

**Minutes of SPIRE Project Team Meeting  
RAL, 18 Sept. 2000**

**Present: Bruce Swinyard (Chair), Matt Griffin, Ken King, John Delderfield, Dave Kelsh (for items 1 and 2)**

**1. Review of actions from last PT meeting (6 September)**

No.	Actionee	Description	Priority	Need and Date	Status
01	BMS/ KJK	Formalise the new programme for the CQM/STM by agreeing it with all relevant consortium groups and produce consolidated schedule.	High	For technical meeting Draft 30/9/00	Open - needs to be high priority for tomorrow's PM telecon
02	JD	Review framework and format for Instrument Design Description and clarify and revise the top-level document tree.	High	For Systems Review Outline document by 30/9/00 Final draft 30/10/00	Open. BMS and JD will meet Wednesday week. Will discuss with KJK later.
03	MJG	Revise and tidy up Science Requirements Document	Med	For Systems Review Final Issue 30/10/00	Open
04	JD	Digest the current interface control scheme and consult with Bruce and Colin on devising a more workable scheme	Urgent	Complete by 30/9/00	Open
05	KJK	Produce revised Instrument Development Plan	High	For technical meeting Draft 30/9/00	Open - all effort should be made to progress this.
06	BMS/ MJG	Draft top level criticality analysis with emphasis on impact on scientific performance; OBS and degraded modes.	Med	For Systems Review Draft 30/9/00	Open.
07	BMS	Request sub-system level criticality analysis for input into system level criticality analysis	High	Send request by 8/9/00	Open. BMS and MJG to meet at QMW 29 Sept. on this.
08	MJG	Raise parallel mode with Albrecht Poglitsch at November FST	Low	For Systems Review Draft response 20/11/00	Open
09	BMS	Request ESA to respond on the question of the cryoharness technology	Urgent	Cal. Facility procurement e-mail by 8/9/00	Closed. Awaiting response.
10	MJG/ BMS /KJK	Write formal response to ISVR board report	High	Technical Meeting Draft 30/9/00	Make start on 29 Sept.
11	BMS	Send out agenda for Thermal and Electromechanical summits	Urgent	For summits e-mail 8/9/00	Closed.
12	BMS	Set dates for EMC; Control and WE summits	High	Summits need to be complete by mid October. Send e-mail by 15/9/00	EMC open: being arranged by CRC. Cont/WE closed: BMS has sent out e-mail. Suggesting 16-19 Oct. JJB and VH. BMS to confirm dates today.
13	BMS	Set agenda for next project team meeting	High	15/9/00	Closed.

14	MJG	Approach Albrecht Poglitsch; Thijs De Graauw and Thomas Passvogel about setting up another commonality meeting	Med	Information needed for Systems Review Set date by 30/9/00	Open. Change to: include on agenda for Technical team meeting.
15	KJK	E-mail sub-system managers to remind them of the need to re-write/re-format/comment SSSDs in line with BMS review note by 30/9/00	Urgent	For discussion at weekly PM telecon 8/9/00	Closed - has been given as an action at PM telecon. Needs to be re-iterated tomorrow.

**Some notes on the action status:**

**No. 1:** KJK reported on last week's PM telecon:

- All managers were supposed to review and confirm by Friday - no-one has done so yet. Those that have confirmed verbally include:
- LAM
- ATC have discussed it at LAM - and are looking at it.
- JPL and QMW: both said they'd come back by end of week
- MSSL: BW is content with the idea, but detailed response awaited

**No 5:** This is the most important action - a very high priority for SPIRE. The level of activity on this is insufficient. KJK will emphasise its importance to institute PMs. Serious work will be needed on the overall DP in early October, so high quality input is needed from the institute managers before the end of September.

Thomas Passvogel said informally last week that ESA may convene a meeting on model philosophy for FIRST - this is a good idea - we'll raise it at the Oct. 11 meeting.

**No 15:**

There was discussion of the proposed format for the subsystem specification documents at the Electro-mechanical summit at LAM. Dominique is of the opinion that the specification document should be minimalist in its content and design independent so that LAM can hand it to any potential supplier. In parallel with the specification doc. they are preparing a very much more detailed design description document that contains their proposed design. Whilst this may be fair enough it makes it very difficult to construct and trace the requirements compliance matrix. BMS has asked LAM to provide a series of annexes to their spec. doc. to allow a straightforward compliance matrix to be constructed – they have agreed to do this.

We will ask other sub-systems to conform with the format laid out in the note sent out by BMS. Those FPU sub-systems specifications that are in reasonable shape, or will be following relatively minor revisions, are:

Detectors, SMEC, BSM (will be), Filters

Those where the content exists but need more intensive effort.... Calibration Facility; AIV cryostat

Those in a bad state bad state..... Calibrators

A requirements document now exists for the shutter that will replace the IRD content.

For the warm electronics the situation is less clear:

DRCU: Detector electronics - don't know - work in hand

Mechanism control - should be OK

Rest of DRCU - don't know – are the requirements clear here?

