SPIRE-AST-MOM-000977

Minutes of Meeting

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Date:	24/10/01	**Herschel**	
Doc.-No.:	HP-2-ASED-MN- 0027		
Meeting place:	Astrium, Friedrichshafen	Chairman:	J. Lang
Date/Time:	24/10/01, 09h00	Secretary	H. FAAS
Agenda dated:	Fax, HP-2-ASED-0120/01	Close of Meeting:	

Subject: SPIRE Cryo harness - Information exchange Meeting

Participant:	J. Delderfield, RAL D. Griffin, RAL J. Lang W. Hund R. Kameter J. Lang H. Faas E. Hilke H. Pastorino, ASPI G. Peters S. Idler, ASED ~~R. Hofer~~ G. Lund, ASPI	Additional Distribution:	J. Delderfield

Page: 1 of 4 Page(s) 12

☐ Brief-Minutes (except following sheets) ☐ Summary of Results of Sheets 2 till

Telefax/Telecopy

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Datum/Date: 8/10/01

Herschel

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Seite/Page: 1 von/of 2 Seiten/Pages

Betreff/Subj.: **Cryoharness Working Meetings with Instrument Teams**

Response to AI#2, SPIRE Technical Meeting, HP-ASPI-MN-390, 25/09/01

Dear Sirs,

Astrium would like to invite the Herschel Instrument teams to individual working meetings concerning the cryoharness design. In order to fit with the overall cryoharness procurement schedule it is proposed that the meetings take place on 22, 23, and 24 October at Astrium GmbH in Friedrichshafen, Germany.

The following schedule has been agreed with instrument teams:

Monday, 22/10/01:	PACS (Start: 11h00, Mtg. Room, 8117) (TBC)
Tuesday, 23/10/01:	HIFI (Start: 09h00, Mtg. Room: Stuttgart, 5th Floor)
Wednesday, 24/10/01:	SPIRE (Start 09h00, Mtg. Room, 8117)

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All meetings will take place at Astrium GmbH in Friedrichshafen/Immenstaad, Germany. Information concerning hotel accommodation is attached to this fax. If you need further information, please contact the Project Secretary, Ms. Karin Pietroboni (Tel. +49 7545 84240, fax +49 7545 84243).

A pre-requisite for the Cryoharness Meeting is that the questions raised in Astrium faxes (ref. HP-ASED-0110/01, dated 26/09/01 and ref. HP-ASED-0112/01, dated 27/09/01) are answered.

It is planned that further information is made available by Astrium to all participants (i.e. Instrument Teams, Alcatel and ESA) during the course of next week. The Astrium Technical Note: "Herschel Cryo-Harness Input for Thermal Analysis" will contain a description of the current status of the cryoharness design activities.

The following draft agenda is proposed:

1. EPLM Cryoharness status report (ASED)
2. Instrument Cryoharness status report (Instrument Team)
3. Warm Unit design (e.g. connector location)
4. Cable configuration of internal and external cryoharness
5. Milestones of Instrument cryoharness procurement
6. Parts procurement
7. AOB

We are looking forward to welcome you at Astrium.

Kind regards

Astrium GmbH

i. V. Dr. K. Moritz

i. A. R. Hohn

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Deutsche Bank AG, Friedrichshafen - BLZ 650 700 84 - Konto-Nr. 3 550 100

To: "Faas, Horst ED516" <Horst.Faas@astrium-space.com>
From: John Delderfield <j.delderfield@rl.ac.uk>
Subject: Meeting agenda
Cc: D.K.Griffin@rl.ac.uk, Glenn.Lund@space.alcatel.fr, bruston@xe.estec.esa.nl , S.C.Heys@rl.ac.uk,A.G.Richards@rl.ac.uk , E.C.Sawyer@rl.ac.uk , B.M.Swinyard@RL.AC.UK
Bcc:
X-Attachments:

I've just searched my discs for "HP-ASED-0120/0" and I don't have the document.
Please could you E-mail us one.

I note items

- need for overall shields (EMC, etc.)
- demonstration of the CATIA cryostat model

RAL would like to include:

- overview of Spire accommodation
- status of JFET boxes and FPU connector panels
- discussion of any remaining envelope conflicts
- view of state of thermal strap/1.6K volume implementation
- confirmation that this CATIA cryostat model transfers OK to ESTEC so dynamic thermal model coming back to Astrium (or whatever if arrangements have changed) is all working OK.
- talk-through of alignment implementation at top level, e.g. do HOB strut adjustments still come to CVV outside?
- need for CVV to clear optical beams from Herschel cold stop/M2 and confirmation of requirements.

Start promptly at 08:30hrs?

