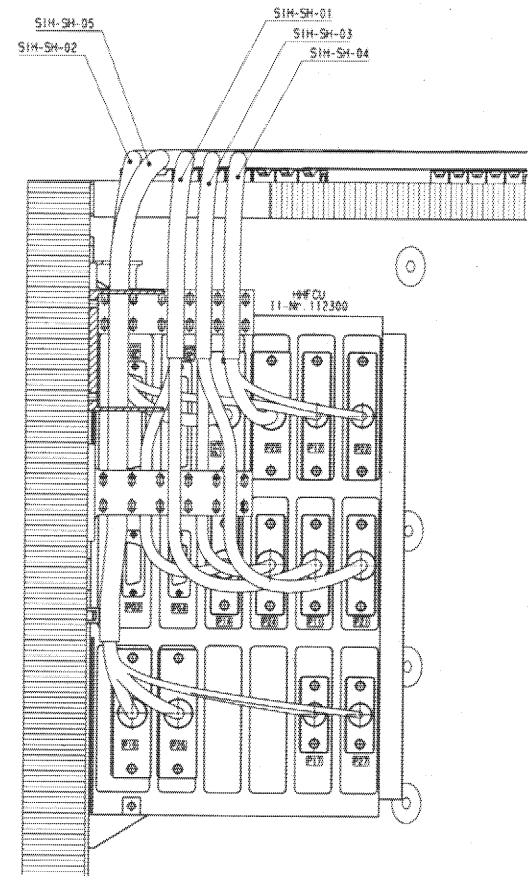


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DESIGNER: [Signature]	CHECKED: [Signature]
DATE: 10-09-83	REV: 1
Microchel PWS CRYSTAL WIRESS SVM INTERNAL CCH & SH	
DATE: 10-09-83	REV: 1

PANEL 6
SVM INSTRUMENT PANEL -Y-Z (HIFI_2)

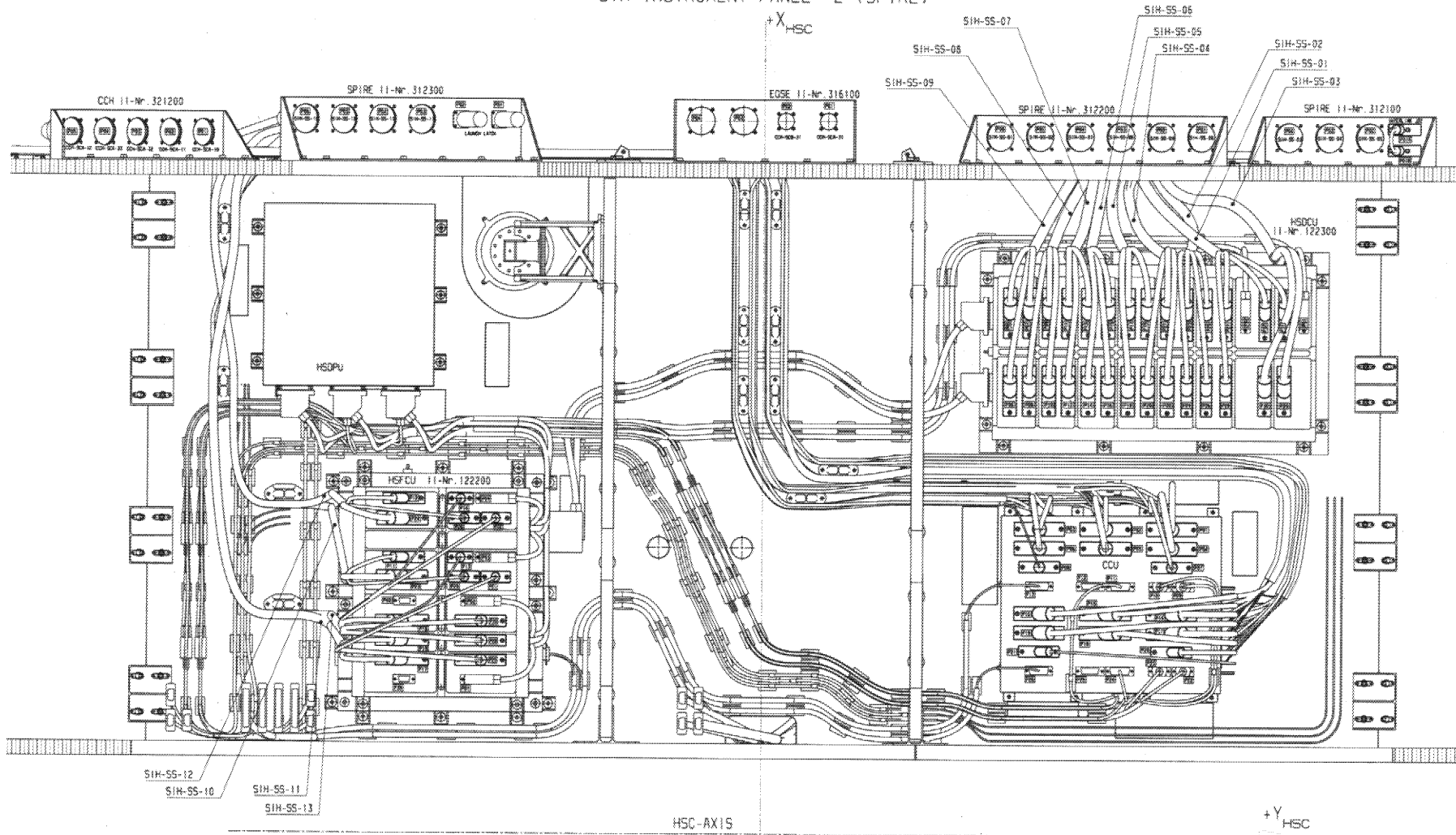


SECTION 8-B
SCALE 1:1



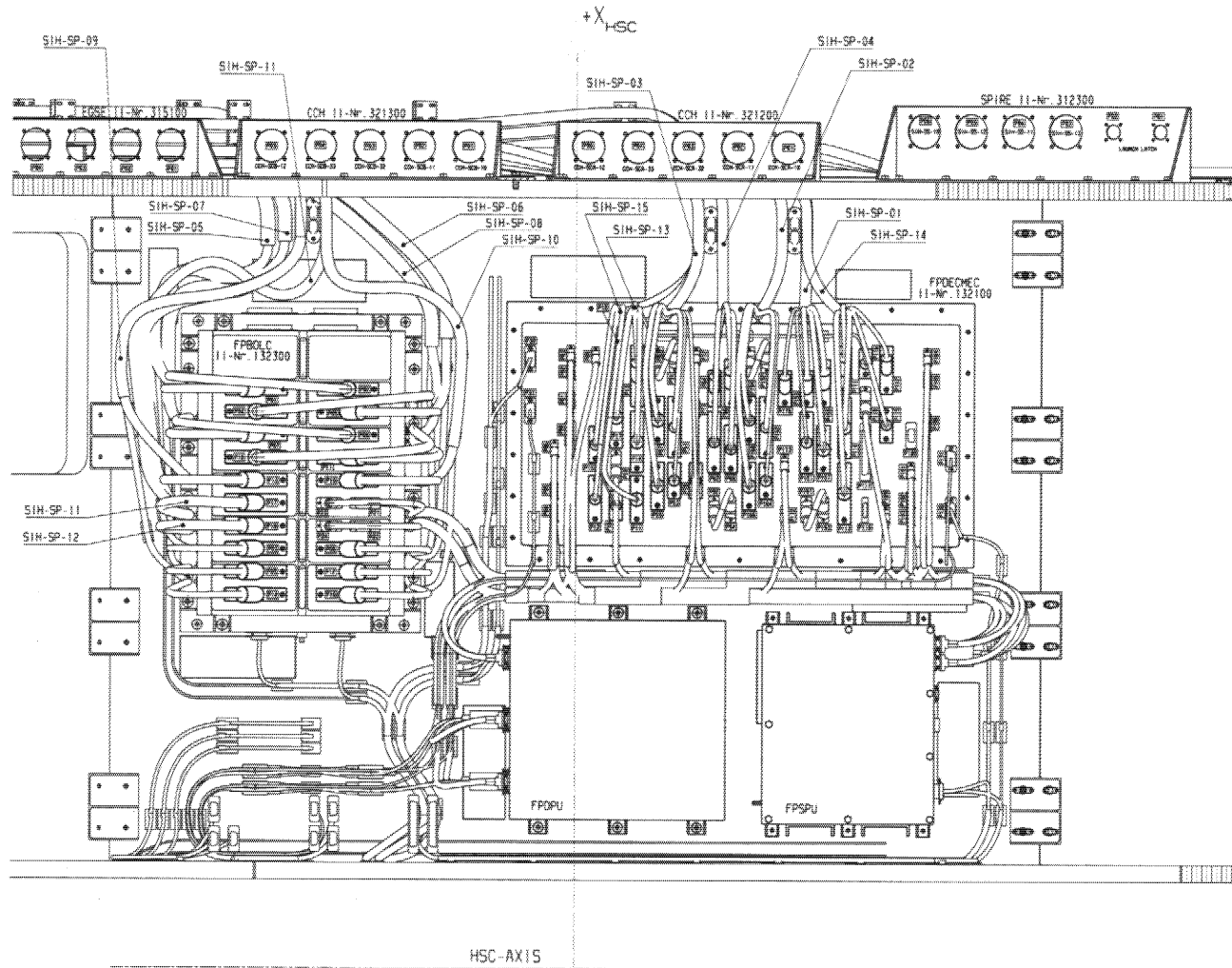
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HANDBUCH PFR CRYSTAL WIRNESS SVM INTERIOR, ECH & SH		

PANEL 7
SVM INSTRUMENT PANEL -Z (SPIRE)



HP-2-ASED-ID-0083-04-0A		DATE
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2543-121430-00-04-0A		REV.
SVM INSTRUMENT CCH & SH		REV.
2543-121430-00-04-0A		REV.

PANEL 8
SVM INSTRUMENT PANEL +Y-Z (PACS)
(SHOWN WITHOUT SHEAR PANEL +Y(-Z))



REV.	DATE	BY	CHKD.	APP.
1	05-05-04			

PROJECT NAME	SECTION 1	DATE LOG	DATE
SP-2-ASED-10-0083-05-04		CM-121430	
PROJECT	REV.	DATE	BY
	2		
PERSONS: RPH CRUISE: PACS SVM INSTRUMENT PANEL 8 & 8.5			
DATE	TIME	NO.	REV.
05-05-04		7547-121430-300-05-04	

4.3 Annex 1-3: PFM SVM Harness Routing Pictures

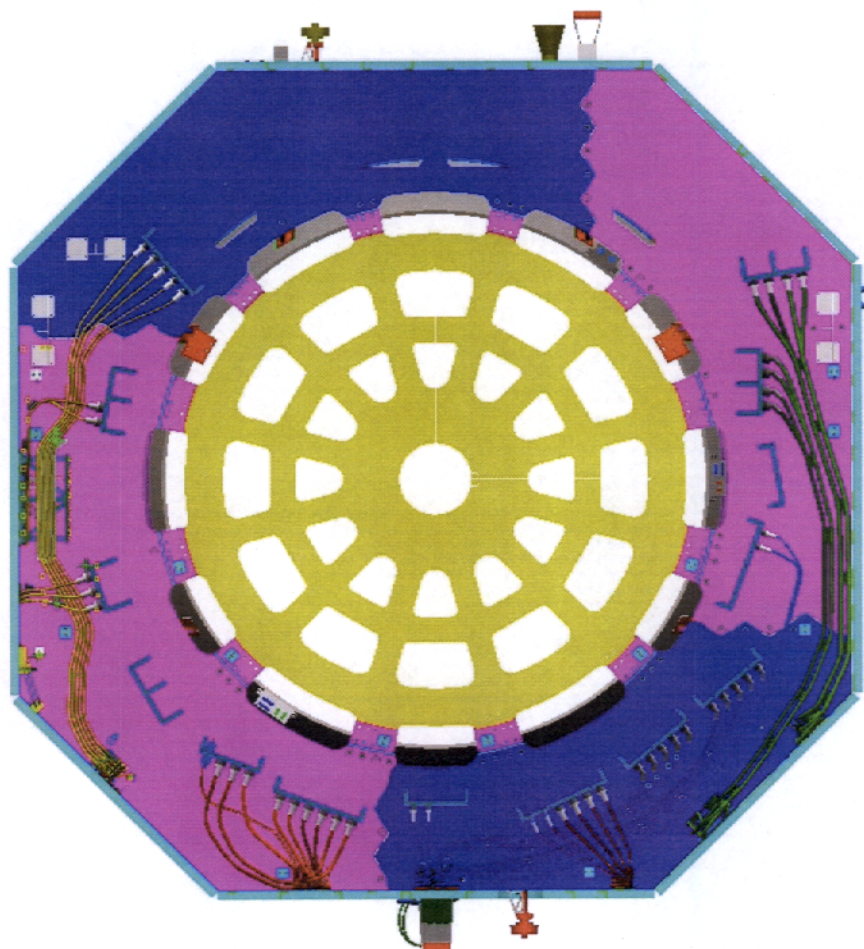


Figure 4.3-1: SVM upper closure panel Harness & I/F CB Overview

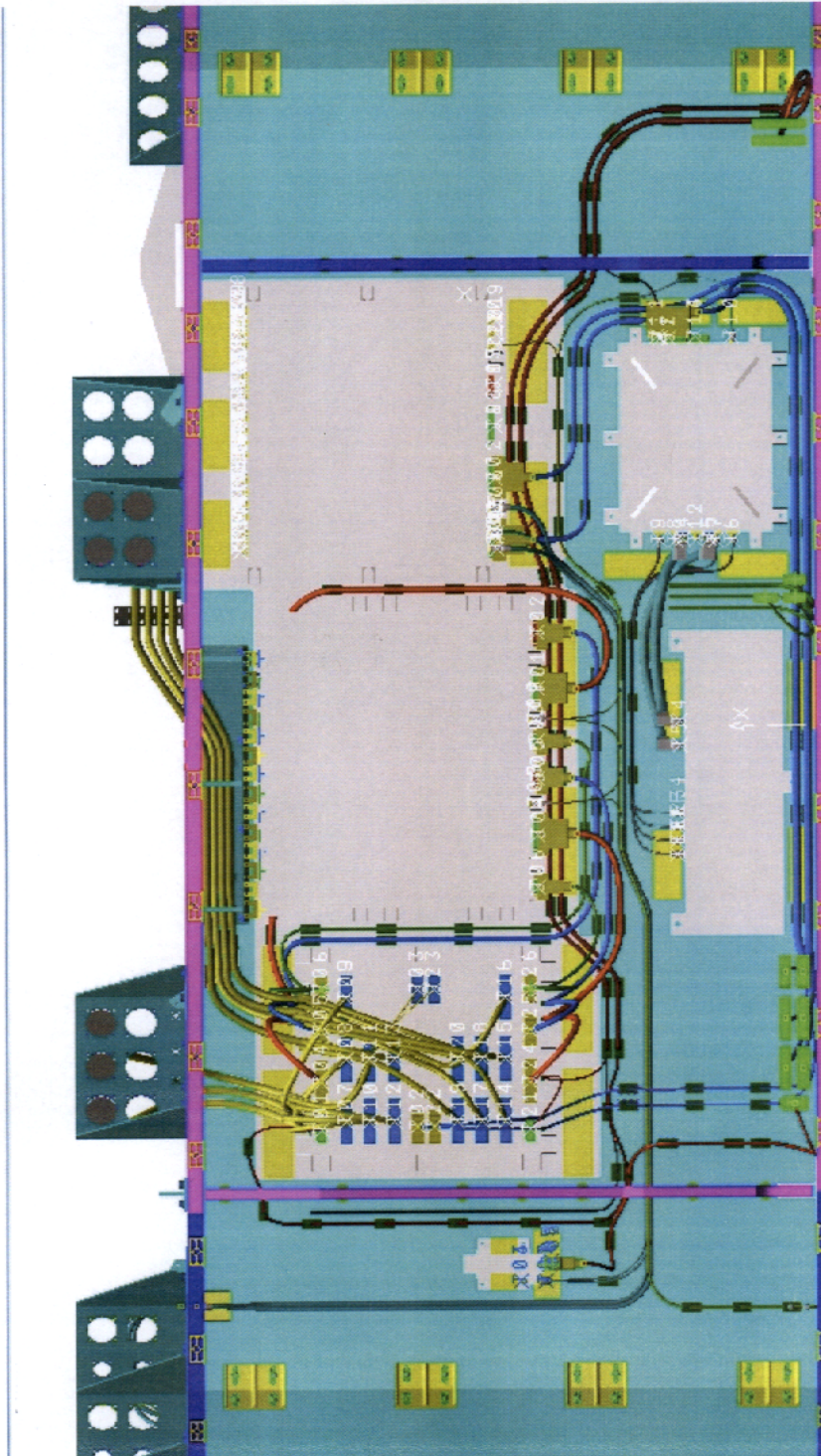


Figure 4.3-2: SVM Panel_5_Instr_Panel_-Y_(HIFI_1)

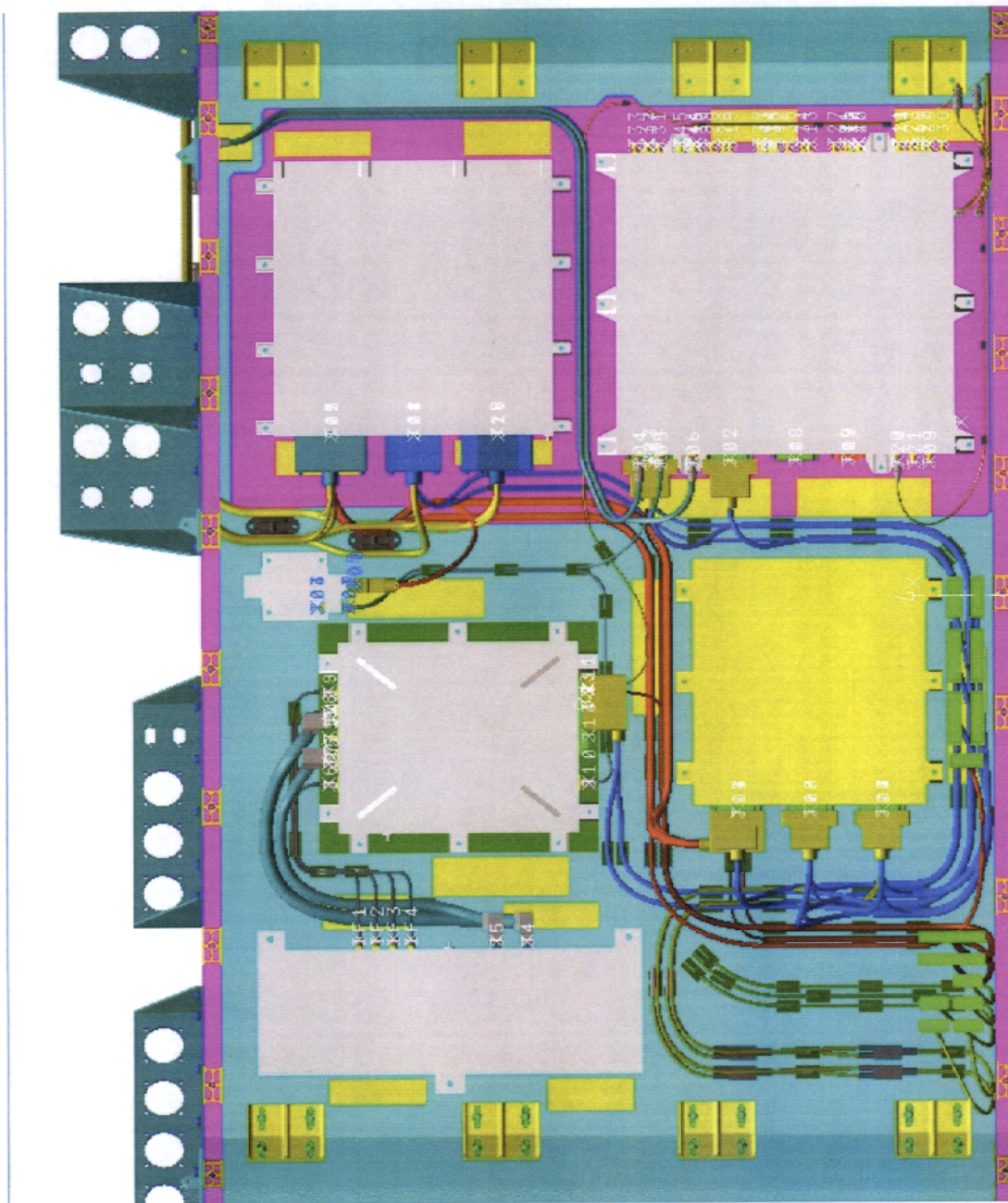


Figure 4.3-3: SVM Panel_6_Instr_Panel_-Y-Z_(HIFI_2)

)

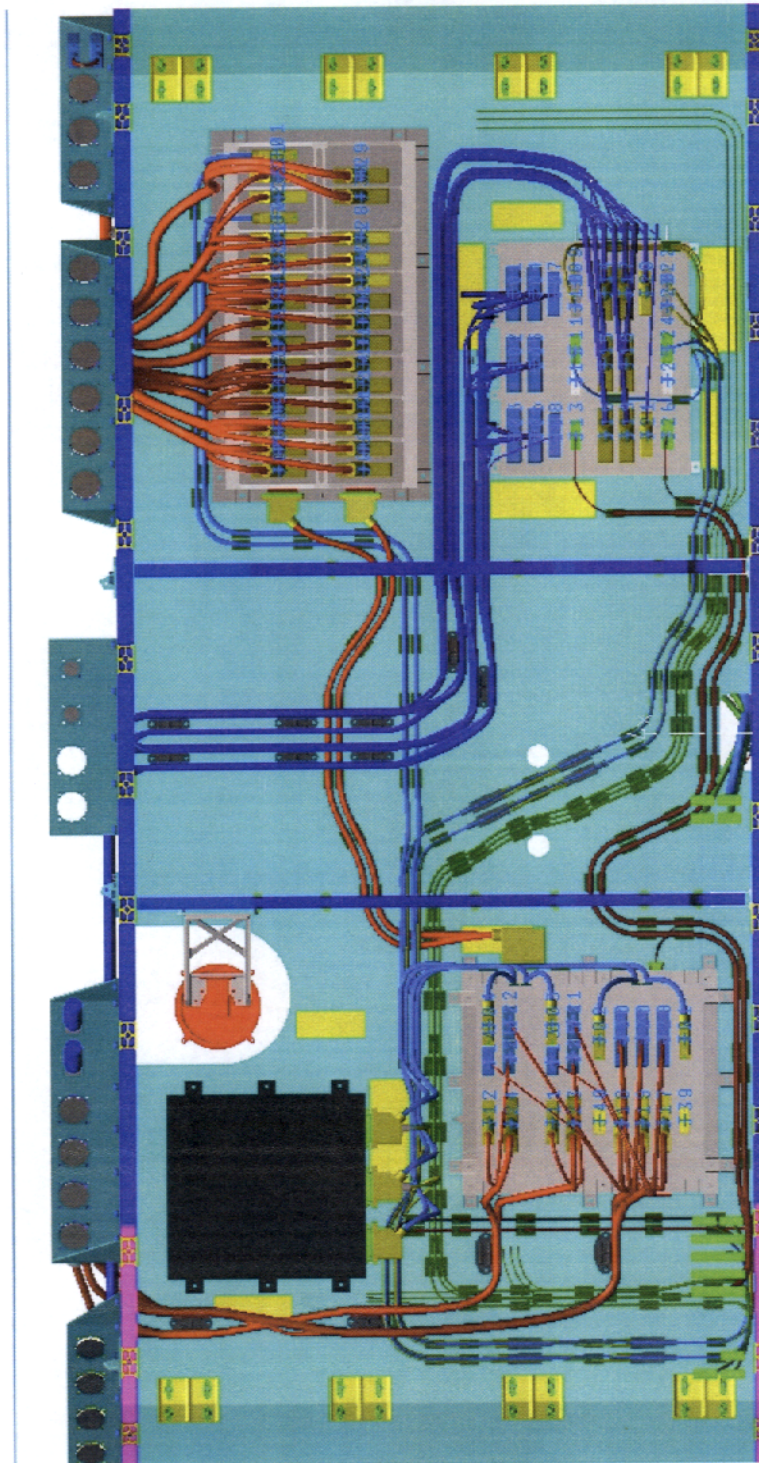


Figure 4.3-3: SVM Panel_7_Instr_Panel_Z (SPIRE)

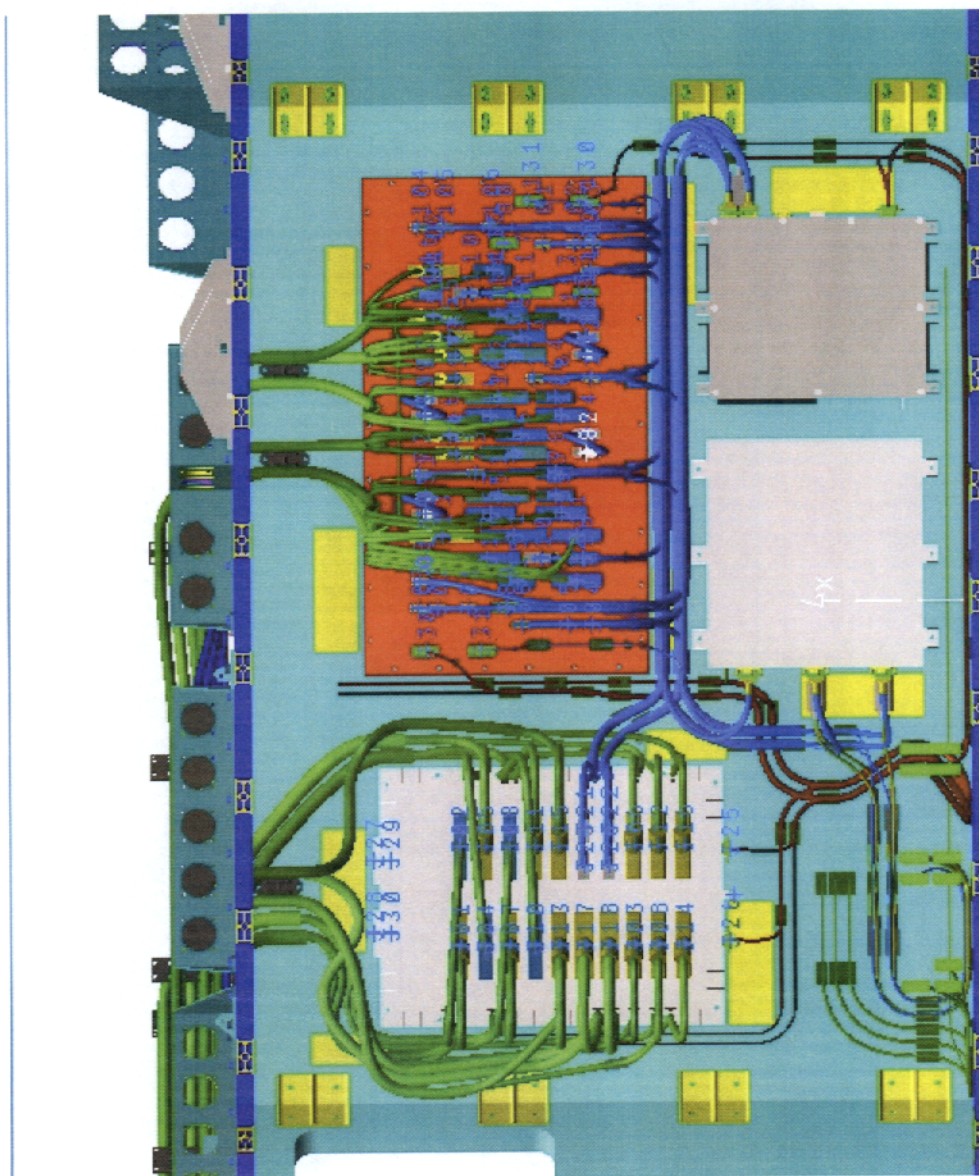


Figure 4.3-3: SVM Panel_8_Instr_Panel_+Y-Z_(PACS)

5 Annex 2 : Cryostat Harness CVV External CCH & SIH

See HP-2-ASED-ID-0081-01- to -10-0B

drawing ref: Herschel PFM Cryostat Harness CVV external CCH & SIH 2547-121430-200-01 // -05-0B

