		REF. : H-P-ASP-MN-5081_iss 2	
				SPIRE Progress & Interface	
				DATE : 30/06/04	PAGE : 1/34
COMPTE RENDU DE REUNION / MINUTES OF MEETING				LIEU / PLACE : RAL Chilton	
OBJET / PURPOSE :				CLASSIFICATION :	
SPIRE Progress & Interface Meeting					
PARTICIPANTS ATTENDEES	SOCIETE FIRM	SIGNATURE SIGNATURE	PARTICIPANTS ATTENDEES	SOCIETE FIRM	SIGNATURE SIGNATURE
Guy Doubrovik	ASP		John Delderfield	RAL	
Bernard Collaudin	ASP		Eric Sawyer	RAL	
Carsten Scharmberg	ESA		Doug Griffin	RAL	
Horst Faas	ASED		Bruce Swingyard	RAL	
Marco Cesa	ALS				
REDACTEUR / WRITTEN BY :					
Bernard Collaudin					
CONCLUSION :					
DISTRIBUTION : PARTICIPANTS / ATTENDEES	POUR ACTION : FOR FURTHER ACTION				
	POUR INFORMATION : FOR INFORMATION				
APPROUVE PAR / APPROVED BY					
NOM / NAME					
SIGNATURE / SIGNATURE					

		REF. : H-P-ASP-MN-5081_iss 2	
		SPIRE Progress & Interface	
		DATE : 30/06/04	PAGE : 2/34
COMPTE RENDU DE REUNION / MINUTES OF MEETING		LIEU / PLACE : RAL Chilton	

Agenda : see Annex 1

Actions status (see annex 2)

Actions from HP-ASPI-MN-4776 SPIRE IF Telecon 28-04-04

AI 1 SPIRE: SPIRE is requested to analyse all these inputs required for next IIDB issue, and to provide a corresponding delivery planning for next week in order to deliver the last IIDB input for beginning of June 04

Closed by mail from E.Sawyer dated 21/05

AI 2 ASED: ASED is also requested to analyse all these inputs required for next IIDB issue, and provide comments or answer: particularly for "Comments on SPIRE IID-B_3-2_RAL_JD With GD answers "

Closed by mail from H.Faas HP-ASED-EM-0519-04 dated 17/06/04

AI 3 ASED: ASED to provide SPIRE with proposed values to fill the table 5.7-2 "Ground thermal requirements"

Closed by mail from H.Faas HP-ASED-EM-0528-04 dated 17/06/04, but for IIDA

AI 4 ASED: ASED to check these new FCU & DCU QM ICD's (pack issue 11) and include corresponding agreement and/or comments in the foreseen proposal (fax) concerning SPIRE QM harness

Closed

AI 5 ALS: ALS to check this new FCU & DCU QM ICD's (pack issue 11) and send corresponding agreement and/or comments

Closed by mail from M.Cesa dated 20/05 with 5 files

AI 6 ASED: ASED to check this new MGSE ICD (pack issue 11) and send corresponding agreement and/or comment

Closed by mail from H.Faas HP-ASED-FX-0316-04 dated 10/05/04

AI 7 ASP/ALS: ASP and ALS to answer to mail from JD dated 27/04/04 " Re: WIH manufacturing » concerning mechanical harness interfaces

Closed by mail from B.Marchand H-P-ASP-LT-4846 dated 03/05

AI 8 ASED: ASED to check and answer to this L1 IF proposal SPIRE-RAL-NOT-001933

AI 9 SPIRE: SPIRE to provided for IIDB § 5.6 the new Thermal Strap IF configuration and isolation (new drawings/text/values)

Closed in the discussion below

AI 10 SPIRE: SPIRE to deliver detailed list of all necessary equipment to perform EQM tests

Should include the interfaces to electrical test equipments (weight, size (DRCU power supply for instance)