Cheers

John

> Hello John,
>
> thanks for info.
>
> If you want to discuss further SPIRE accommodation issues, currently not covered in the agenda, please send us a list of those issues asap, in order to ensure that the right experts are available.
>
> Further to the current draft agenda (fax HP-ASED-0120/01, 9/10/01) Astrium would like to discuss the following under AOB:
>
> - need for overall shields (EMC, etc.)
>
> Furthermore, I have foreseen a demonstration of the CATIA cryostat model.
>
> Best regards,
>
> Horst
> <<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<
>
> -----Original Message-----
> From: John Delderfield [mailto:j.delderfield@rl.ac.uk]
> Sent: Thursday, October 18, 2001 1:24 PM
> To: Faas, Horst ED516
> Cc: B.M.Swinyard@rl.ac.uk; D.K.Griffin@rl.ac.uk; E.C.Sawyer@rl.ac.uk

(4)

Subject: Re: Attendees at meeting

Doug and I will attend.

Just so we don't suffer a hold-up at site security, note that Doug is Aus. with UK workpermit.

I will travel from Marseille the afternoon before, probably with Jean Bruston from what you said.

Please E-mail local Freidfrichshafen site directions.

We are coming with the anticipation that Spire meeting can cover all aspects of accommodation in the cryostatl, although I quite can see that Harness is a major aspect.

John

>Can you please confirm who will attend the cryo harness meeting(s) during
>the course of next week. Information is required for the site security.
>
>Thanks a lot. Best regards,
>
>Horst
><<<<<<<<<
>_____
>
> Horst B. Faas
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- -
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(5)

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Reference	Results	Remarks
	The Astrium Herschel Project Team was introduced by E. Hölzle. The TN "Herschel Cryo-Harness Inputs to Thermal Analysis (HP-2-ASED-TN-0010) was handed over to RAL. Furthermore the following info was provided: - List of questions with invitation for (Annex 1) - Herschel Harness Layout + Routing (Annex 2) Discussion of Astrium II-D-B questions (see Annex 3). Responses are indicated in Annex 3. The harness info in the SPIRE II-D-B, Issue 2.0 is old and not consistent with the informally issued SPIRE Harness Definition (Issue 0.7). The II-D-D, Issue 2.0 is consistent the Harness Definition Doc Issue 0.5.	Annex 1 and Annex 2 have distributed during the mtg and are not attached to this minutes.

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Reference	Results	Remarks
	SPIRE to review the harness info provided by Astrium (TN, ASED-010)	AI #1 RAL 3/11/01
	Astrium to provide tables in electronic form.	AI #2 25/10/01
	RAL to provide updated SPIRE Harness Def. Document.	AI #3 3/11/01
	FPU I/F Connectors	
	Direct FPU connectors C10 to C13	
	FPU/JFET harness will only be supported by connectors only (current SPIRE assumptions). The area between the FPU and JFET should be kept free from the Astrium harness. FPU/JFET connection will use overall shields.	

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Reference	Results	Remarks
	SPIRE does anticipate that the SPIRE team is responsible for the integration of the FPU/JFET harness on the HOB. SPIRE plans to change the JFET design (only one Spectrometer JFET Box). A preliminary layout is attached as Annex 4. The JFET rack design is attached (Annex 5) The Harness Connector I/F planes on the CVV is attached as Annex 6a, b. SPIRE connectors occupy the angles from 252° to 351° (assuming 13 connectors). SPIRE recommends that the JFET (Spectrometer) harness comes as one single bundle down to the SVM.	

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Reference	Results	Remarks
	HSJFP harness should, if possible, stay as one single bundle as the FPU harness (Spire recommendation).	
	In addition, a harness for the SPIRE shutter exists.	
	RAL will show the space available for the cryo harness on the next issue of the SPIRE Config. Drawings.	AI #4 (RAL)
	If the FPU connectors are right 60mm from center line an exact position is required	
	RAL to investigate to reposition the FPU connectors in a line close to the baseplate.	AI #5 (RAL)
	It should noted that there is a thermal restriction on the FPU connected harness shall clamp in the FPU (11-D-B, 5.7.1.2). Issue will be discussed within the 11-D-B update.	

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Reference	Results	Remarks
	Agenda 5: Connector brackets Astrium proposes to introduce a SVM Connector bracket. Position of the connectors on the SPIRE Warm Units. The warm units are facing the cone. There may be a conflict between the CCU harness and the SPIRE DPU warm harness (e.g. harness routing). RAL to provide IGS model or STEP model corresponding to Config. Drawing Issue 12. RAL provide a copy of Issue 12 of the SPIRE Config. Drawing (Annex 7). For info. only	A1 # 6 (RAL) 09/11/01

One Level-0 thermal strap consists of the Copper straps.

