

**Minutes of SPIRE Project Team Meeting 11    SPIRE-RAL-MOM-000712  
RAL 21 May 2001**

Present: Jean-Louis Augueres (most), Eric Clarke (parts), John Delderfield (part), Doug Griffin, Matt Griffin (most), Ken King, Eric Sawyer, Bruce Swinyard,

**Agenda:**

**1    Review of outstanding actions from previous meetings**

No. PT-04-xx	Actionee	Description	Priority	Deadline	Status
01	KJK	Write WE integration and test plan	High	Oct. 2001	<b>Still Open. Needed for IBDR.</b>

No. PT-06-xx	Actionee	Description	Priority	Need and Date	Status
03	JD	Identify what connectors needed for FPU so that this information can be fed into the CPP programme in time for the 12/13 Dec. meeting	High	May 15	<b>Closed with input sent to Technologica</b>

No. PT-10-xx	Actionee	Description	Priority	Deadline	Status
01	BMS To be done by DG	Issue guideline for FME which should be included as part of subsystem DDR documentation	Medium	May 18	<b>Still Open - Eric (Clarke) will see if there is an existing document we can use - Due date changed to 31<sup>st</sup> May</b>
02	MJG	Review Jason Glenn's proposal for FTS feedhorns, do necessary modelling and tradeoff, consult with Jean-Paul, and decide by writing a formal design note.	High	May 25	<b>In progress - discussion note circulated. Formal decision foreseen at July consortium meeting.</b>
03	JD	Provide list of items in the IID-B for which SPIRE needs information from Alcatel side to define.	Medium	May 18	<b>Still Open - Bruce will give his inputs to John who will add them to his list and send it.</b>
04	MJG	Arrange for QMW to evaluate filter suppression.	Medium	May 31	<b>Peter Hargrave has been asked to do this. Not yet Done. MJG to chase up.</b>
05		Revise and reissue the DDR plan note circulated previously.	High	May 11	<b>Open. To be discussed at this meeting in light of Cooler DDR outcome. Now High priority. Due date changed to 25<sup>th</sup> May</b>
06	KJK	Write list of what RAL PA person should be doing at this stage	Medium	May 31	<b>Closed</b>
07	KJK	Speak informally to Pierre Olivier about what ESA think is appropriate for PA	Medium	May 31	<b>Abandoned - not seen as such a good idea</b>
08	KJK	Send comments on CEA-JPL MOU to SAp and JPL	High	May 11	<b>Still Open</b>

09	BMS	Write short note on SPIRE ideas for revised spacecraft AIT programme	Medium	May 18	<b>Still Open - to be completed by May 25<sup>th</sup></b>
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**General comment :** We need to keep an open items list, not just a list of actions - agenda will be changed to incorporate this

## 2 Project Management Issues

Format of PT meetings:

A standard format for the agenda will be adopted even though certain sections may not be addressed at every meeting.

### 2.1 Management Reporting and Control

Progress reports:

- KJK received nearly complete set this month.
- Formats and contents are highly variable.

Action 1: KJK and ES to review the standard template (as used e.g. by QMW) and issue new version to be adopted by all institutes in future. Deadline = to be sent out in time for this months reports.

### 2.2 Document change and configuration control

- BMS/KJK/JD met to discuss BMS proposal.

Action 2: BMS, DG and JD to discuss and agree scheme. Deadline = May 23

New Management Structure

- This will come into operation somewhat later than intended. ES is busy on Rosetta until end of
- May and on holiday from 11 June
- Effectively working on SPIRE from beginning of July

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### 2.3 PA

EC is producing a contents list for ADPs

### 2.4 Business Agreements

#### 2.4.1 JPL Business Agreement

This is nearly finished

Action 3: BMS to provide MJG with latest/definitive version of BDA SSSD and approved Rec./Dels. list incorporating known or estimated dates for Rec/Dels Deadline = May 23

Action 4: MJG to produce new version of the and send to JPL for final review (esp. of Rec/Del dates) Deadline = May 28

#### 2.4.2 JPL-CEA MOU

- Has been commented on by MJG, BMS, KJK
- General comment: MoU needs to be revised to present items provided by RAL as for information only.

