

# SPIRE Critical Design Review

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## 1. Introduction

We will hold a SPIRE project-level Critical Design Review in July in order to prepare for the start of the PFM instrument proper.

The review meeting will be at RAL on 19-21<sup>st</sup> July 2004 (starting 14:00 on the 19<sup>th</sup>; ending 17:00 on the 21<sup>st</sup>).

This note gives more detail than the note issued in May. An agenda is included.

## 2. Purposes

The main purposes of the review are:

- (i) To assess of the test programme carried out on SM, AM, AVM and CQM instrument models prior to the “official” start of PFM programme;
- (ii) Confirm final approval of interfaces between instrument and system and between sub-systems and instrument;
- (iii) To review the sub-system PFM designs and their qualification status ;
- (iv) To prepare for the formal ESA Instrument Qualification Review (IQR) to be held in November.

## 3. Content

### Instrument

The following elements of the instrument programme will be reviewed in detail:

- each preliminary instrument model build standard down to the component level where necessary;
- instrument level testing to date, including a review of the verification matrix status and test procedures as carried out, and the results of the tests and lessons learned for the PFM;
- the planned PFM programme, showing how the benefits of CQM experience have been incorporated into the test plan;
- the instrument interfaces to the Herschel system.

### Sub-systems

The following elements of the subsystem programmes will be reviewed in detail:

- PFM design;
- Qualification status;
- All sub-system interfaces;
- Documentation status
- Programme status and schedules for the PFM.
- Any open issues

With these aims in mind, the sub systems should prepare their presentations concentrating on the above points. If these points are fully documented then a very brief overview with a reference to the appropriate document will be sufficient. It is important to highlight any open issues.

#### **4. Documentation**

A detailed document list will be issued with this note. Most of the documents already exist and some should have been part of the CQM EIDP, but is important that these are up to date. Subsystems should provide updated documents or a statement that the existing documents are up to date by the date below. Will all subsystems please review their section in the document list and update the status column, preferably with a pointer to where the current and up to date version can be found.

##### **Instrument**

- summary of each instrument model build standard compiled from build books and TRR's;
- accompanying sub-system build standard descriptions taken as necessary from EIDP's;
- detailed verification matrix for each instrument model – summary of verification status for each instrument model;
- detailed instrument level test procedures brought to the “as performed” status using the original test specification and the log books for each test;
- test reports from each instrument test plus any accompanying technical notes highlighting particular issues where these haven't reached the test report level;
- NCR list and details of major NCRs and RFWs.

##### **Sub-systems**

- completed and signed off Interface Control Documents and drawings;
- updated Design Description Documents for the PFM designs;
- updated Subsystem Specification Documents against which the PFM sub-systems will be delivered – to be signed off as part off review process;
- status lists for all other sub-system documents.

#### **5. Timetable**

- Announcement of review: 18 May 2004
- Documentation to be delivered by 1st July 2004
- Meeting 19-21 July
- Board report and conclusions 10 August 2004

#### **6. Review format**

- Presentations from Project and AIV team on SM/AM/CQM tests etc
- Presentations from each sub-system on interfaces, unit-level test results relevant to PFM, design and qualification status for PFM and schedule.
- This will be an internal project review, The provisional Review Board composition is:
  - Matt Griffin Chair
  - Otto Bauer MPE/PACS
  - Nigel Morris RAL (independent of SPIRE)
  - Carsten Scharmberg ESA

**SPIRE Critical Design Review (CDR)  
RAL, 19/21 July 2004**

**Draft Agenda**

**Day 1 19th July**

<b>Start Time</b>	<b>End Time</b>	<b>Duration (Min.)</b>		
			<b>Introduction</b>	<b>Chair: King</b>
14:00	14:10	10	Welcome and logistics	M. Griffin
14:10	14:20	10	Purpose and organisation of the review	Sawyer
14:20	14:35	15	IHDR status	Sawyer
			<b>SPIRE System</b>	<b>Chair: King</b>
14:35	14:45	10	Outline of model programme	Sawyer
14:45	15:00	15	The SM and AM programme	Sawyer
15:00	15:10	10	The AVM programme	King
15:10	15:40	30	Coffee	
15:40	16:05	25	The CQM programme	Swinyard
16:05	16:25	20	The PFM programme	Sawyer
16:25	16:45	20	Status of IID-B and Herschel interfaces	Sawyer
16:45	17:15	30	Questions and clarifications	
17:15			<b>End of Day 1</b>	
<b>Evening</b>			<b>TBD</b>	

00:01

## Day 2 20 July

Start Time	End Time	Duration (Min.)		
			<b>AIV and PA</b>	<b>Chair: King</b>
09:00	09:20	20	AIV Facility and Ground Calibraion	Smith
09:20	09:40	20	Thermal test results	Goizel
09:40	10:00	20	Thermal design and modelling	Goizel
10:00	10:30	30	Coffee	
10:30	10:50	20	Thermal hardware implementation and material test results	Winter
10:50	11:10	20	CQM Functional test results	Sidher
11:10	11:40	30	CQM Perfomance test results	Swinyard/Lim
11:40	11:55	15	Verification status	Swinyard
11:55	12:25	30	PA, status of NCRs, RFWs, ECRs	Clark
12:25	12:55	30	Questions and clarifications	
12:55	14:10	75	Lunch	
			<b>Major Subsystems and their interfaces</b>	<b>Chair: Sawyer</b>
14:10	14:40	30	DPU	Orfei
14:40	15:10	30	On-Board software	Molinari
15:10	15:30	20	FMECA	Swinyard
15:30	15:45	15	Instrument commanding and HW-SW interaction	King
15:45	16:15	30	Coffee	
16:15	16:35	20	FPU structure	Winter
16:35	16:55	20	Vibration test results	Winter
16:55	17:25	30	Questions and clarifications	
17:25	17:55	30	Review Board meeting	

**Evening**

**Relaxing social event**

## Day 3 21 July

Start Time	End Time	Duration (Min.)		Chair:
			<b>Major Subsystems and their interfaces (cont)</b>	<b>Swinyard</b>
09:00	09:20	20	Optics	Ferlet
09:20	09:35	15	Stray light control	Griffin D
09:35	09:55	20	MCU	Baluteau
09:55	10:35	40	BDAs and JFETs	Bock
10:35	11:05	30	Coffee	
11:05	11:20	15	PTC	Griffin D
11:20	12:00	40	DCU and FCU	Cara
12:00	12:20	20	BSM	Stobie
12:20	12:40	20	SMEC	Dargent
12:40	13:55	75	lunch	
			<b>Major Subsystems and their interfaces (cont)</b>	<b>King</b>
13:55	14:15	20	cooler	Griffin D
14:15	14:35	20	Filters, beam splitters and Dichroics	Hargrave
14:35	14:55	20	Calibrators	Hargrave
14:55	15:10	15	questions and clarifications	
15:10	15:25	15	Summing up	Sawyer
15:25	16:10	45	Review board meeting	
16:10	16:40	30	Review board feed back	
16:40			End of meeting	