5.1 Annex 2-1 : PFM Length of CVV external SIH and CCH Bundle Attachment and Coordinate List

Harness Bundle :		SIH-IP-04					
Location :	ID-Number :		Coordinate :			Angle	P-Clamp
			Ref.: HPLM-AXS			Orientation	Size
			X	Y	Z	[°]	
Connector Bracket on SVM	313100	J01					
PLM-SVM I/F Strut	22	101	154.10	1035.89	368.56		MS21122-12
PLM-SVM I/F Strut	22	301	430.36	945.90	443.28		MS21122-12
Lower Bulkhead ENN411	211132	100	542.00	919.77	443.24	0	
Lower Bulkhead ENN411	211131	101	680.00	939.13	378.15	90	
Lower Bulkhead ENN411	211131	100	680.00	980.45	252.33	90	
Support Rail	2122	212	743.00	1002.25	169.60		
Support Rail	2122	262	1253.00	1002.25	169.60		
CVV Cylinder Connector	211121	P01					

Harness Bundle :		SIH-IP-03					
Location :	ID-Number :		Coordinate :			Angle	P-Clamp
			Ref.: HPLM-AXS			Orientation	Size
			X	Y	Z	[°]	
Connector Bracket on SVM	313100	J02					
Support on SVM ENN411	360100	100	0.0	1133.17	351.02	85	
PLM-SVM I/F Strut	22	101	154.10	1035.89	368.56		MS21122-12
PLM-SVM I/F Strut	22	301	430.36	945.90	443.28		MS21122-12
Lower Bulkhead ENN411	211132	101	550.00	911.89	459.23	0	
CVV Cylinder ENN411	211123	101	695.50	924.33	381.60	90	
CVV Cylinder ENN411	211123	100	695.50	966.23	257.69	90	
Support Rail	2122	211	743.00	1002.25	169.60		
Support Rail	2122	261	1253.00	1002.25	169.60		
CVV Cylinder Connector	211121	P02					

Harness Bundle :	SIH-IP-14						
Location :	ID-Number :		Coordinate : Ref.: HPLM-AXS			Angle Orientation	P-Clamp Size
			X	Y	Z	[°]	
Connector Bracket on SVM	313100	J04					
Support on SVM ENN411	360101	101	0.0	1117.60	399.08	95	
PLM-SVM I/F Strut	22	101	154.10	1035.89	368.56		MS21122-12
PLM-SVM I/F Strut	22	301	430.36	949.90	443.28		MS21122-12
Lower Bulkhead ENN411	211132	101	550.00	911.89	459.23	0	
CVV Cylinder ENN411	211123	101	695.50	924.33	381.60	90	
CVV Cylinder ENN411	211123	100	695.50	966.23	257.69	90	
Support Rail	2122	311	743.00	1002.25	169.60		
Support Rail	2122	361	1253.00	1002.25	169.60		
CVV Cylinder Connector	211121	P03					

Harness Bundle :	SIH-IP-15						
Location :	ID-Number :		Coordinate : Ref.: HPLM-AXS			Angle Orientation	P-Clamp Size
			X	Y	Z	[°]	
Connector Bracket on SVM	313100	J05					
Support on SVM ENN411	360102	102	0.0	1080.74	532.48	27	
Support on SVM ENN411	360122	122	0.0	880.98	821.02	75	
PLM-SVM I/F Strut	24	101	146.02	764.62	841.95		MS21122-09
PLM-SVM I/F Strut	24	301	408.03	617.22	853.05		MS21122-09
Lower Bulkhead ENN411	211132	103	550.00	569.37	847.56	0	
Support Rail	2400	111	743.00	559.50	848.67		
Support Rail	2400	161	1253.00	559.50	848.67		
CVV Cylinder ENN411	211121	102	1310.00	617.45	789.15	90	
CVV Cylinder ENN411	211121	100	1310.00	756.68	656.84	90	
CVV Cylinder Connector	211121	P04					

Harness Bundle :		SIH-IP-05					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	313200	J04					
Support on SVM ENN411	360112	112	0.0	1256.19	1075.32	45	
Support on SVM ENN411	360128	128	0.0	801.60	935.40	58	
PLM-SVM I/F Strut	24	104	122.46	660.22	879.58		MS21122-07
PLM-SVM I/F Strut	24	304	411.97	620.91	814.61		MS21122-07
Lower Bulkhead ENN411	211132	102	542.00	585.83	836.21	0	
Support Rail	2400	311	743.00	559.50	848.67		
Support Rail	2400	361	1253.00	559.50	848.67		
CVV Cylinder ENN411	211121	101	1310.00	683.88	732.34	90	
CVV Cylinder Connector	211121	P05					

Harness Bundle :		SIH-IP-06					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	313200	J06					
Support on SVM ENN411	360114	114	0.0	1332.39	1105.03	40	
Support on SVM ENN411	360130	130	0.0	775.60	963.49	60	
PLM-SVM I/F Strut	24	104	122.46	660.22	879.58		MS21122-07
PLM-SVM I/F Strut	24	304	411.97	620.91	814.61		MS21122-07
Lower Bulkhead ENN411	211132	102	542.00	585.83	836.21	0	
Support Rail	2400	212	743.00	559.50	848.67		
Support Rail	2400	262	1253.00	559.50	848.67		
CVV Cylinder ENN411	211121	102	1310.00	617.45	789.15	90	
CVV Cylinder Connector	211121	P06					

Harness Bundle :		SIH-IP-13					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	313100	J06					
Support on SVM ENN411	360103	103	0.0	1086.99	553.91	32	
Support on SVM ENN411	360123	123	0.0	870.85	839.43	80	
PLM-SVM I/F Strut	24	101	146.02	764.62	841.95		MS21122-09
PLM-SVM I/F Strut	24	301	408.03	617.22	853.05		MS21122-09
Lower Bulkhead ENN411	211132	103	550.00	569.37	847.56	0	
Support Rail	2400	211	743.00	559.50	848.67		
Support Rail	2400	261	1253.00	559.50	848.67		
CVV Cylinder Connector	211121	P07					

Harness Bundle :		SIH-IP-02					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	313100	J07					
Support on SVM ENN411	360104	104	0.0	1082.57	592.99	32	
Support on SVM ENN411	360124	124	0.0	858.03	858.78	85	
PLM-SVM I/F Strut	24	102	140.28	698.25	880.47		MS21122-12
PLM-SVM I/F Strut	24	302	410.95	569.46	893.14		MS21122-12
Lower Bulkhead ENN411	211132	105	550.00	467.66	907.60	0	
CVV Cylinder ENN411	211123	103	695.50	375.69	926.74	90	
Support Rail	2526	111	743.00	235.50	988.84		
Support Rail	2526	161	1253.00	235.50	988.84		
CVV Cylinder Connector	211121	P08					

Harness Bundle :	SIH-IP-01						
Location :	ID-Number :		Coordinate : Ref.: HPLM-AXS			Angle Orientation	P-Clamp Size
			X	Y	Z	[°]	
Connector Bracket on SVM	313100	J08					
Support on SVM ENN411	360105	105	0.0	1093.71	615.91	32	
Support on SVM ENN411	360125	125	0.0	848.10	878.3	90	
PLM-SVM I/F Strut	24	102	140.28	698.25	880.47		MS21122-12
PLM-SVM I/F Strut	24	302	410.95	569.46	893.14		MS21122-12
Lower Bulkhead ENN411	211132	105	550.00	467.66	907.60	0	
CVV Cylinder ENN411	211123	103	695.50	375.69	926.74	90	
Support Rail	2400	112	743.00	235.50	988.84		
Support Rail	2400	162	1253.00	235.50	988.84		
CVV Cylinder Connector	211121	P09					

Harness Bundle :	SIH-IP-07						
Location :	ID-Number :		Coordinate : Ref.: HPLM-AXS			Angle Orientation	P-Clamp Size
			X	Y	Z	[°]	
Connector Bracket on SVM	313200	J08					
Support on SVM ENN411	360114	114	0.0	1332.39	1105.03	40	
Support on SVM ENN411	360130	130	0.0	775.60	963.49	60	
PLM-SVM I/F Strut	24	104	122.46	660.22	879.58		MS21122-07
PLM-SVM I/F Strut	24	304	411.97	620.91	814.61		MS21122-07
Lower Bulkhead ENN411	211132	104	542.00	554.40	857.37	0	
CVV Cylinder ENN411	211123	102	695.50	501.02	865.44	90	
CVV Cylinder ENN411	211123	103	695.50	375.69	926.74	90	
Support Rail	2526	311	743.00	235.50	988.84		
Support Rail	2526	361	1253.00	235.50	988.84		
CVV Cylinder Connector	211121	P10					

Harness Bundle :		SIH-IP-08					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	313200	J02					
Support on SVM ENN411	360110	110	0.0	1215.70	1034.98	50	
Support on SVM ENN411	360126	126	0.0	829.06	903.69	120	
PLM-SVM I/F Strut	24	103	123.93	665.56	897.74		MS21122-09
PLM-SVM I/F Strut	24	303	394.60	536.78	910.41		MS21122-09
Lower Bulkhead ENN411	211132	106	542.00	444.19	919.31	0	
Lower Bulkhead ENN411	211131	102	680.00	375.69	926.74	90	
Lower Bulkhead ENN411	211131	103	680.00	209.06	977.90	90	
Lower Bulkhead ENN411	211131	104	680.00	36.07	999.35	90	
Lower Bulkhead ENN411	211131	200	680.00	-138.01	990.43	90	
Lower Bulkhead ENN411	211131	201	680.00	-291.25	956.65	90	
Support Rail	2728	111	743.00	-357.71	951.48		
Support Rail	2728	161	1253.00	-357.71	951.48		
CVV Cylinder ENN411	211121	200	1310.00	-207.64	980.25	90	
CVV Cylinder Connector	211121	P11					

Harness Bundle :		SIH-IP-09					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	313200	J01					
Support on SVM ENN411	360111	111	0.0	1235.12	1059.51	45	
Support on SVM ENN411	360127	127	0.0	806.12	915.65	120	
PLM-SVM I/F Strut	24	103	123.93	665.56	897.74		MS21122-09
PLM-SVM I/F Strut	24	303	394.60	536.78	910.41		MS21122-09
Lower Bulkhead ENN411	211132	106	542.00	444.19	919.31	0	
Lower Bulkhead ENN411	211131	102	680.00	375.69	926.74	90	
Lower Bulkhead ENN411	211131	103	680.00	209.06	977.90	90	
Lower Bulkhead ENN411	211131	104	680.00	36.07	999.35	90	
Lower Bulkhead ENN411	211131	200	680.00	-138.01	990.43	90	
Lower Bulkhead ENN411	211131	201	680.00	-291.25	956.65	90	
Support Rail	2728	311	743.00	-357.71	951.48		
Support Rail	2728	361	1253.00	-357.71	951.48		
CVV Cylinder ENN411	211121	201	1310.00	-308.97	953.18	90	
CVV Cylinder Connector	211121	P12					

Harness Bundle :		SIH-IP-10					
Location :	ID-Number :		Coordinate :			Angle	P-Clamp
			Ref.: HPLM-AXS			Orientation	Size
			X	Y	Z	[°]	
Connector Bracket on SVM	313200	J03					
Support on SVM ENN411	360111	111	0.0	1235.12	1059.51	45	
Support on SVM ENN411	360127	127	0.0	806.12	915.65	120	
PLM-SVM I/F Strut	24	103	123.93	665.56	897.74		MS21122-09
PLM-SVM I/F Strut	24	303	394.60	536.78	910.41		MS21122-09
Lower Bulkhead ENN411	211132	106	542.00	444.19	919.31	0	
Lower Bulkhead ENN411	211131	102	680.00	375.69	926.74	90	
Lower Bulkhead ENN411	211131	103	680.00	209.06	977.90	90	
Lower Bulkhead ENN411	211131	104	680.00	36.07	999.35	90	
Lower Bulkhead ENN411	211131	200	680.00	-138.01	990.43	90	
Lower Bulkhead ENN411	211131	201	680.00	-291.25	956.65	90	
Support Rail	2728	211	743.00	-357.71	951.48		
Support Rail	2728	261	1253.00	-357.71	951.48		
CVV Cylinder Connector	211121	P13					

Harness Bundle :		SIH-IP-11					
Location :	ID-Number :		Coordinate :			Angle	P-Clamp
			Ref.: HPLM-AXS			Orientation	Size
			X	Y	Z	[°]	
Connector Bracket on SVM	313200	J05					
Support on SVM ENN411	360113	113	0.0	1301.38	1086.69	45	
Support on SVM ENN411	360129	129	0.0	797.87	954.40	120	
PLM-SVM I/F Strut	24	103	123.93	665.56	897.74		MS21122-09
PLM-SVM I/F Strut	24	303	394.60	536.78	910.41		MS21122-09
Lower Bulkhead ENN411	211132	106	542.00	444.19	919.31	0	
Lower Bulkhead ENN411	211131	102	680.00	375.69	926.74	90	
Lower Bulkhead ENN411	211131	103	680.00	209.06	977.90	90	
Lower Bulkhead ENN411	211131	104	680.00	36.07	999.35	90	
Lower Bulkhead ENN411	211131	200	680.00	-138.01	990.43	90	
Lower Bulkhead ENN411	211131	201	680.00	-291.25	956.65	90	
Support Rail	2728	212	743.00	-357.71	951.48		
Support Rail	2728	262	1253.00	-357.71	951.48		
CVV Cylinder ENN411	211121	203	1471.50	-426.83	904.33	90	
CVV Cylinder ENN411	211121	204	1471.50	-489.89	871.78	90	
CVV Cylinder Connector	211121	P14					

Harness Bundle : Location :	SIH-IP-12		Coordinate :			Angle Orientation [°]	P-Clamp Size
	ID-Number :		X	Y	Z		
Connector Bracket on SVM	313200	J05					
Support on SVM ENN411	360113	113	0.0	1301.38	1086.69	45	
Support on SVM ENN411	360129	129	0.0	797.87	954.40	120	
PLM-SVM I/F Strut	24	103	123.93	665.56	897.74		MS21122-09
PLM-SVM I/F Strut	24	303	394.60	536.78	910.41		MS21122-09
Lower Bulkhead ENN411	211132	106	542.00	444.19	919.31	0	
Lower Bulkhead ENN411	211131	102	680.00	375.69	926.74	90	
Lower Bulkhead ENN411	211131	103	680.00	209.06	977.90	90	
Lower Bulkhead ENN411	211131	104	680.00	36.07	999.35	90	
Lower Bulkhead ENN411	211131	200	680.00	-138.01	990.43	90	
Lower Bulkhead ENN411	211131	201	680.00	-291.25	956.65	90	
Support Rail	2728	112	743.00	-357.71	951.48		
Support Rail	2728	162	1253.00	-357.71	951.48		
CVV Cylinder ENN411	211121	203	1471.50	-426.83	904.33	90	
CVV Cylinder ENN411	211121	205	1478.00	-574.15	821.19	90	
CVV Cylinder Connector	211121	P15					

Harness Bundle :	SIH-IH-02		Coordinate :			Angle	P-Clamp
Location :	ID-Number :		Ref.: HPLM-AXS			Orientation	Size
			X	Y	Z	[°]	
Connector Bracket on SVM	311100	J01					
Support on SVM ENN411	360205	205	0.0	-919.49	1058.80	75	
Support on SVM ENN411	360200	200	0.0	-803.38	957.32	45	
PLM-SVM I/F Strut	29	100					
PLM-SVM I/F Strut	29	300					
Lower Bulkhead ENN411	211132	200	550.00	-567.96	848.69	0	
Support Rail	2900	211	743.00	-547.72	856.31		
Support Rail	2900	261	1253.00	-547.72	856.31		
CVV Cylinder ENN411	211121	206	1310.00	-588.39	811.05	90	
CVV Cylinder ENN411	211121	207	1310.00	-669.95	745.10	90	
CVV Cylinder Connector	211121	P16					

Harness Bundle :	SIH-IH-05		Coordinate :			Angle	P-Clamp
Location :	ID-Number :		Ref.: HPLM-AXS			Orientation	Size
			X	Y	Z	[°]	
Connector Bracket on SVM	311100	J02					
Support on SVM ENN411	360206	206	0.0	-918.89	1022.40	75	
Support on SVM ENN411	360201	201	0.0	-808.47	928.50	45	
PLM-SVM I/F Strut	29	100					
PLM-SVM I/F Strut	29	300					
Lower Bulkhead ENN411	211132	200	550.00	-567.96	848.69	0	
Support Rail	2900	311	743.00	-547.72	856.31		
Support Rail	2900	361	1253.00	-547.72	856.31		
CVV Cylinder ENN411	211121	206	1310.00	-588.39	811.05	90	
CVV Cylinder ENN411	211121	208	1310.00	-755.76	657.90	90	
CVV Cylinder Connector	211121	P17					

Harness Bundle :		SIH-IH-01					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	311100	J03					
Support on SVM ENN411	360202	202	0.0	-824.55	910.80	50	
PLM-SVM I/F Strut	30	100					
PLM-SVM I/F Strut	30	300					
Lower Bulkhead ENN411	211132	201	542.00	-895.80	919.31	90	
Lower Bulkhead ENN411	211131	202	680.00	-926.74	375.69	90	
Lower Bulkhead ENN411	211131	203	680.00	-965.05	262.05	90	
Support Rail	3132	211	743.00	-993.75	213.88		
Support Rail	3132	261	1253.00	-993.75	213.88		
CVV Cylinder Connector	211121	P18					

Harness Bundle :		SIH-IH-03					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	311100	J04					
Support on SVM ENN411	360203	203	0.0	-830.97	889.53	60	
PLM-SVM I/F Strut	30	100					
PLM-SVM I/F Strut	30	300					
Lower Bulkhead ENN411	211132	201	542.00	-895.80	919.31	90	
Lower Bulkhead ENN411	211131	202	680.00	-926.74	375.69	90	
Lower Bulkhead ENN411	211131	203	680.00	-965.05	262.05	90	
Support Rail	3132	312	743.00	-993.75	213.88		
Support Rail	3132	362	1253.00	-993.75	213.88		
CVV Cylinder Connector	211121	P19					

Harness Bundle :	SIH-IH-04		Coordinate :			Angle	P-Clamp
Location :	ID-Number :		Ref.: HPLM-AXS			Orientation	Size
			X	Y	Z	[°]	
Connector Bracket on SVM	311100	J05					
Support on SVM ENN411	360204	204	0.0	-850.88	875.04	60	
PLM-SVM I/F Strut	30	100					
PLM-SVM I/F Strut	30	300					
Lower Bulkhead ENN411	211132	201	542.00	-895.80	919.31	90	
Lower Bulkhead ENN411	211131	202	680.00	-926.74	375.69	90	
Lower Bulkhead ENN411	211131	203	680.00	-965.05	262.05	90	
Support Rail	3132	212	743.00	-993.75	213.88		
Support Rail	3132	262	1253.00	-993.75	213.88		
CVV Cylinder Connector	211121	P20					

Harness Bundle :		SIH-IS-04					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	312100	J03					
Support on SVM ENN411	360301	301	0.0	-642.63	-964.32	105	
Support on SVM ENN411	360304	304	0.0	-388.41	-1042.53	90	
PLM-SVM I/F Strut	38	101	169.05	-275.35	-976.92		MS21122-12
PLM-SVM I/F Strut	38	301	434.13	-145.92	-979.85		MS21122-12
Lower Bulkhead ENN411	211132	300	542.00	-86.44	-1017.33	0	
Lower Bulkhead ENN411	211131	307	680.00	-142.49	-989.80	90	
Lower Bulkhead ENN411	211131	303	680.00	-645.35	-763.89	90	
Lower Bulkhead ENN411	211131	300	680.00	-940.83	-338.87	90	
Support Rail	3334	211	743.00	-986.93	-243.40		
Support Rail	3334	261	1253.00	-986.93	-243.40		
CVV Cylinder Connector	211121	P22					

Harness Bundle :		SIH-IS-05					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	312100	J02					
Support on SVM ENN411	360300	300	0.0	-672.56	-940.77	110	
Support on SVM ENN411	360304	304	0.0	-388.41	-1042.53	90	
PLM-SVM I/F Strut	38	101	169.05	-275.35	-976.92		MS21122-12
PLM-SVM I/F Strut	38	301	434.13	-145.92	-979.85		MS21122-12
Lower Bulkhead ENN411	211132	300	542.00	-86.44	-1017.33	0	
Lower Bulkhead ENN411	211131	307	680.00	-142.49	-989.80	90	
Lower Bulkhead ENN411	211131	303	680.00	-645.35	-763.89	90	
Lower Bulkhead ENN411	211131	300	680.00	-940.83	-338.87	90	
Support Rail	3334	212	743.00	-986.93	-243.40		
Support Rail	3334	262	1253.00	-986.93	-243.40		
CVV Cylinder Connector	211121	P23					

Harness Bundle :		SIH-IS-06					Angle Orientation [°]	P-Clamp Size
Location :		ID-Number :		Coordinate :				
		Ref.: HPLM-AXS			X	Y		
Connector Bracket on SVM	312200	J03						
Support on SVM ENN411	360308	308	0.0	-301.86	-1077.23	125		
PLM-SVM I/F Strut	38	103	162.35	-261.23	-959.43		MS21122-12	
PLM-SVM I/F Strut	38	303	427.43	-131.80	-962.36		MS21122-12	
Lower Bulkhead ENN411	211132	301	550.00	-67.73	-1018.75	0		
Support Rail	3800	212	743.50	-73.28	-1013.86			
Support Rail	3800	282	1422.50	-73.28	-1013.86			
CVV Cylinder ENN411	211121	305	1478.00	-191.88	-983.46	90		
CVV Cylinder ENN411	211121	303	1471.50	-457.62	-889.15	90		
CVV Cylinder ENN411	211121	300	1471.50	-751.65	-659.56	90		
CVV Cylinder Connector	211121	P24						

Harness Bundle :		SIH-IS-07					Angle Orientation [°]	P-Clamp Size
Location :		ID-Number :		Coordinate :				
		Ref.: HPLM-AXS			X	Y		
Connector Bracket on SVM	312200	J04						
Support on SVM ENN411	360309	309	0.0	-283.91	-1087.10	130		
PLM-SVM I/F Strut	38	102	155.26	-247.76	-1006.61		MS21122-12	
PLM-SVM I/F Strut	38	302	420.33	-118.33	-1009.54		MS21122-12	
Lower Bulkhead ENN411	211132	301	550.00	-67.73	-1018.75	0		
Support Rail	3800	211	743.50	-73.28	-1013.86			
Support Rail	3800	281	1422.50	-73.28	-1013.86			
CVV Cylinder ENN411	211121	305	1478.00	-191.88	-983.46	90		
CVV Cylinder ENN411	211121	303	1471.50	-457.62	-889.15	90		
CVV Cylinder Connector	211121	P25						

Harness Bundle :		SIH-IS-03					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	312100	J04					
Support on SVM ENN411	360303	303	0.0	-560.88	-1006.93	105	
Support on SVM ENN411	360305	305	0.0	-373.57	-1057.26	105	
PLM-SVM I/F Strut	38	101	169.05	-275.35	-976.92		MS21122-12
PLM-SVM I/F Strut	38	301	434.13	-145.92	-979.85		MS21122-12
Lower Bulkhead ENN411	211132	300	542.00	-86.44	-1017.33	0	
Support Rail	3800	111	743.50	-73.28	-1013.86		
Support Rail	3800	161	1228.50	-73.28	-1013.86		
CVV Cylinder ENN411	211121	306	1310.00	-226.09	-976.16	90	
CVV Cylinder Connector	211121	P26					

Harness Bundle :		SIH-IS-08					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	312200	J01					
Support on SVM ENN411	360306	306	0.0	-356.52	-1067.14	110	
PLM-SVM I/F Strut	38	103	162.35	-261.23	-959.43		MS21122-12
PLM-SVM I/F Strut	38	303	427.43	-131.80	-962.36		MS21122-12
Lower Bulkhead ENN411	211132	300	542.00	-86.44	-1017.33	0	
Support Rail	3800	311	743.50	-73.28	-1013.86		
Support Rail	3800	361	1228.50	-73.28	-1013.86		
CVV Cylinder Connector	211121	P27					

Harness Bundle :		SIH-IS-09					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	312200	J02					
Support on SVM ENN411	360307	307	0.0	-325.64	-1079.88	115	
PLM-SVM I/F Strut	38	103	162.35	-261.23	-959.43		MS21122-12
PLM-SVM I/F Strut	38	303	427.43	-131.80	-962.36		MS21122-12
Lower Bulkhead ENN411	211132	301	550.00	-67.73	-1018.75	0	
Support Rail	3800	312	743.50	-73.28	-1013.86		
Support Rail	3800	362	1228.50	-73.28	-1013.86		
CVV Cylinder Connector	211121	P28					

Harness Bundle :		SIH-IS-13					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	312300	J03					
Support on SVM ENN411	360400	400	0.0	346.43	-1062.91	50	
PLM-SVM I/F Strut	39	101	159.90	245.65	-997.11		MS21122-10
PLM-SVM I/F Strut	39	301	429.46	114.03	-1000.09		MS21122-10
Lower Bulkhead ENN411	211132	401	542.00	82.16	-1017.69	0	
Support Rail	3900	311	743.50	69.83	-1014.10		
Support Rail	3900	361	1228.50	69.83	-1014.10		
CVV Cylinder Connector	211121	P29					

Harness Bundle :		SIH-IS-11					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	312300	J04					
Support on SVM ENN411	360401	401	0.0	376.88	-1055.01	50	
PLM-SVM I/F Strut	39	101	159.90	245.65	-997.11		MS21122-10
PLM-SVM I/F Strut	39	301	429.46	114.03	-1000.09		MS21122-10
Lower Bulkhead ENN411	211132	401	542.00	82.16	-1017.69	0	
Support Rail	3900	312	743.50	69.83	-1014.10		
Support Rail	3900	362	1228.50	69.83	-1014.10		
CVV Cylinder ENN411	211121	400	1310.00	138.76	-992.35	90	
CVV Cylinder Connector	211121	P30					

Harness Bundle :		SIH-IS-02					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	312200	J05					
Support on SVM ENN411	360310	310	0.0	-259.11	-1085.30	145	
PLM-SVM I/F Strut	38	102	155.26	-247.76	-1006.61		MS21122-12
PLM-SVM I/F Strut	38	302	420.33	-118.33	-1009.54		MS21122-12
Lower Bulkhead ENN411	211132	400	550.0	64.57	-1018.96	0	
Support Rail	3900	112	743.50	69.83	-1014.10		
Support Rail	3900	182	1422.50	69.83	-1014.10		
CVV Cylinder ENN411	211121	401	1478.00	191.19	-983.59	90	
CVV Cylinder Connector	211121	P31					

Harness Bundle :		SIH-IS-01					
Location :	ID-Number :		Coordinate : Ref.: HPLM-AXS			Angle Orientation	P-Clamp Size
			X	Y	Z	[°]	
Connector Bracket on SVM	312200	J06					
Support on SVM ENN411	360311	311	0.0	-259.11	-1085.30	160	
PLM-SVM I/F Strut	38	102	155.26	-247.76	-1006.61		MS21122-12
PLM-SVM I/F Strut	38	302	420.33	-118.33	-1009.54		MS21122-12
Lower Bulkhead ENN411	211132	400	550.0	64.57	-1018.96	0	
Support Rail	3900	111	743.50	69.83	-1014.10		
Support Rail	3900	181	1422.50	69.83	-1014.10		
CVV Cylinder ENN411	211121	401	1478.00	191.19	-983.59	90	
CVV Cylinder ENN411	211121	403	1471.50	453.99	-891.01	90	
CVV Cylinder Connector	211121	P32					

Harness Bundle :		SIH-IS-12					
Location :	ID-Number :		Coordinate : Ref.: HPLM-AXS			Angle Orientation	P-Clamp Size
			X	Y	Z	[°]	
Connector Bracket on SVM	312300	J05					
Support on SVM ENN411	360402	402	0.0	431.48	-1045.49	70	
PLM-SVM I/F Strut	40	101	136.90	359.00	-986.61		MS21122-07
PLM-SVM I/F Strut	40	301	411.94	462.34	-925.97		MS21122-07
Lower Bulkhead ENN411	211132	402	550.00	559.89	-853.79	0	
Lower Bulkhead ENN411	211131	400	680.00	550.96	-834.53	0	
Support Rail	4041	112	743.00	522.76	-871.77		
Support Rail	4041	162	1253.00	522.76	-871.77		
CVV Cylinder ENN411	211121	404	1310.00	574.15	-821.19	90	
CVV Cylinder Connector	211121	P33					

Harness Bundle :	SIH-IS-10							
	Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
		Ref.: HPLM-AXS			X	Y		
							[°]	
Connector Bracket on SVM	312300	J05						
Support on SVM ENN411	360403	403	0.0	470.59	-1033.36	70		
PLM-SVM I/F Strut	40	101	136.90	359.00	-986.61		MS21122-07	
PLM-SVM I/F Strut	40	301	411.94	462.34	-925.97		MS21122-07	
Lower Bulkhead ENN411	211132	402	550.00	559.89	-853.79	0		
Lower Bulkhead ENN411	211131	400	680.00	550.96	-834.53	0		
Support Rail	4041	111	743.00	522.76	-871.77			
Support Rail	4041	161	1253.00	522.76	-871.77			
CVV Cylinder ENN411	211121	404	1310.00	574.15	-821.19	90		
CVV Cylinder ENN411	211121	405	1310.00	669.95	-745.10	90		
CVV Cylinder Connector	211121	P34						