DPU: Specification document content is o.k. but document structure needs revision

OBS: *Ditto* – are the requirements clear here?

Action needs to be re-iterated at the weekly PM telecon..

## **2. Reports from recent meetings**

### **2.1 Contamination working group (Meeting Tues. 11 Sept.)**

- BMS attended for SPIRE.
- ESA have a large group of people working on this issue.
- Our view is that contamination issues for Planck and FIRST are very different. SPIRE's requirements are less stringent than for ISO.
- ESA have asked for detailed analysis and risk assessment for particulate contamination within the instruments.
- The next meeting arranged for 29 October. BMS and PACS representative said meetings every 6 weeks too frequent. SPIRE will say at technical meeting on Oct.11 that this probably not necessary.
- Three useful documents were distributed at the meeting on scattering in the submm by dust on reflectors and will be put on the SPIRE DMS area.
- Black paint was discussed: BMS took action on PARA's behalf to provide samples of QMW black. ESA will then do various qualification tests on it.

**Action 1: BMS to include black material as issue for thermal summit at QMW next week. (Deadline: 24 Sept.).**

**Action 2: BMS to write technical note on contamination requirements as answer to ESA action and input to PA plan (Deadline: Sept. 30)**

### **2.2 Parts Procurement Meeting at Technologica on 14 September**

- KJK and Renato Orfei attended for SPIRE.
- Technologica and Top-Rel have both been chosen as parts procurement agents, with Technologica are the sole point of contact for the instruments.
- They want to know the "users" - people who will make purchase orders - for each instrument:  
For SPIRE, the users should be
  - RAL for all UK institutes
  - CEA and/or LAM for France
  - IFSI for Italy
  - JPL for USA (TBC by Jerry Lilienthal)
- The Parts Co-ordination Board will approve the parts list. SPIRE representatives: Renato Orfei (IFSI) and Valerie Maugeun (CEA) - maybe one more from the UK.
- Parts will be split into four types depending on how soon they're needed. We are asked for need dates (currently around May - Dec. 2002) For long lead items, purchase orders will be needed by ~ December.
- KJK can't make next meeting (clash with SPIRE technical meeting at ESTEC) - should be OK for RO and VM to take care of SPIRE interests.

**Action 3: KJK to get Jerry Lilienthal to nominate JPL "user" (Deadline: PM telecon)**

**Action 4: KJK to tell Technologica who the SPIRE contacts are (Deadline: After info received)**

JD will take responsibility for putting together the requirements and list for connectors and thermistors

### **2.3 EGSE meeting (6 September)**

- KJK attended for SPIRE
- Purpose was to review EGSE URD but wider FSC-related issues dominated
- Many actions to review documentation

## 2.4 FGSAG meeting (7 September)

- TGD and KJK attended for SPIRE.
- Active groups at present are the EGSE group and the Ground Segment group.
- TGD, NT and SS attend Ground Segment groups; KJK and SS attend EGSE group.
- The FGSAG is to oversee and advise on co-ordination of their work.
- FGSAG supposed to meet ~ twice per year.
- Outcome of this meeting: Plan of action/priorities to be produced by EGSE group (this will help to guide the SPIRE ICC Definition Team)

Comment: The SPIRE being asked to do a lot of specialised work by ESA on Ground Segment definition - need to get some key people to get appropriate training (KJK to consider)

## 2.5 Electro-mechanical Summit (LAM 13 and 14 September)

- Attendance: LAM team + BMS, Ian Pain, Brian Stobie from the ATC
- Interface between DRCU and DPU needs clarification: this interface should be controlled by Christophe Cara as WE Systems Engineer at CEA
- SMEC prototype works in spite of some mechanical breakages
- BSM redundancy: proposed shorting out of coils on launch may lead to single-point failure arising from cross-coupling of the two sets of electronics - to be studied.
- ATC schedule slip - worries about this and various aspects of the BSM development plan

**Action 5: MJG to discuss BSM programme and schedule with ATC Co-Investigator.**

## 3. Report by KJK on PM telecon

- Various minor technical issues
- CEA want to install RF filters in the connectors (as for PACS) - but for SPIRE we should keep to the existing agreed design: RF filter modules will be separate (provided by JPL)
- Low-speed serial link to DPU has been changed to make it work faster
- AIV: Dave Smith is clarifying and documenting the QMW contribution: document is being prepared for agreement by Peter Hargrave and Alex Ellery
- LAM want the optical design review in January and need the stray light analysis before then (Tony Richards is working on this - will be done by December)
- Cryocooler for STM: SPIRE wants the CQM cooler delivered for the STM (see STM programme note by BMS)

**Action 6: KJK to request managers to nominate an alternate for any periods when they are on vacation (Deadline: Next PM telecon - Sept. 19)**

## 4. Forthcoming meetings

<b>Meeting</b>	<b>Date</b>	<b>SPIRE attendance</b>
Thermal Summit (QMW)	25, 26 Sept.	BMS, JD, MJG
PACS ISVR	22 Sept.	BMS to attend
EGSE support meeting	TBD	KJK to attend
CDMS meeting	TBD	RO for SPIRE
EMC summit	TBD	Various
FGSSE/EGSE	9, 10 Oct.	SS, TGD
Technical meeting with ESA	11 Oct.	MJG, BMS, KJK

