

1. SPIRE PROJECT

1.1 General

- This report covers September 2002
- Project team has focussed on
 - STM/CQM AIV planning
 - Instrument vibration level assessment
 - Thermal modelling
 - Instrument grounding scheme

1.2 Instrument performance

- No changes

1.3 Problem Areas

- Qualification vibration levels
- Thermal design
- Funding

1.4 Project-Level Meetings

- Several project team meetings
- Alignment meeting with LAM 3/9/02
- Grounding review 23 and 24/9/02
- Interface meeting with Astrium 27/9/02
- Regular telecons with sub systems

1.5 Documents Issued

SPIRE-SBT-NOT-001379, DRCU grounding scheme
SPIRE-UCF-MOM-001405, Minutes of grounding review
SPIRE-SBT-NOT-001383, Impact of grounding in the cold end for the DRCU design.
SPIRE-RAL-DWG-000646, Spire block diagram issue 4.7
SPIRE-RAL-DWG-000646, Spire block diagram issue 4.8
SPIRE-RAL-PRJ-000624, Grounding and screening philosophy
SPIRE-RAL-NOT-0001327, Proposed ICC organisation during the development phase.
SPIRE-UCF-MHO-001370, Presentations to the SPIRE consortium meeting.
Subsystem progress reports
SPIRE monthly report.

2. INSTRUMENT MANAGEMENT

2.1 Personnel

No Change

2.2 Work packages

No changes.

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2.3 Schedule

SPIRE schedule inline with delivery dates announced 2/6/02

2.4 Funding

- The UK funding envelope is still inadequate for the hardware plus ICC development programme. Pressure still exists to descope hardware (BSM or Flight Spare). Project management costs must be reduced.
- Funding within JPL is a problem and is considered likely to have an impact on deliverables and/or schedule.

3. INSTRUMENT ENGINEERING

3.1 Instrument Design Changes

- Modification to cold straps to be consistent with Astrium proposals.

3.2 PA/QA

- On going

3.3 Budgets

- Mass of warm electronics close to maximum.

4. INSTRUMENT SUBSYSTEMS

Subsystem	Responsible	Status	Schedule status
BSM	ATC	STM ADP issued 27.Sep.02. DM-2 assembly commenced. Investigations on options to reduce cost of Zeiss/PACS motor coils complete. Mating connectors and test boxes for LAM electronics completed.	OK
Calibrators	Cardiff	PCAL Design complete. Enclosure drawings submitted for manufacture (STM & CQM). DM, STM & CQM sources in manufacture (DM will be used for lifetests). SCAL Mechanical test of spare source assembly – checked integrity of source attachment to Torlon strut. Terminated test at equivalent acceleration of 64000G!	OK
Cooler	SBT	- CQM units : Mounting of thermometers and heaters done. Wiring in progress. CQM under cleanliness and contamination control. - Copper/Titanium brazing : 2 subcontractors qualified – choice to be made shortly - Heat switches : awaiting for subcontractor selection for new heat switches assembly (two heat switches made by previous subcontractor, with minor difference in the design, available – can be used for initial thermal testing). - Structures : surface treatment tested (Oxydation Anodique Sulfurique) – results are disappointing. Decision is made to leave the structures as is (raw titanium). Anchoring of protecting tubes (guides for PACS screws) : left as is, kapton tape and glue will be used to secure them (as during the STM Vtests). - Kevlar characteris ation campaign and Tensiometer : new	OK