Harness Bundle :		CCH-ICA-10					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	321200	J01					
Support on SVM ENN411	360404	404	0.0	775.14	-818.64	170	
PLM-SVM I/F Strut	41	100					
PLM-SVM I/F Strut	41	300					
Lower Bulkhead ENN411	211132	403	542.00	572.53	-845.37	0	
CVV Cylinder ENN411	211123	400	695.500	600.88	-799.34	90	
CVV Cylinder ENN411	211123	401	695.500	753.94	-656.94	90	
CVV Cylinder ENN411	211123	402	695.500	808.33	-588.73	90	
Support Rail	4200	311	743.00	870.19	-525.39		
Support Rail	4200	361	1253.00	870.19	-525.39		
CVV Cylinder Connector	211121	P35					

Harness Bundle :		CCH-ICB-10					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	321300	J01					
Support on SVM ENN411	360409	409	0.0	900.78	-703.42	70	
PLM-SVM I/F Strut	42	100					
PLM-SVM I/F Strut	42	300					
Lower Bulkhead ENN411	211132	405	550.00	847.52	-569.34	0	
Support Rail	4200	211	743.00	870.19	-525.39		
Support Rail	4200	261	1253.00	870.19	-525.39		
CVV Cylinder ENN411	211121	406	1471.50	869.21	-494.45	90	
CVV Cylinder ENN411	211121	407	1471.50	904.33	-426.83	90	
CVV Cylinder Connector	211121	P36					

Harness Bundle :		CCH-ICE-10					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	315100	J01					
PLM-SVM I/F Strut	43	100					
PLM-SVM I/F Strut	43	300					
Lower Bulkhead ENN411	211132	406	542.00	918.51	-445.85	0	
Lower Bulkhead ENN411	211131	402	680.00	920.05	-391.81	90	
Support Rail	4344	111	743.00	984.58	-252.72		
Support Rail	4344	361	1253.00	984.58	-252.72		
CVV Cylinder Connector	211121	P37					

Harness Bundle :		CCH-ICE-20					
Location :	ID-Number :		Coordinate :			Angle Orientation	P-Clamp Size
			Ref.: HPLM-AXS				
			X	Y	Z	[°]	
Connector Bracket on SVM	315100	J02					
PLM-SVM I/F Strut	43	100					
PLM-SVM I/F Strut	43	300					
Lower Bulkhead ENN411	211132	406	542.00	918.51	-445.85	0	
Lower Bulkhead ENN411	211131	402	680.00	920.05	-391.81	90	
Support Rail	4344	312	743.00	984.58	-252.72		
Support Rail	4344	362	1253.00	984.58	-252.72		
CVV Cylinder Connector	211121	P38					

Harness Bundle :		CCH-ICE-11						
Location :		ID-Number :		Coordinate :			Angle	P-Clamp
				Ref.: HPLM-AXS			Orientation	Size
				X	Y	Z	[°]	
Connector Bracket on SVM		315100	J03					
PLM-SVM I/F Strut		44	100					
PLM-SVM I/F Strut		44	300					
Lower Bulkhead ENN411		211132	407	542.00	1019.21	-60.41	0	
Lower Bulkhead ENN411		211131	403	680.00	998.06	-62.22	0	
CVV Cylinder ENN411		211123	405	865.00	982.80	-37.10	47	
CVV Cylinder ENN411		211123	104	865.00	957.79	145.06	12	
CVV Cylinder ENN411		211123	105	865.00	951.12	250.28	152	
CVV Cylinder Connector		211123	P01					

Harness Bundle :		CCH-ICE-12						
Location :		ID-Number :		Coordinate :			Angle	P-Clamp
				Ref.: HPLM-AXS			Orientation	Size
				X	Y	Z	[°]	
Connector Bracket on SVM		315100	J04					
PLM-SVM I/F Strut		44	100					
PLM-SVM I/F Strut		44	300					
Lower Bulkhead ENN411		211132	407	542.00	1019.21	-60.41	0	
Lower Bulkhead ENN411		211131	403	680.00	998.06	-62.22	0	
CVV Cylinder ENN411		211123	405	865.00	982.80	-37.10	47	
CVV Cylinder ENN411		211123	104	865.00	957.79	145.06	12	
CVV Cylinder ENN411		211123	106	865.00	918.04	309.17	22	
CVV Cylinder ENN411		211123	107	865.00	850.41	463.89	32	
CVV Cylinder ENN411		211123	108	865.00	819.45	543.85	171	
CVV Cylinder Connector		211123	P02					

Harness Bundle :		CCH-ICE-13					Angle Orientation [°]	P-Clamp Size
Location :		ID-Number :		Coordinate :				
		Ref.: HPLM-AXS						
				X	Y	Z		
Connector Bracket on SVM		321100	J05					
Support on SVM ENN411		360314	314	0.0	-886.93	-727.96	110	
PLM-SVM I/F Strut		36	100					
PLM-SVM I/F Strut		36	300					
Lower Bulkhead ENN411		211132	302	541.00	-581.03	-839.56	0	
CVV Cylinder Connector		211123	P05					

Harness Bundle :		CCH-ICE-14					Angle Orientation [°]	P-Clamp Size
Location :		ID-Number :		Coordinate :				
		Ref.: HPLM-AXS						
				X	Y	Z		
Connector Bracket on SVM		321100	J06					
Support on SVM ENN411		360314	314	0.0	-886.93	-727.96	110	
PLM-SVM I/F Strut		36	100					
PLM-SVM I/F Strut		36	300					
Lower Bulkhead ENN411		211132	304	550.00	-453.89	-914.56	70	
CVV Cylinder ENN411		211123	300	695.00	-377.71	-925.93	90	
CVV Cylinder Connector		211123	P06					

Harness Bundle :		CCH-ICA-12					Angle Orientation [°]	P-Clamp Size
Location :		ID-Number :		Coordinate :				
		Ref.: HPLM-AXS						
				X	Y	Z		
Connector Bracket on SVM		321200	J05					
Support on SVM ENN411		360408	408	0.0	864.34	-773.44	145	
PLM-SVM I/F Strut		41	100					
PLM-SVM I/F Strut		41	300					
Lower Bulkhead ENN411		211132	403	542.00	572.53	-845.37	0	
CVV Cylinder ENN411		211123	407	865.00	531.35	-835.32	98	
CVV Cylinder ENN411		211123	406	865.00	463.89	-850.41	63	
CVV Cylinder ENN411		211123	405	865.00	380.03	-914.16	162	
CVV Cylinder Connector		211123	P07					

Harness Bundle :		CCH-ICB-12					
Location :	ID-Number :	Coordinate :			Angle	P-Clamp	
		Ref.: HPLM-AXS			Orientation	Size	
		X	Y	Z	[°]		
Connector Bracket on SVM	321300	J05					
Support on SVM ENN411	360413	413	0.0	984.53	-638.77	85	
PLM-SVM I/F Strut	42	100					
PLM-SVM I/F Strut	42	300					
Lower Bulkhead ENN411	211132	404	542.00	837.46	-584.05	0	
Lower Bulkhead ENN411	211131	402	680.00	787.29	-616.59	90	
Lower Bulkhead ENN411	211131	401	680.00	668.26	-743.93	90	
CVV Cylinder Connector	211123	P08					

Harness Bundle :		CCH-ICA-11					
Location :	ID-Number :	Coordinate :			Angle	P-Clamp	
		Ref.: HPLM-AXS			Orientation	Size	
		X	Y	Z	[°]		
Connector Bracket on SVM	321200	J02					
Support on SVM ENN411	360405	405	0.0	797.44	-807.34	170	
PLM-SVM I/F Strut	41	100					
PLM-SVM I/F Strut	41	300					
Lower Bulkhead ENN411	211132	403	542.00	572.53	-845.37	0	
CVV Cylinder ENN411	211123	400	695.50	600.88	-799.34	90	
CVV Cylinder ENN411	211123	401	695.50	753.94	-656.94	90	
CVV Cylinder Connector	211123	P09					

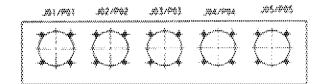
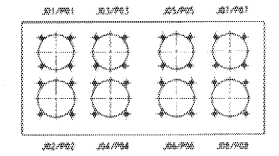
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		X	Y	Z	[°]		
Connector Bracket on SVM	321300	J02					
Support on SVM ENN411	360410	410	0.0	921.72	-689.76	75	
PLM-SVM I/F Strut	42	100					
PLM-SVM I/F Strut	42	300					
Lower Bulkhead ENN411	211132	405	550.00	847.52	-569.34	0	
CVV Cylinder ENN411	211123	403	695.50	874.05	-485.84	90	
CVV Cylinder ENN411	211123	404	695.50	905.81	-423.68	90	
CVV Cylinder Connector	211123	P10					

5.2 Annex 2-2 : PFM Cryostat Harness external CCH and SIH Routing Drawing

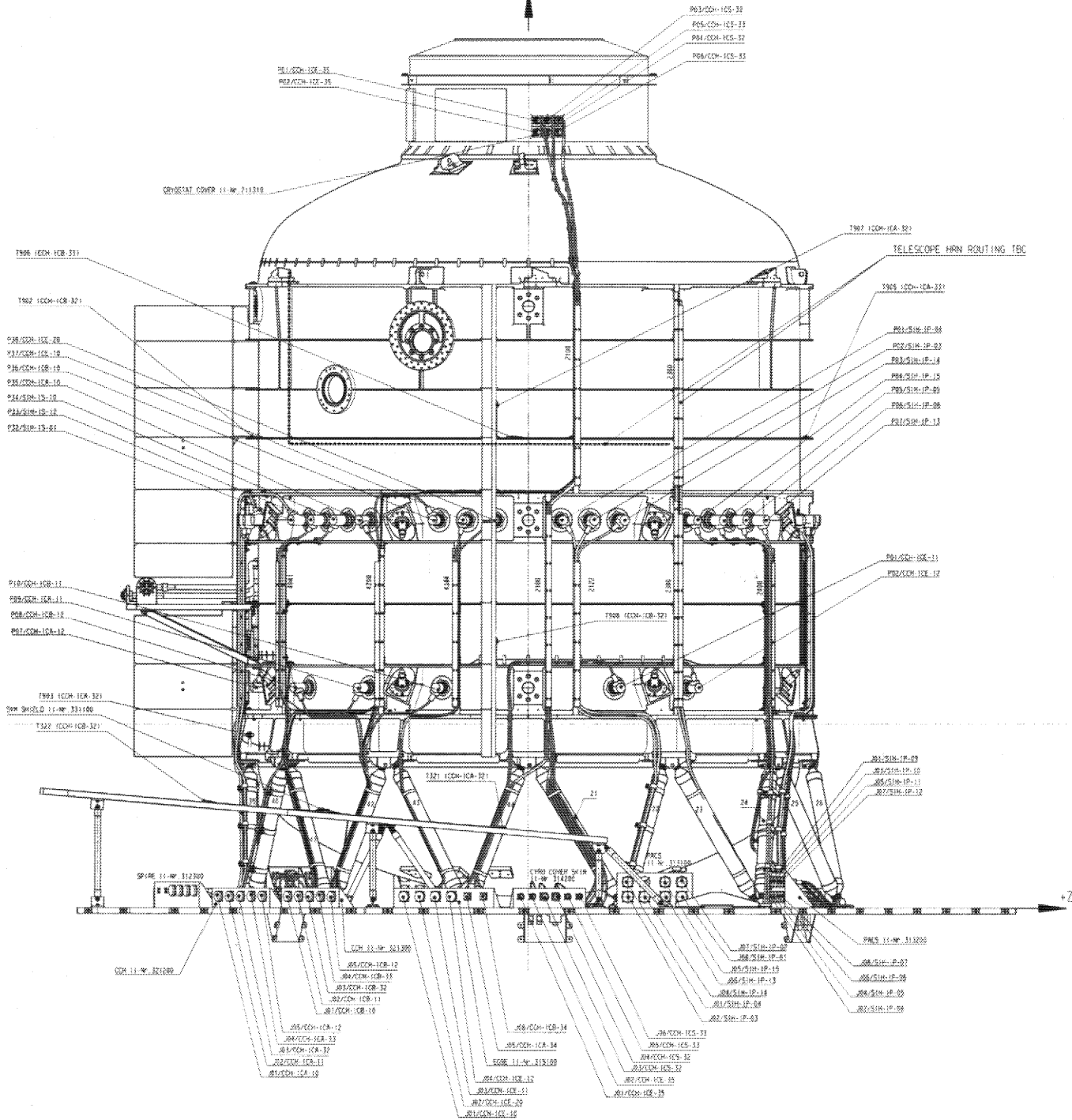
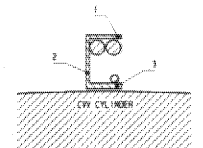
View from +Y

+X

Typ. Marking of SVM Connector Brackets



Typ. Marking of C-Shaped Bar



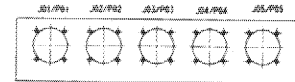
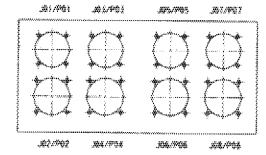
View from +Y

PROJECT		VIEW/CLIP		DATE	
HP 2 ASGD 10-0081-02-00		C1-121430			
REV		DATE		BY	
1		2547-121430-200-02-00		Marschel PPM	
2				GEOSTAT HARDWARE	
3				C/SY EXTERNAL C/SY & S/H	
4				astrium	
5				2547-121430-200-02-00	
6				121430	

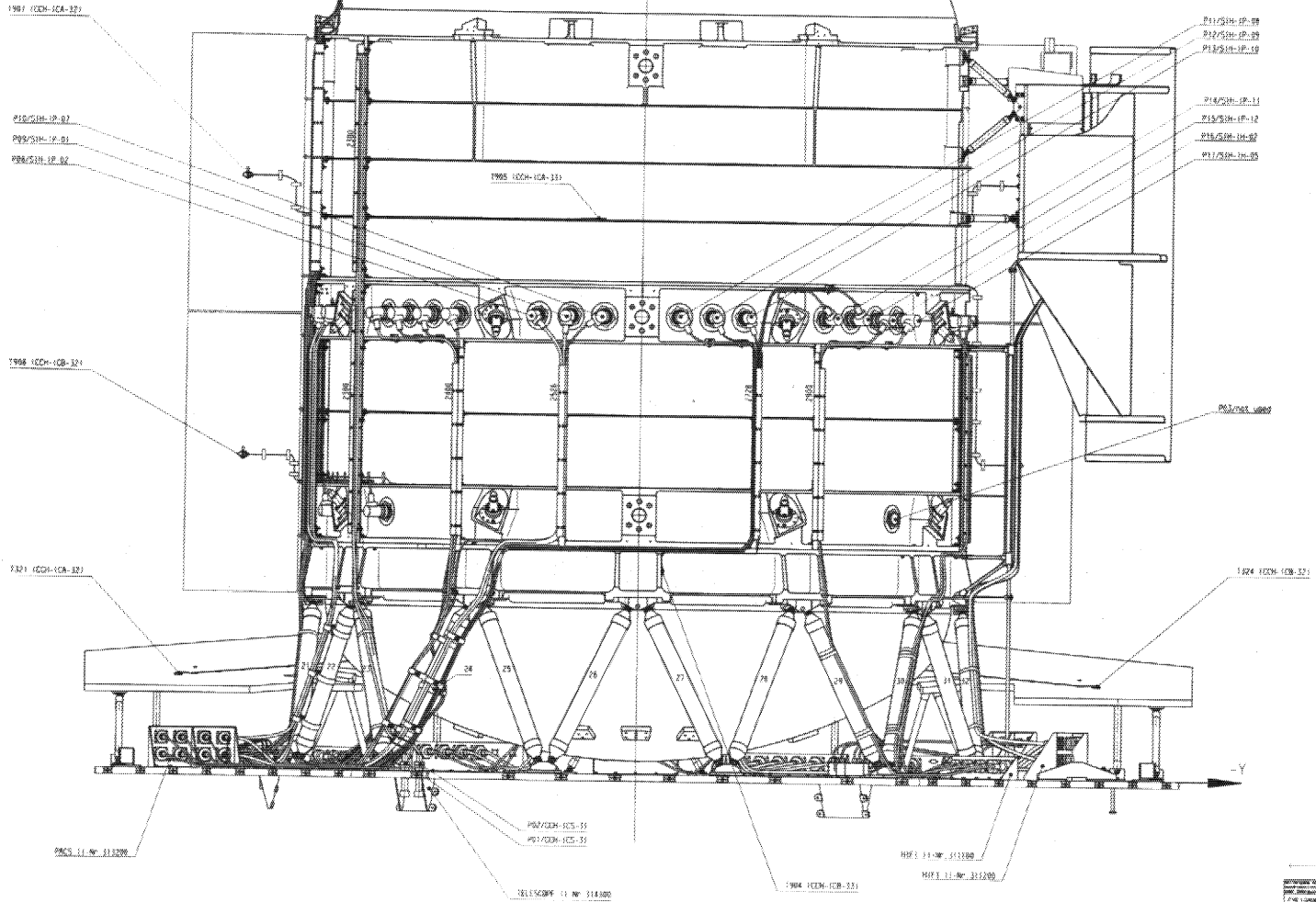
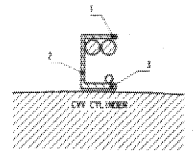
View from +Z

+X

Typ. Marking of SWM Connector Brackets



Typ. Marking of C-shaped Bar



View from +Z

MP-2-RSE0-10-0081-03-09		CI-121430	
REV. 01		REV. 01	
REV. 02		REV. 02	
REV. 03		REV. 03	
REV. 04		REV. 04	
REV. 05		REV. 05	
REV. 06		REV. 06	
REV. 07		REV. 07	
REV. 08		REV. 08	
REV. 09		REV. 09	
REV. 10		REV. 10	
REV. 11		REV. 11	
REV. 12		REV. 12	
REV. 13		REV. 13	
REV. 14		REV. 14	
REV. 15		REV. 15	
REV. 16		REV. 16	
REV. 17		REV. 17	
REV. 18		REV. 18	
REV. 19		REV. 19	
REV. 20		REV. 20	
REV. 21		REV. 21	
REV. 22		REV. 22	
REV. 23		REV. 23	
REV. 24		REV. 24	
REV. 25		REV. 25	
REV. 26		REV. 26	
REV. 27		REV. 27	
REV. 28		REV. 28	
REV. 29		REV. 29	
REV. 30		REV. 30	
REV. 31		REV. 31	
REV. 32		REV. 32	
REV. 33		REV. 33	
REV. 34		REV. 34	
REV. 35		REV. 35	
REV. 36		REV. 36	
REV. 37		REV. 37	
REV. 38		REV. 38	
REV. 39		REV. 39	
REV. 40		REV. 40	
REV. 41		REV. 41	
REV. 42		REV. 42	
REV. 43		REV. 43	
REV. 44		REV. 44	
REV. 45		REV. 45	
REV. 46		REV. 46	
REV. 47		REV. 47	
REV. 48		REV. 48	
REV. 49		REV. 49	
REV. 50		REV. 50	
REV. 51		REV. 51	
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REV. 84		REV. 84	
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REV. 86		REV. 86	
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REV. 88		REV. 88	
REV. 89		REV. 89	
REV. 90		REV. 90	
REV. 91		REV. 91	
REV. 92		REV. 92	
REV. 93		REV. 93	
REV. 94		REV. 94	
REV. 95		REV. 95	
REV. 96		REV. 96	
REV. 97		REV. 97	
REV. 98		REV. 98	
REV. 99		REV. 99	
REV. 100		REV. 100	

