

Minutes of SPIRE Project Team Meeting (Telecon), 13 November 2003 Matt Griffin, 13 November 2003

Present: Matt Griffin (chair), Eric Sawyer, Ken King, Bruce Swinyard, Anne-Sophie Goizel, John Delderfield, Doug Griffin, Dave Smith, Chris Brockley-Blatt

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1. Review of actions from September 9 PT meeting

- See Section 8 below

2. AIV status and plan

- CQM FPU (Eric)
 - Internal harnesses going in now.
 - Detector harnesses should be in next week
 - About to assemble test L0 straps.
 - Looking at having it ready by end Nov. Warm testing early Dec. Hope to cool to LN2 before Christmas – need to look at various issues.
 - Test readiness review 5 Dec. (TBC)
 - Plan is to configure for detector testing in run 1 (straps disconnected to dummy BDAs)
 - Reconfigure before cold vib: connecting up the BDAs
 - Matt: Shouldn’t we make 5-nines busbar to have it ready anyway
 - Action: Chris to look at that (e.g., consider using outside contractors?)
- Test facility (Dave)
 - CBB fitted
 - MTD tests went well
 - Will put in some extra shielding between 77 K and 10 K
 - Lots of work on cryoharness routing
 - JFET crosstalk GSE has arrived from JPL
 - Telescope simulator testing going on; air dryer box to be installed
- Cold vibration facility
 - Eric and Berend attended meeting
 - Agreed plan is to be careful in testing
 - Will monitor levels on detector boxes and SMEC levels to limit the inputs
 - SPIRE booked in for beginning Feb. Nominal 28-day campaign.
- PFM 1 plan
 - Optics bench being re-alochromed by MSSL
 - Problem with clash for manpower between work at MSSL and need to provide effort to RAL
 - Bruce: May even have PMW available by the time it comes together – keep under review

3. Thermal straps

- Interfaces with industry
 - Chris: A lot of progress made recently - now 99% clear on interfaces with Astrium. A couple of minor issues to be sorted out – diameter of flex strap (Astrum want 3 mm; MSSL can get to 5); tank pod interfaces to be discussed on Tuesday at I/F meeting.

- Reqs. and goals now defined in the IID-B. John has sent additional information to Bernard for inclusion in the minutes of the Oct. 30 thermal meeting.
- Astrium still running V2.3 of the instrument model – John will raise this on the 18th.
- Thermal model of real CQM being built up
- MSSL programme
 - See PPT presentation file sent in by Chris (Annex)
 - Lower straps made of 30 shims compression welded to form the spacecraft interface
 - Compression welding company in Germany – same on that Astrium using (recommended by Horst)
 - EB welded at the other end into a sandwich with 3 3-mm thick 5-nines copper straps.
 - Upper straps compression welded and bolted between two plates then interleaved between the 3mm thick solid straps at the electrical isolation joint.
 - Shims are then EB welded into the cooler interface block at their other ends.
 - Had a problem discovered in internal review - now solved
 - Support legs are Torlon and clamps holding straps are Al Alloy.
 - Schedule:
 - Detailed drawings to be completed this week
 - Welding jigs to be completed 21 Nov.
 - Inner Baffles and supports completed; outer baffles to be modified
 - Material is in for shims - shims to be cut – 2 weeks
 - Compression welding - 2 weeks – so back by 19 Dec.
 - Thick straps external manufacture
 - CQM delivery 2 Feb 2003
 - Eric: Note no margin with respect to cold vibration prep – please prioritise the CQM
 - PFM delivery end April
 - Electrical isolation: MSSL have learned the gluing procedure from Pete and will implement the procedure