To be added in IID-B section 5.16

Still open New due date: 30/7/04

ACTION

Closed

Closed

Closed

Closed

Closed

Closed

Closed

Closed

Closed

SPIRE
30/7/04

Actions from H-P-ASP-MN-4307 SPIRE IF Meeting 10-02-04

AI 3 ESA: ESA to sort out the problem of availability of DRCU CQM 1 between HPLM EQM test & SPIRE FM test (summer/Autumn 2004)

Discussed during this meeting. **Action obsolete**

Closed
Obsolete

Actions from SCI-PT-27717 - SPIRE IF Telecon # 8 _ 26-05-04

		REF. : H-P-ASP-MN-5081_iss 2	
		SPIRE Progress & Interface	
		DATE : 30/06/04	PAGE : 3/34
COMPTE RENDU DE REUNION / MINUTES OF MEETING		LIEU / PLACE : RAL Chilton	

AI 1 ASED: ASED to provide real need date for DRCU during EQM campaign (Due date: next SPIRE I/F Meeting - 30.06.04).

Obsolete

**Closed
Obsolete**

AI 2 SPIRE: SPIRE to answer for FPU ICD, preferably by email or fax, to ASED with ASP & ESA in copy on the ASED comments (Due date: 2nd June 2004).

Closed

Closed by mail E.Sawyer dated 27/05, but to be completed by mail from H.Faas HP-ASED-EM-0483-04 dated 27/06

AI 3 SPIRE: SPIRE to answer for MGSE ICD, preferably by email or fax, to ASED with ASP & ESA in copy on the ASED comments (Due date: 2nd June 2004).

Closed

Closed idem AI 2

Actions from SCI-PT-24408 SPIRE Progress Telecon #6_ 03-03-04

AI 2 SPIRE: SPIRE to provide a technical note with all relevant details of the termination connectors not included in the HDD

Closed

Closed by "Making SPIRE ESD Safe 0-2.pdf" mail from D.Griffin 18/06

Actions from SCI-PT-21435 SPIRE Progress Telecon #2_ 29-10-03

AI 3 SPIRE: SPIRE to issue the Harness Definition Document version 1.2, which will reflect HDD1.1 plus update according annex 5 of SPIRE IID-B version 3.0 "SPIRE HDD 1.1 Deltas"

**SPIRE
31/8/04**

Still open new due date 31/08/04

For IID-B 3.3, SPIRE to complete the front page annex 5 (HDD deltas) with update of differences between current agreed configuration and HDD 1.1

**AI 7 SPIRE
07/7/04**

Actions from HP-2-ASED-MN-0387. AIV meeting.

AI 8 SPIRE: SPIRE to identify most sensitive noises mode in test sheet.

Closed

Closed by SPIRE EQM test plan 001905 issued in February (available on Livelink) contains these details and replace TN 982

[SPIRE EQM test plan 001905 to be checked by ASED](#)

AI 11 SPIRE: SPIRE to define power lines to be tested

Closed

For EQM, due to External power supplies, no CS test can be performed on power lines. Action Closed for EQM

[Still to be defined later for FM.](#)

SPIRE CR's status (see Annex 3)

Last CR is CR68 about drawing pack 11, which will be included in IID-B 3.3

IID-B 3.3 Syst CDR issue inputs status (see Annex 4)

See in annex 4 table from file " SPIRE IIDB 3.3 inputs_GD_23-06-04.xls", With included SPIRE comments (from file sent 30/06 by JD), discussed during meeting

		REF. : H-P-ASP-MN-5081_iss 2	
		SPIRE Progress & Interface	
		DATE : 30/06/04	PAGE : 4/34
COMPTE RENDU DE REUNION / MINUTES OF MEETING		LIEU / PLACE : RAL Chilton	

Focus on changes or inputs:

- To be fixed and/or agreed between SPIRE and ASP (see ASP proposals & comments)
- To be fixed and/or agreed between SPIRE and ASED (see ASED proposals & comments)
- SPIRE last received inputs to be completed (like 5.16, 6, 7, 9)
- Full sections still to be updated by SPIRE (like 4.8, 5.6.12, 5.14, Annexes)

RD List: Some documents will be updated very soon.