astrium

5.3 Annex 2-3 : PFM CVV external Harness Routing Pictures

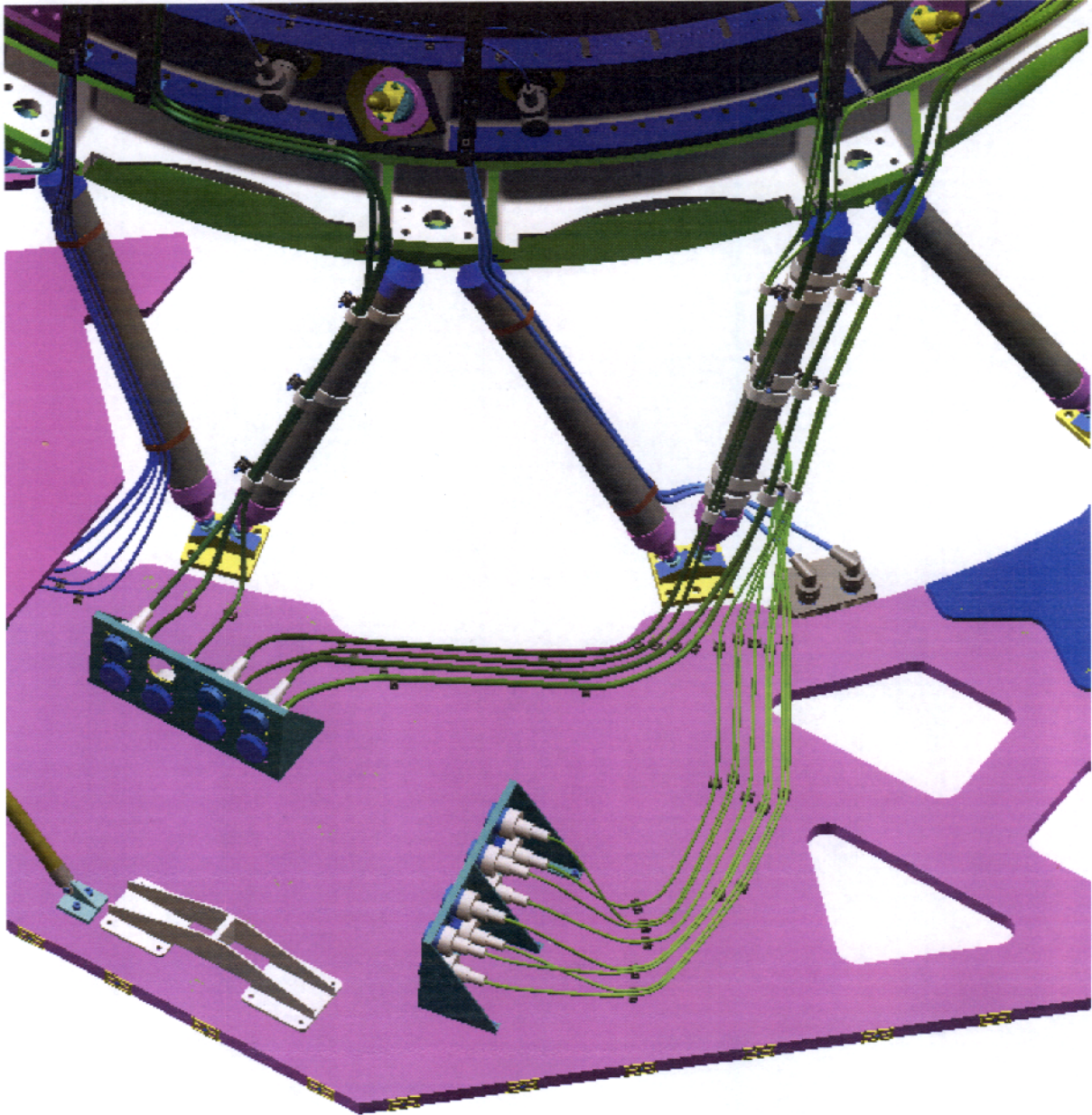


Figure 5.3-1: PACS P-Clamp attachment on PLM-SVM I/F-Struts

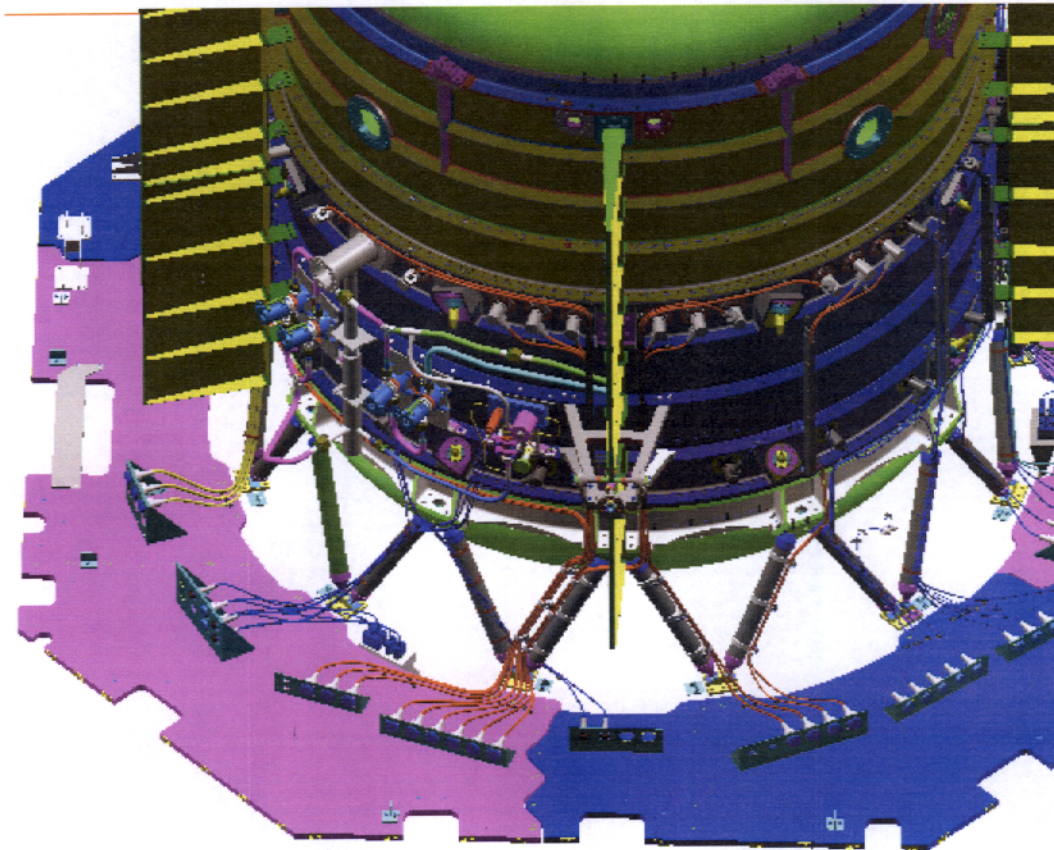


Figure 5.3-2: Overall View on SPIRE CVV External Harness & CCH

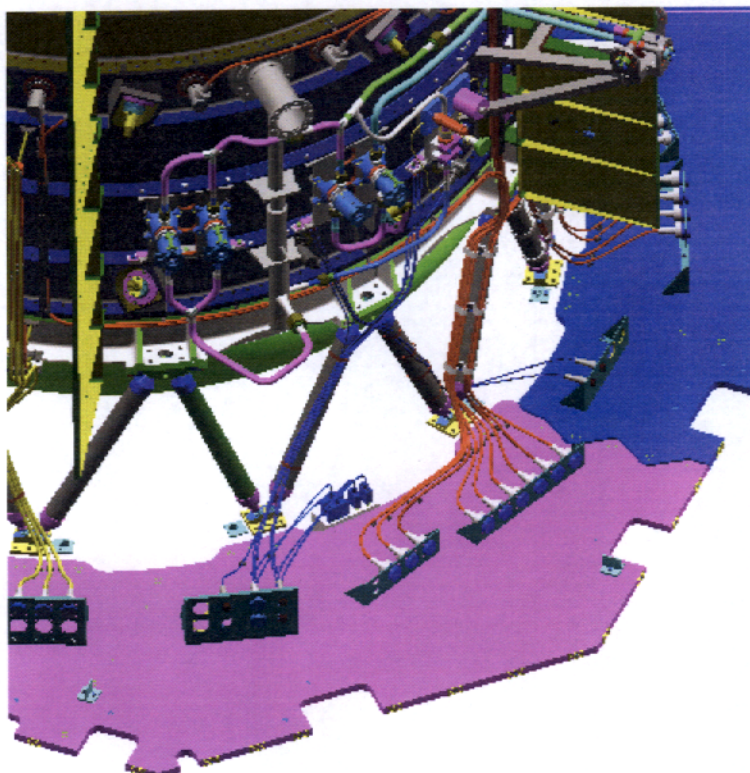


Figure 5.3-3: Overall View on SPIRE CVV External Harness

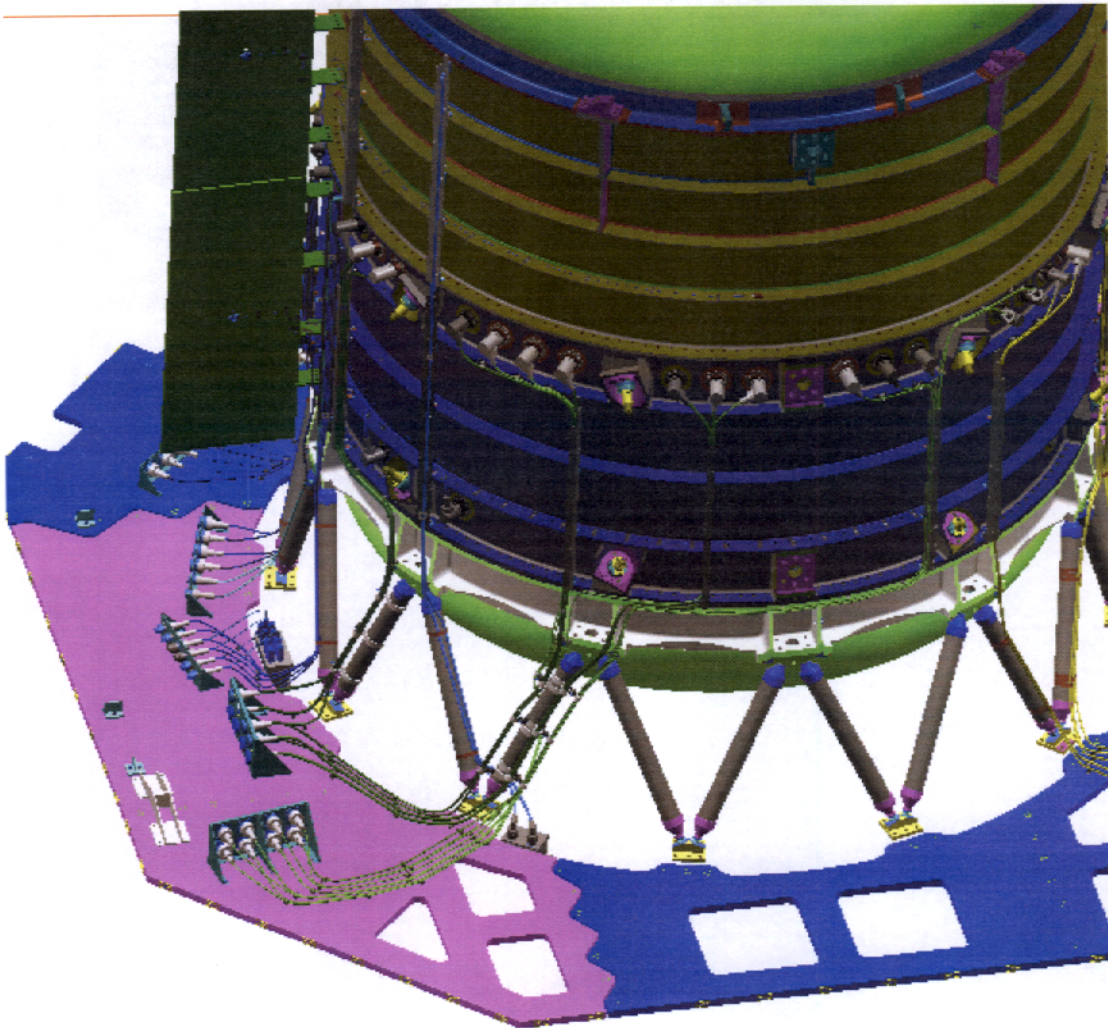


Figure 5.3-4: Overall View on PACS CVV External Harness

6 Annex 3 : Cryostat Harness CVV Internal CCH & SIH

See HP-2-ASED-ID-0085-01 // -21-0A

drawing ref: Herschel PFM Cryostat Harness CVV internal CCH & SIH

2547-121430-200-01 // -21-0A

6.1 Annex 3-1: PFM Cryo-Harness Connector Allocation and Coordinate List

Herschel PFM

Allocation and Coordinates of all connectors

Connector-ID:	Location:	Coordinate:			Vector:			Remark against
		x	y	z	u	v	w	
		Ref.: HPLM-AXS			Ref.: $\sqrt{u^2 + v^2 + w^2} = 100$			Status of 18.08.2003
214332/J01	upper SFWK -Y	1.793,140	-482,500	208,995	-100,000	0,000	0,000	
214332/J02	upper SFWK -Y	1.793,140	-482,500	168,995	-100,000	0,000	0,000	
214332/J03	upper SFWK -Y	1.793,140	-482,500	128,995	-100,000	0,000	0,000	
214332/J04	upper SFWK -Y	1.793,140	-482,500	88,995	-100,000	0,000	0,000	
214333/J01	upper SFWK -Z	1.793,140	-208,995	-482,500	-100,000	0,000	0,000	
214333/J02	upper SFWK -Z	1.793,140	-168,995	-482,500	-100,000	0,000	0,000	
214333/J03	upper SFWK -Z	1.793,140	-128,995	-482,500	-100,000	0,000	0,000	
214333/J04	upper SFWK -Z	1.793,140	-88,995	-482,500	-100,000	0,000	0,000	
214334/J01	upper SFWK +Y	1.793,140	482,500	-168,995	-100,000	0,000	0,000	
214334/J02	upper SFWK +Y	1.793,140	482,500	-128,995	-100,000	0,000	0,000	
214334/J03	upper SFWK +Y	1.793,140	482,500	-88,995	-100,000	0,000	0,000	
214334/J04	upper SFWK +Y	1.793,140	482,500	-48,995	-100,000	0,000	0,000	
214341/J03	lower SFWK +Y	344,110	486,500	-44,995	-100,000	0,000	0,000	
214341/J04	lower SFWK +Y	344,110	486,500	0,005	-100,000	0,000	0,000	
214341/J05	lower SFWK +Y	344,110	486,500	45,005	-100,000	0,000	0,000	
214341/J06	lower SFWK +Y	344,110	486,500	90,005	-100,000	0,000	0,000	
214341/J07	lower SFWK +Y	344,110	486,500	135,005	-100,000	0,000	0,000	
214342/J02	lower SFWK +Z	344,110	45,015	486,500	-100,000	0,000	0,000	
214342/J03	lower SFWK +Z	344,110	-0,005	486,500	-100,000	0,000	0,000	
214342/J04	lower SFWK +Z	344,110	-45,005	486,500	-100,000	0,000	0,000	
214342/J05	lower SFWK +Z	344,110	-90,025	486,500	-100,000	0,000	0,000	
214342/J06	lower SFWK +Z	344,110	-134,985	486,500	-100,000	0,000	0,000	
214343/J01	lower SFWK -Y	344,110	-486,500	134,975	-100,000	0,000	0,000	
214343/J02	lower SFWK -Y	344,110	-486,500	89,975	-100,000	0,000	0,000	
214343/J03	lower SFWK -Y	344,110	-486,500	44,975	-100,000	0,000	0,000	
214343/J04	lower SFWK -Y	344,110	-486,500	-0,025	-100,000	0,000	0,000	
214343/J05	lower SFWK -Y	344,110	-486,500	-45,025	-100,000	0,000	0,000	
214343/J06	lower SFWK -Y	344,110	-486,500	-90,025	-100,000	0,000	0,000	
214343/J07	lower SFWK -Y	344,110	-486,500	-135,025	-100,000	0,000	0,000	
214344/J03	lower SFWK -Z	344,110	-44,975	-486,500	-100,000	0,000	0,000	

Note *: All Length
only CATIA - Length
without attritions !!!

Herschel PFM

Allocation and Coordinates of all connectors

Connector-ID:	Location:	Coordinate:			Vector:			Remark against
		x	y	z	u	v	w	
		Ref.: HPLM-AXS			Ref.: $\sqrt{u^2 + v^2 + w^2} = 100$			Status of 18.08.2003
214344/J04	lower SFWK -Z	344,110	0,025	-486,500	-100,000	0,000	0,000	
214344/J05	lower SFWK -Z	344,110	45,025	-486,500	-100,000	0,000	0,000	
214344/J06	lower SFWK -Z	344,110	90,025	-486,500	-100,000	0,000	0,000	
214344/J07	lower SFWK -Z	344,110	135,025	-486,500	-100,000	0,000	0,000	
214421/J01	1st Shield	1674,610	748,332	-411,067	-100,000	0,000	0,000	
214421/J02	1st Shield	1674,610	729,643	-443,391	-100,000	0,000	0,000	
214421/J03	1st Shield	1674,610	709,561	-474,869	-100,000	0,000	0,000	
214422/J01	1st Shield	603,610	769,526	-371,713	-100,000	0,000	0,000	
214423/J01	1st Shield	487,354	724,982	-449,259	100,000	0,000	0,000	
214441/J01	2nd Shield	1599,609	776,341	-432,735	-100,000	0,000	0,000	
214441/J02	2nd Shield	1599,609	756,727	-466,187	-100,000	0,000	0,000	
214441/J03	2nd Shield	643,610	805,360	-377,866	-100,000	0,000	0,000	has been shifted
214441/J04	2nd Shield	549,390	766,742	-449,525	100,000	0,000	0,000	
214441/J05	3rd Shield	1588,609	813,285	-431,787	-100,000	0,000	0,000	
214441/J06	3rd Shield	1588,609	793,677	-466,851	-100,000	0,000	0,000	
214441/J07	3rd Shield	644,610	848,580	-359,528	-100,000	0,000	0,000	
214441/J08	3rd Shield	582,390	805,866	-450,625	100,000	0,000	0,000	
214441/J09	Instrument Shield	1903,360	744,000	200,706	100,000	0,000	0,000	shifted by some "mm" due to bracket modification
214441/J10	Instrument Shield	1903,360	744,000	165,706	100,000	0,000	0,000	shifted by some "mm" due to bracket modification
214441/J11	Instrument Shield	1903,360	744,000	130,706	100,000	0,000	0,000	shifted by some "mm" due to bracket modification
214441/J12	upper CVV-Ring	1383,000	955,681	113,958	0,000	99,296	11,840	
214441/J13	upper CVV-Ring	1383,000	937,783	216,504	0,000	97,438	22,495	
214441/J14	upper CVV-Ring	1383,000	908,916	316,518	0,000	94,438	32,887	
214441/J15	upper CVV-Ring	1383,000	781,591	561,630	0,000	81,208	58,354	
214441/J16	upper CVV-Ring	1383,000	716,363	642,756	0,000	74,432	66,783	
214441/J17	upper CVV-Ring	1383,000	642,756	716,363	0,000	66,783	74,432	
214441/J18	upper CVV-Ring	1383,000	561,630	781,591	0,000	58,354	81,208	

Note *: All Length
only CATIA - Length
without attritions !!!

Herschel PFM

Allocation and Coordinates of all connectors

Connector-ID:	Location:	Coordinate:			Vector:			Remark against Status of 18.08.2003
		x	y	z	u	v	w	
		Ref.: HPLM-AXS			Ref.: $\sqrt{u^2 + v^2 + w^2} = 100$			
214441/J19	upper CVV-Ring	1383,000	316,452	908,726	0,000	32,887	94,438	
214441/J20	upper CVV-Ring	1383,000	216,504	937,783	0,000	22,495	97,438	
214441/J21	upper CVV-Ring	1383,000	113,958	955,681	0,000	11,840	99,296	
214441/J22	upper CVV-Ring	1383,000	-113,958	955,681	0,000	-11,840	99,296	
214441/J23	upper CVV-Ring	1383,000	-216,504	937,783	0,000	-22,495	97,438	
214441/J24	upper CVV-Ring	1383,000	-316,518	908,916	0,000	-32,887	94,438	
214441/J25	upper CVV-Ring	1383,000	-564,355	779,625	0,000	-58,637	81,005	
214441/J26	upper CVV-Ring	1383,000	-645,253	714,115	0,000	-67,042	74,198	
214441/J27	upper CVV-Ring	1383,000	-718,603	640,252	0,000	-74,664	66,523	
214441/J28	upper CVV-Ring	1383,000	-783,546	558,898	0,000	-81,412	58,070	
214441/J29	upper CVV-Ring	1383,000	-908,916	316,518	0,000	-94,438	32,887	
214441/J30	upper CVV-Ring	1383,000	-937,783	216,504	0,000	-97,438	22,495	
214441/J31	upper CVV-Ring	1383,000	-955,481	113,934	0,000	-99,297	11,841	
214441/J32	upper CVV-Ring	1383,000	-955,481	-113,934	0,000	-99,297	-11,841	
214441/J33	upper CVV-Ring	1383,000	-937,783	-216,504	0,000	-97,438	-22,495	
214441/J34	upper CVV-Ring	1383,000	-908,916	-316,518	0,000	-94,438	-32,887	
214441/J35	upper CVV-Ring	1383,000	-788,394	-552,039	0,000	-81,915	-57,358	
214441/J36	upper CVV-Ring	1383,000	-552,039	-788,394	0,000	-57,358	-81,915	
214441/J37	upper CVV-Ring	1383,000	-316,518	-908,916	0,000	-32,887	-94,438	
214441/J38	upper CVV-Ring	1383,000	-216,504	-937,783	0,000	-22,495	-97,438	
214441/J39	upper CVV-Ring	1383,000	-113,958	-955,681	0,000	-11,840	-99,296	
214441/J40	upper CVV-Ring	1383,000	113,958	-955,681	0,000	11,840	-99,296	
214441/J41	upper CVV-Ring	1383,000	216,504	-937,783	0,000	22,495	-97,438	
214441/J42	upper CVV-Ring	1383,000	316,518	-908,916	0,000	32,887	-94,438	
214441/J43	upper CVV-Ring	1383,000	561,630	-781,591	0,000	58,354	-81,208	
214441/J44	upper CVV-Ring	1383,000	642,756	-716,363	0,000	66,783	-74,432	
214441/J45	upper CVV-Ring	1383,000	716,363	-642,756	0,000	74,432	-66,783	
214441/J46	upper CVV-Ring	1383,000	781,347	-561,455	0,000	81,208	-58,354	
214441/J47	upper CVV-Ring	1383,000	908,916	-316,518	0,000	94,438	-32,887	
214441/J48	upper CVV-Ring	1383,000	937,783	-216,504	0,000	97,438	-22,495	

Note *: All Length
only CATIA - Length
without attritions !!!

Herschel PFM

Allocation and Coordinates of all connectors

Connector-ID:	Location:	Coordinate:			Vector:			Remark against
		x	y	z	u	v	w	
		Ref.: HPLM-AXS			Ref.: $\sqrt{u^2 + v^2 + w^2} = 100$			Status of 18.08.2003
214441/J49	upper CVV-Ring	1383,000	955,681	-113,958	0,000	99,296	-11,840	
214441/J50	lower CVV-Ring	783,000	912,715	305,390	0,000	94,832	31,731	
214441/J51	lower CVV-Ring	783,000	778,639	565,715	0,000	80,902	58,778	
214441/J52	lower CVV-Ring	not used						
214441/J53	lower CVV-Ring	not used						
214441/J54	lower CVV-Ring	783,000	-618,522	-737,126	0,000	-64,279	-76,605	
214441/J55	lower CVV-Ring	783,000	-208,313	-939,637	0,000	-21,643	-97,630	
214441/J56	lower CVV-Ring	783,000	297,414	-915,345	0,000	30,901	-95,106	
214441/J57	lower CVV-Ring	783,000	565,913	-778,503	0,000	58,779	-80,902	
214441/J58	lower CVV-Ring	783,000	778,639	-565,715	0,000	80,902	-58,778	
214441/J59	lower CVV-Ring	783,000	912,715	-305,390	0,000	94,832	-31,731	
214441/J60	SPIRE JFET-S	2052,445	489,606	-500,890	0,000	-70,711	-70,711	
214441/J61	SPIRE JFET-S	2015,956	489,606	-500,890	0,000	-70,711	-70,711	
214441/J62	SPIRE JFET-S	2015,956	475,263	-486,547	0,000	-70,710	-70,711	
214441/J63	SPIRE JFET-S	2052,445	475,263	-486,547	0,000	-70,710	-70,711	
214441/J64	SPIRE JFET-S	2015,956	503,901	-515,185	0,000	-70,711	-70,711	
214441/J65	SPIRE JFET-S	2052,445	503,901	-515,185	0,000	-70,711	-70,711	
214441/J66	SPIRE JFET-S	2052,445	518,243	-529,528	0,000	-70,710	-70,710	
214441/J67	SPIRE JFET-S	2015,956	518,243	-529,528	0,000	-70,710	-70,710	
214441/J68	SPIRE JFET-S	2040,200	461,428	-479,232	0,000	-70,711	-70,710	
214441/J69	SPIRE JFET-S	2040,200	525,421	-543,225	0,000	-70,711	-70,710	
214441/J70	SPIRE JFET-P	2052,445	-340,424	-520,136	0,000	100,000	0,000	
214441/J71	SPIRE JFET-P	2015,956	-340,424	-520,136	0,000	100,000	0,000	
214441/J72	SPIRE JFET-P	2015,956	-340,424	-621,419	0,000	100,000	0,000	
214441/J73	SPIRE JFET-P	2052,445	-340,424	-621,419	0,000	100,000	0,000	
214441/J74	SPIRE JFET-P	2015,956	-340,424	-540,419	0,000	100,000	0,000	
214441/J75	SPIRE JFET-P	2052,445	-340,424	-540,419	0,000	100,000	0,000	
214441/J76	SPIRE JFET-P	2052,445	-340,424	-601,136	0,000	100,000	0,000	

Note *: All Length
only CATIA - Length
without attritions !!!

Herschel PFM

Allocation and Coordinates of all connectors

Connector-ID:	Location:	Coordinate:			Vector:			Remark against
		x	y	z	u	v	w	
		Ref.: HPLM-AXS			Ref.: $\sqrt{u^2 + v^2 + w^2} = 100$			Status of 18.08.2003
214441/J77	SPIRE JFET-P	2015,956	-340,424	-601,136	0,000	100,000	0,000	
214441/J78	SPIRE JFET-P	2052,445	-340,424	-560,636	0,000	100,000	0,000	
214441/J79	SPIRE JFET-P	2015,956	-340,424	-560,636	0,000	100,000	0,000	
214441/J80	SPIRE JFET-P	2015,956	-340,424	-580,919	0,000	100,000	0,000	
214441/J81	SPIRE JFET-P	2052,445	-340,424	-580,919	0,000	100,000	0,000	
214441/J82	SPIRE JFET-P	2015,956	-340,424	-418,919	0,000	100,000	0,000	
214441/J83	SPIRE JFET-P	2052,445	-340,424	-418,919	0,000	100,000	0,000	
214441/J84	SPIRE JFET-P	2052,445	-340,424	-398,636	0,000	100,000	0,000	
214441/J85	SPIRE JFET-P	2015,956	-340,424	-398,636	0,000	100,000	0,000	
214441/J86	SPIRE JFET-P	2052,445	-340,424	-439,136	0,000	100,000	0,000	
214441/J87	SPIRE JFET-P	2015,956	-340,424	-439,136	0,000	100,000	0,000	
214441/J88	SPIRE JFET-P	2015,956	-340,424	-499,919	0,000	100,000	0,000	
214441/J89	SPIRE JFET-P	2052,445	-340,424	-499,919	0,000	100,000	0,000	
214441/J90	SPIRE JFET-P	2015,956	-340,424	-459,419	0,000	100,000	0,000	
214441/J91	SPIRE JFET-P	2052,445	-340,424	-459,419	0,000	100,000	0,000	
214441/J92	SPIRE JFET-P	2052,445	-340,424	-479,636	0,000	100,000	0,000	
214441/J93	SPIRE JFET-P	2015,956	-340,424	-479,636	0,000	100,000	0,000	
214441/J94	SPIRE JFET-P	2089,465	-344,140	-604,078	0,000	100,000	0,000	
214441/J95	SPIRE JFET-P	2089,465	-344,140	-549,578	0,000	100,000	0,000	
214441/J96	SPIRE JFET-P	2089,465	-344,140	-470,578	0,000	100,000	0,000	
214441/J97	SPIRE JFET-P	2089,465	-344,140	-416,078	0,000	100,000	0,000	
214441/J98	SPIRE FPU	2057,770	345,360	-122,364	0,000	-100,000	0,000	
214441/J99	SPIRE FPU	2057,770	345,360	-139,364	0,000	-100,000	0,000	
214441/J100	SPIRE FPU	2057,770	345,360	-190,364	0,000	-100,000	0,000	
214441/J101	SPIRE FPU	2057,770	345,360	-207,364	0,000	-100,000	0,000	
214441/J102	SPIRE FPU	2057,770	345,360	-88,364	0,000	-100,000	0,000	
214441/J103	SPIRE FPU	2057,770	345,360	-105,364	0,000	-100,000	0,000	
214441/J104	SPIRE FPU	2057,770	345,360	-156,364	0,000	-100,000	0,000	
214441/J105	SPIRE FPU	2057,770	345,360	-173,364	0,000	-100,000	0,000	

Note *: All Length
only CATIA - Length
without attritions !!!

Herschel PFM

Allocation and Coordinates of all connectors

Connector-ID:	Location:	Coordinate:			Vector:			Remark against Status of 18.08.2003
		x	y	z	u	v	w	
		Ref.: HPLM-AXS			Ref.: $\sqrt{u^2 + v^2 + w^2} = 100$			
214441/J106	SPIRE FPU	2057,770	345,360	-258,364	0,000	-100,000	0,000	
214441/J107	SPIRE FPU	2057,770	345,360	-275,364	0,000	-100,000	0,000	
214441/J108	SPIRE FPU	2057,770	345,360	-224,364	0,000	-100,000	0,000	
214441/J109	SPIRE FPU	2057,770	345,360	-241,364	0,000	-100,000	0,000	
214441/J110	PACS Cryo-Mech.	2112,000	-188,233	294,737	0,000	100,000	0,000	
214441/J111	PACS Cryo-Mech.	2112,000	-188,233	279,737	0,000	100,000	0,000	
214441/J112	PACS Cryo-Mech.	2305,000	-85,360	610,000	0,000	100,000	0,000	
214441/J113	PACS Cryo-Mech.	2305,000	-85,360	670,000	0,000	100,000	0,000	
214441/J114	PACS Cryo-Mech.	2202,500	-64,862	225,945	0,000	99,863	5,234	
214441/J115	PACS Cryo-Mech.	2187,500	-64,862	225,945	0,000	99,863	5,234	
214441/J116	PACS Cryo-Mech.	2383,600	-52,860	278,900	0,000	100,000	0,000	
214441/J117	PACS Cryo-Mech.	2200,000	-160,000	335,000	0,000	100,000	0,000	
214441/J118	PACS Cryo-Mech.	2190,000	-160,000	335,000	0,000	100,000	0,000	
214441/J119	PACS FPU	2102,000	-188,233	339,737	0,000	100,000	0,000	
214441/J120	PACS FPU	2108,000	-188,233	431,737	0,000	100,000	0,000	
214441/J121	PACS FPU	2086,000	-188,233	368,737	0,000	100,000	0,000	
214441/J122	PACS FPU	2101,000	-188,233	368,737	0,000	100,000	0,000	
214441/J123	PACS FPU	2108,000	-188,233	401,737	0,000	100,000	0,000	
214441/J124	PACS FPU	2116,000	-188,233	368,737	0,000	100,000	0,000	
214441/J125	PACS FPU	2131,000	-188,233	368,737	0,000	100,000	0,000	
214441/J126	PACS FPU	2108,000	-188,233	416,737	0,000	100,000	0,000	
214441/J127	PACS FPU	2102,000	-188,233	324,737	0,000	100,000	0,000	
214441/J128	PACS FPU	2102,000	527,390	161,500	0,000	-100,000	0,000	
214441/J129	PACS FPU	2108,000	522,978	69,500	0,000	-100,000	0,000	
214441/J130	PACS FPU	2086,000	527,390	132,500	0,000	-100,000	0,000	
214441/J131	PACS FPU	2101,000	527,390	132,500	0,000	-100,000	0,000	
214441/J132	PACS FPU	2108,000	522,978	99,500	0,000	-100,000	0,000	
214441/J133	PACS FPU	2116,000	527,390	132,500	0,000	-100,000	0,000	

Note *: All Length
only CATIA - Length
without attritions !!!

Herschel PFM

Allocation and Coordinates of all connectors

Connector-ID:	Location:	Coordinate:			Vector:			Remark against
		x	y	z	u	v	w	
		Ref.: HPLM-AXS			Ref.: $\sqrt{u^2 + v^2 + w^2} = 100$			Status of 18.08.2003
214441/J134	PACS FPU	2131,000	527,390	132,500	0,000	-100,000	0,000	
214441/J135	PACS FPU	2108,000	522,978	84,500	0,000	-100,000	0,000	
214441/J136	PACS FPU	2102,000	527,390	176,500	0,000	-100,000	0,000	
214441/J137	PACS Cryo-Mech.	2057,000	514,146	399,213	0,000	-92,718	-37,461	
214441/J138	PACS Cryo-Mech.	2072,000	514,146	399,213	0,000	-92,718	-37,461	
214441/J139	PACS Cryo-Mech.	2087,000	514,146	399,213	0,000	-92,718	-37,461	
214441/J140	PACS Cryo-Mech.	2102,000	514,146	399,213	0,000	-92,718	-37,461	
214441/J141	PACS blue Bolom.	2154,701	-259,207	654,281	0,000	100,000	0,000	
214441/J142	PACS blue Bolom.	2110,501	-259,207	654,281	0,000	100,000	0,000	
214441/J143	PACS blue Bolom.	2066,301	-259,207	654,281	0,000	100,000	0,000	
214441/J144	PACS blue Bolom.	2154,701	-259,207	636,281	0,000	100,000	0,000	
214441/J145	PACS blue Bolom.	2110,501	-259,207	636,281	0,000	100,000	0,000	
214441/J146	PACS blue Bolom.	2066,301	-259,207	636,281	0,000	100,000	0,000	
214441/J147	PACS blue Bolom.	2066,301	-259,207	619,681	0,000	100,000	0,000	
214441/J148	PACS blue Bolom.	2110,501	-259,207	619,681	0,000	100,000	0,000	
214441/J149	PACS blue Bolom.	2154,701	-259,207	619,681	0,000	100,000	0,000	
214441/J150	PACS blue Bolom.	2066,301	-259,207	601,681	0,000	100,000	0,000	
214441/J151	PACS blue Bolom.	2110,501	-259,207	601,681	0,000	100,000	0,000	
214441/J152	PACS blue Bolom.	2154,701	-259,207	601,681	0,000	100,000	0,000	
214441/J153	PACS red Bolom.	2110,501	-259,207	582,281	0,000	100,000	0,000	
214441/J154	PACS red Bolom.	2066,301	-259,207	582,281	0,000	100,000	0,000	
214441/J155	PACS red Bolom.	2110,501	-259,207	565,681	0,000	100,000	0,000	
214441/J156	PACS red Bolom.	2154,701	-259,207	565,681	0,000	100,000	0,000	
214441/J157	PACS FPU temps	2110,501	-259,207	546,281	0,000	100,000	0,000	
214441/J158	PACS Cooler	2066,301	-259,207	546,281	0,000	100,000	0,000	
214441/J159	PACS FPU temps	2131,566	-259,707	515,781	0,000	100,000	0,000	
214441/J160	PACS Cooler	2089,436	-259,707	515,781	0,000	100,000	0,000	