4. Subsystem status

- JPL: Have all CQM hardware
- Cooler: CQM sent back to Lionel for retensioning if needed with new technique. PACs cooler now working after change to improved flex. SPIRE cooler will be refurbished similarly.
- SMEC: Will get update this afternoon. Delivery is said to be on time.
- Mirrors: No problems foreseen
- DRCU: Noise on LIAs is out of spec. (9-9.5 nV Hz^{-1/2} vs. spec. of 7) – Saclay have raised an NCR. Test report on bolometer tests is pending
- DPU and OBS: Meeting at IFSI a week Tuesday to discuss testing work-arounds. HIFI have big interface problem – shouldn't be a problem for us but Ken will get someone to look at it. New OBS delivery due next week that should solve the crashing problem.
- BSM: Coils fitted by ATC. PCAL now fitted – to be wired up.
- Cardiff: Got all filters in now – EIDP to be produced as soon as possible.
- Canadian students to arrive Jan. 7 staying for 6 months.
- Subsystem cold vibration: [Action: Eric to investigate doing joint Cardiff/SMEC cold vibration run at RAL at LAM telecon.](#)

5. Interface meeting preparation

- Eric has draft agenda
- Chris: essential to close open pod interface

6. HPSC meeting preparation

- Besides the usual material needed (deadline 19 Nov.), two issues are particularly important for this meeting
- AIV programme projected costs
 - Must be quantified and justified, with high degree of visibility of staffing levels and tasks
 - RAL team to work on this – Matt and Ken will meet at RAL on Nov. 27 to finalise
- Estimated resource needed in the UK during the operations phase
 - Rough outline and justification needed by PPARC for planning purposes

7. ICC

- Ken has got inputs from most groups and is working with Seb on workpackage division. Some iteration needed.
- Workpackages have milestones.
- Timescale: Workpackages out in a few weeks. Meet with Managers before Christmas (one at a time)
- The four institute managers institute: (King, Davis-Imhof, Clements, Sauvage) need to be clear about their roles and responsibilities
- The new management structure means a revision of how the current 4-team organisation works
- **Action: Ken and Seb to produce a note outlining the new structure.**

8. Action list

Blue = updates or new actions

Green = closed at this meeting

No. + Mtg	Action	Responsible	Due date	Status
7 Apr. 30	Draw up a list of to-be-signed-off documents and distribute to subsystem telecon organisers listed above.	Ken + Eric	May 7	<p>Eric C. still working through the list. To be implemented in the telecons. Telecon chairs to dictate which docs to be signed off. To be implemented by end Aug.</p> <p>Sept. 7: No progress. Ken to chase - important to be done and followed up by telecon organisers.</p> <p>Nov. 13: Open. Limited progress. Eric and Ken will work with Eric Clark to get it started. Eric C. then needs to prod subsystem managers vigorously.</p>
17 May 23	Provide LabView S/W interface to Dave Smith	Pete	May 27	<p>Trial fit of CBB yesterday. Pete has agreed to have S/W installed and working by end next week. PT action closed – to be covered in normal work.</p>
18 August 7	Draft responses to the RIDs RID 1 (Schedule) RID 2 (OBS) RID 3 (PA) RID 4 (Mech. Qual)	Matt Ken Eric C. Eric S.	August 31	<p>Formal responses to be provided for 2 and 3. RIDs 1 and 2 to be dealt with under normal work.</p> <p>Schedule: to be dealt with in the monthly ESA telecons.</p> <p>OBS: IFSI will try to work to draft plan. Their response to RID 2 is that it's a problem because they haven't got the resources. New action: Matt and Ken to ask IFSI for written response to RID.</p> <p>PA: New action: Eric to update draft response for review and issue to ESA</p> <p>Mech qual.: Is being dealt with in normal work and reported in telecons with ESA etc.</p>
19 August 7	Coordinate compilation of document updates and response to ESA on detailed list of IHDR changes	Eric	Exercise to be complete by end October	<p>Sept. 7: Highest priority elements to be addressed first. No progress yet. - Eric to sift list.</p>

