



**Delivery Review Board Minutes of Meetings
(MoM) & Check list**

**PRODUCT ASSURANCE
Space Science and Technology
Department**

EIDP DRB Subject :	DRCU PFM	DRB MoM N°:	SPIRE-RAL-MoM-002692	Issue N°:	1	Page 1 of 11
---------------------------	-----------------	--------------------	-----------------------------	------------------	----------	---------------------

EIDP Doc N°/issue:		DRB Location:	CEA Saclay	DRB Date:	3/8/06
Spacecraft / Project:	HERSCHEL / SPIRE	Instrument / Model:	PFM	Ser No:	

AGENDA & PARTICIPANTS

Participants:		Agenda:
<i>Print Name</i>	<i>Signature Required</i>	
CEA ' Jean-Louis Augueres		Review of documentation Configuration: (CIDL, ABCL) NCRs Major and any open. RFW VCD ICD Summary of test results if reports not available in advance. Hardware inspection. Plans for delivery and test at RAL.(equipment, support) WIH status.
CEA Jean Fontignie		
CEA: Henri Triou		
CEA:		
ESTEC Carsten Scharmberg		
CNES:		
RAL Eric Sawyer		
Company / Institute:		
Company / Institute		Additional Distribution
Company / Institute		



CCLRC
Rutherford Appleton Laboratory

**Delivery Review Board Minutes of Meetings
(MoM) & Check list**

**PRODUCT ASSURANCE
Space Science and Technology
Department**

EIDP DRB Subject: DRCU PFM **DRB MoM N°:** SPIRE-RAL-MoM-002692 **Issue N°:** draft **Page 1 of 11**

EIDP Doc N°/issue: **DRB Location:** CEA Saclay **DRB Date:** 3/8/06

Spacecraft / Project: HERSCHEL / SPIRE **Instrument / Model:** PFM **Ser No:**

AGENDA & PARTICIPANTS

Participants:		Agenda:	
Print Name	Signature Required		
CEA ' Jean-Louis Augueres		Review of documentation Configuration: (CIDL, ABCL) NCRs Major and any open. RFW VCD ICD Summary of test results if reports not available in advance. Hardware inspection. Plans for delivery and test at RAL.(equipment, support) WIH status.	
CEA Jean Fontignie			
CEA: Henri Triou			
CEA:			
ESTEC Carsten Scharnberg			
CNES:		Additional Distribution	
RAL Eric Sawyer			
Company / Institute:			
Company / Institute			
Company / Institute			

EIDP DRB Subject :	DRCU PFM	DRB MoM N°:	SPIRE-RAL-MoM-002692	Issue N°:	1	Page 2 of 11
--------------------	----------	-------------	----------------------	-----------	---	--------------

Review of documentation

Configuration: (CIDL, ABCL)

NCRs Major and any open.

456 and 453 EMC violations waivers raised, being processed by ESA, CEA have only just raised their waivers.
445, 446 and 439 are major NCR so need signing off by RAL.
All MCU NCRs have been closed.

Comments from Sunil (ref e-mail 2/8/06)

RAL NCRs

137, PCAL flash.. CEA stated that no hardware modification at all, CEA (Christophe Cara) and RAL to check and discuss next week.

151, Status uncertain, RAL to check.

152, Documentation ICD has been changed, no RFW required.

ECR 114 has been implemented.

1) Commands for the MCU Boot Sequence:

These commands are not used by CEA and are not recognised by them. More investigation may be necessary.

2) So far we have not used the SetCmdIfCtrl command for the SCU (viz. 0xA001). Should we include it in our switch on procedure for the SCU? If so what is the exact command scenario?

CEA do not use it in their switch on procedure. This should be documented in the ICD. To be discussed during delivery.

7) Will the flight DRCU/DPU ICD have the correct clock divider factor in the formulae for Photometer and Spectrometer bias frequency? i.e. (PhotoMCIkDiv+1) and (SpectrMCIkDiv+1). Yes these are correct in the ICD.

8) Will the flight DRCU/DPU ICD have the new limits on SpectroBiasDiv set to 1-255, and not 2-255? Value of 1 was used during PFM2 and PFM3 with approval from CEA. The current version of the ICD has not been updated. CEA to discuss at RAL next week.