§4.8: Performance specification: (measurable scientific requirements)

This part cannot be updated now (issue 3.3) because of lack of manpower.

Action transferred to the Herschel Science team.

Fig 5.2-1: New Block diagram to be sent within 1 week to be implemented. Change between JFET & FPU. Hopefully without impact on interfaces (TBC).

§5.5 *mass:* CQM indicated compliance with mass table. Not relevant to update now.

§5.6.1.2: Thermal Straps:

ASED ask about(overall) verification of electrical insulation at low Temperature. (between ground lines & structure). Voltage should not be above 10V.

Replace all text & figure below SPIRE level 1 electrical insulation by:

"SPIRE L1 Electrical insulation is done internal to the FPU. See FPU ICD in Annex 1"

(done)

In L3 electrical insulation, remove "and Kapton on the JFET rack I/F. The impact of the Kapton tape at the JFET I/F belongs to the SPIRE thermal budget"

Replace figure 5.6-1 by figure in mail from J.Delderfield from 9/3/04

(done)

Table 5.7-1(In Orbit FPU temperatures & heat flows): keep as it is.

Table 5.7-2(On ground temperatures & heat flows): remove the table, keep only the 2 last column "non operating temperatures" as table moved in §5.7.1.4

Table of § 5.7.3 (SVM temperatures): remove 4th bullet

(done)

It is stated here that thermal behaviour of SPIRE warm units is compliant

SVM thermal analysis document has been added to FTP

. RD77 - H-P-RP-AI-0040_2_0 - SVM TCS thermal Analysis report.pdf

§5.7.5.3: Temperature monitoring

It is agreed to replace $\pm < 0.001K$ by $\pm < 0.008K$

It is agreed to remove the notes below the table (except note (1))

(done)

Table of §5.9.1: note below table

" Note: these table values are for information only, refer to SPIRE RTMM in Annex 2 of present IIDB"

(done)

		REF. : H-P-ASP-MN-5081_iss 2	
		SPIRE Progress & Interface	
		DATE : 30/06/04	PAGE : 5/34
COMPTE RENDU DE REUNION / MINUTES OF MEETING		LIEU / PLACE : RAL Chilton	

SPIRE anticipates a non conformance on the dissipation of the JFET in operation: (conductance of the Silicon nitride membrane + tracks).

The dissipation might increase from (42mW in model) or 50mW (for lifetime calculation) to 58mW (TBC).

This will affect the interface temperature & the lifetime.

SPIRE will try to solve the problem at the instrument level before issuing a RFW at higher level.

Table of §5.9.3: SVM dissipation:

It should be stated that tables have precedence on the ICD's. (also for mass)

Remove " When operating in spectrometry mode, the reduction in HSDCU power requirements and the associated reduction in conditioning losses in the HSFCU are TBD.": (done)

§5.9.6.1 : Long peak TBD's to be replaced.

SPIRE will propose update for long peaks (+ loan of LCL) in §5.9.6.1

§5.11.1:

SPIRE should re-express the following requirement:

In §5.11.1.2

Reference HP-SPIRE-REQ-0160

For the purpose of possible (up to 5 minutes) higher instrument data-rates, the bus interconnecting the instrument and the HCDMU shall have the capability of handling a telemetry rate of > 200 kbps TBC.

SPIRE confirm that they are compliant with the offered bandwidth (27 sub-frames/s in normal mode & 40 sub-frames/s in burst modes. The requirement

In §5.11.1.1 and §5.11.1.2 all values in Kbps (tables and requirements) should be replaced by values in sub-frames/s

IIDB Sections 5.11.1.1 & 5.11.1.2 to be re-edited (replaced by values in sub-frames/s) to reflect this agreement.

