

**Minutes of SPIRE-JPL-CEA Telecon, March 11 2003**  
**Matt Griffin**  
**March 12 2003**

**Present:** JPL Jerry, Jamie, Gary, Gerhard Klose  
 Cardiff Matt, Pete  
 RAL Bruce, John, Doug  
 MSSL Chris

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**1. Review of actions (based on minutes of Feb. 25 telecon - attached)**

See Section 9 for updated action list.

**2. BDA vibration qualification status**

- Recent e-mail exchange between Berend and Terry is appended below.
- Jamie:
  - I think the levels are agreed but nothing still under discussion.
  - It's very difficult to install and use the force transducers, JPL prefer scheme that doesn't require their use.
  - Test date still TBD. Still working on stringing the unit. Had some problems. Maybe 2 or three weeks.
- *Update from Gary after the telecon:*
  - Kevlar conditioning procedure and stringing to a higher (50 lbs) tension was defined several weeks ago.
  - Problem encountered in stringing the BDA: Kevlar clamping mechanism now being pushed to the limit, and with 3 complete bakeout/re-tension cycles, it was weakening the Kevlar.
  - Good progress being made on correcting the problem, but the redesign effort has put the schedule back another several weeks.
  - Still not finished defining the confirming (through testing) the new scheme.
  - Next vibration test not scheduled yet until all this is complete.

**3. Documentation status**

- RAL are awaiting JPL signature on the HDD + three ICDs already signed by RAL.
- RAL are holding off on signing the BDA mechanical drawing - MSSL have cleared it but need confirmation needed from JPL that the pixel-pin compatibility is correct.
- Jamie:
  - Dwg. 21 is OK for RAL to sign.
  - Dwg. 25 needs a couple of small changes (discussed in the telecon) which John agrees with. JPL will modify the drawing and send to RAL for checking and signing.

- Business Agreement: Agreed. ECR and BA document are signed by UK, signature by JPL is awaited.

#### 4. Implementation of modifications to filter clamps (see minutes of Jan. 21 telecon)

- Pete sent e-mail on Feb. 17 stating what needs to be done
- Pete has sent three clamps: pathfinder; original CQM clamp with "skim" modification; "good" CQM clamp (sent out on 10 Jan. by FedEx.; made according to the interface dwg. - Filters ICD V 2.1 - without the C/S holes specified).
- Jerry: Only two clamps identified as at JPL at present - need to clarify with Hien.
- Action: Pete to re-send Feb. 17 e-mail and copy Fedex shipment No. to Jerry.
- Action:
  - Jerry to fax annotated drawing to Pete.
  - Pete to check annotated dwg and produce new engineering dwg.
  - This to be approved by e-mail as specification of modifications to be made to all flight-standard clamps
- Cardiff are anxious to get these mods done ASAP otherwise they may clash with other planned activities coming up.
- Status to be reviewed at next telecon

#### 5. JPL CQM and PFM delivery schedule

- Jerry: Schedule is currently slipping day for day due to problems in BDA stringing
- Action: Jerry to send brief e-mail to Matt, Eric, Bruce outlining current schedule status
- Schedule to be important discussion item at next week's telecon.

#### 6. Planning for STM/CQM shipping and delivery review

- STM shipment planned for a couple of days from now. One connector needs some attention. Need to confirm that shock isolators on the shipping container are adequate.
- RAL also need to verify that the VAT situation is OK and request that JPL don't ship hold until that's Bruce confirms that it's OK.
- Action: Jerry to send Bruce the STM hardware shipment list
- Accompanying EIDP will be needed before the box can be opened at RAL.

