CCLRC Rutherford Appleton Laboratory	**TEST READINESS REVIEW (TRR) CHECKLIST & MoM**	**PRODUCT ASSURANCE Space Science and Technology Department**

TRR MoM	**Date:**	**12/3/04**	**NUMBER**	**SPIRE-RAL-MOM-001957**

Spacecraft / Project	HERSCHEL
Instrument / Model	**SPIRE / CQM**
Sub System / Serial No.	

Type of Test	**FPU and JFET cryo-vibration**
AIV Facility Test No.	
Date(s) of Testing	**25/3/04 Planned**
Applicable Test Specification *(Document No. & Issue)*	SPIRE-RAL-DOC-001955
Applicable Test Procedure *(Document No. & Issue)*	SPIRE-RAL-PRC-001956

Present at TRR		
ESA Carsten Scharmberg Norbert Nikolaizig Thijs van der Laan	**CSL** 'Grodent Christophe 'MACAU Jean-Pierre	
Alcatel Guy Doubrovik Delphine Jollet-Segura	**MSSL** Berend Winter	
RAL Eric Sawyer Dave Smith Doug Griffin		

Assignment of Personnel		
Function	**Name**	**Contact number**
Test Director		
Project Manager		
AIV Facility Manager		
Safety Officer		
Product Assurance		

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Documentation / Inspection Status	
Test Documentation available: • AIV Facility Test Plan (if applicable?) • Verification Procedures	 Yes Yes, some updates required
Inspection Status and Records: • Cleanliness • Unit/Item Bagged • Screws Locked • Connector Savers • Hazards Identified • Other	Not yet carried out

CONTINUATION SHEET

As Built Status (Will the following have an Impact on the test performance / results?)	
Outstanding "NCR's"	No
Outstanding "Waiver's"	No
"Open Work"	No
Other	

Agenda.

- Build standard
- Instrumentation
- Test philosophy, notching, control strategy.
- Manning and support.
- Planning
- Comments on test procedures.

Planning
SPIRE to arrive around the 25th
CSL is setting up and testing new pumping line.
First axis will be SPIRE Y

Build standard.
Standard is described in the test plan.
In summary, flight standard except 4 mass dummy detectors, non functioning SMEC and BSM, Stainless steel FPU and detector box supports.
JFET and harness will be included
No functional test during the campaign.

Instrumentation.
12 accelerometers will be mounted in the following locations.
Spectrometer BDA tri-ax
Photometer BDA Tri-ax
SMEC carriage
SMEC interface
Cooler/optical bench
Optical bench external tri-ax
Small accel on the top of the SMEC, see comments later.

Test philosophy
Input will be limited by accelerometers on the subsystems and at the interface positions.
Subsystem levels to not exceed 10g
During warm test, subsystems did experience more than 10g.
A safe test must be adopted to avoid over testing the subsystems.
10g is derived from previous satellite data. (ISO)
Control cannot be done by monitoring at a remote point.
Analysis combining the SPIRE model and the CSL model has been carried out.

This shows that limiting at the subsystem level is required.
Alcatel analysis has been compared with ISO results.
Further analysis may be carried out with the instruments modeled.

A CSL cryo-accelerometer on the top of the SMEC is not possible. Next best thing is an accel on the moving carriage.
One small accelerometer could be mounted on the top of the mechanism in X direction.
Possibly one on the cooler, RAL to investigate
One of the foot channels could be used for this extra channel.
Resonance of the cooler is likely to be high (over 400Hz) so should not present a problem, although there is still a significant amount of energy input.
Berend to carry out further analysis
Interface forces will be limited by using levels from the optical bench.
Type of small accelerometer planned, details to be sent to CSL asap.
Accelerometers need to be electrically isolated.
Calibration curves for temperature sensors to be sent to CSL, asap.

Manning.
SPIRE will support continuously as requested.
There is no break planned for Easter holiday.

Comments on test procedures.
New documentation to be released before TRR at CSL.
Time estimates to be included in test procedure
Torques to be included in test procedure
Sine displacement values to be +/-2mm in test plan
Build standard list to be included in the CIDL.

Decision for test continuation		
Company	**Name**	**Signature**
	Final TRR to be held at CSL These MoM's to be attached to them when completed	
RAL	**Eric Clark**	Digitally signed by Eric Clark Date: 2004.06.04 14:36:17 +01'00'

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Action No	Title and Description	Action Responsibility	Action Deadline
	Summary of actions. SPIRE (Berend) to carry out further analysis Type of accelerometer planned, details to be sent to CSL asap. Calibration curves for temperature sensors to be sent to CSL, asap. Time estimates to be included in test procedure Torques to be included in test procedure Sine displacement values to be +/-2mm in test plan Build standard list to be included in the CIDL.	**SPIRE**	