				<p>- Then PT telecon in 2 weeks from now.</p> <p>- Then follow up with subsystems</p> <p>Nov. 13: No progress. New action: Telecon organisers to include this as standard item on the agenda. PT members to review the list prioritise and respond appropriately.</p>
21 August 7	Raise WCA issue in the telecons with IFSI, SAp	Ken, Eric	August 31	Closed: SAp continue to say they have followed the rules and won't do it. IFSI have provided an update to Ken. It could be in the PACS IHDR doc set.
22 August 7	Monitor AIV programme costs and report to Ray and Matt on deltas wrt last estimate	Ken	Continuing	Closed: To be dealt with in preparation for Steering Panel meeting.
23 August 7	Define criteria for success of "verification of the DRCU" at CQM instrument level	Bruce	Sept. 15	Closed
24 August 7	Formulate AIV test plan and inform/organise the team (remote and on-site)	Bruce	Sept. 15	Closed at Porquerolles. Teams being updated as appropriate
25 August 8	Clarify the cost of running the TMM to produce results that allow impact of different instrument subsystem dissipations to be assessed.	Ken	August 31	Closed.
26 9 Sept.	Assess whether busbar stiffness is a problem and if so propose solution.	Berend	9 October.	Closed – Berend reviewed and concluded it was OK.
27 9 Sept.	Clarify with Pete what and when Cardiff still need to do in the L0 strap programme	Eric	Next Cardiff telecon.	Closed
28 9 Sept.	Raise test report with respect to DCU Preliminary Test Plan (SAP-SPIRE- HT-0088-02 V 1.0) - to be raised at the next CEA telecon.	Bruce	Next CEA telecon.	Closed – report now in.
29 9 Sept.	Draft response to industry on telescope turn-around time and peak-up mode offset accuracy and confer with Bruce before sending out.	Matt	30 Sept.	Closed
30 9 Sept.	Make rough estimate of RAL VAT savings for discussion with Ray next week.	Ken	17 Sept.	Closed
31 13 Nov.	Investigate option of manufacturing a 5-nines 300-mK strap to have it ready in case of a conductance problem with the current CQM strap.	Chris	20 Nov.	
30 13 Nov.	Investigate doing joint Cardiff/SMEC cold vibration run at RAL	Eric	30 Nov.	
33 13 Nov.	Produce a note outlining the new ICC management structure, esp. roles and responsibilities	Ken and Seb	30 Nov.	
34 13 Nov.	Make IFSI WCA document available to ESA	Ken	16 Nov.	