Action 5: KJK to send Project Team comments to JLA/LV. Deadline = May 28.

## 2.5 Schedule:

- SAp have studied implications of PSU procurement problem on DRCU schedule and options for addressing the issue
- SAp are looking at three options:

1. Setting up contract with one approved supplier.

This could allow procurement to start more rapidly. This is not the normal procedure for this type of contract and would require authorisation by CEA administration - that may not happen. They will know in a couple of weeks. JLA is not confident that this option will be possible.

2. Give up the FCU QM2 and go directly to FM (The DCU part can be qualified independently).

Some other electronics would be needed for testing the instrument FM. Very risky approach.

Qualifying DCU and FCU separately not a problem.

3. Have a separate PSU box. Build QM2 and deliver it to RAL for PFM testing with a useable external power supply. This takes the PSU off the critical path. It would need extra mass on the SVM and extra money. Component costs should go down a bit though. Extra box around 3 cards.

- If Option 1 is not possible then SAp prefers option 3.
- Could it be done without using a separate box?

## 3 Instrument Issues

### 3.1 DRCU Specification

Action 6: Christophe Cara to circulate draft spec. Deadline = May 25. This needs approval ASAP to proceed with the PSU procurement - by beginning of July.

Specification to be reviewed by JPL (Viktor) and RAL (John)

This will also be discussed in JPL telecon tomorrow

### 3.2 OBS and Instrument Control

Not discussed

## 4 ICC Issues

Not Discussed

## 5 Meetings:

### 5.1 Detailed design Reviews

#### 5.1.1 Report on Cooler DDR

- This review was not of the subsystem but of that institute's deliverable (the cooler) - this is the appropriate way to run the DDRs but poses a problem for subsystems that span several institutes provision.
- Project hasn't got time or resources to write another layer of documents between subsystems and units to be supplied
- Cleanliness requirements and PA plan need attention
- Procedures for AIV etc. should be identified at this stage
- Tolerance on cold-tip position needs to be specified - for SPIRE it doesn't matter. May be more relevant for PACS

- Need for electrical specification document to set requirements on the FCU
- General point on internal harnesses: requirements are similar for all - may be advantageous to have a single procurement scheme

Action 9: ES to investigate RAL doing internal harnesses for all subsystems. Deadline = 8<sup>th</sup> June (TBC)

General conclusion: In addition to unit level reviews we need to review the subsystems. How this is to be done is TBD.

### 5.1.2 Planned Dates for other DDRs

Latest summary:

- Mirrors: Any time after 8 June
- FTS: Some time in July . Issue of power dissipation. Should MCU and FTS be reviewed separately or together.
- DRCU: Best to review the different parts separately. DCU in July. PSU - urgent to sort it out - try to do it with the DCU.
- Structure: Not decided yet. Thermal straps will need a delta review.
- DPU: Not decided yet
- AIV-EGSE: Internal RAL review of cryostat design to be held June 8. Decision on DDR date after that.
- BDAs: To be discussed at tomorrow's telecon.
- Filters/calibs: August 6, 7
- BSM: To be confirmed today for July sometime
- Shutter PDR: July 17

Action 10: KJK to update DDR list of dates after today's telecon. Deadline = to be incorporated in these minutes . (Note after telecon - no-one from the relevant institutes were available at the telecon so no update to the list could be made.)