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Herschel PFM

Allocation and Coordinates of all connectors

Connector-ID:	Location:	Coordinate:			Vector:			Remark against
		x	y	z	u	v	w	
		Ref.: HPLM-AXS			Ref.: $\sqrt{u^2 + v^2 + w^2} = 100$			Status of 18.08.2003
214441/J161	HIFI FPU Coax	2058,500	-444,300	-221,175	100,000	0,000	0,000	
214441/J162	HIFI FPU Coax	2058,500	-344,300	-221,175	100,000	0,000	0,000	
214441/J163	HIFI FPU Coax	2058,500	-454,500	-203,325	100,000	0,000	0,000	
214441/J164	HIFI FPU Coax	2058,500	-346,500	-203,325	100,000	0,000	0,000	
214441/J165	HIFI FPU horizontal	2338,390	-437,000	164,500	-100,000	0,000	0,000	
214441/J166	HIFI FPU horizontal	2338,390	-437,000	114,500	-100,000	0,000	0,000	
214441/J167	HIFI FPU horizontal	2338,390	-437,000	64,500	-100,000	0,000	0,000	
214441/J168	HIFI FPU horizontal	2338,390	-437,000	14,500	-100,000	0,000	0,000	
214441/J169	HIFI FPU horizontal	2338,390	-437,000	-35,500	-100,000	0,000	0,000	
214441/J170	HIFI FPU horizontal	2338,390	-437,000	-85,500	-100,000	0,000	0,000	
214441/J171	HIFI FPU horizontal	2338,390	-437,000	-135,500	-100,000	0,000	0,000	
214441/J172	HIFI FPU vertical	2262,000	-679,390	164,500	0,000	100,000	0,000	
214441/J173	HIFI FPU vertical	2262,000	-679,390	114,500	0,000	100,000	0,000	
214441/J174	HIFI FPU vertical	2262,000	-679,390	64,500	0,000	100,000	0,000	
214441/J175	HIFI FPU vertical	2262,000	-679,390	14,500	0,000	100,000	0,000	
214441/J176	HIFI FPU vertical	2262,000	-679,390	-35,500	0,000	100,000	0,000	
214441/J177	HIFI FPU vertical	2262,000	-679,390	-85,500	0,000	100,000	0,000	
214441/J178	HIFI FPU vertical	2262,000	-679,390	-135,500	0,000	100,000	0,000	
214441/J179	HIFI FPU horizontal	2338,390	-462,000	164,500	-100,000	0,000	0,000	
214441/J180	HIFI FPU horizontal	2338,390	-462,000	114,500	-100,000	0,000	0,000	
214441/J181	HIFI FPU horizontal	2338,390	-462,000	64,500	-100,000	0,000	0,000	
214441/J182	HIFI FPU horizontal	2338,390	-462,000	14,500	-100,000	0,000	0,000	
214441/J183	HIFI FPU horizontal	2338,390	-462,000	-35,500	-100,000	0,000	0,000	
214441/J184	HIFI FPU vertical	2237,000	-679,390	164,500	0,000	100,000	0,000	
214441/J185	HIFI FPU vertical	2237,000	-679,390	114,500	0,000	100,000	0,000	
214441/J186	HIFI FPU vertical	2237,000	-679,390	64,500	0,000	100,000	0,000	
214441/J187	HIFI FPU vertical	2237,000	-679,390	14,500	0,000	100,000	0,000	
214441/J188	HIFI FPU vertical	2237,000	-679,390	-35,500	0,000	100,000	0,000	
214441/J189	HIFI FPU horizontal	2343,320	-449,000	134,400	-100,000	0,000	0,000	

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Herschel PFM

Allocation and Coordinates of all connectors

Connector-ID:	Location:	Coordinate:			Vector:			Remark against Status of 18.08.2003
		x	y	z	u	v	w	
		Ref.: HPLM-AXS			Ref.: $\sqrt{u^2 + v^2 + w^2} = 100$			
214441/J190	HIFI FPU horizontal	2343,320	-449,000	84,400	-100,000	0,000	0,000	
214441/J191	HIFI FPU horizontal	2343,320	-449,000	34,400	-100,000	0,000	0,000	
214441/J192	HIFI FPU horizontal	2343,320	-449,000	-15,600	-100,000	0,000	0,000	
214441/J193	HIFI FPU horizontal	2343,320	-449,000	-65,600	-100,000	0,000	0,000	
214441/J194	HIFI FPU horizontal	2343,320	-449,000	-115,600	-100,000	0,000	0,000	
214441/J195	HIFI FPU horizontal	2343,320	-449,000	-165,600	-100,000	0,000	0,000	
214441/J196	HIFI FPU vertical	2250,000	-684,320	134,400	0,000	100,000	0,000	
214441/J197	HIFI FPU vertical	2250,000	-684,320	84,400	0,000	100,000	0,000	
214441/J198	HIFI FPU vertical	2250,000	-684,320	34,400	0,000	100,000	0,000	
214441/J199	HIFI FPU vertical	2250,000	-684,320	-15,600	0,000	100,000	0,000	
214441/J200	HIFI FPU vertical	2250,000	-684,320	-65,600	0,000	100,000	0,000	
214441/J201	HIFI FPU vertical	2250,000	-684,320	-115,600	0,000	100,000	0,000	
214441/J202	HIFI FPU vertical	2250,000	-684,320	-165,600	0,000	100,000	0,000	
214441/J203	HIFI FPU	2092,510	-280,480	-217,570	0,000	-100,000	0,000	
214441/J204	HIFI FPU	2124,510	-280,480	-217,570	0,000	-100,000	0,000	
214441/J205	HIFI FPU	2156,490	-280,480	-217,570	0,000	-100,000	0,000	
214441/J206	HIFI FPU	2156,490	-280,480	-206,930	0,000	-100,000	0,000	
214441/J207	HIFI FPU	2124,490	-280,480	-206,930	0,000	-100,000	0,000	
214441/J208	HIFI FPU	2092,510	-280,480	-206,930	0,000	-100,000	0,000	
214441/J209	HIFI FPU	2058,680	-498,000	-219,510	100,000	0,000	0,000	
214441/J210	HIFI FPU	2058,680	-498,000	-204,990	100,000	0,000	0,000	
214441/J211	HIFI FPU	2314,260	-243,500	23,985	-100,000	0,000	0,000	
214441/J212	HIFI FPU	2314,260	-243,500	-9,015	-100,000	0,000	0,000	
214441/J213	HIFI FPU	2057,000	-421,500	201,320	0,000	0,000	-100,000	
214441/J214	HIFI FPU	2042,000	-421,500	201,320	0,000	0,000	-100,000	
214441/J215	HIFI FPU	2194,000	-249,520	-156,169	0,000	54,463	83,867	
214441/J216	HIFI FPU	2194,000	-231,070	-168,151	0,000	54,464	83,867	
214441/J217	HIFI FPU	2135,000	-571,000	183,520	0,000	0,000	-100,000	
214441/J218	HIFI FPU	2174,000	-428,000	176,220	0,000	0,000	-100,000	
214441/J219	HIFI FPU	2194,000	-173,400	-180,820	0,000	0,000	100,000	

Note *: All Length
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without attritions !!!

Herschel PFM

Allocation and Coordinates of all connectors

Connector-ID:	Location:	Coordinate:			Vector:			Remark against
		x	y	z	u	v	w	
		Ref.: HPLM-AXS			Ref.: $\sqrt{u^2 + v^2 + w^2} = 100$			Status of 18.08.2003
214441/J220	HTT upper part	in progress						
214441/J221	HTT upper part	in progress						
214441/J222	HTT upper part	in progress						
214441/J223	HTT upper part	in progress						
214441/J224	HTT upper part	in progress						
214441/J225	HTT upper part	in progress						
214441/J226	HTT upper part	in progress						
214441/J227	HTT upper part	in progress						
214441/J228	HTT upper part	in progress						
214441/J229	HTT upper part	in progress						
214441/J230	HTT upper part	in progress						
214441/J231	HTT upper part	in progress						
214441/J232	HTT upper part	in progress						
214441/J233	HTT upper part	in progress						
214441/J234	HTT upper part	in progress						
214441/J235	HTT lower part	in progress						
214441/J236	HTT lower part	in progress						
214441/J237	HTT lower part	in progress						
214441/J238	HTT lower part	in progress						
214441/J239	HTT lower part	in progress						
214441/J240	HTT lower part	in progress						
214441/J241	HTT lower part	in progress						
214441/J242	HTT lower part	in progress						
214441/J243	HTT lower part	in progress						
214441/J244	HTT lower part	in progress						
214441/J245	HTT lower part	in progress						
214441/J246	HTT lower part	in progress						
214441/J247	HTT lower part	in progress						

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Herschel PFM

Allocation and Coordinates of all connectors

Connector-ID:	Location:	Coordinate:			Vector:			Remark against
		x	y	z	u	v	w	
		Ref.: HPLM-AXS			Ref.: $\sqrt{u^2 + v^2 + w^2} = 100$			Status of 18.08.2003
214441/J248	HOT upper part	in progress						
214441/J249	HOT upper part	in progress						
214441/J250	HOT upper part	in progress						
214441/J251	HOT upper part	in progress						
214441/J252	HOT upper part	in progress						
214441/J253	HOT upper part	in progress						
214441/J254	HOT upper part	in progress						
214441/J255	HOT lower part	in progress						
214441/J256	HOT lower part	in progress						
214441/J257	HOT lower part	in progress						
214441/J258	HOT lower part	in progress						
214441/J259	lower SFWK	in progress						
214441/J260	lower SFWK	in progress						
214441/J261	lower SFWK	in progress						
214441/J262	lower SFWK	in progress						
214441/J263	Strap 18	in progress						
214441/J264	Strap 18	in progress						
214441/J265	Strap 18	in progress						
214441/J266	1st Shield	in progress						
214441/J267	1st Shield	in progress						
214441/J268	2nd Shield	in progress						
214441/J269	2nd Shield	in progress						
214441/J270	3rd Shield	in progress						
214441/J271	3rd Shield	in progress						
214441/J272	Strap 14	in progress						
214441/J273	Strap 14	in progress						
214441/J274	Strap 14	in progress						
214441/J275	Instrument Shield	in progress						

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Herschel PFM

Allocation and Coordinates of all connectors

Connector-ID:	Location:	Coordinate:			Vector:			Remark against
		x	y	z	u	v	w	
		Ref.: HPLM-AXS			Ref.: $\sqrt{u^2 + v^2 + w^2} = 100$			Status of 18.08.2003
214441/J276	Instrument Shield	in progress						
214441/J277	Instrument Shield	in progress						
214441/J278	near HIFI	1966,999	-459,378	266,161	-17,365	-98,481	0,000	
214441/J279	near HIFI	1966,999	-459,378	236,161	-17,365	-98,481	0,000	
214441/J280	near HIFI	2148,398	-616,499	-282,090	-66,533	72,608	-17,365	
214441/J281	near HIFI	2214,063	-579,999	-244,000	98,480	17,365	0,000	
214441/J282	near SPIRE	2248,437	270,515	-734,966	-98,480	5,998	-16,296	
214441/J283	near SPIRE	2248,437	-42,823	-782,008	-98,480	-0,950	-17,338	
214441/J284	near SPIRE	1890,500	-192,253	-760,971	0,000	93,766	-34,756	shifted due to ventline
214441/J285	near SPIRE	1890,022	614,957	-516,903	0,000	-77,832	-62,787	shifted due to ventline
214441/J286	near SPIRE	2214,630	103,313	-730,781	0,000	98,480	17,365	
214441/J287	near SPIRE	1986,701	498,226	-602,807	17,365	69,637	69,637	
214441/J288	near SPIRE	2006,699	498,226	-602,807	-17,365	69,637	69,637	
214441/J289	near SPIRE	1988,201	-313,437	-659,118	17,365	98,481	0,000	
214441/J290	near SPIRE	2008,199	-313,437	-659,118	-17,365	98,481	0,000	
214441/J291	near SPIRE	1971,999	303,923	-27,179	-17,365	-98,481	0,000	
214441/J292	near SPIRE	1971,999	303,923	-2,179	-17,365	-98,481	0,000	
214441/J293	near SPIRE	1971,999	324,923	-712,360	-17,365	-25,489	95,126	
214441/J294	near SPIRE	1971,999	455,354	-639,539	-17,365	-97,941	-10,294	
214441/J295	near SPIRE	1966,999	-232,252	-687,710	-17,365	85,287	-49,240	
214441/J296	near PACS	1971,999	-21,994	764,069	-17,365	69,636	-69,637	
214441/J297	near PACS	2248,437	-299,580	324,332	-98,480	-9,273	14,681	
214441/J298	near PACS	2248,437	-247,001	567,000	-98,480	-17,365	0,000	
214441/J299	near PACS	2248,437	484,064	594,777	-98,480	10,961	13,468	
214441/J300	near PACS	2248,437	637,001	-108,500	-98,480	17,365	0,000	
214441/J301	near PACS	2185,999	-172,937	383,500	-17,365	98,480	0,000	
214441/J302	under OBA	1878,810	189,990	12,009	0,000	100,000	0,000	new ACC below OBA
214441/J303	under OBA	1888,760	226,920	12,009	100,000	0,000	0,000	new ACC below OBA
214441/J304	under OBA	1892,500	179,990	28,199	0,000	100,000	0,000	new ACC below OBA

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without attritions !!!

Herschel PFM

Allocation and Coordinates of all connectors

Connector-ID:	Location:	Coordinate:			Vector:			Remark against
		x	y	z	u	v	w	
		Ref.: HPLM-AXS			Ref.: $\sqrt{u^2 + v^2 + w^2} = 100$			Status of 18.08.2003
214441/J305	under OBA	1878,810	410,547	-351,183	0,000	100,000	0,000	new ACC below OBA
214441/J306	under OBA	1892,500	400,547	-334,993	0,000	100,000	0,000	new ACC below OBA
214441/J307	under OBA	1878,810	-197,000	13,740	0,000	0,000	-100,000	new ACC below OBA
214441/J308	upper SFWK	1809,493	-323,944	465,499	98,480	0,000	-17,365	
214441/J309	upper SFWK	1809,493	-354,944	465,499	98,480	0,000	-17,365	
214441/J310	near SPIRE	1999,499	-80,437	-730,786	-17,364	98,480	0,000	
214441/J311	near SPIRE	1999,499	13,064	-730,786	-17,365	98,480	0,000	
214441/J312	near SPIRE	1999,499	175,564	-730,786	-17,365	98,480	0,000	
214441/J313	near PACS	2028,063	-220,799	279,000	98,480	17,365	0,000	
214441/J314	near PACS	1983,851	-40,126	681,330	0,000	17,364	-98,480	
214441/J315	near PACS	2030,502	-60,142	665,330	17,334	1,046	-98,480	
214441/J316	near PACS	2028,263	556,299	212,000	98,480	-17,365	0,000	
214441/J317	near HIFI	2214,063	-554,999	244,000	98,480	17,365	0,000	
214441/J318	1st Shield	in progress						
214441/J319	1st Shield	in progress						
214441/J320	1st Shield	in progress						
214441/J321	1st Shield	in progress						
214441/J322	2nd Shield	in progress						
214441/J323	2nd Shield	in progress						
214441/J324	3rd Shield	in progress						
214441/J325	3rd Shield	in progress						
214441/J326	Strap 08	in progress						
214441/J327	Strap 08	in progress						
214441/J328	Strap 08	in progress						

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6.2 Annex 3-2: PFM Lower Ring Length of CCH Cables and Thermal-Bracket Attachments

Herschel PFM

Lower Ring

Length of CCH Cables - and Thermal-Bracket Attachments (definition status 21.11.03)

CVV connector	length * (mm)	Thermal Bracket on Chain	length * (mm)	LSFWK Connector	length * (mm)	Shield Connector	length * (mm)	Component Connector on HOT or HTT	Total length * (mm)
211123 / J01	298,918	TB 01-ST 11-CCH-CCE11					1780,7	T 801	2079,6
211123 / J01	298,918	TB 01-ST 11-CCH-CCE11					1756,4	T 802	2055,4
211123 / J01	298,918	TB 01-ST 11-CCH-CCE11					1735,7	T 803	2034,6
211123 / J01	298,918	TB 01-ST 11-CCH-CCE11	830,423	214342 / P02	214342 / J02		3578,8	T 113	4708,2
211123 / J01	298,918	TB 01-ST 11-CCH-CCE11	830,423	214342 / P02	214342 / J02		2509,2	P 101	3638,6
211123 / J01	298,918	TB 01-ST 11-CCH-CCE11	830,423	214342 / P02	214342 / J02		2958,2	T 114	4087,6
211123 / J01	298,918	TB 01-ST 11-CCH-CCE11	830,423	214342 / P02	214342 / J02		761,9	T 103	1891,2
211123 / J01	298,918	TB 01-ST 11-CCH-CCE11	965,433	214342 / P05	214342 / J05		794,3	T 702	2058,7
211123 / J01	298,918	TB 01-ST 11-CCH-CCE11	965,433	214342 / P05	214342 / J05		869,2	T 704	2133,6
211123 / J01	298,918	TB 01-ST 11-CCH-CCE11					1831,8	T 804	2130,7
211123 / J01	298,918	TB 01-ST 11-CCH-CCE11					1807,2	T 805	2106,1
211123 / J01	298,918	TB 01-ST 11-CCH-CCE11					1784,2	T 806	2083,2
211123 / J02	242,348	TB 02-ST 11-CCH-CCE12	873,438	214342 / P03	214342 / J03		1367,5	A 109	2483,3
211123 / J02	242,348	TB 02-ST 11-CCH-CCE12	873,438	214342 / P03	214342 / J03		2863,8	A 107	3979,6
211123 / J02	242,348	TB 02-ST 11-CCH-CCE12	873,438	214342 / P03	214342 / J03		2195,2	A 101	3310,9
211123 / J02	242,348	TB 02-ST 11-CCH-CCE12	873,438	214342 / P03	214342 / J03		2191,3	A 102	3307,1
211123 / J02	242,348	TB 02-ST 11-CCH-CCE12	873,438	214342 / P03	214342 / J03		2239,4	A 103	3355,1
211123 / J02	242,348	TB 02-ST 11-CCH-CCE12	940,937	214342 / P04	214342 / J04		1762,0	A 104	2945,3
211123 / J02	242,348	TB 02-ST 11-CCH-CCE12	940,937	214342 / P04	214342 / J04		1759,5	A 105	2942,8
211123 / J02	242,348	TB 02-ST 11-CCH-CCE12	940,937	214342 / P04	214342 / J04		1824,8	A 106	3008,1
211123 / J02	242,348	TB 02-ST 11-CCH-CCE12	940,937	214342 / P04	214342 / J04		674,1	A 108	1857,4
211123 / J02	242,348	TB 02-ST 11-CCH-CCE12	1022,221	214342 / P06	214342 / J06		471,8	A 701	1736,3
211123 / J02	242,348	TB 02-ST 11-CCH-CCE12	1022,221	214342 / P06	214342 / J06		472,7	A 702	1737,3
211123 / J02	242,348	TB 02-ST 11-CCH-CCE12	1022,221	214342 / P06	214342 / J06		431,1	A 703	1695,7
211123 / J05	258,080	TB 01-ST 16-CCH-CCE13					1260,6	V 701	1518,7
211123 / J05	258,080	TB 01-ST 16-CCH-CCE13					1683,3	V 105	1941,4
211123 / J05	258,080	TB 01-ST 16-CCH-CCE13	945,357	214343 / P03	214343 / J03		2493,1	V 103	3696,5
211123 / J05	258,080	TB 01-ST 16-CCH-CCE13	755,516	214343 / P07	214343 / J07		779,6	H 103	1793,2
211123 / J05	258,080	TB 01-ST 16-CCH-CCE13	832,609	214344 / P03	214344 / J03		713,1	L 701	1803,8
211123 / J05	258,080	TB 01-ST 16-CCH-CCE13	832,609	214344 / P03	214344 / J03		777,4	H 701	1868,1
211123 / J05	258,080	TB 01-ST 16-CCH-CCE13	926,103	214344 / P05	214344 / J05		2128,8	V 102	3313,0
211123 / J05	258,080	TB 01-ST 16-CCH-CCE13	926,103	214344 / P05	214344 / J05		2241,2	L 102	3425,4
211123 / J06	356,212	TB 02-ST 16-CCH-CCE14	1020,886	214343 / P01	214343 / J01		2972,4	V 104	4349,5
211123 / J06	356,212	TB 02-ST 16-CCH-CCE14	849,609	214343 / P05	214343 / J05		2005,7	V 106	3211,5
211123 / J06	356,212	TB 02-ST 16-CCH-CCE14	870,599	214344 / P04	214344 / J04		1418,3	L 702	2645,1
211123 / J06	356,212	TB 02-ST 16-CCH-CCE14	870,599	214344 / P04	214344 / J04		809,3	H 702	2036,1
211123 / J06	356,212	TB 02-ST 16-CCH-CCE14	969,889	214344 / P06	214344 / J06		2626,0	L 101	3952,1
211123 / J06	356,212	TB 02-ST 16-CCH-CCE14	969,889	214344 / P06	214344 / J06		1561,9	H 104	2888,0

Herschel PFM

Lower Ring

Length of CCH Cables - and Thermal-Bracket Attachments (definition status 21.11.03)

CVW connector	length * (mm)	Thermal Bracket on Chain	length * (mm)	LSFWK Connector	length * (mm)	Shield Connector	length * (mm)	Component Connector on HOT or HTT	Total length * (mm)		
211123 / J06	356,212	TB 02-ST 16-CCH-CCE14					813,4	V 702	1169,7		
211123 / J07	304,621	TB 01-ST 17-CCH-CCA12	1812,264	214343 / P02	214343 / J02		2528,5	V 103	4645,4		
211123 / J07	304,621	TB 01-ST 17-CCH-CCA12	1636,284	214343 / P06	214343 / J06		845,8	DLCM1	2786,7		
211123 / J08	240,385	TB 02-ST 17-CCH-CCB12	1730,114	214343 / P04	214343 / J04		2057,2	V 106	4027,7		
211123 / J08	240,385	TB 02-ST 17-CCH-CCB12	749,757	214344 / P07	214344 / J07		1490,2	DLCM2	2480,3		
211123 / J09	237,856	TB 01-ST 18-CCH-CCA11	816,241	214341 / P03	214341 / J03		3246,7	PPS	4300,8		
211123 / J09	237,856	TB 01-ST 18-CCH-CCA11	816,241	214341 / P03	214341 / J03		2240,9	DLCM1	3295,0		
211123 / J09	237,856	TB 01-ST 18-CCH-CCA11	854,673	214341 / P04	214341 / J04		1026,6	T 106	2119,1		
211123 / J09	237,856	TB 01-ST 18-CCH-CCA11	854,673	214341 / P04	214341 / J04		825,0	DLCM2	1917,5		
211123 / J09	237,856	TB 01-ST 18-CCH-CCA11					1586,2	P 701	1824,0		
211123 / J09						312,457	214442 / P01	214442 / J01	681,7	T 442	994,2
211123 / J09						322,624	214421 / P01	214421 / J01	645,4	T 421	968,1
211123 / J09						233,989	214461 / P01	214461 / J01	834,9	T 461	1068,9
211123 / J10	300,762	TB 02-ST 18-CCH-CCB11	902,942	214341 / P05	214341 / J05		3154,8	PPS	4358,5		
211123 / J10	300,762	TB 02-ST 18-CCH-CCB11	902,942	214341 / P05	214341 / J05		2142,0	DLCM1	3345,8		
211123 / J10	300,762	TB 02-ST 18-CCH-CCB11	944,605	214341 / P06	214341 / J06		2334,5	T 107	3579,9		
211123 / J10	300,762	TB 02-ST 18-CCH-CCB11	944,605	214341 / P06	214341 / J06		747,5	DLCM2	1992,9		
211123 / J10	300,762	TB 02-ST 18-CCH-CCB11	1000,387	214341 / P07	214341 / J07		881,1	T 701	2182,2		
211123 / J10	300,762	TB 02-ST 18-CCH-CCB11	1000,387	214341 / P07	214341 / J07		1041,0	T 703	2342,1		
211123 / J10						453,843	214422 / P01	214422 / J01	727,1	T 422	1180,9
211123 / J10						299,668	214462 / P01	214462 / J01	651,4	T 462	951,1
211123 / J10						313,947	214441 / P01	214441 / J01	755,3	T 441	1069,2

=> Length to Temperature- and Pressure-Sensors, which allocation is not yet frozen!

6.3 Annex 3-3: PFM Upper Ring; length of CCH Cables and Thermal-Bracket Attachments

Herschel PFM
Upper Ring
Length of CCH Cables and Thermal Bracket Attachments
(definition status 28.01.04)

length between		length between			length between		length between			length between		Temperature Sensor	Total length * (mm)		
CVV connector	length * (mm)	Thermal Bracket on Chain	length * (mm)	USFWK Connector	length * (mm)	Thermal Bracket Cutout	length * (mm)	Component Connector	length * (mm)	Temperature Sensor					
211121/J 35	231,429	TB01-ST08-CCH-CCA10	1094,074	214333 / J01	214333 / P01						504,184	T 246	1829,687		
211121/J 35	231,429	TB01-ST08-CCH-CCA10	1094,074	214333 / J01	214333 / P01	578,530	TB 07-OB 03-CCH-DCA13				1155,699	T 244	3059,732		
211121/J 35	231,429	TB01-ST08-CCH-CCA10	1094,074	214333 / J01	214333 / P01	578,530	TB 07-OB 03-CCH-DCA13				513,840	T 258	2417,873		
211121/J 35	231,429	TB01-ST08-CCH-CCA10	541,219	214334 / J01	214334 / P01	484,612	TB 01-OB 04-CCH-DCA14				992,342	T 236	2249,602		
211121/J 35	231,429	TB01-ST08-CCH-CCA10	541,219	214334 / J01	214334 / P01	484,612	TB 01-OB 04-CCH-DCA14				629,166	T 254	1886,426		
211121/J 35	231,429	TB01-ST08-CCH-CCA10	541,219	214334 / J01	214334 / P01	484,612	TB 01-OB 04-CCH-DCA14				244,644	T 250	1501,904		
211121/J 35	231,429	TB01-ST08-CCH-CCA10	541,219	214334 / J01	214334 / P01	484,612	TB 01-OB 04-CCH-DCA14				1187,858	T 234	2445,118		
211121/J 35	231,429	TB01-ST08-CCH-CCA10	1967,687	214332 / J01	214332 / P01	441,732	TB 15-OB 02-CCH-DCA16				788,914	T 202	3429,762		
211121/J 35	231,429	TB01-ST08-CCH-CCA10	1967,687	214332 / J01	214332 / P01	441,732	TB 15-OB 02-CCH-DCA16				682,075	T 232	3522,823		
211121/J 35	231,429	TB01-ST08-CCH-CCA10	1967,687	214332 / J01	214332 / P01	441,732	TB 15-OB 02-CCH-DCA16				1023,856 (tbc)	T 242	#VALUE!		
211121/J 35	231,429	TB01-ST08-CCH-CCA10	1833,933	214332 / J04	214332 / P04						2365,816	T 227	4431,178		
211121/J 35	231,429	TB01-ST08-CCH-CCA10	1833,933	214332 / J04	214332 / P04						1931,965 (tbc)	T 223	#VALUE!		
211121/J 35	231,429	TB01-ST08-CCH-CCA10	1833,933	214332 / J04	214332 / P04						1473,912	T 221	3539,274		
211121/J 35	231,429	TB01-ST08-CCH-CCA10	1833,933	214332 / J04	214332 / P04						1442,178 (tbc)	T 228	#VALUE!		
211121/J 35											1226,552	214411 / J02	214411 / P02	T 212	2523,380
211121/J 35											405,028	214424 / P01	214424 / J01	T 424	2061,519
211121/J 35											290,804	214464 / P01	214464 / J01	T 464	2157,244
211121/J 36	297,371	TB02-ST08-CCH-CCB10	1044,738	214333 / J02	214333 / P02	612,397	TB 06-OB 03-CCH-DCB12				1073,828	T 237	3026,334		
211121/J 36	297,371	TB02-ST08-CCH-CCB10	1044,738	214333 / J02	214333 / P02	612,397	TB 06-OB 03-CCH-DCB12				391,923	T 252	2346,429		
211121/J 36	297,371	TB02-ST08-CCH-CCB10	1001,331	214333 / J03	214333 / P03						1163,251	T 226	2461,953		
211121/J 36	297,371	TB02-ST08-CCH-CCB10	1001,331	214333 / J03	214333 / P03						1324,147	T 225	2622,849		
211121/J 36	297,371	TB02-ST08-CCH-CCB10	1001,331	214333 / J03	214333 / P03						2062,201 (tbc)	T 224	#VALUE!		
211121/J 36	297,371	TB02-ST08-CCH-CCB10	1001,331	214333 / J03	214333 / P03						2408,804 (tbc)	T 222	#VALUE!		
211121/J 36	297,371	TB02-ST08-CCH-CCB10	604,121	214334 / J02	214334 / P02	503,680	TB 02-OB 04-CCH-DCB13				308,017	T 256	1713,189		
211121/J 36	297,371	TB02-ST08-CCH-CCB10	604,121	214334 / J02	214334 / P02	503,680	TB 02-OB 04-CCH-DCB13				1035,785	T 248	2440,957		
211121/J 36	297,371	TB02-ST08-CCH-CCB10	604,121	214334 / J02	214334 / P02	503,680	TB 02-OB 04-CCH-DCB13				1051,515	T 235	2456,687		
211121/J 36	297,371	TB02-ST08-CCH-CCB10	604,121	214334 / J02	214334 / P02	503,680	TB 02-OB 04-CCH-DCB13				1963,085	T 233	3368,257		
211121/J 36	297,371	TB02-ST08-CCH-CCB10	604,121	214334 / J02	214334 / P02						790,171	T 247	1691,663		
211121/J 36	297,371	TB02-ST08-CCH-CCB10	1918,483	214332 / J02	214332 / P02	481,784	TB 14-OB 02-CCH-DCB15				1281,852	T 231	3959,490		
211121/J 36	297,371	TB02-ST08-CCH-CCB10	1918,483	214332 / J02	214332 / P02	481,784	TB 14-OB 02-CCH-DCB15				273,661	T 206	2971,299		
211121/J 36	297,371	TB02-ST08-CCH-CCB10									1212,203	214411 / J03	214411 / P03	T 213	2833,445
211121/J 36	297,371	TB02-ST08-CCH-CCB10									2002,222	T 862	2299,593		
211121/J 37	393,869	TB03-ST08-CCH-CCE10	682,468	214334 / J03	214334 / P03	756,184	TB 03-OB 04-CCH-DCE15				332,828	214444 / P01	214444 / J01	T 444	2135,043
211121/J 37	393,869	TB03-ST08-CCH-CCE10	682,468	214334 / J03	214334 / P03	756,184	TB 03-OB 04-CCH-DCE15				1186,871	T 251	2999,392		
211121/J 37	393,869	TB03-ST08-CCH-CCE10	682,468	214334 / J03	214334 / P03	756,184	TB 03-OB 04-CCH-DCE15				623,590	T 253	2456,111		
211121/J 37	393,869	TB03-ST08-CCH-CCE10	682,468	214334 / J03	214334 / P03	756,184	TB 03-OB 04-CCH-DCE15				214,893	T 249	2047,414		
211121/J 37	393,869	TB03-ST08-CCH-CCE10	682,468	214334 / J03	214334 / P03	756,184	TB 03-OB 04-CCH-DCE15				493,247	T 255	2325,768		
211121/J 37	393,869	TB03-ST08-CCH-CCE10	1861,606	214332 / J03	214332 / P03	519,585	TB 16-OB 02-CCH-DCE16				260,033	T 207	3035,093		
211121/J 37	393,869	TB03-ST08-CCH-CCE10									1207,471	214411 / J01	214411 / P01	T 211	3700,550
211121/J 37											1956,448	T 861	2350,317		
211121/J 37											528,474	214423 / P01	214423 / J01	T 423	1372,563
211121/J 37											463,413	214443 / P01	214443 / J01	T 443	1433,161
211121/J 37											428,962	214463 / P01	214463 / J01	T 463	1497,181
211121/J 37												location tbd	T 851	#VALUE!	
211121/J 37												location tbd	T 852	#VALUE!	
211121/J 37												location tbd	T 853	#VALUE!	
211121/J 38	484,177	TB04-ST08-CCH-CCE20	954,537	214333 / J04	214333 / P04										
211121/J 38	484,177	TB04-ST08-CCH-CCE20	954,537	214333 / J04	214333 / P04						1053,077	A 204	2491,791		
211121/J 38	484,177	TB04-ST08-CCH-CCE20	954,537	214333 / J04	214333 / P04						994,116	A 205	2432,832		
211121/J 38	484,177	TB04-ST08-CCH-CCE20	725,008	214334 / J04	214334 / P04						715,634	A 206	2154,348		
211121/J 38	484,177	TB04-ST08-CCH-CCE20	725,008	214334 / J04	214334 / P04						535,872	A 201	1745,057		
211121/J 38	484,177	TB04-ST08-CCH-CCE20	725,008	214334 / J04	214334 / P04						437,922	A 202	1646,207		
211121/J 38	484,177	TB04-ST08-CCH-CCE20	725,008	214334 / J04	214334 / P04						296,722	A 203	1505,907		
211121/J 38	484,177	TB04-ST08-CCH-CCE20	725,008	214334 / J04	214334 / P04	911,704	TB 05-OB01-CCH-DCE23				1226,118	A207	3347,007		
211121/J 38	484,177	TB04-ST08-CCH-CCE20	725,008	214334 / J04	214334 / P04	911,704	TB 05-OB01-CCH-DCE23				1298,140	A208	3419,029		
211121/J 38											687,488	214425 / P01	214425 / J01	A 421	1773,732
211121/J 38											687,486	214425 / P01	214425 / J01	A 422	1788,969