Annex

MK2 Level 0 Thermal Straps

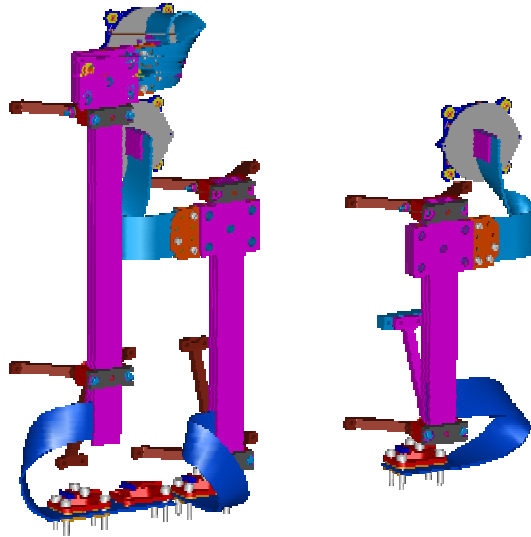
Chris Brockley-Blatt



Contents

- **Level 0 Thermal Straps**
 - **Design**
 - **Manufacture**
 - **Schedule**

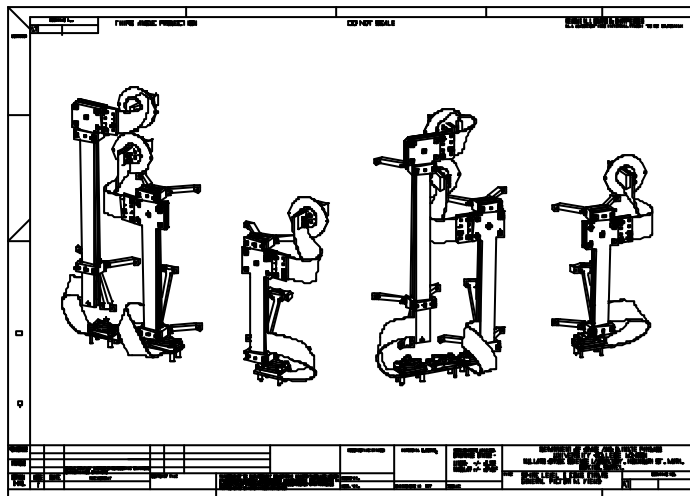
Level 0 Thermal Straps



Thermal Straps

Chris Brockley-Blatt, Mullard Space Science Laboratory

Level 0 Thermal Straps – Drawing



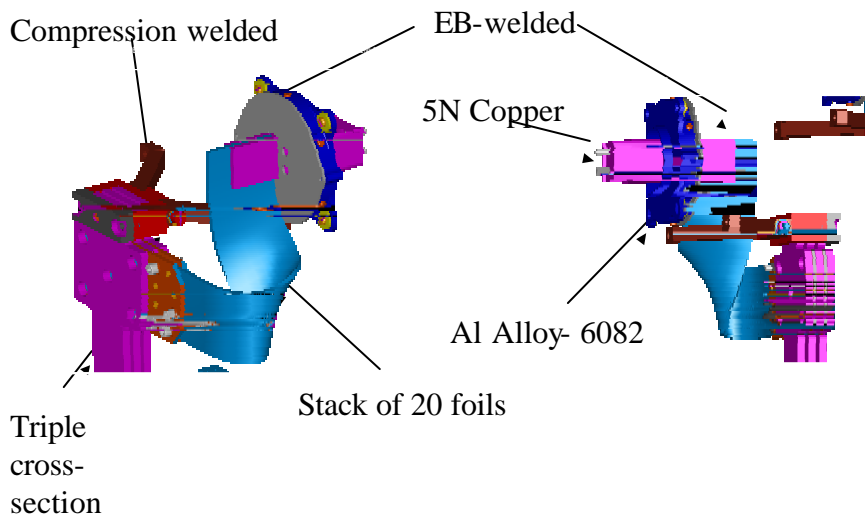
Thermal Straps

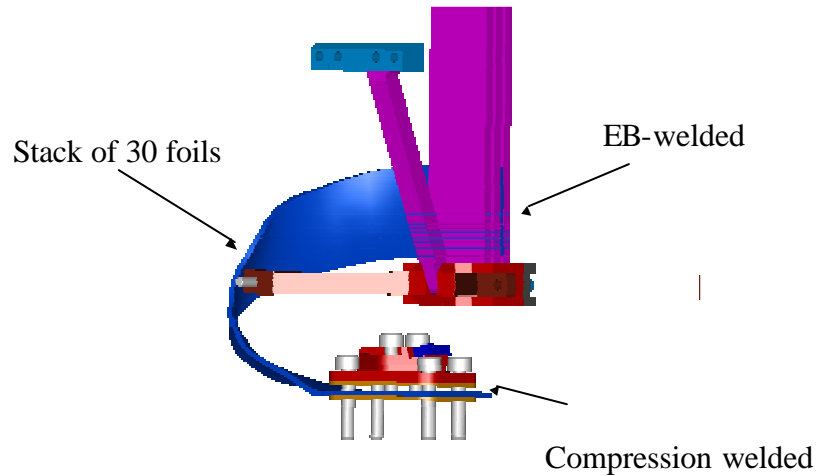
Chris Brockley-Blatt, Mullard Space Science Laboratory

Level 0 Thermal Straps

- The lower straps are made up of 30 shims that are compression welded to form the space craft interface
- Then EB welded at the other end into a sandwich with 3mm thick 5N copper straps.
- The upper straps are compression welded and then bolted between two plates which are then interleaved between the 3mm thick solid straps at the electrical isolation joint.
- The shims are then EB welded into the cooler interface block at their other ends.
- The support legs are made form Torlon and the clamps to hold the straps are made form Al Alloy.

Level 0 Thermal Straps Mk2





MK2 Thermal Straps Schedule

- **Detail Design/ Manufacturing Drawings**
 - To be completed this week
- **Welding Jigs**
 - To be completed 21 November 2003
- **Manufacture of parts**
 - Inner Baffles and Supports completed
 - Outer baffles to be modified
 - Shims to be cut – 2 weeks (Material is in)
 - Compression Welding – 2 weeks
 - Thick straps – Edwards Brothers
 - 1 week gold plating – Interfaces only
- **CQM Delivery 2 Feb 2003**
- **PFM Delivery End of April**



Schedule