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Reference	Results	Remarks
	Agenda Item 6: Instrument AIT Needs. Spire does not need test connector, but they will need connector covers. SPIRE will assess the requirements for covers or open harnesses for all positions where harnesses may be disconnected.	AI #7 (RAL) 16/11/01
	Spire will consider whether BOB's with special conductor configuration will be needed for failure investigation between SVM unit and SVM I/F-CB connectors.	AI #8
	SPIRE AIV plan should include specify at what stages and with what equipment / configuration cryo harness integrity is checked.	AI #9 (next issue of AIV plan)

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Reference	Results	Remarks
	Agenda7 already discussed. Agenda8: Astrium plans to use Glenair connectors for MDH, which may have a higher IR leakage compared to Cannon (old ISO connector) SPIRE to verify that this does not present a problem. PACS (Kayser-Threde) did an study on this issue. Agenda Item 9: Our Spire Electronics does not provide any SST or Cross harnesses for flight. Therefore, this CCPA directive does not apply.	AI # 10 (SPIRE) 23/11/01

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Reference	Results	Remarks
	SPIRE will have magazine harness between FPU and the two JFET (i.e SPIRE internal harness) Agenda Item 9: AOB Need for overall shields by SPIRE SPIRE prefers that several harness branches are grouped together, as shown on the instrument block diagram, and any additional wrapped shielding ~~mesh~~ meshes would go around the whole bundle. The SPIRE states that the wiring diagram to implement the grounding / shielding requires shield around each harness bundle (Astrium terminology) both inside and outside the CVV. Astrium has previously omitted this inside the CVV.	

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Reference	Results	Remarks
	The SPIRE ~~[illegible]~~ electrical data, specified in the II-D-3, reflect flight conditions (i.e. cryogenic temperatures) and not room temperature.	AI# 11
	ASED to check the values taken for the 1st Thermal Analysis	ASED (AH)
	SPIRE will review the ~~W~~ire ~~g~~auges in HP-2-ASED-010, but notes that the drive regts. in mA for its mechanisms fit the voltage resistance data attached. (Annex 8)	(ref AI #1)
	After meeting, RAL paper on optical beam clearance was handed to Astrium	

No.:	Description:	Due Date	Originator	Actionee	Completion
8	SPIRE will consider whether BOB's with special conductor configuration will be needed for failure investigation between SVM unit and SVM I/F CB connectors		ASED	SPIRE	
9	SPIRE AIV plan should include/ specify at what stages and with what equipment / configuration Cryo harness's integrity is checked. (at next issue of AIV plan)		ASED	SPIRE	
10	SPIRE to verify that the selection of Glenair connectors (proposed by ASED) does not present a problem	23/11/01	ASED	SPIRE	
11	ASED to check the value (electrical data) taken for the first thermal analysis		SPIRE	ASED	

No.:	Description:	Due Date	Originator	Actionee	Completion
1	SPIRE to review the harness information provided by Astrium and provide comments (TN-ASED-010)	3/11/01	ASED	SPIRE	
2	Astrium to provide tables in electronic form	25/10/01	SPIRE	ASED	
3	SPIRE to provide updated SPIRE Harness Def Document	3/11/01	ASED	SPIRE	
4	SPIRE will show the space available for the cryo harness on the next Configuration Drawing		ASED	SPIRE	
5	SPIRE to investigate to reposition the FPU connectors in a line thing close to the box plate		ASED	SPIRE	
6	RAL to provide the IGS or STEP Model corresponding to Config. Drawing, Issue 12	9/11/01	ASED	SPIRE	
7	SPIRE will assess the requirements for covers on open harnesses for all positions where harnesses may be disconnected.	16/11/01	ASED	SPIRE	

(16)