### 5.1.3 DDR Note Update

KK & ES to ensure that DDR note indicates whether a subsystem or unit is being reviewed

### 5.1.4 Preparation for DDRs

Not discussed

## 5.2 Planned Technical meeting with Alcatel

Alcatel propose:

- Meeting 1: June 25 or 26. June 26 preferred by SPIRE. John to confirm availability Most important issues are: thermal models; JFET dissipation; IID-B page-by-page review; interface definition.  
Early Sept not suitable Late Sept preferable.
- Meeting 2: First week of September not possible. Last week of September should be OK.
- Meeting 3: Late November. Date TBD

Action 7:KJK, BMS, JD, DKG, ES to e-mail MJG with availability for last week of Sept. Deadline = May 23.

Action 8:Christophe to complete Design Desc. and interface document.. Deadline = 31st May for them to be reviewed by end of June

## 6 Progress on Open Issues

### 6.1 FET dissipation and thermal modelling:

- This will be discussed at tomorrow's telecon with JPL
- Preliminary conclusions/priorities:  
JPL activity needs to concentrate on getting reliable/complete thermal model (incorporating results of impending tests) of thermal and electrician behaviour of the JFET modules
- Analysis based on simplistic/invalid JFET and thermal models so far indicates:
  - Lifetime is not a big issue
  - Operating JFETs non-optimally at low power may be preferable to operating optimally at higher power
  - Thermal stability may be a problem that imposes constraints on operations
  - Biggest concern is on absolute temperature of level 1: thermal background and cooler performance
- Some technical questions that need clarification:
  - What sets of detectors correspond to the individual JFET modules? - this dictates which detectors can be switched off if only some of the modules are powered. E.g.:
    - Can we turn off half of the JFETs for Jiggle-map mode?
    - Can we turn of most for point source photometry
  - All this should be written in the design description and ICD anyway
- Multi-node dynamic thermal model of the cryostat/optical bench has now been provided by ESA.
- Sam Heys's priorities for modelling should now be
  - Incorporating this in SPIRE model to develop full dynamic model
  - Evaluating (with Lionel) the impact of elevated Level-1 temperature on the cooler hold-time
  - Running the model for a grid of options to allow implications of JFET and SMEC dissipation to be assessed

Action 11: DKG to request that Lionel to work out cooler hold time vs. Level 1 temp. (over 4-8 K range), assuming fixed 0.3 K load. Deadline = May 25 for request; ASAP for analysis.

### 6.2 Optical encoder Straylight

Not discussed

### 6.3 Failure Mode Analysis

### 6.4 IID-B update

- JD is working on IID-B general updates. New harness tables will be finished this week.
- Figures for alignment accuracy of the FPPPU on the optical bench and the telescope wrt the optical bench need to be corrected.

Action 12: JD to send IID-B Chapter 5 update to ESA and Alcatel. Deadline = June 1

## 7 AOB

Nothing riased

## 8 Summary of new actions from this meeting

No. PT-11-xx	Actionee	Description	Priority	Deadline	Status
01	KJK, ES	Review Monthly Report standard template and issue	High	To be sent out in time for this	

		new version to be adopted by all institutes in future.		months reports.	
02	BMS, JD, DKG	Agree scheme for document configuration and change control	High	May 23	
03	BMS	Send MJG latest BDA SSSD and list of Rec/Dels with dates		May 23	
04	MJG	Revise JPL BA accordingly and circulate new version		May 28	
05	KJK	Send comments on JPL-CEA MoU to CEA and JPL		May 28	
06	C. Cara	Circulate draft DRCU spec. doc.		May 25	
07	All PT members	E-mail MJG with availability for meeting with Alcatel in last week of Sept.		May 23	
08	C. Cara	Complete Design Desc. and interface document		May 31	
09	ES	Investigate possibility RAL doing internal harnesses for all subsystems.		June 8 (TBC)	
10	KJK	Update DDR dates list following today's Project Managers' telecon		May 23	Closed
11	DKG	Request Lionel Duband to work out cooler hold time vs. Level 1 temp. (over 4-8 K range), assuming fixed 0.3 K load.		May 25 for request; ASAP for analysis.	
12	JD	Send IID-B Chapter 5 update to ESA and Alcatel		June 1	