Parts Co-ordination Board	11 Oct.	RO
On-Board Software (Rome)	13 Oct.	KJK, SS
Warm electronics and operations (RAL)	18-20 Oct.	Various
ICC URD and ORAC Demo (ATC)	19, 20 Oct.	TGD, NT, SS
SPIRE Systems and Interface Review (RAL)	22-24 Nov.	Many

## 5. Preparation for November Review

### Purposes of the Systems Design Review:

- Purpose – a formal review to show that the instrument systems design is mature, thoroughly understood and properly documented – to this end we will....
- Present the instrument and its operating modes as a system based on the breakdown given by BMS in the “Alternative Model Philosophy” note
- Present the system level requirements imposed by the instrument design; the FIRST satellite and the ground segment
- Present the instrument development and test philosophy and the requirements this places on the instrument development plan
- Show how the system requirements flow down to the subsystems
- Present the documentation tree
- Present the interface control scheme
- Present the instrument development plan

### Format for the review:

- Formal review with external panel chaired by Thomas Passvogel (or replacement payload manager) with ESA representation and “neutral” external participation (Otto Bauer; Dieter Beintma?)
- Presentations will be made by SPIRE project team members with system level responsibilities. (MJG;BMS;JD;KJK;CC;BW;CRC;TGD). We do not expect sub-system level presentations to be necessary although it may be possible we call on experts (KjD; AGR; SH; JJB) to present detailed aspects of the system implementation.

### Purposes of the Interface Review:

- SPIRE Internal Review of major interfaces within the SPIRE instrument and to the FIRST satellite; ground segment and GSE.
- Show which interfaces exist and which of these will drive the instrument/sub-system design(s)
- Present the proposed implementation for the major interfaces and show that it will meet the system requirements/budgets. Less emphasis on the very detailed implementation, which is the responsibility of the subsystem engineers
- Freeze critical/major interfaces there and then or soon afterwards so that detailed design can proceed
- Verify subsystem qualification status and plans
- Verify subsystem development plans
- Identify and allow procurement of long lead time items

### Interface Review Format:

- Internal panel: BMS, JD, CRC, BW, CC, KJK - each has own specialism plus a good understanding of the overall system design. External participation not essential (try getting away without it!)).
- Each interface to be presented by someone NOT on the panel (This may be difficult for the structure interfaces?)
- Review interfaces with FPU on day 1 and electrical/operations day 2 (TBC)

**Required preparation for these reviews:**

- BMS has a list of key interfaces - to be discussed with JD
- It must be a review of documentation made available in good time – we need to....
  - Sort out documentation tree
  - We need JD's proposed format for system level documentation ASAP
  - Rewrite/format existing documents accordingly
  - Generate new documents as needed
  - Review whole package prior to the formal review
  - We need a detailed plan for review preparation (similar in format to that produced for the June PDR)
    - Documentation
    - Agenda
    - Programme of deadlines
    - Logistics

**Action 7: BMS/KJK to produce draft Review Preparation Plan (Deadline: Sept. 25) for finalisation at the next PT meeting on Oct. 2. The review plan will be circulated to all participants in the review on Oct. 3.**

**6. Development Plan status**

See above - establishing the Development Plan is a high priority.

**7. Date of next meeting**

Monday Oct. 2 at RAL

Main agenda items:

- November review plan
- Documentation tree
- Development Plan status
- Preparation for Oct. 11 meeting with ESA

**8. AOB**

**PT meeting attendance:** In discussion with MJG, Laurent Vigroux suggested that CC or JLA could participate in PT meetings say every 6 weeks or so. It was agreed that this is a very good idea. The next meeting on Oct. 2 would be devoted mainly to planning for the November review - it would be very useful if one of them could attend that one.

**Action 8: KJK to mention this at next PT telecon**

**Livelihood:** This is proposed by ESA to replace DMS soon - KJK will evaluate it

**Web pages:** Deferred to next meeting.

## 9. Summary of actions

No. PT-02-xx	Actionee	Description	Priority	Deadline	Status
01	BMS	Raise black coatings issue at thermal summit	Med	Sept. 24	
02	BMS	Write technical note on contamination requirements as answer to ESA action and input to PA plan	Low	Sept. 30	
03	KJK	Ask Jerry Lilienthal to nominate parts proc. "user" at JPL	Med	Sept. 19	
04	KJK	Inform Technologica of SPIRE "users"	Med	Sept. 25	
05	MJG/ KJK	Discuss BSM Development plan and schedule with ATC	High	Sept. 30	
06	KJK	Request all institute managers to nominate alternates whenever they are away	Med	Sept. 19	
07	BMS/ KJK	Produce draft Review Preparation Plan for <u>finalisation</u> at the next PT meeting on Oct. 2.	High	Sept. 25	
08	KJK	Invite JLA or CC to next PT meeting on Oct. 2	High	Sept. 19	