6.4 Annex 3-4: PFM Length of SIH Bundles and Thermal-Bracket Attachments

Herschel PFM

Length of SIH Bundle - and Thermal-Bracket Attachments (definition status 14.11.03)

CVV connector	Bundle-Name	length	TB on Strap	length	TB on Opt. Bench	length	FPU connector	Total length
211121/J01	SIH-CP-04	483,224	TB01-ST01	460,738	TB03-OB01	457,488	131100/J25	1401,450
211121/J01	SIH-CP-04	483,224	TB01-ST01	460,738	TB03-OB01	470,013	131100/J26	1413,975
211121/J01	SIH-CP-04	483,224	TB01-ST01	460,738	TB03-OB01	486,814	131100/J27	1430,776
211121/J01	SIH-CP-04	483,224	TB01-ST01	460,738	TB03-OB01	429,167	131100/J28	1373,129
211121/J02	SIH-CP-03	385,247	TB02-ST01	469,962	TB04-OB01	468,547	131100/J20	1323,756
211121/J02	SIH-CP-03	385,247	TB02-ST01	469,962	TB04-OB01	523,258	131100/J21	1378,467
211121/J02	SIH-CP-03	385,247	TB02-ST01	469,962	TB04-OB01	471,538	131100/J22	1326,747
211121/J02	SIH-CP-03	385,247	TB02-ST01	469,962	TB04-OB01	478,082	131100/J23	1333,291
211121/J03	SIH-CP-14	290,756	TB03-ST01	1574,929	TB13-OB02	501,841	131100/J24	1357,050
211121/J03	SIH-CP-14	290,756	TB03-ST01	1574,929	TB13-OB02	420,933	131100/J02	2286,618
211121/J03	SIH-CP-14	290,756	TB03-ST01	1574,929	TB13-OB02	962,460	131100/J04	2828,145
211121/J03	SIH-CP-14	290,756	TB03-ST01	1574,929	TB13-OB02	581,178	131100/J06	2446,863
211121/J03	SIH-CP-14	290,756	TB03-ST01	457,171	TB01-OB01	131,491	131100/J40	879,418
211121/J03	SIH-CP-14	290,756	TB03-ST01	457,171	TB01-OB01	146,645	131100/J41	894,572
211121/J04	SIH-CP-15	230,772	TB04-ST01	1571,749	TB12-OB02	588,319	131100/J05	2390,840
211121/J04	SIH-CP-15	230,772	TB04-ST01	1571,749	TB12-OB02	481,690	131100/J08	2284,211
211121/J04	SIH-CP-15	230,772	TB04-ST01	459,027	TB02-OB01	164,554	131100/J42	854,353
211121/J04	SIH-CP-15	230,772	TB04-ST01	459,027	TB02-OB01	178,681	131100/J43	868,480
211121/J05	SIH-CP-05	426,959	TB01-ST02	1406,384	TB01-OB02	361,953	131100/J50	2195,296
211121/J05	SIH-CP-05	426,959	TB01-ST02	1406,384	TB01-OB02	337,737	131100/J51	2171,080
211121/J05	SIH-CP-05	426,959	TB01-ST02	1406,384	TB01-OB02	324,087	131100/J52	2157,430
211121/J06	SIH-CP-06	335,768	TB02-ST02	1396,156	TB02-OB02	366,186	131100/J53	2098,110
211121/J06	SIH-CP-06	335,768	TB02-ST02	1396,156	TB02-OB02	339,604	131100/J54	2071,528
211121/J06	SIH-CP-06	335,768	TB02-ST02	1396,156	TB02-OB02	325,331	131100/J55	2057,255
211121/J07	SIH-CP-13	246,020	TB03-ST02	1435,554	TB11-OB02	434,699	131100/J01	2116,273
211121/J07	SIH-CP-13	246,020	TB03-ST02	1435,554	TB11-OB02	921,332	131100/J03	2602,906
211121/J07	SIH-CP-13	246,020	TB03-ST02	1435,554	TB11-OB02	782,190	131100/J07	2463,764
211121/J07	SIH-CP-13	246,020	TB03-ST02	1435,554	TB11-OB02	485,085	131100/J09	2166,659
211121/J08	SIH-CP-02	285,262	TB04-ST02	1381,978	TB04-OB02	467,940	131100/J15	2135,180
211121/J08	SIH-CP-02	285,262	TB04-ST02	1381,978	TB04-OB02	471,409	131100/J16	2138,649
211121/J08	SIH-CP-02	285,262	TB04-ST02	1381,978	TB04-OB02	470,474	131100/J17	2137,714
211121/J08	SIH-CP-02	285,262	TB04-ST02	1381,978	TB04-OB02	473,330	131100/J18	2140,570

Note *: All Length only
CATIA - Length
without attritions !!!

Herschel PFM

Length of SIH Bundle - and Thermal-Bracket Attachments (definition status 14.11.03)

CVV connector	Bundle-Name	length	TB on Strap	length	TB on Opt. Bench	length	FPU connector	Total length
211121/J09	SIH-CP-01	383,252	TB05-ST02	1380,094	TB03-OB02	460,878	131100/J10	2224,224
211121/J09	SIH-CP-01	383,252	TB05-ST02	1380,094	TB03-OB02	453,356	131100/J11	2216,702
211121/J09	SIH-CP-01	383,252	TB05-ST02	1380,094	TB03-OB02	443,198	131100/J12	2206,544
211121/J09	SIH-CP-01	383,252	TB05-ST02	1380,094	TB03-OB02	449,576	131100/J13	2212,922
211121/J09	SIH-CP-01	383,252	TB05-ST02	1380,094	TB03-OB02	448,219	131100/J14	2211,565
211121/J10	SIH-CP-07	704,727	TB01-ST03	489,772	TB05-OB02	344,629	131100/J56	1539,128
211121/J10	SIH-CP-07	704,727	TB01-ST03	489,772	TB05-OB02	359,744	131100/J57	1554,243
211121/J10	SIH-CP-07	704,727	TB01-ST03	489,772	TB05-OB02	382,742	131100/J58	1577,241
211121/J11	SIH-CP-08	485,329	TB02-ST03	496,632	TB06-OB02	388,845	131100/J61	1370,806
211121/J11	SIH-CP-08	485,329	TB02-ST03	496,632	TB06-OB02	365,031	131100/J62	1346,992
211121/J11	SIH-CP-08	485,329	TB02-ST03	496,632	TB06-OB02	348,607	131100/J63	1330,568
211121/J12	SIH-CP-09	390,474	TB03-ST03	499,577	TB07-OB02	367,986	131100/J62	1258,037
211121/J12	SIH-CP-09	390,474	TB03-ST03	499,577	TB07-OB02	353,217	131100/J63	1243,268
211121/J13	SIH-CP-10	289,682	TB04-ST03	487,478	TB08-OB02	368,601	131100/J64	1145,761
211121/J13	SIH-CP-10	289,682	TB04-ST03	487,478	TB08-OB02	394,538	131100/J65	1171,698
211121/J14	SIH-CP-11	242,369	TB05-ST03	491,557	TB09-OB02	372,733	131100/J66	1106,659
211121/J14	SIH-CP-11	242,369	TB05-ST03	491,557	TB09-OB02	374,698	131100/J68	1108,624
211121/J15	SIH-CP-12	332,785	TB06-ST03	498,674	TB10-OB02	371,831	131100/J67	1203,290
211121/J15	SIH-CP-12	332,785	TB06-ST03	498,674	TB10-OB02	366,340	131100/J69	1197,799
211121/J16	SIH-CH-02	338,021	TB01-ST04	460,302	TB17-OB02	773,115	111100/J25	1571,438
211121/J16	SIH-CH-02	338,021	TB01-ST04	460,302	TB17-OB02	823,355	111100/J26	1621,678
211121/J16	SIH-CH-02	338,021	TB01-ST04	460,302	TB17-OB02	873,595	111100/J27	1671,918
211121/J16	SIH-CH-02	338,021	TB01-ST04	460,302	TB17-OB02	923,835	111100/J28	1722,158
211121/J16	SIH-CH-02	338,021	TB01-ST04	460,302	TB17-OB02	974,075	111100/J29	1772,398
211121/J16	SIH-CH-02	338,021	TB01-ST04	460,302	TB17-OB02	1905,478	111100/J53	2703,801
211121/J16	SIH-CH-02	338,021	TB01-ST04	460,302	TB17-OB02	1932,483	111100/J54	2730,806
211121/J16	SIH-CH-02	338,021	TB01-ST04	460,302	TB17-OB02	1967,529	111100/J55	2765,852
211121/J17	SIH-CH-05	238,407	TB02-ST04	463,688	TB18-OB02	1798,720	111100/J59	2500,815
211121/J17	SIH-CH-05	238,407	TB02-ST04	463,688	TB18-OB02	1804,656	111100/J60	2506,751
211121/J17	SIH-CH-05	238,407	TB02-ST04	463,688	TB18-OB02	1151,273	111100/J61	1853,368
211121/J17	SIH-CH-05	238,407	TB02-ST04	463,688	TB18-OB02	1145,155	111100/J62	1847,250
211121/J17	SIH-CH-05	238,407	TB02-ST04	463,688	TB18-OB02	378,540	111100/J63	1080,635

Note *: All Length only
CATIA - Length
without attritions !!!

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Length of SIH Bundle - and Thermal-Bracket Attachments (definition status 14.11.03)

CVV connector	Bundle-Name	length	TB on Strap	length	TB on Opt. Bench	length	FPU connector	Total length
211121/J17	SIH-CH-05	238,407	TB02-ST04	463,688	TB18-OB02	363,546	111100/J64	1065,641
211121/J17	SIH-CH-05	238,407	TB02-ST04	463,688	TB18-OB02	1372,863	111100/J65	2074,958
211121/J17	SIH-CH-05	238,407	TB02-ST04	463,688	TB18-OB02	1363,890	111100/J66	2065,985
211121/J17	SIH-CH-05	238,407	TB02-ST04	463,688	TB18-OB02	465,053	111100/J67	1167,148
211121/J17	SIH-CH-05	238,407	TB02-ST04	463,688	TB18-OB02	427,720	111100/J68	1129,815
211121/J17	SIH-CH-05	238,407	TB02-ST04	463,688	TB18-OB02	1374,169	111100/J69	2076,264
211121/J18	SIH-CH-01	289,872	TB03-ST04	458,187	TB19-OB02	772,457	111100/J11	1520,516
211121/J18	SIH-CH-01	289,872	TB03-ST04	458,187	TB19-OB02	822,697	111100/J12	1570,756
211121/J18	SIH-CH-01	289,872	TB03-ST04	458,187	TB19-OB02	872,937	111100/J13	1620,996
211121/J18	SIH-CH-01	289,872	TB03-ST04	458,187	TB19-OB02	923,177	111100/J14	1671,236
211121/J18	SIH-CH-01	289,872	TB03-ST04	458,187	TB19-OB02	973,417	111100/J15	1721,476
211121/J18	SIH-CH-01	289,872	TB03-ST04	458,187	TB19-OB02	1023,657	111100/J16	1771,716
211121/J18	SIH-CH-01	289,872	TB03-ST04	458,187	TB19-OB02	1073,897	111100/J17	1821,956
211121/J18	SIH-CH-01	289,872	TB03-ST04	458,187	TB19-OB02	800,560	111100/J39	1548,619
211121/J18	SIH-CH-01	289,872	TB03-ST04	458,187	TB19-OB02	850,660	111100/J40	1598,719
211121/J18	SIH-CH-01	289,872	TB03-ST04	458,187	TB19-OB02	900,900	111100/J41	1648,959
211121/J18	SIH-CH-01	289,872	TB03-ST04	458,187	TB19-OB02	951,280	111100/J42	1699,339
211121/J18	SIH-CH-01	289,872	TB03-ST04	458,187	TB19-OB02	1001,380	111100/J43	1749,439
211121/J18	SIH-CH-01	289,872	TB03-ST04	458,187	TB19-OB02	1051,620	111100/J44	1799,679
211121/J18	SIH-CH-01	289,872	TB03-ST04	458,187	TB19-OB02	1101,860	111100/J45	1849,919
211121/J19	SIH-CH-03	386,881	TB04-ST04	460,436	TB20-OB02	730,643	111100/J18	1577,960
211121/J19	SIH-CH-03	386,881	TB04-ST04	460,436	TB20-OB02	776,991	111100/J19	1624,308
211121/J19	SIH-CH-03	386,881	TB04-ST04	460,436	TB20-OB02	828,795	111100/J20	1676,112
211121/J19	SIH-CH-03	386,881	TB04-ST04	460,436	TB20-OB02	879,035	111100/J21	1726,352
211121/J19	SIH-CH-03	386,881	TB04-ST04	460,436	TB20-OB02	929,275	111100/J22	1776,592
211121/J19	SIH-CH-03	386,881	TB04-ST04	460,436	TB20-OB02	977,951	111100/J23	1825,268
211121/J19	SIH-CH-03	386,881	TB04-ST04	460,436	TB20-OB02	1016,229	111100/J24	1863,546
211121/J19	SIH-CH-03	386,881	TB04-ST04	460,436	TB20-OB02	735,189	111100/J46	1582,506
211121/J19	SIH-CH-03	386,881	TB04-ST04	460,436	TB20-OB02	781,924	111100/J47	1629,241
211121/J19	SIH-CH-03	386,881	TB04-ST04	460,436	TB20-OB02	832,164	111100/J48	1679,481
211121/J19	SIH-CH-03	386,881	TB04-ST04	460,436	TB20-OB02	882,949	111100/J49	1730,266
211121/J19	SIH-CH-03	386,881	TB04-ST04	460,436	TB20-OB02	932,644	111100/J50	1779,961

Note *: All Length only
CATIA - Length
without attritions !!!

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Length of SIH Bundle - and Thermal-Bracket Attachments (definition status 14.11.03)

CVV connector	Bundle-Name	length	TB on Strap	length	TB on Opt. Bench	length	FPU connector	Total length
211121/J19	SIH-CH-03	386,881	TB04-ST04	460,436	TB20-OB02	982,884	111100/J51	1830,201
211121/J19	SIH-CH-03	386,881	TB04-ST04	460,436	TB20-OB02	1026,833	111100/J52	1874,150
211121/J20	SIH-CH-04	484,606	TB05-ST04	462,508	TB21-OB02	760,485	111100/J32	1707,599
211121/J20	SIH-CH-04	484,606	TB05-ST04	462,508	TB21-OB02	803,044	111100/J33	1750,158
211121/J20	SIH-CH-04	484,606	TB05-ST04	462,508	TB21-OB02	852,024	111100/J34	1799,138
211121/J20	SIH-CH-04	484,606	TB05-ST04	462,508	TB21-OB02	902,264	111100/J35	1849,378
211121/J20	SIH-CH-04	484,606	TB05-ST04	462,508	TB21-OB02	952,504	111100/J36	1899,618
211121/J20	SIH-CH-04	484,606	TB05-ST04	462,508	TB21-OB02	1831,320	111100/J56	2778,434
211121/J20	SIH-CH-04	484,606	TB05-ST04	462,508	TB21-OB02	1794,636	111100/J57	2741,750
211121/J20	SIH-CH-04	484,606	TB05-ST04	462,508	TB21-OB02	1765,907	111100/J58	2713,021
211121/J21	SIH-CH-21	510,836	TB01-ST05	457,235	TB04-OB03	402,427	111100/J01	1370,498
211121/J21	SIH-CH-22	519,441	TB03-ST05	453,798	TB02-OB03	368,499	111100/J02	1341,738
211121/J21	SIH-CH-23	505,272	TB02-ST05	457,740	TB03-OB03	402,832	111100/J03	1365,844
211121/J21	SIH-CH-24	529,465	TB04-ST05	458,569	TB01-OB03	365,468	111100/J04	1353,502
211121/J22	SIH-CS-04		-	864,880	TB10-OB03	253,449	121210/J21	1118,329
211121/J22	SIH-CS-04		-	864,880	TB10-OB03	258,231	121210/J22	1123,111
211121/J22	SIH-CS-04		-	864,880	TB10-OB03	250,450	121210/J23	1115,330
211121/J22	SIH-CS-04		-	864,880	TB10-OB03	242,038	121210/J24	1106,918
211121/J23	SIH-CS-05		-	753,230	TB09-OB03	272,656	121210/J17	1025,886
211121/J23	SIH-CS-05		-	753,230	TB09-OB03	267,796	121210/J18	1021,026
211121/J23	SIH-CS-05		-	753,230	TB09-OB03	245,706	121210/J19	998,936
211121/J23	SIH-CS-05		-	753,230	TB09-OB03	253,642	121210/J20	1006,872
211121/J24	SIH-CS-06		-	712,009	TB08-OB03	282,829	121210/J13	994,838
211121/J24	SIH-CS-06		-	712,009	TB08-OB03	294,555	121210/J14	1006,564
211121/J24	SIH-CS-06		-	712,009	TB08-OB03	307,641	121210/J15	1019,650
211121/J24	SIH-CS-06		-	712,009	TB08-OB03	293,248	121210/J16	1005,257
211121/J25	SIH-CS-07		-	688,391	TB11-OB03	230,980	121210/J09	919,371
211121/J25	SIH-CS-07		-	688,391	TB11-OB03	219,533	121210/J10	907,924
211121/J25	SIH-CS-07		-	688,391	TB11-OB03	228,169	121210/J11	916,560
211121/J25	SIH-CS-07		-	688,391	TB11-OB03	231,906	121210/J12	920,297
211121/J26	SIH-CS-03		-	743,761	TB12-OB03	246,371	121210/J25	990,132
211121/J26	SIH-CS-03		-	743,761	TB12-OB03	239,533	121210/J26	983,294

Note *: All Length only
CATIA - Length
without attritions !!!

Herschel PFM

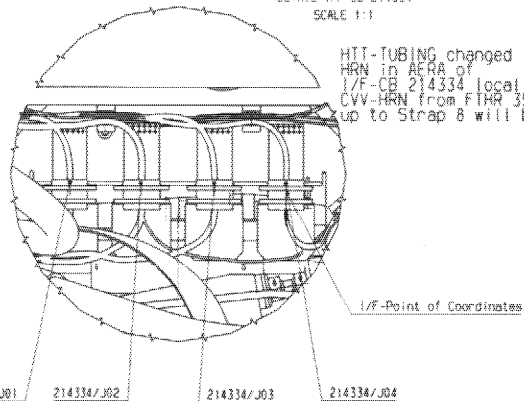
Length of SIH Bundle - and Thermal-Bracket Attachments (definition status 14.11.03)

CVV connector	Bundle-Name	length	TB on Strap	length	TB on Opt. Bench	length	FPU connector	Total length
211121/J26	SIH-CS-03		-	743,761	TB12-OB03	271,779	121210/J27	1015,540
211121/J26	SIH-CS-03		-	743,761	TB12-OB03	312,589	121210/J28	1056,350
211121/J27	SIH-CS-08		-	840,369	TB13-OB03	203,503	121210/J05	1043,872
211121/J27	SIH-CS-08		-	840,369	TB13-OB03	209,962	121210/J06	1050,331
211121/J27	SIH-CS-08		-	840,369	TB13-OB03	207,688	121210/J07	1048,057
211121/J28	SIH-CS-09		-	952,164	TB14-OB03	198,383	121210/J08	1038,752
211121/J28	SIH-CS-09		-	952,164	TB14-OB03	215,328	121210/J01	1167,492
211121/J28	SIH-CS-09		-	952,164	TB14-OB03	210,582	121210/J02	1162,746
211121/J28	SIH-CS-09		-	952,164	TB14-OB03	193,513	121210/J03	1145,677
211121/J29	SIH-CS-13	474,504	TB01-ST07	789,081	TB07-OB04	203,387	121210/J04	1155,551
211121/J29	SIH-CS-13	474,504	TB01-ST07	789,081	TB07-OB04	337,120	121100/J26	1600,705
211121/J29	SIH-CS-13	474,504	TB01-ST07	789,081	TB07-OB04	321,753	121100/J28	1585,338
211121/J30	SIH-CS-11	378,161	TB02-ST07	789,356	TB06-OB04	322,252	121100/J30	1585,837
211121/J30	SIH-CS-11	378,161	TB02-ST07	789,356	TB06-OB04	351,718	121100/J25	1519,235
211121/J30	SIH-CS-11	378,161	TB02-ST07	789,356	TB06-OB04	335,600	121100/J27	1503,117
211121/J31	SIH-CS-02		-	924,168	TB06-OB04	337,169	121100/J29	1504,686
211121/J31	SIH-CS-02		-	924,168	TB09-OB04	258,304	121220/J01	1182,472
211121/J31	SIH-CS-02		-	924,168	TB09-OB04	246,477	121220/J02	1170,645
211121/J31	SIH-CS-02		-	924,168	TB09-OB04	239,335	121220/J03	1163,503
211121/J31	SIH-CS-02		-	924,168	TB09-OB04	248,670	121220/J04	1172,838
211121/J31	SIH-CS-02		-	924,168	TB09-OB04	276,686	121220/J07	1200,854
211121/J32	SIH-CS-01		-	885,408	TB08-OB04	265,915	121220/J05	1151,323
211121/J32	SIH-CS-01		-	885,408	TB08-OB04	275,636	121220/J06	1161,044
211121/J32	SIH-CS-01		-	885,408	TB08-OB04	247,635	121220/J09	1133,043
211121/J32	SIH-CS-01		-	885,408	TB08-OB04	288,462	121220/J10	1173,870
211121/J33	SIH-CS-12	309,173	TB03-ST07	705,259	TB05-OB04	360,427	121100/J20	1374,859
211121/J33	SIH-CS-12	309,173	TB03-ST07	705,259	TB05-OB04	343,508	121100/J22	1357,940
211121/J33	SIH-CS-12	309,173	TB03-ST07	705,259	TB05-OB04	377,257	121100/J24	1391,689
211121/J34	SIH-CS-10	405,441	TB04-ST07	717,642	TB04-OB04	376,511	121100/J19	1499,594
211121/J34	SIH-CS-10	405,441	TB04-ST07	717,642	TB04-OB04	361,086	121100/J21	1484,169
211121/J34	SIH-CS-10	405,441	TB04-ST07	717,642	TB04-OB04	393,374	121100/J23	1516,457

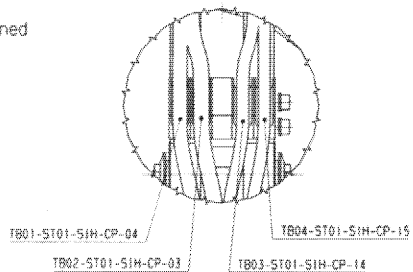
Note *: All Length only
CATIA - Length
without attritions !!!