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		<p>engineer + post doc have (partly) joined the project team – will work on the development of this tool and Kevlar characterisation.</p> <p>- Solution for the electrical isolation : new parts available; to be implemented during CQM final assembly</p>	
Detectors, JFETS and RF Filters	JPL	Failure of BDA during cold vibration test is under review, frequency shift not understood. Relaxation of input spectrum under discussion.	OK, but under review
DPU and OBS	IFSI	<p>After the ESA meeting on 19th of June and ESA statement to pay all CPPA components the ICC funding problem for years 2004-2006 looks to be relieved.</p> <p>We are still waiting for a formal ESA document in order to define activities with ASI about the available FM components money.</p> <p>- AVM OBS is next to completion. Items being implemented now are:</p> <ul style="list-style-type: none"> - ability to generate up to 4 HK+Diag packets - ability to send packets and data from the VM <p>- SVVP Issue 1.0 is being completed. It includes detailed test procedures and input specifications.</p> <p>- URD 1.1 is being updated following SPIRE comments</p>	OK
DRCU and WIH	SAP	<p>DCU</p> <p>LIA-S board test achievement</p> <p>DAQ IF+BIAS+LIA-S+LIA-P functional test achieved</p> <p>Performance test backplane design & PCB layout achievement</p> <p>SCU</p> <p>Backplane PCB layout achievement</p> <p>Temp board PCB layout achievement</p> <p>CCHKIF scheme finalisation</p> <p>Test board: analog port</p> <p>MCU</p> <p>Design available at LAM & SAP</p> <p>MCU QM1 delivery to SAP confirmed 12/12/2002.</p> <p>PSU</p> <p>Little progress because of lack of I/F specification (grounding scheme).</p> <p>Enclosures</p> <p>DCU STM fabrication started.</p> <p>DCU QM1 & FCU QM1 box fabrication started</p> <p>FCU box thermal & dynamic studies.</p>	Being optimised
DRCU simulator Inst simulator	Stockholm		OK
Filters, Dichroics	Cardiff	<p>SPIRE STM CFIL1 still in manufacture – delay due to long lead-time obtaining new photolithographic masters for CFIL1.</p> <p>STM PDIC1 and PDIC2 rings & shims submitted for manufacture.</p> <p>STM PFIL2 and SFIL2 material ready for cutting to shape.</p> <p>300mK filter clamps for all SPIRE models complete. Alignment marks added after request from RAL/LAM, and updated ICD</p>	OK

		accordingly. CQM 300mK PLW filters shipped to JPL.	
Mirrors	LAM	In manufacture	OK
Shutter	USK	Deleted	OK
Spectrometer Mechanism	LAM	STM in manufacture	OK
Structure	MSSL	MGSE assembly is awaiting HOB simulator – This is due early October. Production of the photometer 2K box spine is still continuing, though the covers have been completed. The redesign of SCAL box is still being debated. Spectrometer 2K Detector box has been completed and is awaiting final inspection. The manufacture of the Optical Bench is continuing. Continuing to have integration team meetings with RAL, to address planning and integration issues. Released Issue 16 of the interface drawing. Redesigned main cone to avoid clash with PACS	Critical path for STM
Thermal straps	MSSL, Cardiff	Thermal busbar development is continuing. Production drawings are still in progress. Received MKIII units and light baffle from Cardiff. Started the mechanical testing so that the FEA can be completed in early October.	OK
AIV/Calibration facility	RAL	<p>Cryolab: The control room has been fully furnished and is ready to accept the EGSE.</p> <p>Cryostat: The cryostat has been assembled and is being pumped down for final leak tests prior to the first cold trials at the manufacturers. Delivery to RAL is expected at the end of October pending successful cold testing. The vacuum pumping system for the cryostat has been tested and is ready to be integrated on the cryostat. The optical window has been delivered.</p> <p>MGSE: All MGSE components have been delivered to RAL and will be assembled in the next week.</p> <p>Cryoharness: The harness manufacture is almost complete with only the potting of the connectors on the cryogenic section and final testing to be performed. A meeting between JPL, CEA Saclay, ESA, Alcatel and the project team on 23-24th September resulted in a change to the grounding scheme. This will mean that some rework on the airside harness will be needed. The scope of this rework will be determined once the revised grounding scheme and proposed work-around has been approved.</p> <p>Telescope Simulator: To optical components of the telescope simulator have been installed and aligned. Work is in progress to complete the motion control software.</p> <p>TFCS: The temperature and pressure monitoring software has been completed. Work is in progress to complete the cryogen level sensors and the interface to SCOS-2000.</p>	OK

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5. INSTRUMENT AIV

- A detailed AIT procedure is being developed

6. ACTIONS.