§5.10.4.3: Launch Latch confirmation: To be re-edited

§5.12.2: 1.5 arcsec r.m.s. (TBC) TBC can be removed (done)

§5.12.3 : Still to be discussed. TBC kept.

§5.15.1.2: New relaxed cooling requirement agreed. However, currently PACS is the driver

§5.16.2: EGSE : keep "test environment"

Quick Look Facility to enable testing of the instrument at system level. This will interface to the S/C test environment.

(done)

§5.16.4: Alignment cube is included on ICD and is a red tagged Item (to be removed after alignment)

AI 1 SPIRE
15/7/04

AI 2 SPIRE
15/7/04

		REF. : H-P-ASP-MN-5081_iss 2	
		SPIRE Progress & Interface	
		DATE : 30/06/04	PAGE : 6/34
COMPTE RENDU DE REUNION / MINUTES OF MEETING		LIEU / PLACE : RAL Chilton	

Section 7:

It is proposed to include in each instruments IID-B the list of TRS (test requirement sheets) in section 7

The test plan will be Applicable document in IID-A (move from RD to AD)

Currently:

RD30 - HP-2-ASED-PL-0021_2_0 - Instrument testing at HPLM EQM level.pdf

RD31 - HP-2-ASED-PL-0031_1_0 - Instrument testing at HPLM FM level.pdf

CQM integration:

It should be clarified what is the Status of the DRCU External Power supply unit (for QM1 only, as the QM2 has a Power supply).

ASED indicates that the baseline is to have the Power supply in a rack nearby the SVM assuming max 3 or 5 meters cable between power supply & DRCU on SVM simulator.

ASED to verify and freeze the DRCU Power supply configuration (and compatibility with tilting of the cryostat).

AI 3 ASED
15/7/04

SVM integration: refers to new proposed RD28. SPIRE Warm electronic integration plan, SPIRERAL-DOC-001132, Issue 0.1, 10/01/02

SPIRE will check the relevance of this document & update if necessary

AI 4 SPIRE
15/7/04

Section 9: Reference to RD25 for further details in each subsection.

Verification matrix gives the list of all tests.

Annex 1 includes drawing pack 11.

ASED will supply the FPU bolts

ASED will send the definition of FPU fixation bolts to SPIRE for approval.

AI 5 ASED
15/7/04

Annex 2: Model 2.5 is the latest now. Agreed

Annex 3: Harness: Current version of HDD is kept. Version 1.2 still expected.

Document on safing plugs has been delivered by SPIRE. ("Making SPIRE ESD Safe 0-2.pdf" mail from D.Griffin 18/06).

To be added in a new annex 6 of IIDB

SPIRE status : See SPIRE status report in **annex 7**.

SPIRE Technical status

CQM: Full inspection performed after cryo-vibration tests → no damage

2nd ILT in August 04

2K interbox straps poor due to copper/ Aluminium contact → use AL-CU welded joints.

Level 0 Straps: concern with flexible copper part (conductance lower than expected). Alternative suppliers are under evaluation.

Strap support inside cooler not used by SPIRE.

CRFP feet: FPU model broke during vibration unit test (on top of cone): under redesign

Warm electronics: released for QM2 manufacture (similar design to flight). Few weeks delay.

		REF. : H-P-ASP-MN-5081_iss 2	
		SPIRE Progress & Interface	
		DATE : 30/06/04	PAGE : 7/34
COMPTE RENDU DE REUNION / MINUTES OF MEETING		LIEU / PLACE : RAL Chilton	

FM: Structure manufacture except CRFP legs

Cooler on critical path

SMEC QM in assembly & test. No vibration yet on this delicate unit....

Will be first integrated on FM for testing.

BSM: Magnets became soft (magnetically) after baking → new material

Mirrors integrated. Alignment on progress.

AIV: QM Cold verification 2 starts in July.