#### 7. Date and format of next Detector Summit meeting

- Mid-Apr. (next to QUEST meeting) is a good time for JPL.
  - Note:
  - Walter Gear has confirmed that the QUEST meeting dates are 23-25 April
  - So possible dates are 22 April or 28/29 April (but the latter dates would require us to reschedule a planned interface meeting with industry)
  - Detector meeting date to be discussed and hopefully fixed at the next telecon

#### 8. Use of JFET Racks at JPL

- JPL need two racks for backharness construction and vibration testing.
- Agreed: that the second 2-rack will be sent to JPL
- It will need to be returned for CQM instrument integration
- The approach for subsequent vibration testing at JPL is TBD.
- John and Kalyani need to have technical discussion on the mounting and integration procedures.
- Action: Kalyani to respond to John's recent e-mail

## 9. Updated action list

Blue = updates

Green = actions closed

Actions from July 9 telecon				
No.	Action	Responsible	Due date	Status
47	Update Major Milestones List	Ken		Continuing. The MML is to be updated in accordance with the dates for JPL deliveries agreed at this meeting for the updated business agreement.
Actions from August 20 telecon				
65	Draw up vibration test procedure for the instrument STM, including policy for accelerometry.	Berend	Feb. 1	Open. To be addressed after the FEA analysis is complete.
Actions from November 19 telecon				
88	Review JPL schedule with objective of maintaining required delivery dates.	JPL/RAL	Continues	Continuing. New baseline has been defined in revised Business Agreement.
Actions from December Saclay meeting				
No.	Action	Responsible	Due date	Status
106	Draft out possible test configurations before Christmas	Dominique	20 Dec.	Open
107	Respond to above notes	JPL, CEA	15 Jan.	Open
108	Obtain and circulate better values for the cryoharness impedances, particularly the proposed shields.	John	15 Jan.	Open.
110	Provide e-mailed comments on the draft QM electronics test plan underway	John and Viktor	20 Dec.	Closed. Silence = assent.
113	Check DRCU FMECA and update if necessary.	Christophe	1 Feb.	Closed by note from Christophe in DRCU Review
Actions from January 7 telecon				
No.	Action	Responsible	Due date	Status
114	Send to John a brief note (e-mail + diagram) on configuration of crosstalk switches.	Jamie	15 Jan.	Open.
Actions from January 14 telecon				
No.	Action	Responsible	Due date	Status
120	Send JPL copies of the relevant DCU design documents from the DRCU Programme Review Document set	Bruce	When available	Open. Bruce will e-mail the review zip file. DCU Design Document is the interesting one for JPL.
Actions from January 21 telecon				
No.	Action	Responsible	Due date	Status
121	Arrange date for Kevlar MRB	Eric	Jan. 28	Closed: 19 <sup>th</sup> March at ESTEC confirmed. Jerry and Henry will attend from JPL
123	Send new version of BDA ICD to Bruce	Jerry	Jan. 24	Open Various non-critical tidy-ups needed. Should be out by Friday. Only imp matter is torque on bolts for integration.
125	Liase with Pete on shipping and countersinking specifications	Len	Jan. 24	Open. See Section 4.
126	Confirm if BODAC filter delivery (including accompanying documentation) is all OK	Jerry	Jan. 28	Closed. All is OK.
127	Produce note on FEA model and BDA vibration levels	Berend	Jan. 22	In progress. See Section 2.

Actions from January 28 telecon				
No.	Action	Responsible	Due date	Status
128	Collate available Kevlar test data and circulate	Bruce	Feb. 4	Closed
130	Establish tension as a function of vibration level based on test data	Jerry	Feb. 4	Closed
Actions from February 4 telecon				
No.	Action	Responsible	Due date	Status
131	Contact Doug on JPL reaction to proposed ICD changes and update drawings appropriately	Len	Feb. 5	Closed. See Section 3.
132	Revise HDD once the ICDs are finally agreed	Doug	Feb. 14 if possible	Closed -HDD 1.1 now issued. HDD 1.2 will be issued for IHDR.
133	Examine schedule impact of the delay in finalising the HD	Eric	Feb. 14	Superseded - schedule to be reviewed at next telecon.
134	Liase on model results and implications and jointly devise a set of specifications for the BDA qualification vibration - to be reviewed at next week's telecon.	Berend and Terry	Feb. 11	Closed
136	Propose date and format for next detector summit	Bruce	Feb. 11	Closed. See Section 7.
137	Consult Hien and report to Pete and Eric on status of CQM filter clamp shipping.	Jerry	Feb. 11	In progress. See Section 4.
139	Confirm that Feb. 18 shipping date for BDA STMs is feasible	Jerry	Feb. 7	Superseded. See Section 6
138	Formalise new baseline plan of early STM warm vibration	Eric		Closed
Actions from Feb. 25 telecon				
No.	Action	Responsible	Due date	Status
139	Check that all the Interface Drawings have been signed	Doug	Feb. 28	Closed
Actions from this telecon				
No.	Action	Responsible	Due date	Status
140	Re-send Feb. 17 e-mail and copy Fedex shipment no. to Jerry	Pete	March 12	
141	Fax annotated clamp drawing to Pete	Jerry	March 17	
	Check annotated dwg and produce new engineering dwg.	Pete		
	Approved updated dwg. by e-mail as specification of modifications to be made to all flight-standard clamps	Jerry		
142	Send brief e-mail to Matt, Eric, and Bruce outlining current JPL schedule status	Jerry	March 14	
143	Respond to John's recent e-mail on JFET racks	Kalyani	March 14	

