

**Minutes of SPIRE Project Team Meeting
RAL, 6 Sept. 2000**

Present: Bruce Swinyard, Matt Griffin, Berend Winter, Alex Ellery, John Delderfield

1. Review of Project Team membership, function and organisation

This was the first meeting of the SPIRE Project Team. Matt Griffin outlined the purpose and envisaged mode of operation of the team as follows:

- Taking into account the need, identified at the ISVR, to extend and to organise the SPIRE Project co-ordination and Systems Engineering activities, two principal measures were being taken:
 - (i) the appointment of John Delderfield as SPIRE Systems Engineer, and the recruitment (currently in progress) of an Assistant Systems Engineer/Scientist to work closely with the Systems Engineer and the Instrument Scientist;
 - (ii) the establishment of the core Project Team as a formal body.
- The main functions of the Project Team will be as follows:
 - (i) to consider, prioritise and monitor all SPIRE System Engineering activities
 - (ii) to organise system-level meetings as appropriate
 - (iii) to define the format for and organise the consortium-wide preparation for SPIRE reviews and technical meetings with the ESA

The combination of the Project Team meetings and technical meetings ("summits") that it decides to organise, will cover the role previously played by the SPIRE Systems Team (which will no longer exist in its previous form).

- The core Project Team membership will be as follows:

Instrument Scientist	Bruce Swinyard (BMS)
Project Manager	Ken King (KJK)
PI	Matt Griffin (QMW)
SPIRE Systems Engineer	John Delderfield (JD)
FPU Systems Engineer	Colin Cunningham (CRC) [usually by telecon]
FPU Mechanical Engineer	Berend Winter (BW)
ICC Development Manager	Trevor Dimbylow (TD)

Other SPIRE team members would be invited to attend when appropriate, depending on the agenda and their availability.

- The meetings will be chaired by the Instrument Scientist and will normally be at RAL once every two weeks, working to an agenda prepared in advance.
- Although not to be run in a very formal way, meetings will be minuted to provide a concise account of the key points and an action list.
- Meetings of this group are expected to help define some important issues to be raised in the weekly management telecons organised by the PM.
- One of the most important functions of the Project Team will be to facilitate and assist in the work of the consortium as a whole. For practical reasons, mainly the need to meet regularly with minimum travel, the core team does not include various key people from locations distant from

RAL. The Project Team will make special efforts to communicate and consult effectively with the rest of the consortium. Its minutes will be circulated to all institute managers.

2. Introductions

Matt Griffin introduced Alex Ellery, the newly appointed QMW FIRST/Planck Programme Manager, who was attending this meeting as an observer to help him become acquainted with the current status of the SPIRE project.

3. Review of ISVR report

- **Systems Engineering Effort:**

JD now on board

Two SPIRE related jobs advertised externally.

- **Schedule has no margin.** Proposed new model philosophy offers some hope of getting some margin into the schedule (1-2 months by 2004). Not yet formally agreed by project and we don't have a consolidated schedule to which all sub-system suppliers have signed up.

Action 1: BMS/KJK to formalise the new programme for the CQM/STM by agreeing it with all relevant consortium groups. No action on schedule consolidation since June review. Ken needs to bash schedule into shape ASAP. (Deadline = 30 Sept.). Will require some negotiation with JPL and LAM especially.

- **Project Funding** – agency reviews (CNES, NASA, PPARC) have taken place or are in progress.

- **Instrument Design Description Document:**

JD will write this. Should be available by November review.

Action 2: JD to review framework and format for IDD. The main idea is to clarify and revise the top-level document structure.

Deadlines: September 30 for agreed framework.

End Oct. for first draft.

Progress review at next meeting

- **Science Requirement Document:**

Action 3: MJG to revise and tidy it up before the Nov. review

- **Documentation tree and development plan**

Action 5: KJK to revise the development plan and BMS/JD to sort out the documentation tree (Deadlines = Sept. 30)

- **Interface Control Documents**

Action 4: JD to digest the current scheme and consult with Bruce and Colin on devising a more workable scheme (Deadline = Sept. 30)

- **FTS subsystem**

LAM understand the issues and are devoting resources to it. Still wish to have flexibility on the mechanical envelope. BW would like to define the mechanical interface ASAP.

Main issues will be covered at forthcoming mechanisms summit.

- **Request for FMECA:**

Full job would take many months of effort. We don't have the resources. Already done for cooler. Our response: We'll do a top-level analysis to identify degraded observing modes but will

not offer the full FMECA.

Action 6: BMS, MJG to draft top-level criticality analysis with emphasis on impact on scientific performance, OBS, and degraded observing modes.

Deadline: Draft 1 to be available by Sept. 30 for review by small team (MJG, BMS, JD, KJK, CRC).

Action 7: BMS to request subsystem-level criticality analysis from critical subsystems (Deadline: Sept. 8).

- **Instrument software simulator**
Sunil Sidher is addressing this in the Ground Segment working groups.
- **Parallel mode:**
Action 8: MJG to discuss with AP and raise issue at November FST meeting
- **Common black paint:**
MJG will raise this with the PACS and HIFI PIs - but we're not responsible for running the other instruments programmes.
- **Information required from ESA**
Telescope - We'll need update on optical properties for stray light; spectral rejection.
EMC - Now large section in IID-A. CRC still representing SPIRE - let's keep it that way for now.
CRC and JD to work together on defining the grounding scheme etc.
Cryogenic harness availability: Ever-increasing urgency. RAL estimate 40 weeks based on ISO experience.
Mechanical and thermal interfaces to FPU and JFET box: OK - have cryostat model and AI bench.
Microvibration: To be discussed at next ESA technical meeting
Action 9: BMS to impress upon ESA the need to sort the cryoharness technology out ASAP.
(Deadline: Sept. 8)

Action 10: MJG/BMS/KJK to produce formal response doc. for next technical meeting (Oct. 11).