SPIRE schedule

CQM will be ready for delivery 15/11 with DRCU QM1 (FPU could be ready before). QM1 to be returned to SPIRE until arrival of QM2

MCI tests to be performed after

QM1 usage sequence to be optimised.

FM Schedule FM FPU ready Oct 05 with QM2 DRCU

FM DRCU Nov 05

Problem with JFETs: all wire bond (to the JFET on membrane) broke on the FM units. Mitigation plan initiated → might become a critical for FM schedule

Optimisation of SPIRE delivery Schedule.

Incoming complete verification of SPIRE can be done only when the instrument is integrated with the cryo-harness (Instrument integration test (warm & open cryostat)). DRCU is needed only for this test, not before).

Then the next time is when the cryostat is closed (SFT1), few months after

Then for cold conditions (SFT2 & 3)

~~SPIRE needs the DRCU QM1 up to end of 2004 (with the exception of the time needed to check the instrument at ASED if cryo-harness could be used between DRCU & FPU)~~

SPIRE DRCU QM1 is existing at RAL. SPIRE will fully support industrial need dates for the DRCU during EQM campaign.

SPIRE will not perform a bench FPU checkout after delivery to ASED, because no dedicated SPIRE test harness between FPU and WU's is available.

SPIRE DRCU will be made available at ASED for SPIRE FPU checkout, once the SPIRE FPU is integrated together with the relevant EQM cryoharness.

During phases, when DRCU QM1 is not needed at ASED until end of 2004, SPIRE will use DRCU QM1 at RAL in order to support their PFM program.

Mechanical IF Issues:

Update of ICD pack 11 (for FPU + Lx IF, MGSE, real drawings of QM1) status

Ref CR status

SPIRE Level-0 thermal strap IF: Status of manufacturing and testing

Discussed here above, and Ref SPIRE presentation in annex 7

Status of FPU Support re-design: Status of new design, manufacturing and testing

Ref SPIRE presentation in annex 7

		REF. : H-P-ASP-MN-5081_iss 2	
		SPIRE Progress & Interface	
		DATE : 30/06/04	PAGE : 8/34
COMPTE RENDU DE REUNION / MINUTES OF MEETING		LIEU / PLACE : RAL Chilton	

MGSE: Safing plugs present, impact to be checked

FPU safing plugs are about 20 to 30mm long

ASED concern is the depth of this safing plug on JFETs: not enough space is available between SPIRE & the vent line. ASED ask for the possibility to remove them for the last 40cm during SPIRE FPU integration on OBA.

SPIRE answer is that they are not so much in favour of removing the safing plugs (for ESD reasons). There is some flexibility between FPU & JFETs (supported by cables).

FM safing plugs will be designed thinner.

SPIRE WU IF (if needed)

No updates for warm units.

SVM harness & WIH flexibility is 10mm (if all harness fixation are used)

Thermal IF Issues:

Provision of updated Herschel EPLM TMM (Thermal Report, Issue 4.0):

Feedback from SPIRE ?

H-PLM thermal analysis document issue 4 is available at SPIRE.

Astrum proposes that there is a chance to integrate an update of the SPIRE model in the cryostat model (up to October 2004)

Table in **annex 5** gives the ASED proposed ground thermal environment.

On-ground thermal IF FPU temperatures proposal from ASED

It is proposed to include this ground environment for SPIRE (& other instruments) FPU in IID-A rather than IID-B, & keep the requirement that instruments should be testable on ground.

In 7.2.2: add "PFM cryostat will provide environment allowing to test the instruments."

Remove all section 7.2.3

Keep "non operating temperatures" table only in IID-B (in §5.7.1.4 as said here above)

Electrical IF Issues::

SPIRE Cryo-Harness Clarifications : shielding implementation (exchange of

email between J.Lang and Doug Griffin), ref. HP-ASED-EM-0524-04



Update agreed & implemented.