EIDP DRB Subject :	DRCU PFM	DRB MoM N°:	SPIRE-RAL-MoM-002692	Issue N°:	1	Page 3 of 11
--------------------	----------	-------------	----------------------	-----------	---	--------------

RFW

CEA have raised waivers for the EMC violations, RAL to check if they have also raised the waiver.

VCD

Ref document SaP-SPIRE-QA-0420-06

5.14.3.1.3. Test completed but no report yet, will be included in RE test report.

5.15.1.2. No contamination witness mirror provided. ESA to check if this is necessary.

4.2.3 Conducted RF current Not testable.

4.4.2 Cooler heater current not selectable with 1/4096, but 1/3000.

4.4.3 Open work by RAL, Characteristics of temperature probes need to be added to this requirement.

PCAL bias current stability, tests complete but results not available yet.

4.4.1 Test matrix missing.

9 Current supplies for JFET power not completely consistent with the derating requirements.

ICD

CEA consider this to be up to date.

DCU mass properties:

Inertial values refer to wrong axis, CEA to raise an NCR.

Summary of test results if reports not available in advance.

The full functional test report will be numbered and included in the EIDP

Interspace test reports to be included.

Bonding stud conductance just out of spec, RFW to be raised.



**Delivery Review Board Minutes of Meetings
(MoM) & Check list**

**PRODUCT ASSURANCE
Space Science and Technology
Department**

EIDP DRB Subject :	DRCU PFM	DRB MoM N°:	SPIRE-RAL-MoM-002692	Issue N°:	1	Page 4 of 11
---------------------------	-----------------	--------------------	-----------------------------	------------------	----------	---------------------

Vibration

DCU and FCU, in draft only, not signed.

Vibration levels to be included in the test report.

TV test

FCU test, went to 80 not 60 during first non op plateau, subsequent first switch on showed some MCU instability, it was ok on the next hot test.

CEA to include test specs in the EIDP.

DCU noise test, draft report.

Most channels within 7 nano volts.

DCU user manual included.

Note.

The PFM should only be used as a complete system (DCU, FCU) with the harness supplied, not the QM2 harness.

Plans for delivery and test at RAL.(equipment, support)

Collection 09:00 to 10:00 Friday 4th.

Henri, Frederic, Luc will arrive Monday morning.

Transport is under the responsibility of RAL

A new WIH will be provided, this is not the FM harness.

WIH status.

Available in October (end)

EIDP DRB Subject :	DRCU PFM	DRB MoM N°:	SPIRE-RAL-MoM-002692	Issue N°:	1	Page 5 of 11
---------------------------	-----------------	--------------------	-----------------------------	------------------	----------	---------------------

IQR

CEA to supply PSU qualification test reports.

Hardware inspection.

The hardware was inspected in the clean room and limited functional tests performed by Henri

Out going inspection will be conducted before packing.

Updated EIDP will be supplied by mid September.

EIDP DRB Subject :	DRCU PFM	DRB MoM N°:	SPIRE-RAL-MoM-002692	Issue N°:	1	Page 6 of 11
---------------------------	-----------------	--------------------	-----------------------------	------------------	----------	---------------------

Action			Title & Description
No	Responsibility	Due Date	
1	RAL	30/8/06	NCRs 445, 446 and 439 to be signed off by RAL.
2	RAL/CEA	8/8/06	Discuss NCR 137 PCAL flash and agree a course of action.
3	RAL	9/8/06	.Check status of NCR 151
4	RAL/CEA	8/8/06	Discuss the limits on the SpectroBiasDiv
5	RAL	20/8/06	Check status of EMC violation RFWs
6	CEA	18/9/06	VCD ref para 5.14.3.1.3. Bonding and isolation test results to be included in RE test report.
7	ESA	20/8/06	VCD ref para 5.15.1.2. No contamination witness mirror provided. ESA to check if this is necessary
8	CEA	18/9/06	Inertial values refer to wrong axis, CEA to raise an NCR.
9	CEA	18/9/06	The full functional test report to be numbered and included in the EIDP
10	CEA	18/9/06	Interspace test reports to be included in the EIDP
11	CEA	18/9/06	Bonding stud conductance just out of spec, RFW to be raised.
12	CEA	18/9/06	Vibration levels to be included in the test report.
13	CEA	9/8/06	CEA to supply PSU qualification test reports.