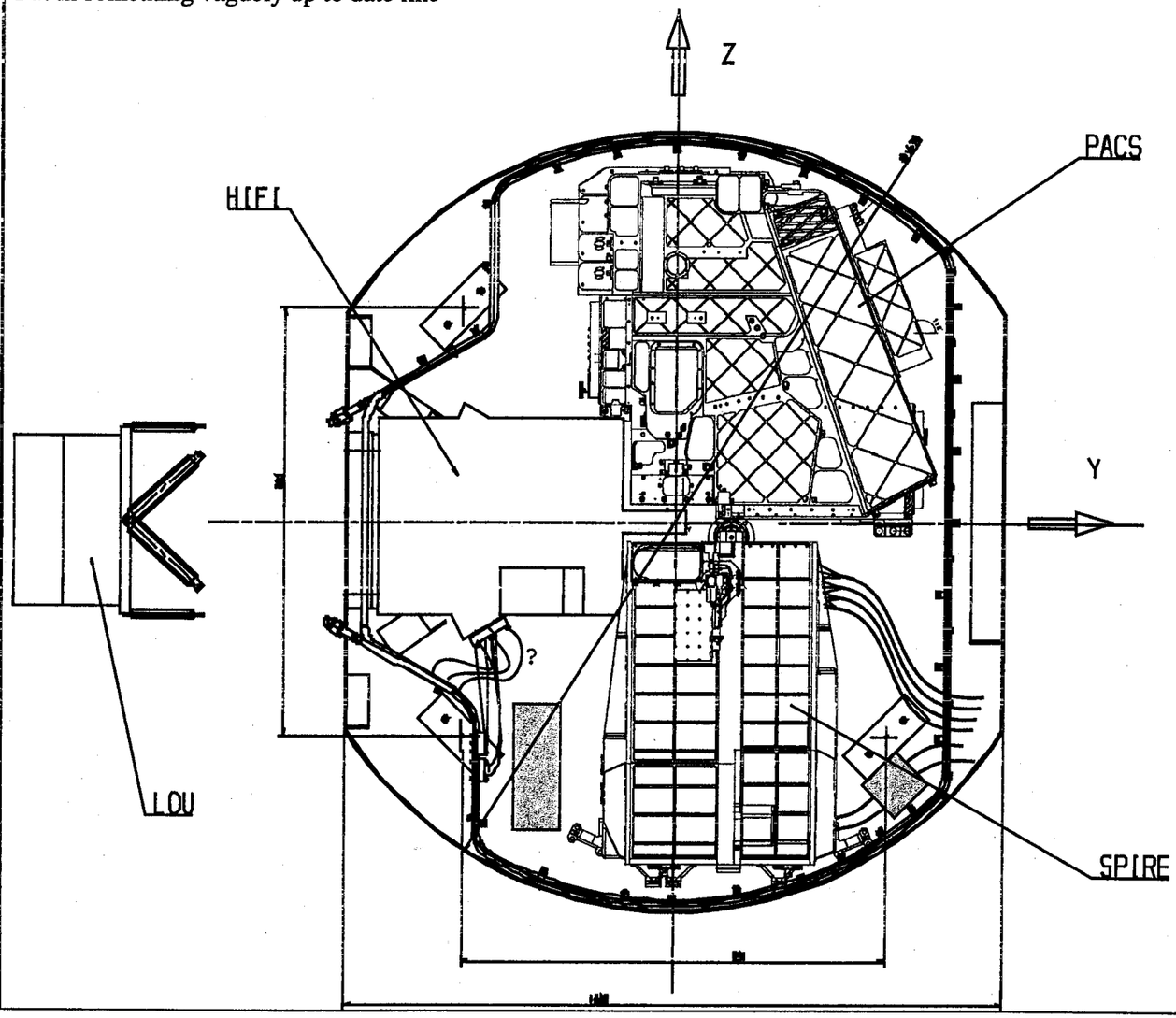
Annex 3

Comments to SCI-PT-IIDB/SPIRE-02124, issue 2/0:

General: For all units (DCU, FCU, HSJFP, HSFPU and HSJFS) the connector pin allocation lists are missing.	Covered by AI #3
Chapter-page 5-26: For harness branches I10 to I13 the connectors for the units are not defined.	Covered by AI #3
Chapter-page 5-26 Internal Harness: I10 to I13 the assignment of the units and connectors