SPIRE WIH and SVM harness

SVM harness & WIH flexibility is 10mm (if all harness fixation are used)

AIT Issues:

Initial ASED comments on updated AIT documents

		REF. : H-P-ASP-MN-5081_iss 2	
		SPIRE Progress & Interface	
		DATE : 30/06/04	PAGE : 9/34
COMPTE RENDU DE REUNION / MINUTES OF MEETING		LIEU / PLACE : RAL Chilton	

ASED propose a list of relevant AIT documents (in **annex 6** of these minutes) to be reviewed by SPIRE

SPIRE will review this list of AIT documents and provide comments and update of documents if needed

**AI 6 SPIRE
15/7/04**

AIT meeting expected in end August/beg Sept to prepare for the SPIRE test specification & procedures.

CQM delivery, / DRB

ESA (JR) is writing a DRB procedure, to be checked by all parties before formal issue.

Other Issues:

Verification of the ASED Harness database against SPIRE test harness.

ASED would come with the test equipment (IDAS)

2 days are needed.

Access to both sides of the harness on the test equipment.

Possible dates are mid Sept 04 to mid Oct 04.

H-EPLM EMC test Plan HP-2-ASED-PL-0037 has been handed over to SPIRE (and ESA/ASP).

SPIRE to review and comment this document, and to propose data for the TBD.

Rem SPIRE EQM test plan 001905 issued in February (available on livelink) may contain most of the answers.

**AI 8 SPIRE
15/7/04**

It is proposed to organise Technical meetings (ASED/ASP + SPIRE) in order to prepare the EMC test specification / Procedures.

**AI 9
ASP/ASED
15/7/04**

JFET L3 Pressure Plate and bolts (2 or 3 sets, i.e. STM/PFM, EQM und Tests at Sener)


2 pressure plates have been delivered to ASED during the meeting

16 L1 bushes will be sent to ASED by mail.

Next SPIRE IF Meeting :

Progress Telecon #9: 23rd July 04

IF Meeting : 29 September 04

	ACTION ITEM LIST	REF. : H-P-ASP-MN-5081_iss 2
	MEETING TITLE: SPIRE Progress & Interface Meeting	DATE : 30/06/04
	HERSCHEL/PLANCK	PAGE : 10/34

ACTION			DATE
N°	DESCRIPTION	ACTION Firm / person	DUE
1	IID-B 5.9.6.1 Long peak TBD's to be replaced. SPIRE will propose update for long peaks (+ loan of LCL)	SPIRE	15/7/04
2	IIDB Sections 5.11.1.1 & 5.11.1.2 to be re-edited (replaced by values in sub-frames/s) to reflect this agreement. (27 sub-frames/s in normal mode & 40 sub-frames/s in burst modes).	SPIRE	15/7/04
3	ASED to verify and freeze the DRCU Power supply configuration (and compatibility with tilting of the cryostat)	ASED	15/7/04
4	SVM integration: refer to new proposed RD28. SPIRE Warm electronic integration plan, SPIRERAL-DOC-001132, Issue 0.1, 10/01/02 SPIRE will check the relevance of this document & update if necessary	SPIRE	15/7/04
5	ASED will send the definition of FPU fixation bolts to SPIRE for approval.	ASED	15/7/04
6	SPIRE will review this ASED list of relevant AIT documents (in annex 6 of these minutes) and provide comments and update if needed	SPIRE	15/7/04
7	For IID-B 3.3, SPIRE to complete the front page annex 5 (HDD deltas) with update of differences between current agreed configuration and HDD 1.1	SPIRE	7/7/04
8	SPIRE to review and comment the document "H-EPLM EMC test Plan HP-2-ASED-PL-0037", and to propose data for the TBD	SPIRE	15/7/04
9	Organise Technical meetings (ASED/ASP + SPIRE) in order to prepare the EMC test specification / Procedures.	ASED/ASP	15/7/04