EIDP DRB Subject :	DRCU PFM	DRB MoM N°:	SPIRE-RAL-MoM-002692	Issue N°:	1	Page 7 of 11
---------------------------	-----------------	--------------------	-----------------------------	------------------	----------	---------------------

CHECK LIST

No	Record applicable answers and provide explanations in comment column	Yes	No	N/A	Comments	Responsible Sign & Date
1	Are all Documents, Drawings, etc complete, approved and under configuration control				Some still draft or unsigned	
2	Do the Released items above reflect all approved Changes				Comment from CEA: is the change on SCAL temp channel gain reflected in SCU functional test?	
3	Is the Hardware identical to other Hardware delivered? If not provide difference list				w.r.t. to "QM2-RAL" changes are described in section 5.1 & 5.2 of CIDL/ABCL.	
4	Does the Hardware fulfil its functional requirements, Specifications? RFW's, ICD's etc.				Ref VCD + CIDL/ABCL section 6, 7. Caution : No Radiated emc tests!!!	
5	Does the As built Configured Items List reflect instrument as delivered				yes	
6	Have all required environmental tests & analyses been completed				Some analysis may be completed in end august / September	
7	Have all the required Tests and Qualification procedures and reports been completed and available to review.				yes	
8	Have all the Declared Lists, i.e. DML, DMPL, DPL & components (EEE Parts) list been released (May not be included in EIDP, but must be available)				yes	



**Delivery Review Board Minutes of Meetings
(MoM) & Check list**

**PRODUCT ASSURANCE
Space Science and Technology
Department**

EIDP DRB Subject :	DRCU PFM	DRB MoM N°:	SPIRE-RAL-MoM-002692	Issue N°:	1	Page 8 of 11
---------------------------	-----------------	--------------------	-----------------------------	------------------	----------	---------------------

EIDP Check List

No	Record applicable answers and provide explanations in comment column	Yes	No	N/A	Comments	Responsible Sign & Date
9	Have PADS been raised and approved where required.				all PADs raised, 2 still pending response from ESA (SAP-SPIRE-VM-203-05 & SAP-SPIRE-VM-204-05)	
10	Are the Test Readiness Review (TRR) minutes and the Post Test Reviews (PTR) complete and available?				Not yet	
11	EIDP CHECK (Refer to EIDP Contents list) Are all agreed sections of the EIDP complete. Record any anomalies.					



**Delivery Review Board Minutes of Meetings
(MoM) & Check list**

**PRODUCT ASSURANCE
Space Science and Technology
Department**

EIDP DRB Subject :	DRCU PFM	DRB MoM N°:	SPIRE-RAL-MoM-002692	Issue N°:	1	Page 9 of 11
---------------------------	-----------------	--------------------	-----------------------------	------------------	----------	---------------------

--	--	--	--	--	--	--



CCLRC
Rutherford Appleton Laboratory

**Delivery Review Board Minutes of Meetings
(MoM) & Check list**

**PRODUCT ASSURANCE
Space Science and Technology
Department**

EIDP DRB Subject:	DRCU PFM	DRB MoM N°:	SPIRE-RAL-MoM-002692	Issue N°:	draft	Page 11 of 11
--------------------------	-----------------	--------------------	-----------------------------	------------------	--------------	----------------------

DELIVERY ACCEPTED BY:

RAL.		Signature & Date
Name		
Project Manager:	<i>E. SAWYER</i>	<i>3/8/06</i>
	<i>E. Sawyer</i>	<i>NOT PRESENT</i>
PA Manager:	<i>E. A. CLARK</i>	<i>4/8/06</i>

Customer / Industry / Supplier.		Signature & Date
Name		
Project	<i>J.L. AUGERES</i>	<i>03/8/06</i>
Product Assurance	<i>J. FORTIGNIE</i>	<i>03/08/06</i>