is not correct. (e.g. : for I10 the related unit is HSFCU not HSFPU)	refers to II-D-B, Issue 2.0 to be corrected in Harness Def Doc, Issue 0.7
Chapter-page 5-24 Internal Harness C10 to C13 the assignment of the units and connectors is not correct. (e.g. : for C10 the related unit is HSFPU not HSFCU)	Corrected in Issue. 0.7

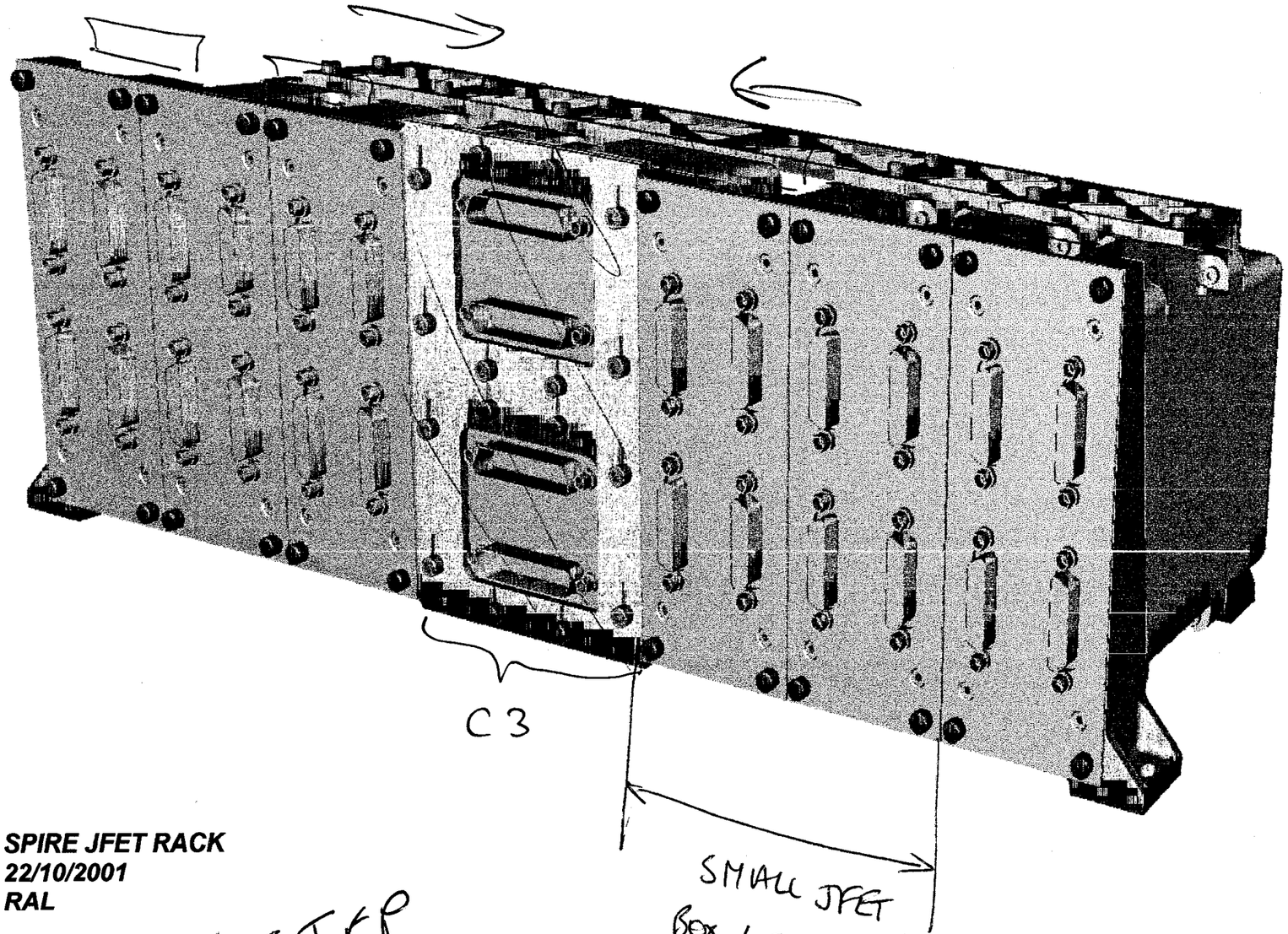
RAL comments on **SPIRE IID Part B 2/0** dated 31/07/2001

