AIV Facilities DDR Plan

Approval

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Change Record

Date	Version	Affected Pages	Remarks
31-July-2001	0.1	All	First draft for comment by SPIRE project
06-August-2001	0.2	All	Meeting agenda added
08-August-2001	0.3	All	Renamed “AIV Facilities DDR Plan” Scope of review clarified Modifications to agenda

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1 Introduction

This document describes the proposed format for the detailed design review of the SPIRE AIV Facilities. The meeting will be held on 6-September-2001 at RAL.

The facilities to be provided are to allow the SPIRE integration, environmental testing and calibration to take place. These include:

- Clean room and control room
- Calibration cryostat
- Cryogenic test harness
- Telescope simulator
- Calibration sources including FTS and FIR laser.
- Test facility control system
- Integration clean rooms
- Vibration facilities
- Inspection facilities
- EGSE

2 Review Objectives

The aim of this review is to:-

- Formally approve the requirements for the AIV facility.
- Freeze the mechanical, electronic and optical interfaces to the instrument.
- Place the cryostat, cryoharness and telescope simulator design under configuration control.
- Ensure that configuration control for the test facility is in place.
- Review the integration and test plan for the facility and agree the key inspection points.
- Agree milestones and schedule

The review will cover:-

- The design of the calibration cryostat
- The optical design of the telescope simulator
- The design of the cold blackbody
- Clean room and control room layout and facilities
- Provision of general facilities such as clean rooms, inspection facilities and vibration facilities.

Other Items that will be discussed, but do not yet have a detailed design for review are:-

- Cryogenic test harness
- EGSE and TFCS
- Hot Blackbody
- FTS
- Reference detector

3 Organisation

The review will take place on 6th September 2001 at RAL before a review board composed of invited outside experts and members of the SPIRE project team based on the documents listed in §4. The documentation shall be distributed to the reviewers at least two weeks where possible before the start of the review.

3.1 Agenda

09:30	Welcome and Introduction	Dave Smith
09:40	Meeting Objectives	Dave Smith
09:50	Facilities Overview	Dave Smith
	Cryostat	
10:10	Design Concept and Interfaces	Mark Harman
10:30	Thermal Analysis	Beth Evans
10:45	Coffee	
11:15	Detailed Design	Colin Hillier
11:45	Production and Testing	Colin Hillier
12:00	Product Assurance	Colin Hillier
12:10	Cryoharness Status	Dave Smith
	Telescope Simulator	
12:20	Optical Design	Mark Ferlet
12:40	Control Law	Martin Caldwell
13:00	Lunch	
	Sources	
14:10	Cold Blackbody	Peter Hargrave
14:30	Far Infrared Laser	Martin Caldwell
14:40	Other Sources	Dave Smith
14:50	Test Facility Control System	Dave Parker/Andy Matheson
15:10	Other Facilities	Graham Toplis
	Clean Rooms	
	Vibration Facility	
	Inspection Facility	
15:30	Coffee	
16:00	Integration Plan	Dave Smith
16:15	Schedule	Dave Smith
16:30	AOB	
17:00-17:30	Review-Board Meeting	
17:30	Review Board Feedback	

3.2 Review Board Composition

The following persons are suggseted as members of the review panel. They will be approached individually to check their availability and then formally invited once a short list has been made.

Prof P. Ade	SPIRE Co-investigator	Cardiff University
Mr T. Peacock	Infrared Optics specialist	ATC Edinburgh
Dr R.E.J. Watkins	Cryogenic test facility specialist	Oxford University
Mr Eric Sawyer	SPIRE Instrument Development Manager	RAL
Dr B. Swinyard	SPIRE Instrument Scientist	RAL
Dr J. Delderfield	SPIRE Systems Engineer	RAL
Mr B. Winter	SPIRE Design Engineer	MSSL

3.3 Participants

The following people are expected to attend the meeting and may be required to give a brief presentation.

Dr D.L.Smith	SPIRE AIV Manager	RAL
Mr M.R.Harman	Cryostat Design	RAL
Dr A. Orlowska	Cryostat Thermal Design	RAL
Ms S. Heys	SPIRE	
M. Caldwell	Telescope Simulator and Alignment	RAL
M. Ferlet	Telescope Simulator	RAL
A. Matheson	Test Facility Control System	RAL
D. Parker	Test Facility Control System	RAL
Mr G.M. Toplis	Test Facility Manager	RAL
P. Hargrave	Cryogenic Blackbody, Filters, FTS	Cardiff
B. Evans	Cryostat Manufacture	AS Scientific
C. Hillier	Cryostat Manufacture	AS Scientific
J. Coker	SPIRE Design Engineer	MSSL
E. Clark	SPIRE PA Manager	RAL
R.P. Carvell		PPARC
J Payne	EGSE Manager	RAL

4 Documentation

4.1 Documentation for Review

Title	Author	Reference	Date
SPIRE AIV Test Facility Requirements Specification	D.L. Smith	SPIRE-RAL-PRJ-000463 Issue 1.3	10-April-2001
SPIRE AIV Facility Development Plan	D.L.Smith	SPIRE-RAL-PRJ-000477 Issue 1.0	10-April-2001
SPIRE Cryostat Procurement Specification	M.R.Harman	SPIRE-RAL-DOC-000582 Issue 1.2	
SPIRE AIV Facilities Verification Matrix	D.L.Smith	SPIRE-RAL-DOC-000775 Issue 0.1	7-Aug-2001
SPIRE General arrangement drawing	M.R.Harman	A1-KG0710-001	
SPIRE Test facility Cryostat drawing	M.R.Harman	A1-KG0710-002	
SPIRE Instrument Interface drawing	M.R.Harman	A1- KG0710-010	
SPIRE Cryostat Design Drawings	AS Scientific		
Telescope Simulator Optical Design	M. Ferlet	SPIRE-RAL-PRJ-000622 Issue 2.0	22-May-2001
SPIRE Cryolab Description	D.Smith	SPIRE-RAL-DOC-000xxx Issue 0.1	

4.2 Other Applicable Documents

Title	Author	Reference	Date
SPIRE AIV Plan	B. Swinyard	SPIRE-RAL-DOC-000410 Issue 2.1	29-Mar-2001
SPIRE PA Plan	D. Kelsh	SPIRE-RAL-PRJ-000017 Issue 1.0	11-Apr-2001

5 Issues to be Addressed

Mechanical and Optical Interfaces
Integration and Test Plan
Configuration Control
How to handle change requests in a timely manner.
Identify the Key Inspection Points
Risk Analysis
Cryoharness Specification
Operational Cycle of Instrument
Additional test equipment for cryostat – e.g. accelerometers for microphonics
Facility Grounding
Schedule