## 10. Annex: Recent E-mails exchanged between Berend and Terry (reverse chronological order)

Hello Terry,

I'd like to stick to what I proposed, you can lower the input above 200 Hz if you need to anyway. Lowering the input in advance, while on paper the margins are already pretty small (for us the instrument) is not how want to play this. Lets see what happens during the test of the main structure (instrument) and of the qual test of the BDA and act on what we measure. I'll be there during the BDA test (hopefully) and during the main instrument test. Any idea when the BDA test will take place?

We will test the main structure soon-ish at RAL, I'd like to use the force transducers during that test. How much time in advance do you need to get us these transducers on time? I am not sure when the test will take place but it should be within 6 weeks or so.

Best regards, Berend

----- Original Message -----

From: Terry Scharton

To: Berend Winter (MSSL)

Cc: Thijs van der Laan ; Dennis.L.Kern@jpl.nasa.gov ; Gary.S.Parks@jpl.nasa.gov ;

Ben.A.Parvin@jpl.nasa.gov ; Gerald.W.Lilienthal@jpl.nasa.gov ; James.J.Bock@jpl.nasa.gov

Sent: Wednesday, February 26, 2003 7:17 PM

Subject: Re: Herschel/SPIRE Proposed input for the detectors - minor adaptation of what we discussed last Tuesday

Berend,

Sorry to take so long getting back to you on this. I wanted to discuss it with Gary Parks and the JPL team before I responded, but Gary's been on travel and now I heard that he will be out of the office the rest of the week, so I'm going ahead.

The levels look reasonable and consistent to me. Gary raised the question as to whether we could start the roll-off at 300 Hz, as we did in our previous BDA vibration tests, instead of 400 Hz as in your proposal. Looking over the revised Appendix D plots that you sent to us on February 10th, it looks to me like a 300 Hz or 350 Hz roll off might be a possibility. What say you? Also I wondered if we might test the qual unit to your proposed levels, but test the flight units to 3 dB less, a factor of 2 less on PSD?

Best regards,

Terry Scharton

-----  
Hello Terry,

I want to propose the following input for the detectors:

For transverse input:

+3 dB/oct between 20 and 100 Hz

0.5 g<sup>2</sup>/Hz between 100 and 200 Hz

0.1 g<sup>2</sup>/Hz between 200 and 400 Hz

-12 dB/Hz between 400 and 2000 Hz

The input between 200 and 400 Hz can be lowered to prevent the response of the suspended mass to exceed 20 g-rms. This is a flat notch. Provided the amplification within the suspended mass response is below 10.

For longitudinal input

+3 dB/oct between 20 and 100 Hz

0.35 g<sup>2</sup>/Hz between 100 and 200 Hz

0.1 g<sup>2</sup>/Hz between 200 and 400 Hz

-12 dB/Hz between 300 and 2000 Hz

The input between 200 and 400 Hz can be lowered to prevent the response of the suspended mass to exceed 20 g-rms. This is a flat notch. Provided the amplification within the suspended mass response is below 10.

This means I will see a 10 g-rms input (about) in transverse and 7 g-rms input (about) in longitudinal direction. This is a (shallow) envelope of the various analysis cases. Provided that the detector response is amplified with a factor of 10 or less. If the amplification factor during the unit test goes up to 20, or 30 the upper g-rms limit has to go up to 25 and 30 g-rms respectively. Is that acceptable to you as a baseline for your qualification test?

Let me know, then I will write and issue it as an official document.

Regards, Berend