4. Planning of Reviews

BMS sent out document to all relevant parties on 28 July. Technical summits are planned as follows.

Thermal design summit 26/25 Sept. at QMW. (AE to liase with Peter Hagrave on logistics)

Start at 10.00 Monday; Finish 15.00 Tuesday

Est. no of people ~ 10 - 12

Agenda:

- Presentation from Sam on overall thermal model followed by discussion/conclusions/actions
- Cooler parameters and operating modes
- 300 mK architecture
- Define a test programme for QMW
- Define design programme for QMW on 2-K and 4-K straps (GG needed)
- Wiring end-to-end
- JFET box
- Thermometry review
- Instrument thermal balance (note: QMW should model filter heating up)
- Scheme for documenting the thermal design and model for information and configuration control

Electromechanical design summit LAM 13/14 Sept.

- Main question: is the FTS prototype suitable for development as the flight model?

- Reports on prototype testing from Didier Ferand and Dominique Pouliquen
- Launch locks
- Review control system design for both mechanisms
- Review ATC programme
- Review LAM/ATC deliverables
- Alignment requirements
- Interfaces
- Requirements on other subsystems
- Review/update of relevant specification document

Action 11: BMS to send out agenda for both of these summits (Deadline = Sept . 8)

Additional summits needed:

All should be out of the way by mid-October to allow for the November review. Proposed date for 3-day Systems Design Review and Interface Review: 22-24 Nov. (TBC by KJK). Possible dates for EMC meeting 27-29 Sept for or first week of October.

- **Grounding scheme and EMC. Need Viktor and Christophe.**
Key people: BMS, JD, CRC, Viktor Hristov, Christophe Cara
- **Instrument control, operations, electrical systems design, OBS**
Key people: BMS, KJK, JD, Jean-Louis Augueres, Christophe Cara, Didier Ferand, Anna di Giorgio, Riccardo Cerulli?
- **Warm electronics requirements and interfaces**
Key people: JLA, CC, plus all relevant subsystem representatives

Action 12: BMS to set dates for all these (Deadline = Sept. 15)

Action 13: BMS to include format and preparation for Nov. review as major item on agenda for next meeting.

5. Forthcoming meetings

• **ESA technical meeting 11 Oct.**

We should have done

- Consortium status WBS update
- ISVR response (inc. Dev. Plan and revised model philosophy)
- IID-B updates
- Funding constraints and possible programme descope

Issues for discussion

- Thermal model
- Information needed from ESA (esp. cryoharness, microvibrations)
- SPIRE attendance: MJG, KJK, BMS

- **Contamination meeting:** BMS to attend, 12 Sept.
- **PACS Delta-ISVR:** BMS to attend 21, 22 Sept.
- **Meeting with M. Juliet of Alcatel:** QMW probably 22 Sept. (MJG/KJK)

It would be useful to have another Focal Plane Commonality meeting at some stage (interfaces, black paint, thermal pipe routing, etc. etc.)?

Action 14: MJG to raise with PACS and HIFI PIs and Thomas Passvogel (Deadline 30 Sept.)

6. Systems Engineering effort and priorities

We can anticipate 40% of JD this year (maybe a bit more in future years). It will be important to keep up at least this level of effort for whole of QM. All of the effort of a new recruit will be devoted to SPIRE for the first year at least, with the emphasis on assisting BMS and JD in maintaining and updating key project documentation. Current priorities for JD's effort are as defined above (to be reviewed as we go along).

7. BMS's review of subsystem specification documents

- Includes recommended format for revised documents
- All sub-system groups need to re-write their documents in time for the IIR.
- Important/urgent agenda items for next management telecon:
 - Planning and preparation for System Design Review and Instrument Interface Review in Nov.
 - Revision of SSSDs
 - Need to revise the Development Plan

Action 15: KJK to inform subsystem managers by e-mail of the need to rewrite/reformat the SSSDs in accordance with BMS scheme and notes by Sept. 30. (Deadline = Sept. 8)

8. Next Project Team meeting

Date: Monday September 18

Agenda items:

- Review of actions
- Format and preparation for Nov review - draft agenda
- Development plan
- Other issues TBD

Action Summary:

Item	Actionee	Description	Priority	Need and Date
1	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
2	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
3	MJG	Revise and tidy up Science Requirements Document	Medium	For Systems Review Final Issue 30/10/00
4	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
5	KJK	Produce revised Instrument development plan	High	For technical meeting Draft 30/9/00
6	BMS/MJG	Draft top level criticality analysis with emphasis on impact on scientific performance; OBS and degraded modes	Medium	For Systems Review Draft 30/9/00
7	BMS	Request sub-system level criticality analysis for input into system level criticality analysis	High	Send request by 8/9/00
8	MJG	Raise parallel mode with Albrecht Poglitsch at November FST	Low	For Systems Review Draft response 20/11/00
9	BMS	Request ESA to respond on the question of the cryoharness technology	Urgent	Cal. Facility procurement e-mail by 8/9/00
10	MJG/BMS /KJK	Write formal response to ISVR board report	High	Technical Meeting Draft 30/9/00
11	BMS	Send out agenda for Thermal and Electromechanical summits	Urgent	For summits e-mail 8/9/00
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
13	BMS	Set agenda for next project team meeting	High	15/9/00
14	MJG	Approach Albrecht Poglitsch; Thijs De Gruaaw and Thomas Passvogel about setting up another commonality meeting	Medium	Information needed for Systems Review Set date by 30/9/00
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