6.5 Annex 3-5 PFM CVV Internal CCH and SIH Routing Drawings

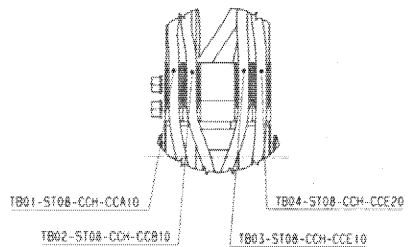
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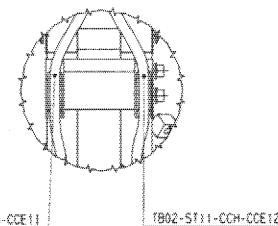
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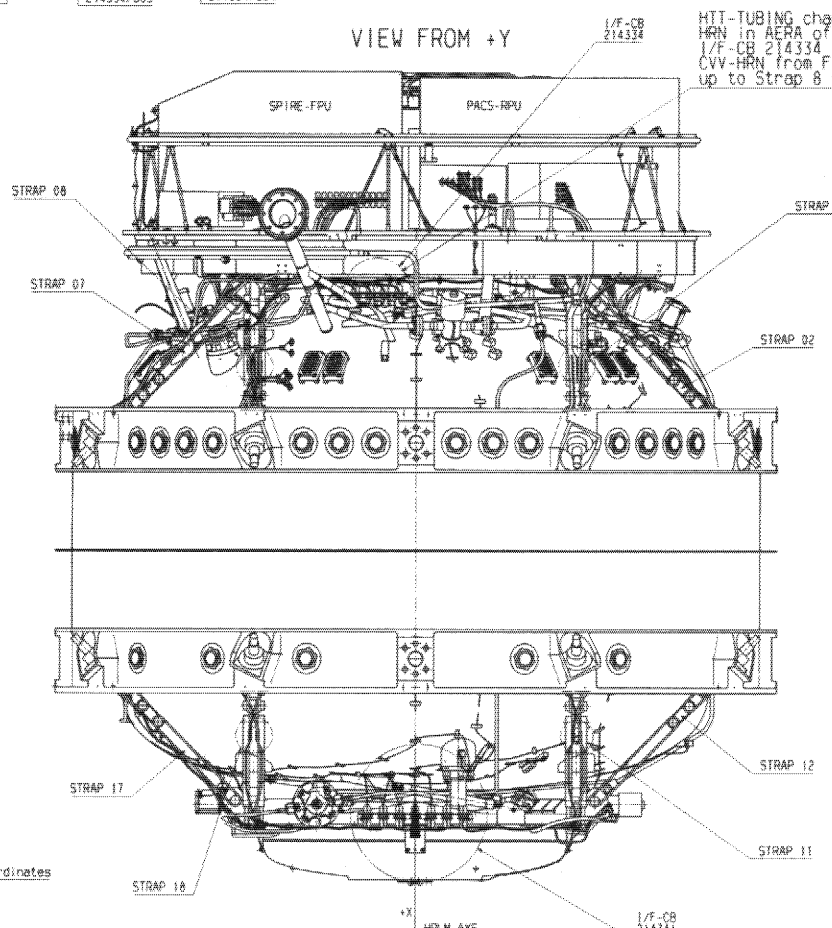
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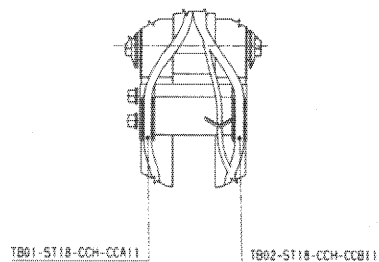
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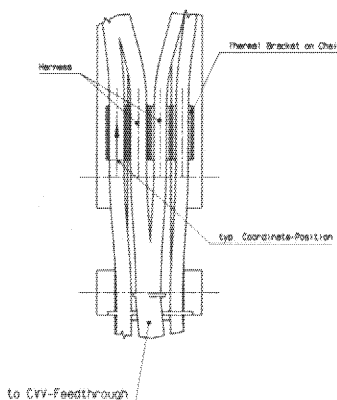
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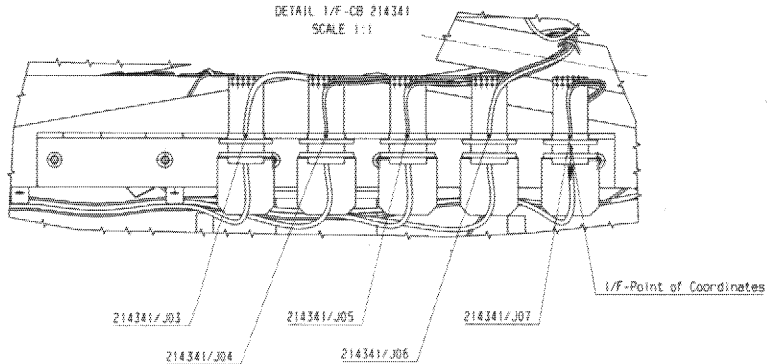
DETAIL STRAP 18
SCALE 1:1



DETAIL TYP. COORDINATE-POSITION



DETAIL 1/F-CB 214341
SCALE 1:1



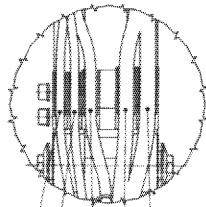
undimensioned Harnessrouting
according views

VIEW FROM +Y



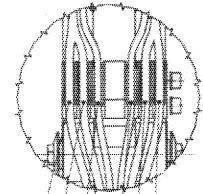
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astrium		astrium	

DETAIL STRAP 02
SCALE 1:1



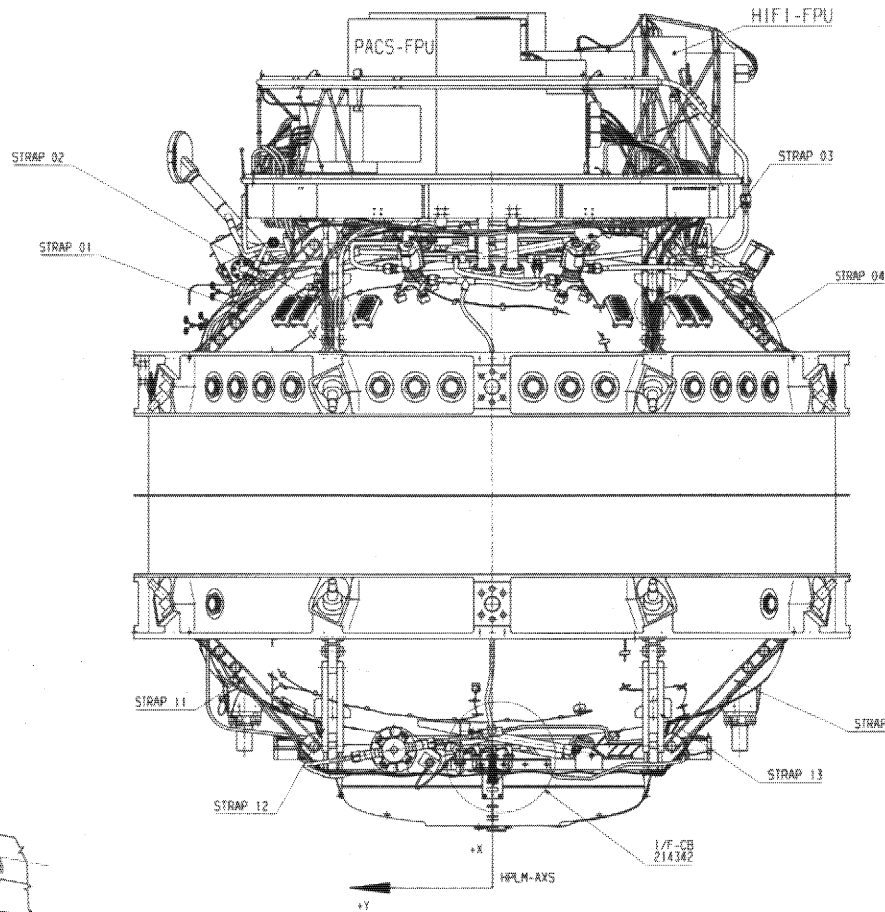
- TB01-ST02-SIH-CP-05
- TB02-ST02-SIH-CP-06
- TB03-ST02-SIH-CP-13
- TB04-ST02-SIH-CP-02
- TB05-ST02-SIH-CP-01

DETAIL STRAP 03
SCALE 1:1

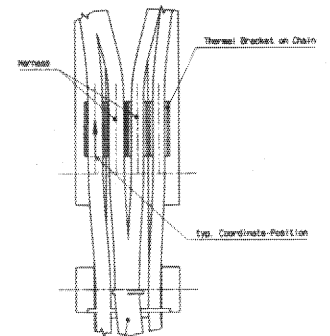


- TB01-ST03-SIH-CP-07
- TB02-ST03-SIH-CP-08
- TB03-ST03-SIH-CP-09
- TB04-ST03-SIH-CP-10
- TB05-ST03-SIH-CP-11
- TB06-ST03-SIH-CP-12

VIEW FROM +Z

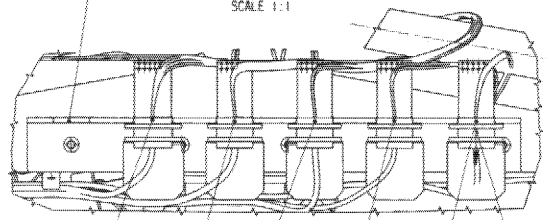


DETAIL TYP. COORDINATE-POSITION



Reserved for
SPARE Connector

DETAIL 1/F-CB 214342
SCALE 1:1



- 214342/J02
- 214342/J03
- 214342/J04
- 214342/J05
- 214342/J06
- 1/F-Point of Coordinates

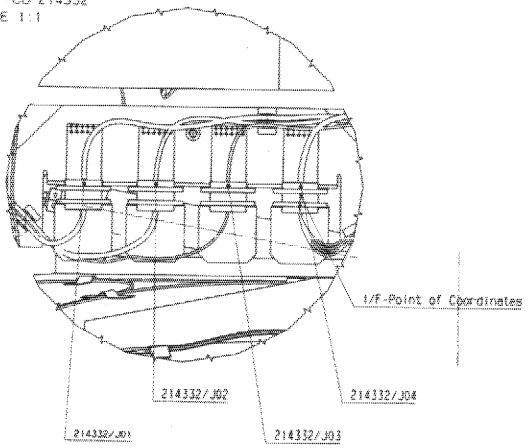
VIEW FROM +Z

undimensionated Harnessrouting
according views

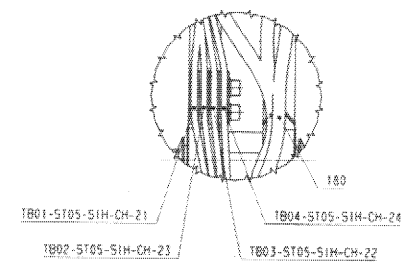
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astrium

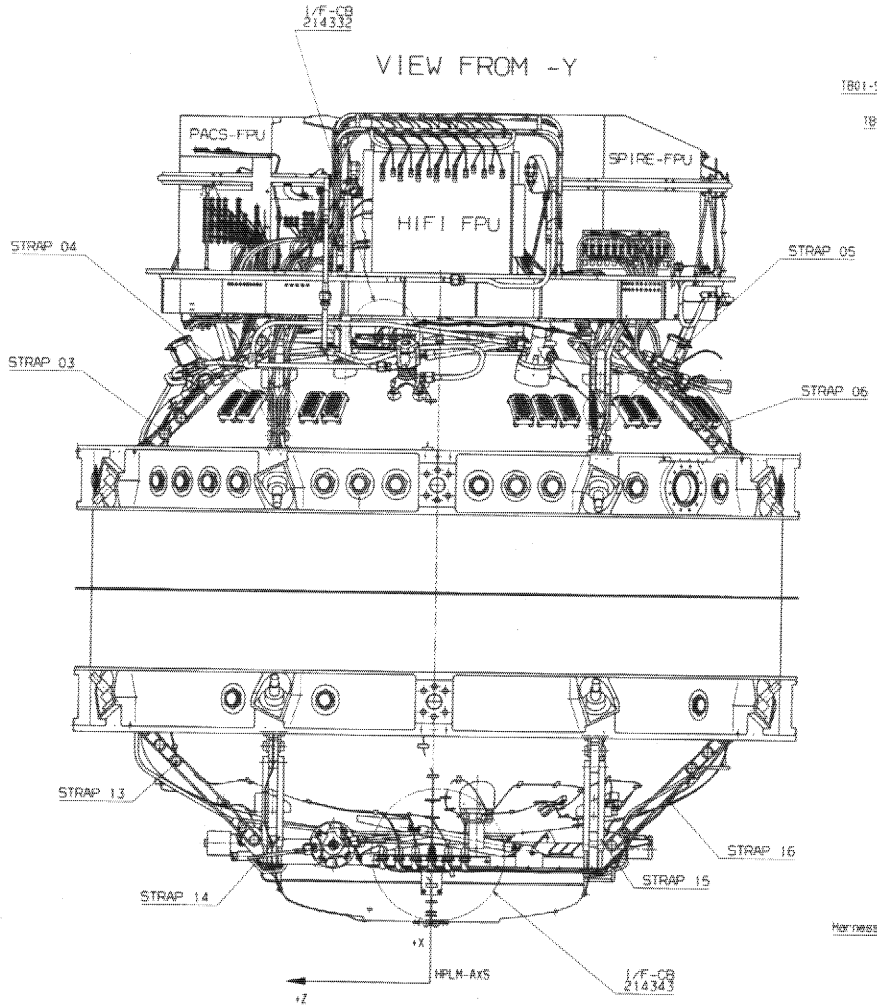
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SCALE 1:1



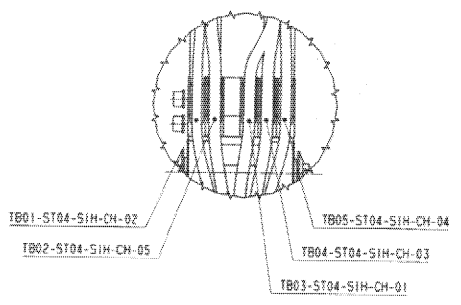
DETAIL STRAP 05
SCALE 1:1



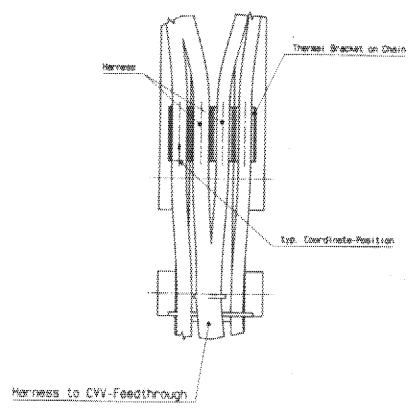
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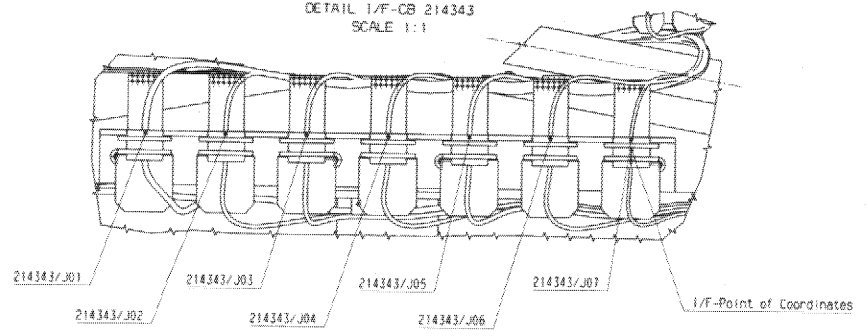
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DETAIL TYP. COORDINATE-POSITION



DETAIL 1/F-CB 214343
SCALE 1:1

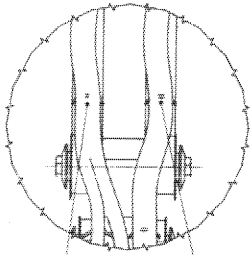


VIEW FROM -Y

undimensionated Harnessrouting
according views

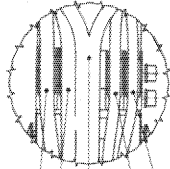
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DETAIL STRAP 06
SCALE 1:1



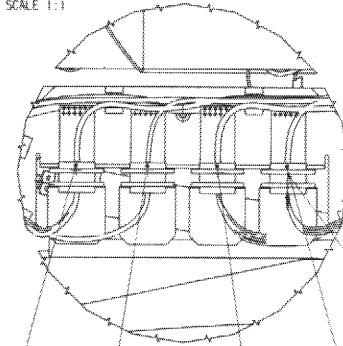
181 182

DETAIL STRAP 07
SCALE 1:1



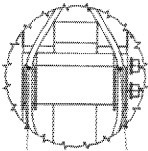
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183
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TB03-ST07-SIH-CS-12

DETAIL 1/F-CB 214333
SCALE 1:1



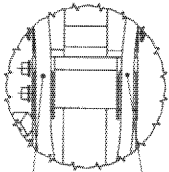
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214333/J01
214333/J02
214333/J03
214333/J04

DETAIL STRAP 17
SCALE 1:1



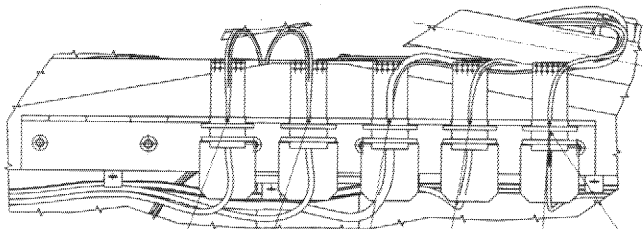
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DETAIL STRAP 16
SCALE 1:1



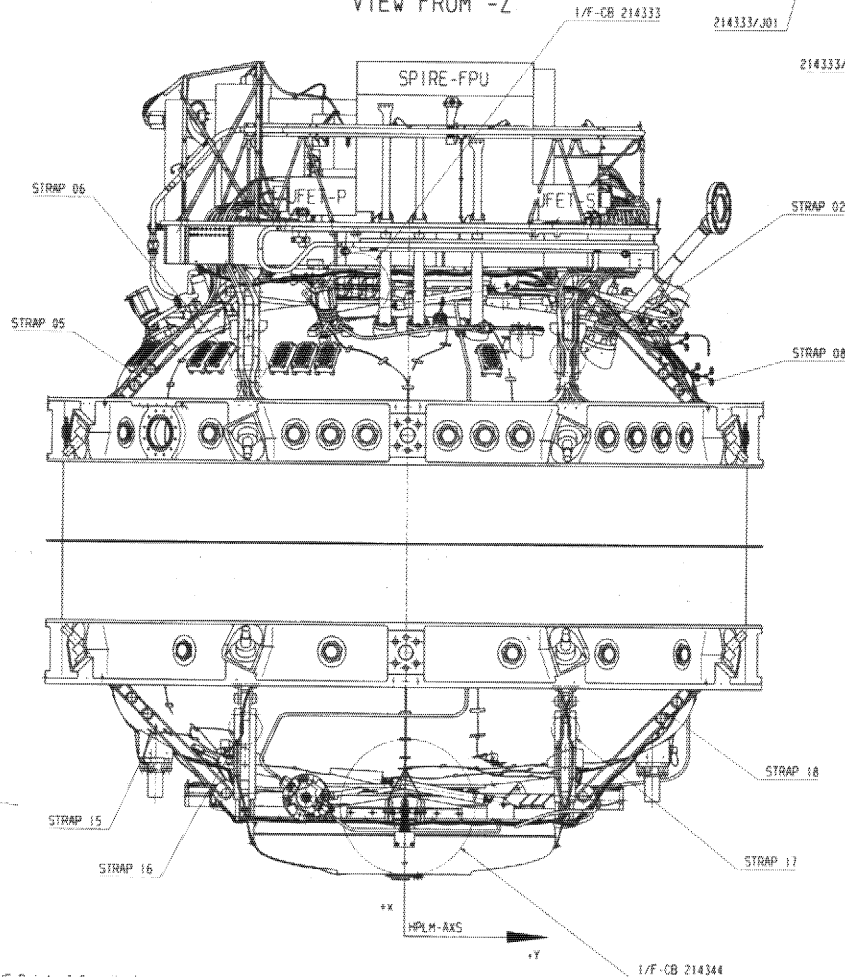
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DETAIL 1/F-CB 214344
SCALE 1:1



214344/J03
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214344/J05
214344/J06
1/F-Point of Coordinates

VIEW FROM -Z

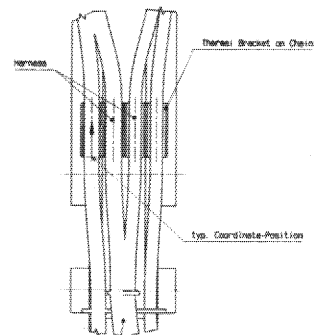


STRAP 06
STRAP 05
STRAP 02
STRAP 08
STRAP 18
STRAP 15
STRAP 16
STRAP 17

HPLM-AXIS
+X
+Y

1/F-CB 214344

DETAIL TYP. COORDINATE-POSITION



Harness to CVV-Feedthrough

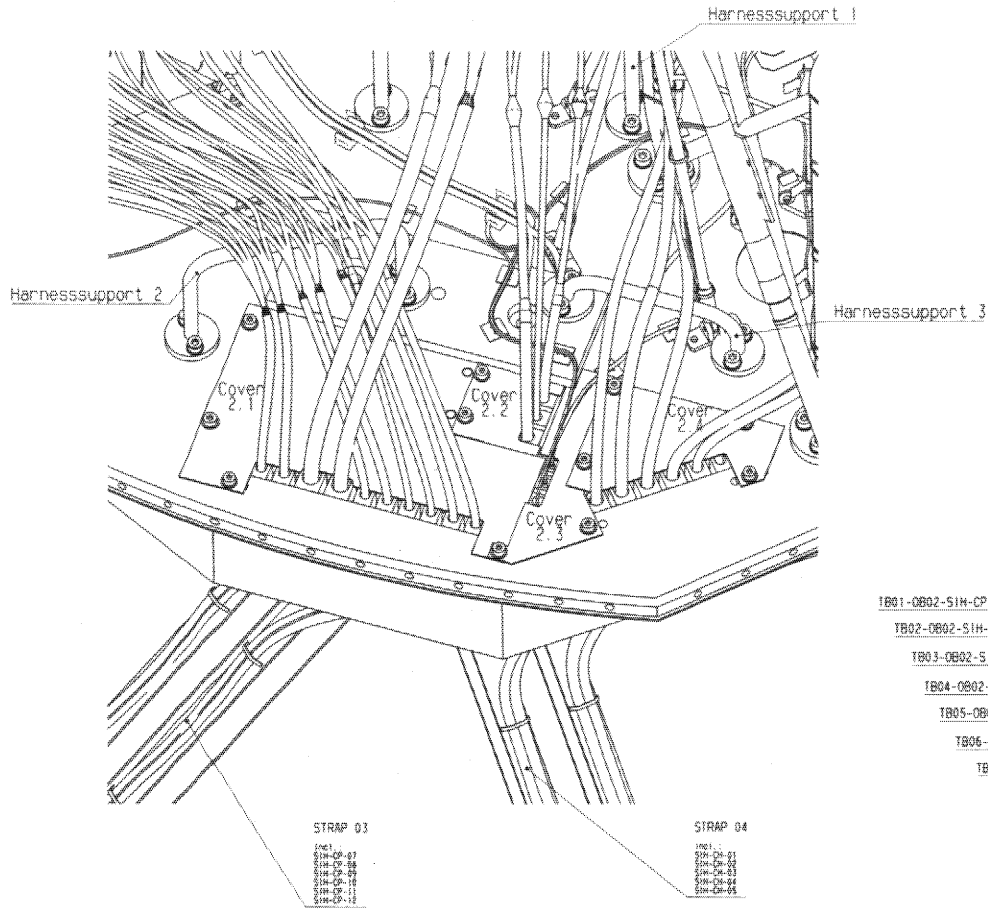
X=U
Z=W
Y=V
HPLM-AXIS

Undimensionated Harnessrouting according views

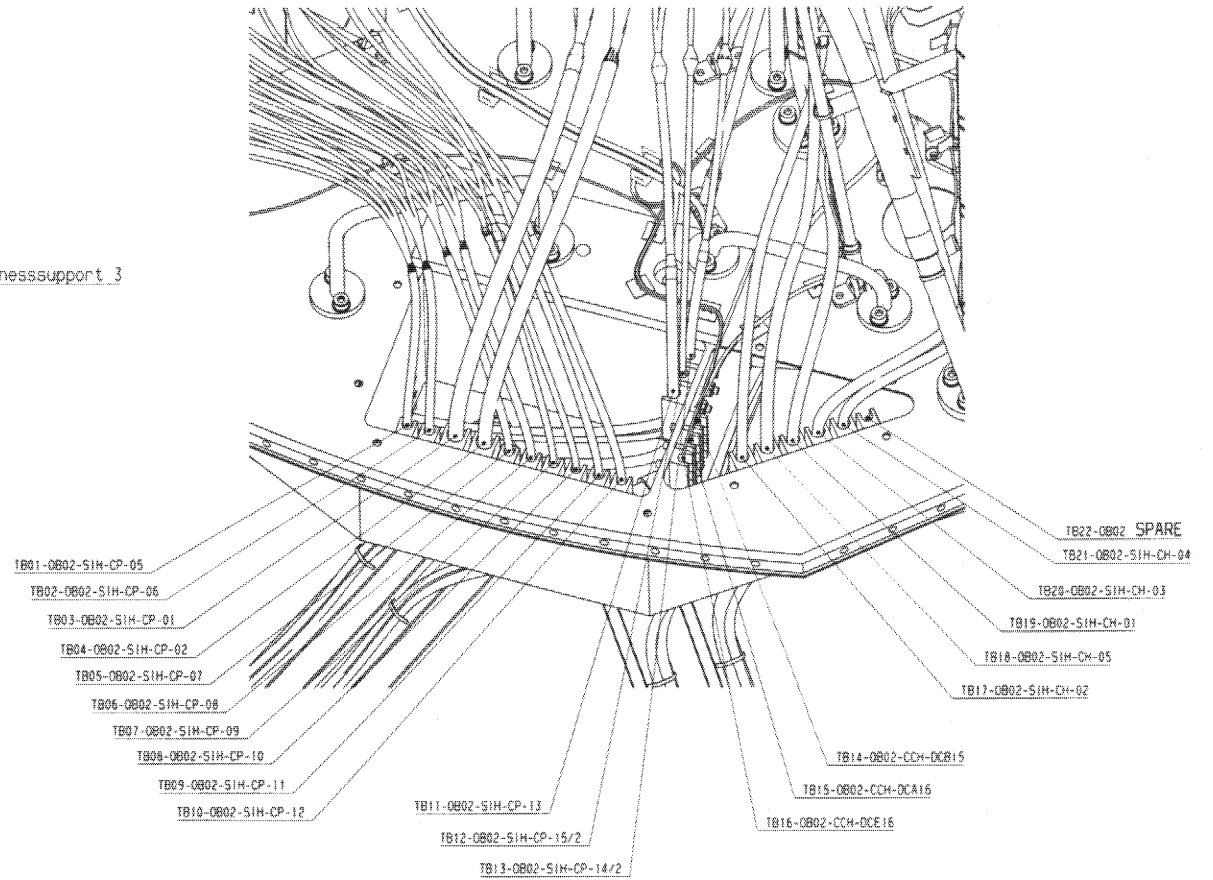
VIEW FROM -Z

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Design	...	Approved	...	Internal CCH & SIH	...
Drawn	...	Released	...	2547-121430-100-05-01	...
Checked	...	Released
Released	...	Released
astrium		...			