26th September 2001

Ref	Section	Comment	Disposition
JD5	Figure 5.3-1	Put in something vaguely up to date like 	

(18)

Annex 4



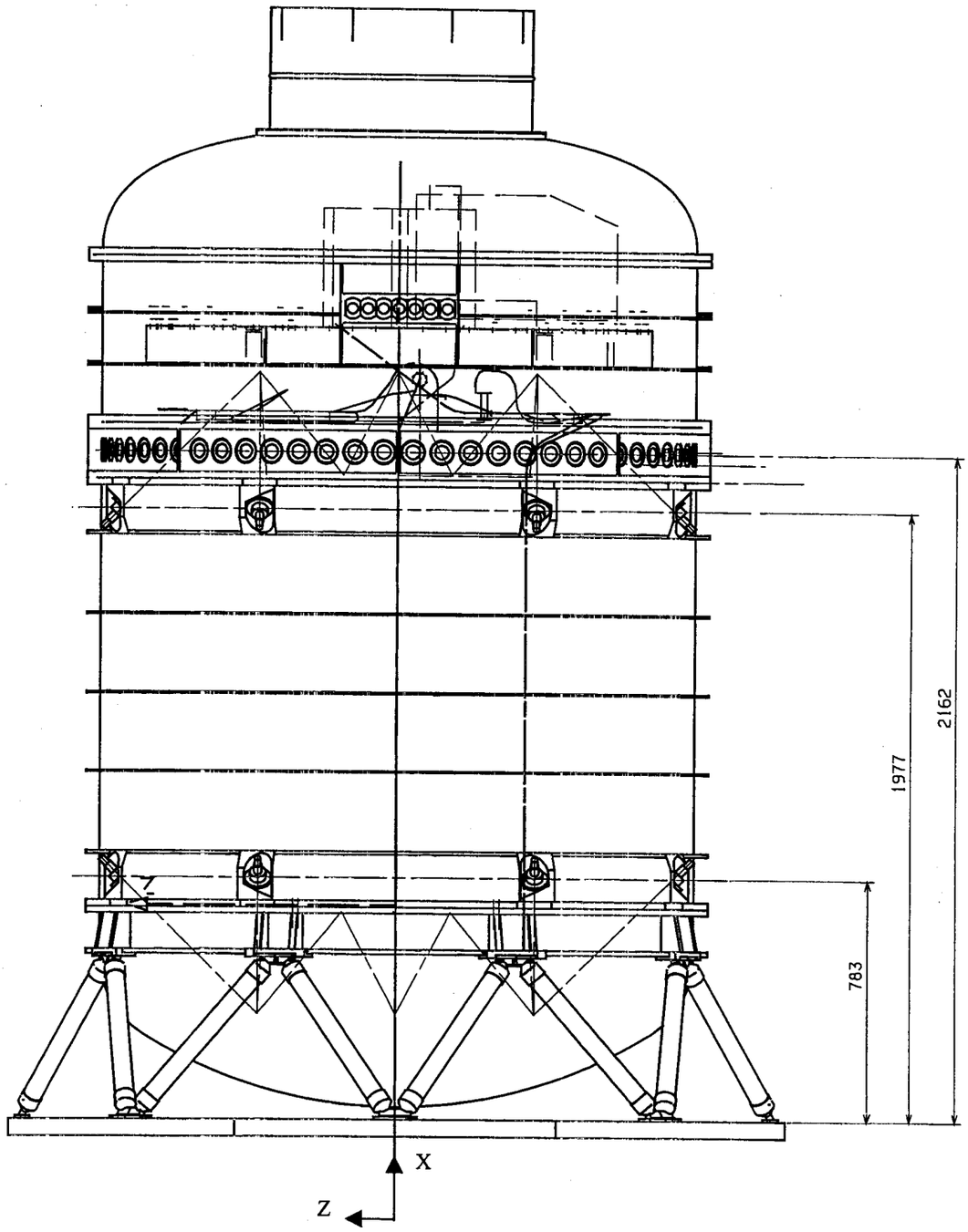
SPIRE JFET RACK
22/10/2001
RAL

HSJFP

Annex S

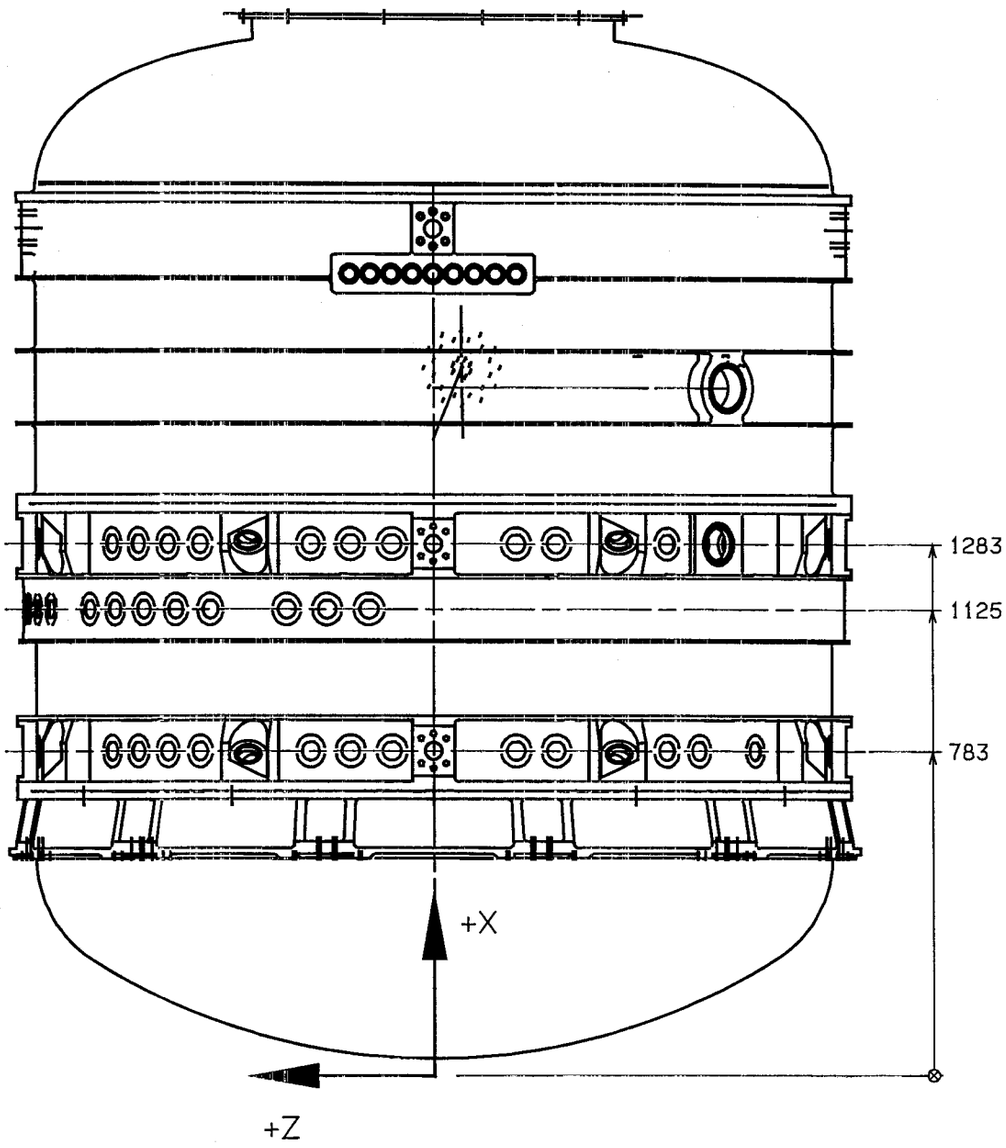
Annex 6a

Herschel EQM – Harness Connector I/F Planes



Annex 6 b

Herschel FM – Harness Connector I/F Planes

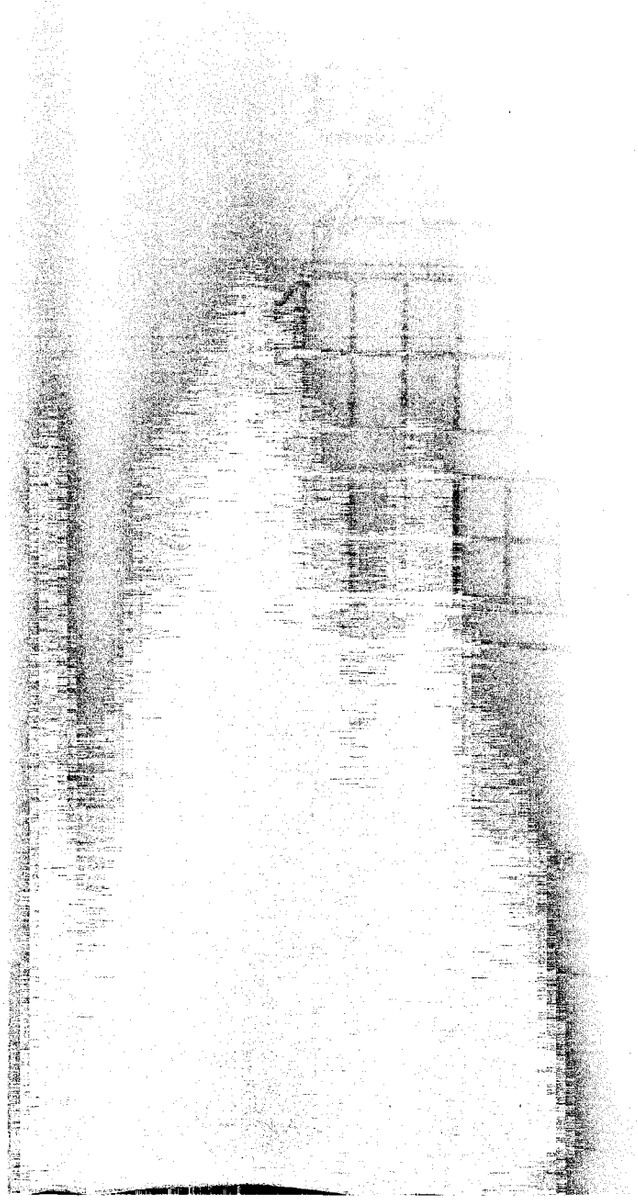


Annex 7

X sheets of

RAL FPU

ICD version 12

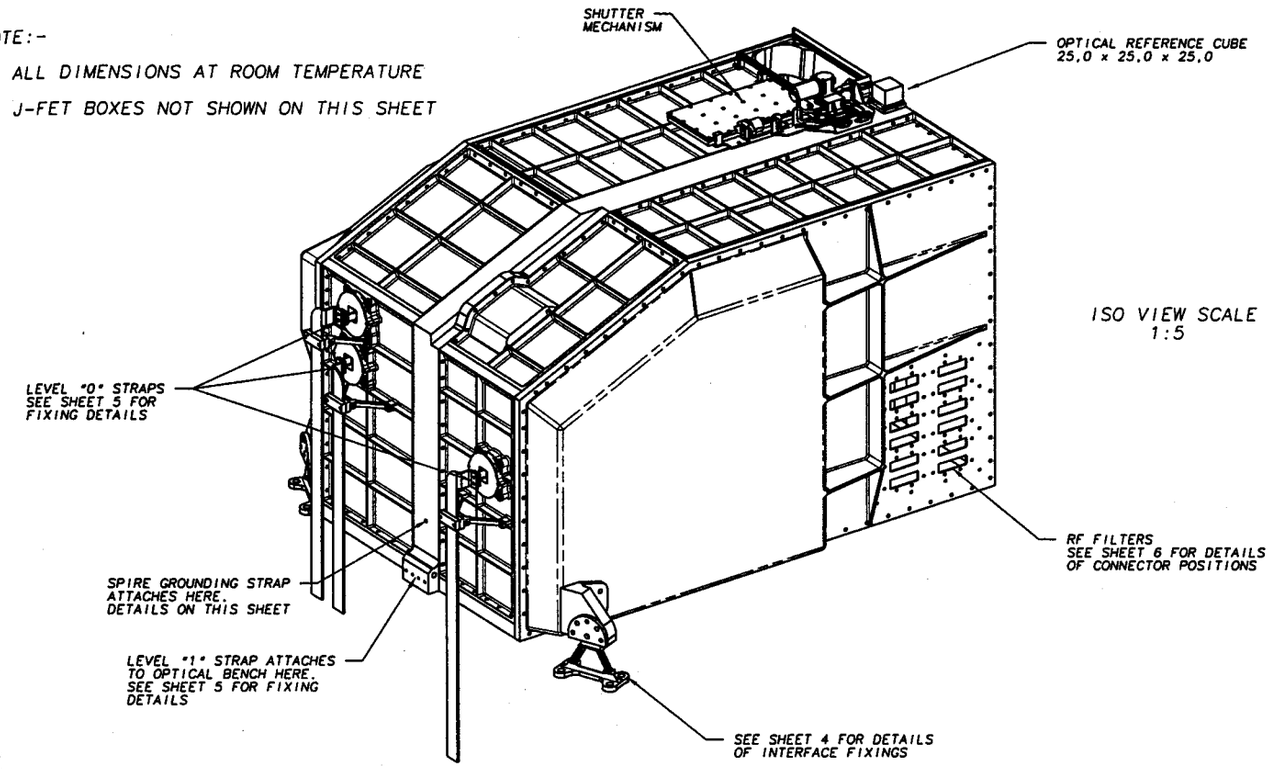


T SCALE

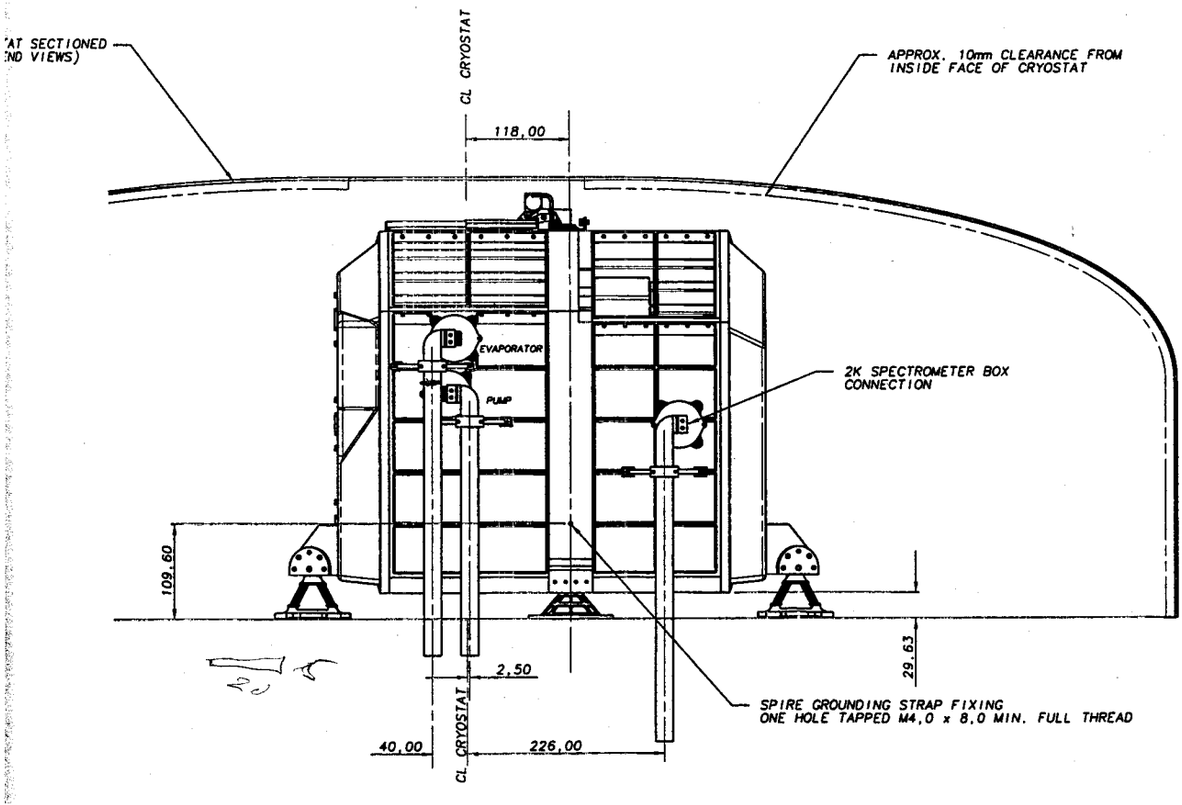
)TE:-

ALL DIMENSIONS AT ROOM TEMPERATURE

J-FET BOXES NOT SHOWN ON THIS SHEET



ISO VIEW SCALE 1:5



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VE FINISH STED g(INC. CONT.)	MATERIAL & SPEC. AS LISTED	TOLERANCES UNLESS OTHERWISE STATED - LINEAR +/- 0.10 ANGULAR +/- 0°15'	DEPARTMENT OF SPACE AND CLIMATE PHYSICS UNIVERSITY COLLEGE LONDON MULLARD SPACE SCIENCE LABORATORY, HOLMBURY ST. MARY, DORKING, SURREY.
	DIMENSIONS IN mm	SCALE 1:4	TITLE: SPIRE INTERFACE (GENERAL DIMENSIONS) DRAWING No: A1 5264 300sht1 SHEET 1 OF 6

Present basis for Spire currents.

Actuator	Launch Latch.
R_{300K} 180Ω	R_{300K} 83Ω
R_{4K} 1.8Ω	R_{4K} 830mA.
91mA nom max	300mA always needed
20mA ±3.2mm max	
$\frac{25}{91mA} - 180 = R \rightarrow 94\Omega$ Heat & back.	$\frac{28}{300mA} - 83 = 10\Omega$! ↑ more harness impedance than load !