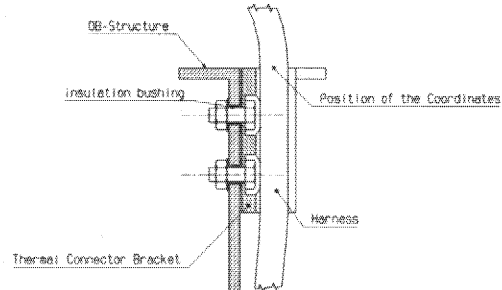
CUTOUT 2



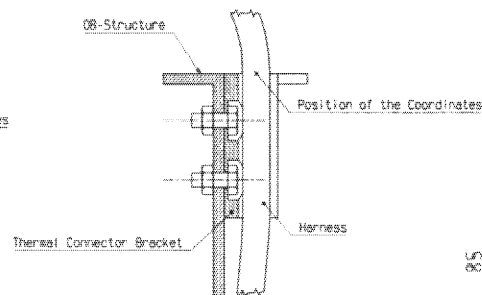
CUTOUT 2 WITHOUT STRAILIGHT-COVER



typ. Position of Coordinates from insulated th. connector Bracket

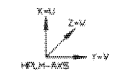


typ. Position of Coordinates from non-insulated th. connector Bracket



undimensionated Harnessrouting according views

Straylight-Cover:
All open areas will be closed with Alu-Tape



Cutout 2

150 mm x 150 mm		21 101430	
P-2-ANED-10-000-10-0A		REV. 1.1	
DATE	DESIGNER	DATE	DESIGNER
2010-08-10	...	2010-08-10	...
HERSCHEL OPT. OPTICAL MOUNTING		HERSCHEL OPT. OPTICAL MOUNTING	
ASTRUM		ASTRUM	

6.6 Annex 3-6 PFM CVV Internal Harness Routing Pictures

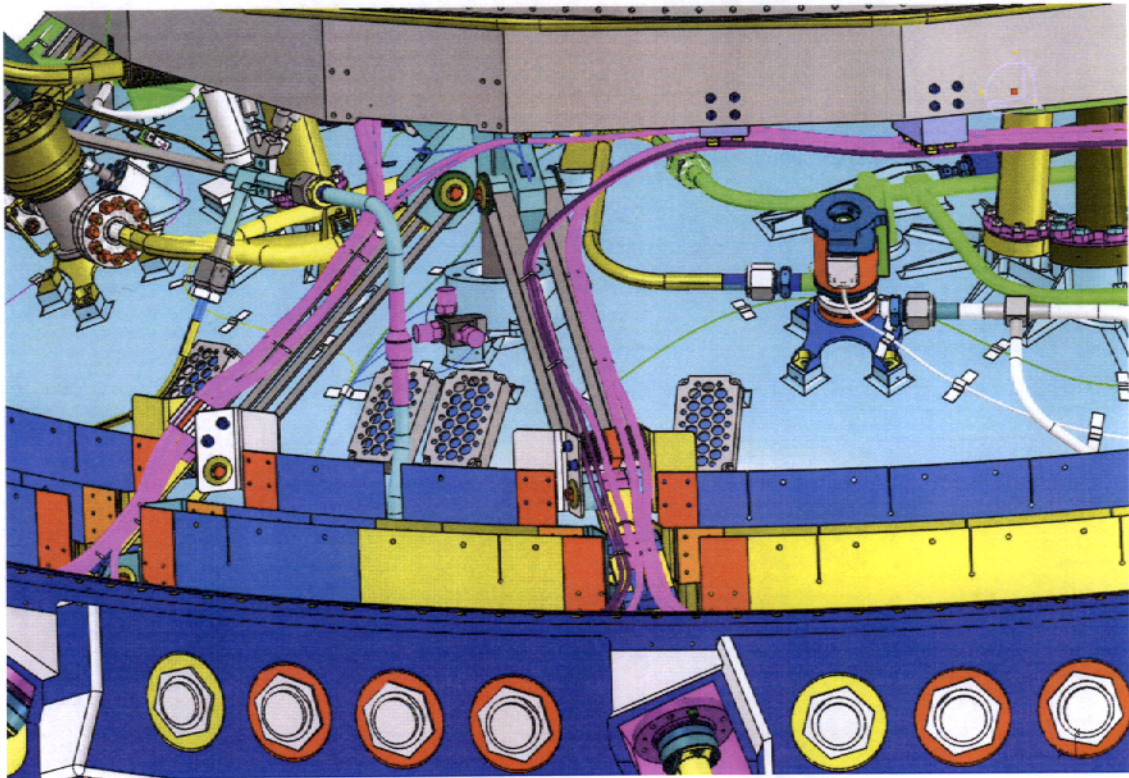


Figure 6.6-1: SIH Routing through Thermal-Brackets on TSS

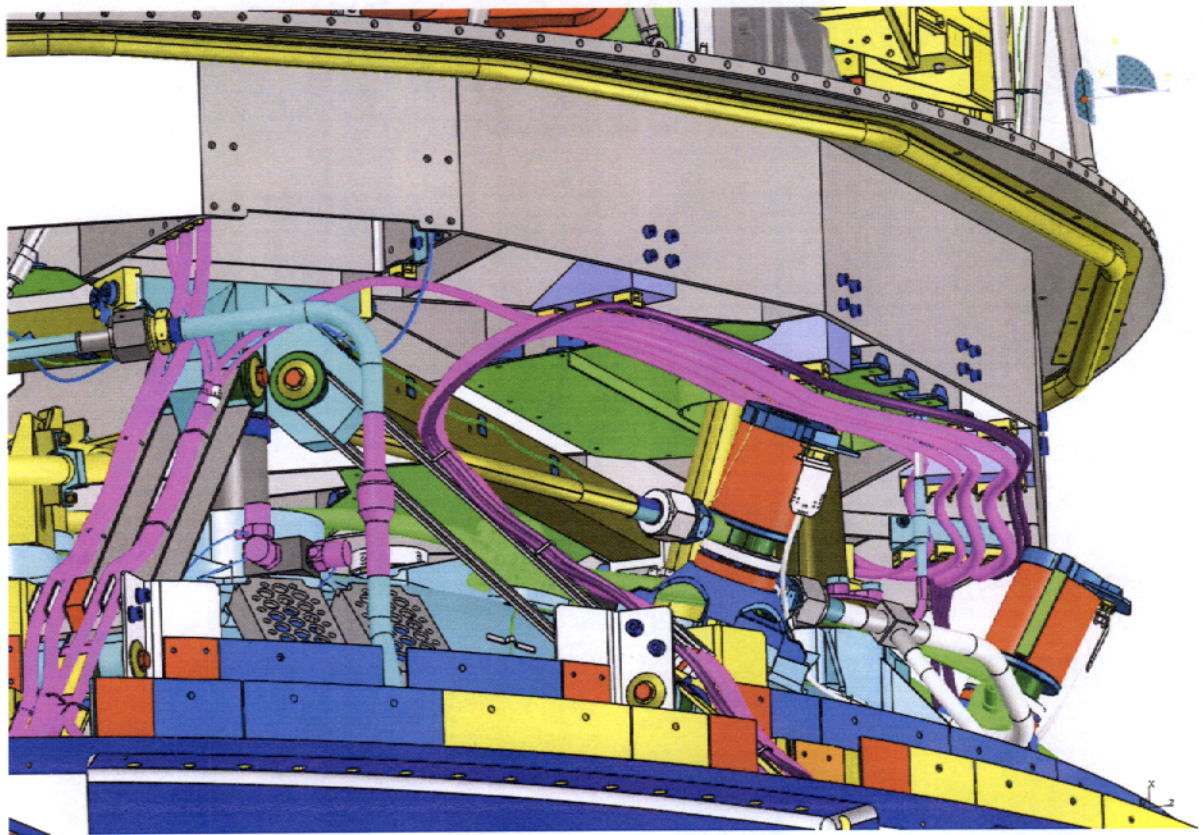


Figure 6.6-2: SIH Routing under OBA

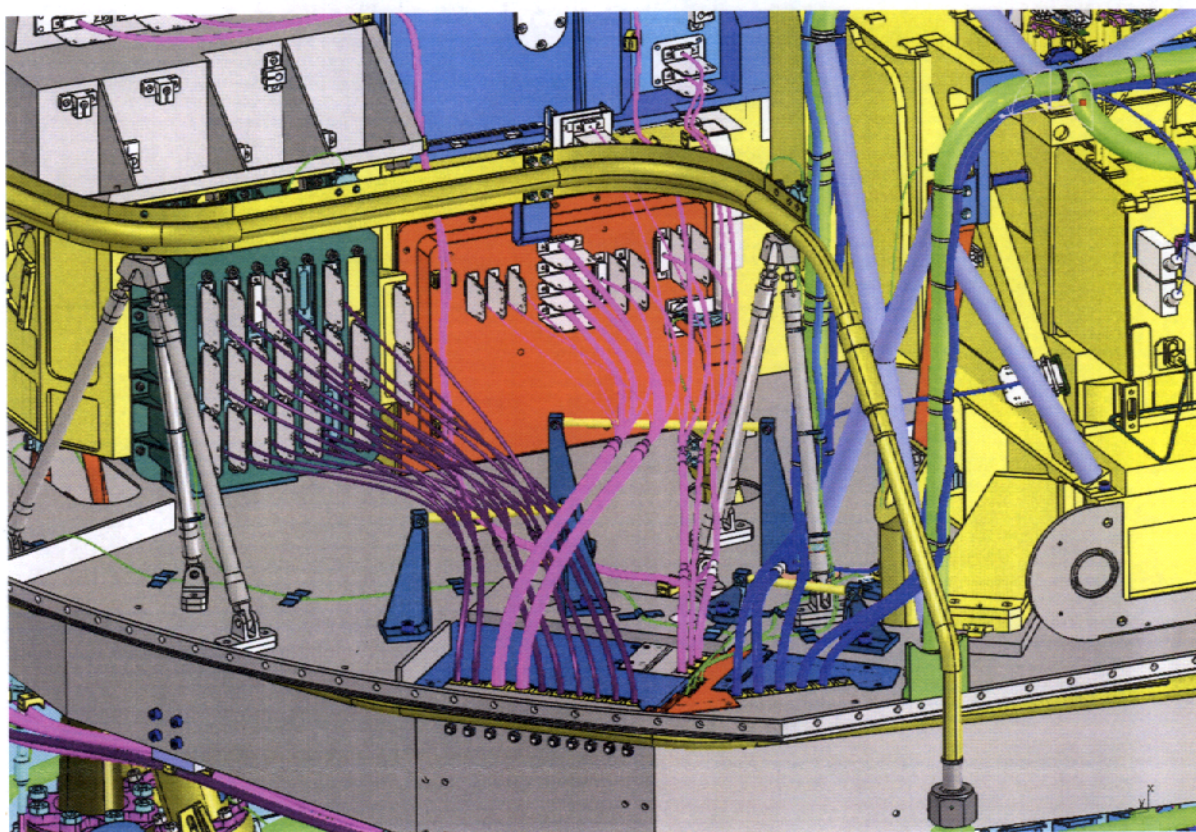


Figure 6.6-3: PACS & HIFI SIH Routing through OBA Thermal-Brackets & Cutouts

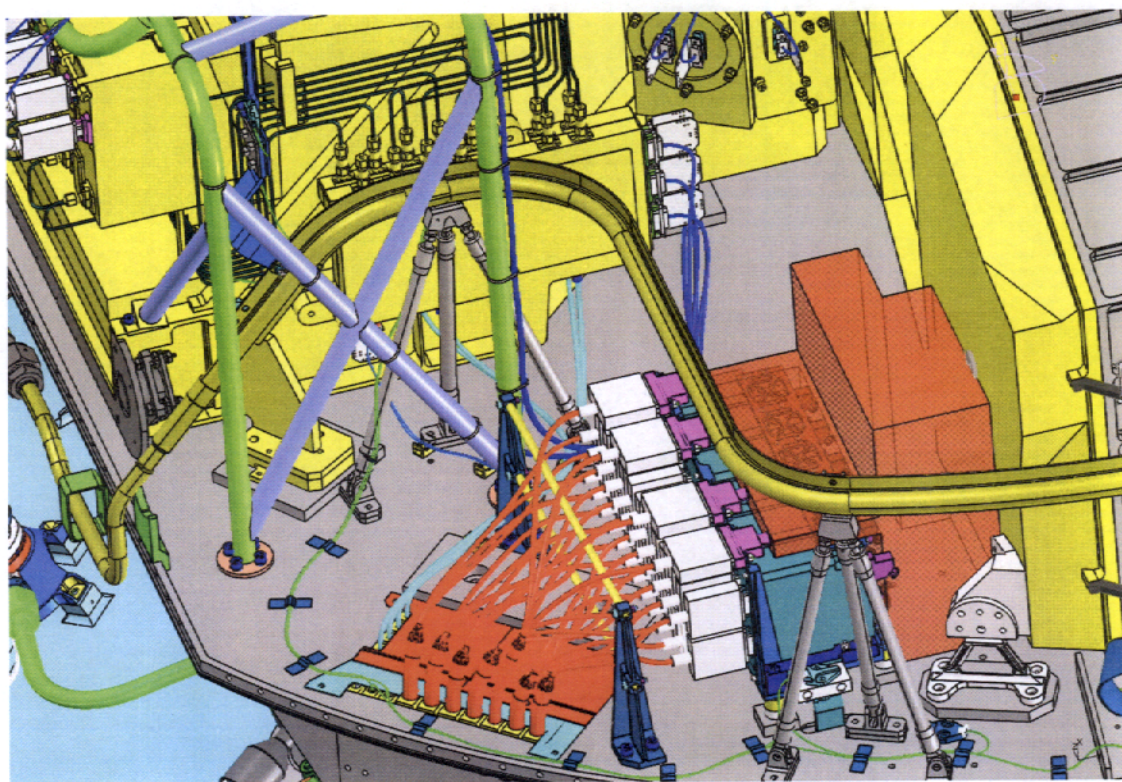


Figure 6.6-4: HIPI FPU & SPIRE JFS SIH Routing through OBA Thermal-Brackets & Cutouts

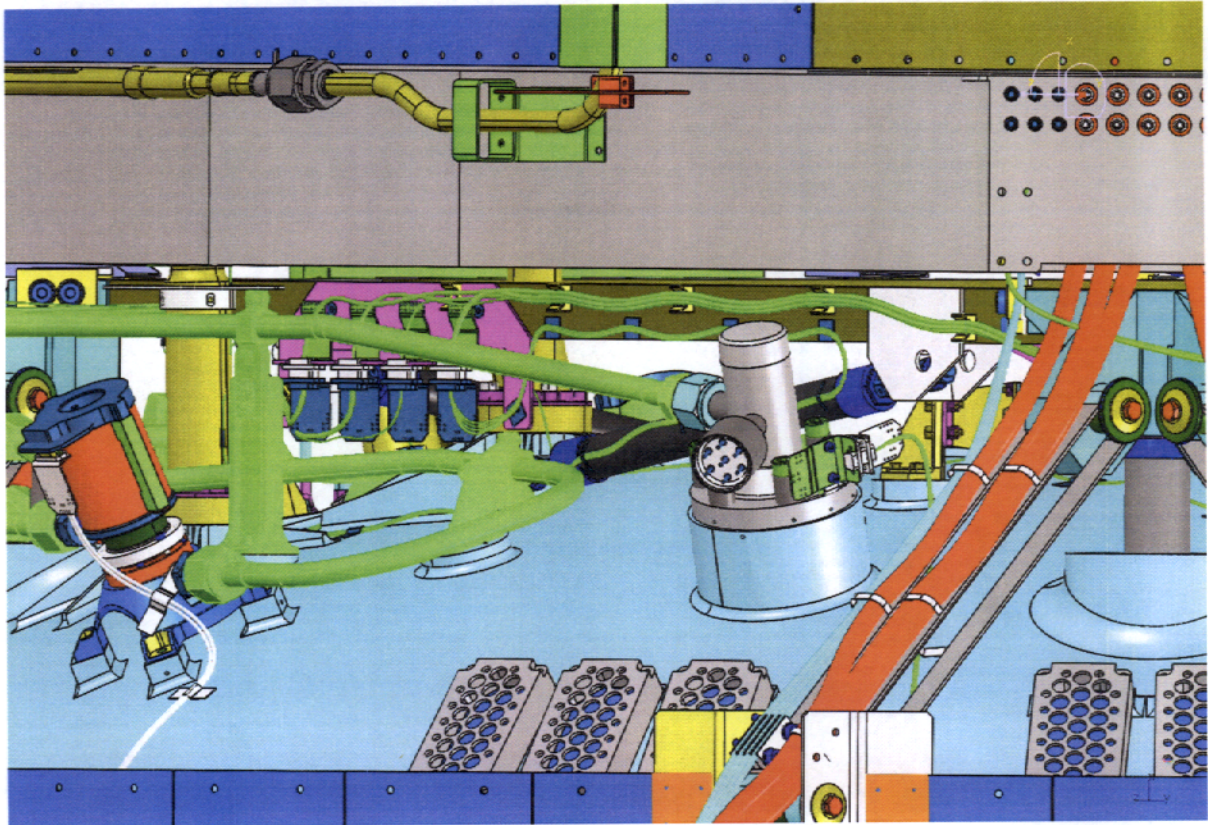


Figure 6.6-5: PFM CCH under OBA to upper SFW I/F-CB and to Cryo-Control-Components

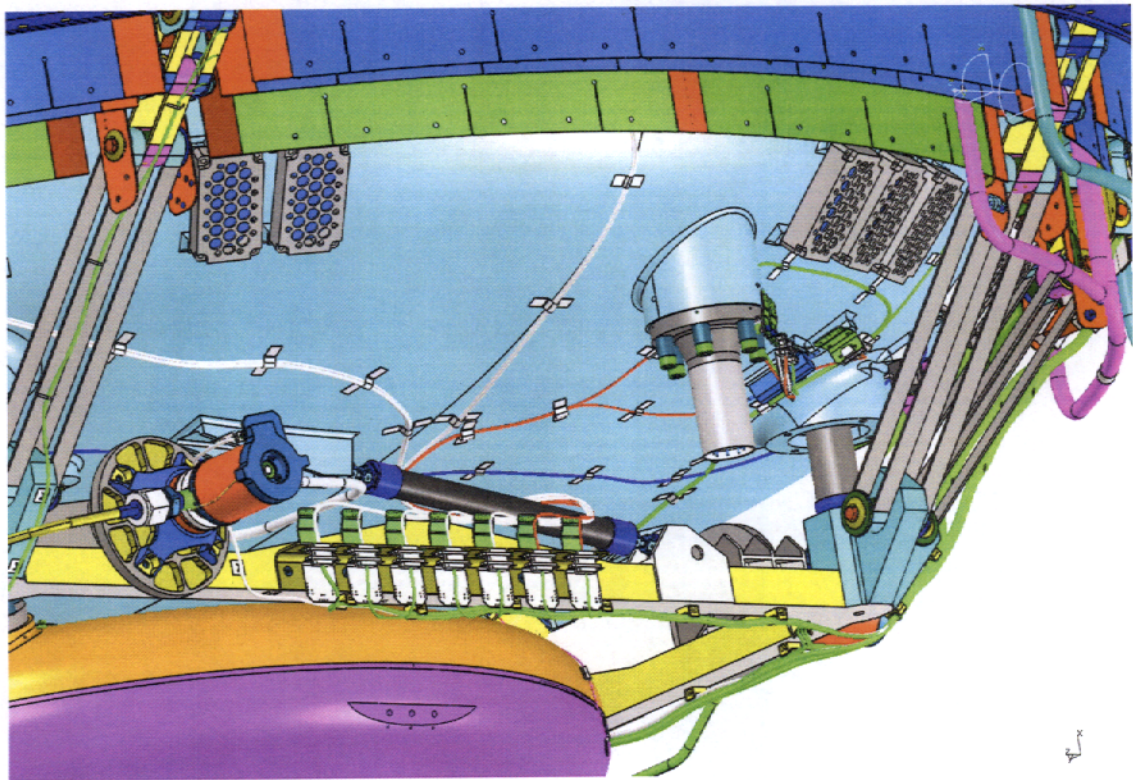


Figure 6.6-6: PFM CCH to lower SFW I/F-CB and to Cryo-Control-Components

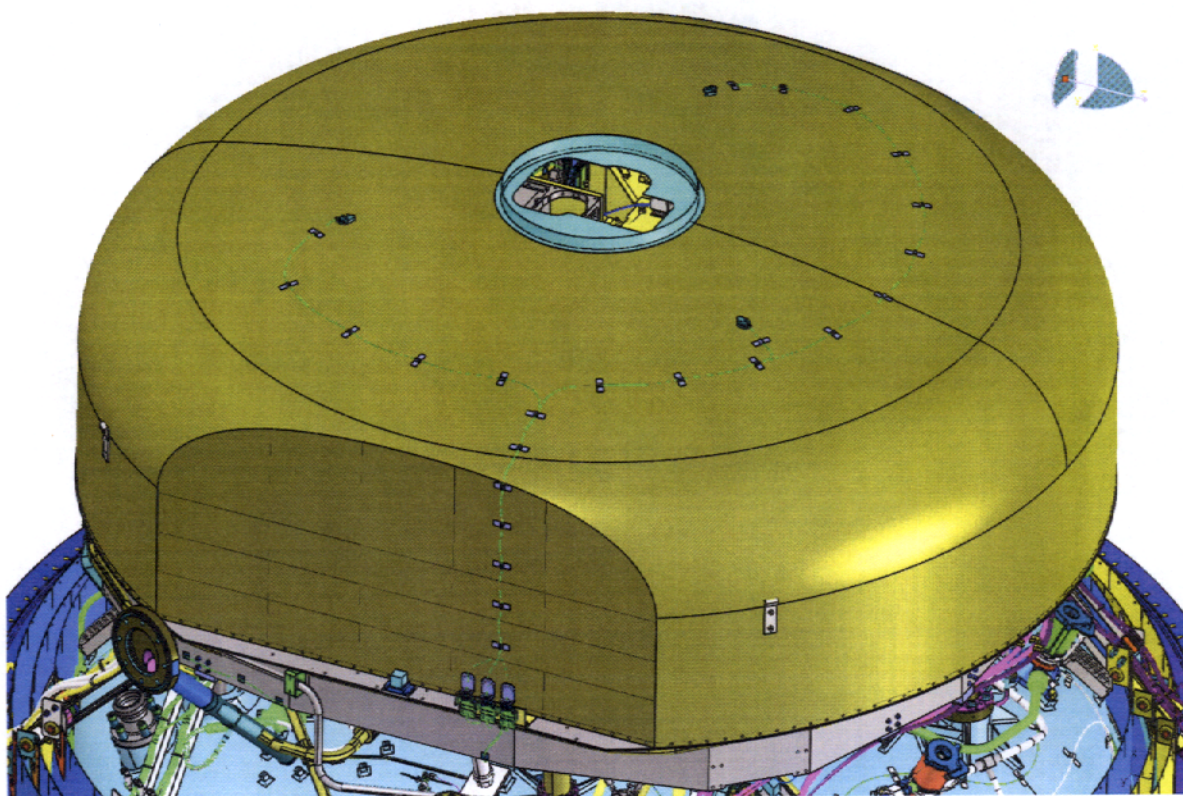


Figure 6.6-7: PFM CCH Routing and Attachments on OBA Instrument Shields

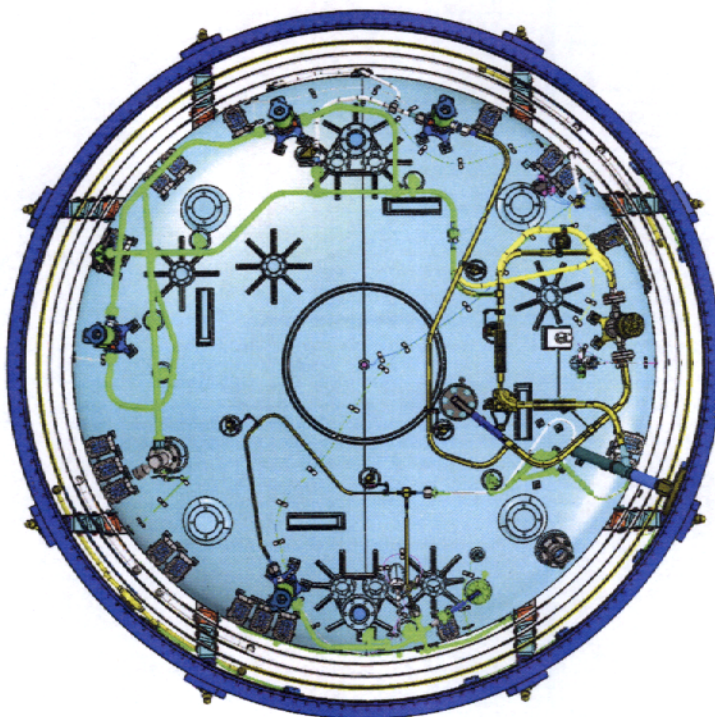


Figure 6.6-8: PFM TOP-View on HTT Cryo-Control Components

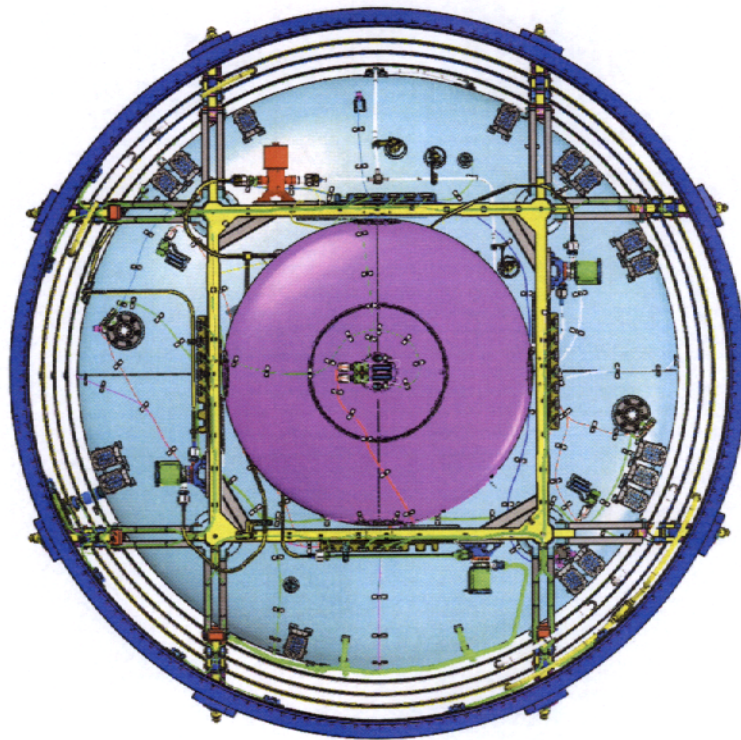


Figure 6.6-9: PFM Bottom-View on HTT & HOT CCH Routing & Attachments

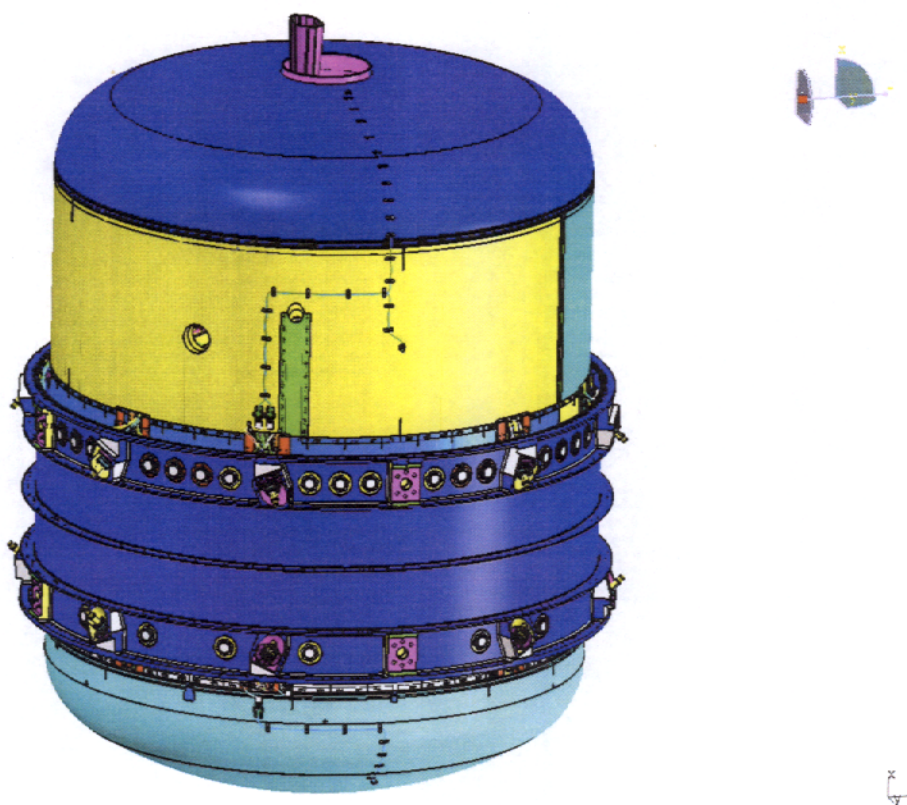


Figure 6.6-10: PFM CCH Routing and Attachments on third CVV Cylinder Thermal Shield

END OF DOCUMENT

	Name	Dep./Comp.		Name	Dep./Comp.
X	Alberti von Mathias Dr.	SM 34		Steininger Eric	ED 422
X	Alo Hakan	OTN/LP 45	X	Stritter Rene	ED 11
	Barlage Bernhard	ED 11	X	Tenhaeff Dieter	SM 34
X	Bayer Thomas	ED 541		Thörmer Klaus-Horst Dr.	OTN/ED 65
X	Faas Horst	EA 65		Wagner Klaus	SM 31
X	Fehringer Alexander	SM 33	X	Wietbrock, Walter	ED 521
	Frey Albrecht	ED 422		Wöhler Hans	SM 34
	Gerner Willi	ED 11			
X	Grasl Andreas	OTN/EN 64			
	Grasshoff Brigitte	ED 521			
X	Hauser Armin	SM 31			
	Hinger Jürgen	SM 31			
X	Hohn Rüdiger	ED 541	X	Alcatel	ASP
	Huber Johann	ED 543	X	ESA/ESTEC	ESA
X	Hund Walter	SE 76			
X	Idler Siegmund	ED 432		Instruments:	
	Ivány von András	ACE 32	X	MPE (PACS)	MPE
	Jahn Gerd Dr.	SM 31	X	RAL (SPIRE)	RAL
X	Kalde Clemens	ED 532	X	SRON (HIFI)	SRON
X	Kameter Rudolf	OTN/EN 64			
	Kersting Stefan	OTN/EN 63		Subcontractors:	
X	Kettner Bernhard	SM 34		Air Liquide, Space Department	AIR
X	Knoblauch August	ED 531		Air Liquide, Space Department	AIRS
	Koelle Markus	ED 523		Air Liquide, Orbital System	AIRT
X	Kroeker Jürgen	ED 65		Alcatel Bell Space	ABSP
	Kunz Oliver Dr.	SM 31	X	Astrium Sub-Subsyst. & Equipment	ASSE
	Lamprecht Ernst	OTN/SM 222		Austrian Aerospace	AAE
X	Lang Jürgen	SE 76		Austrian Aerospace	AAEM
	Langfermann Michael	ED 541		APCO Technologies S. A.	APCO
	Mack Paul	OTN/EN 64		Bieri Engineering B. V.	BIER
	Muhl Eckhard	OTN/EN 64		BOC Edwards	BOCE
X	Pastorino Michel	ASPI Resid.		Dutch Space Solar Arrays	DSSA
	Peitzker Helmut	ED 65	X	EADS CASA Espacio	CASA
X	Peltz Heinz-Willi	SM 33		EADS CASA Espacio	ECAS
	Pietroboni Karin	ED 65		EADS Space Transportation	ASIP
	Platzer Wilhelm	ED 23		Eurocopter	ECD
	Puttlitz Joachim	OTN/EN 64		HTS AG Zürich	HTSZ
	Rebholz Reinhold	ED 541		Linde	LIND
	Reuß Friedhelm	ED 62		Patria New Technologies Oy	PANT
X	Rühe Wolfgang	ED 65		Phoenix, Volkmarsen	PHOE
	Runge Axel	OTN/EN 64		Prototech AS	PROT
	Sachsse Bernt	ED 21		QMC Instruments Ltd.	QMC
X	Schink Dietmar	ED 422		Rembe, Brilon	REMB
X	Schlosser Christian	OTN/EN 64		SENER Ingenieria SA	SEN
	Schmidt Rudolf	ACE 32		Stöhr, Königsbrunn	STOE
	Schweickert Gunn	SM 34		Rosemount Aerospace GmbH	ROSE
X	Stauss Oliver	SM 33		RYMSA, Radiación y Microondas S.A.	RYM