

Work Package

PCAL

SPIRE-UCF-REP-000858

1. Subsystem Progress Since Project Inception

Haller-Beeman thermal source evaluated - meets SPIRE requirements for power dissipation vs photometric power. Design needs modification to meet speed requirement. Detailed design of housing in progress. Prototype housing complete to enable tests of light pipe coupling to proceed. Tests show there is no significant reduction in light output when using the prototype light pipe coupled to the illuminator.

2. Subsystem Progress This Month

Design almost complete in run-up to DDR
New device, HB6, received

3. Problem Areas**Remedial Action****4. Subsystem Management Issues**

Two new design engineers appointed for SPIRE/HFI – Brian Kiernan started work 6/8/01
DDR date fixed for 18/9/01
Jeff Beeman & Ernst Kreysa confirmed attendance as external reviewers at DDR

5. Engineering Activities**6. Design Changes**

New thermal sources are being modelled at Cardiff.
Iteration on source design with Jeff Beeman. New device (in manufacture) will trade-off speed and power dissipation, following the design of HB5, with small modifications to the heat capacity & thermal conductivity of the legs.

7. PA/QA Activities

Cardiff PA plan completed. FMECA complete.

8. Actions Requiring Immediate Attention**9. Status of Previous Actions****10. Activities Yet to be Achieved****11. Budgets****12. Milestones – NB. These are common with SCAL****Status**

Tue 05/12/00	QMW Source Design review	Complete
Tue 03/04/01	Prototype source testing complete	Tests continuing – not driving schedule
Fri 30/03/01	Final Interface definition from ATC	Complete
Tue 22/05/01	Calibrators design review (Internal)	Complete
Wed 17/10/01	DM PCAL Delivery to ATC	On schedule
Wed 27/03/02	SCAL STM delivery to RAL	On schedule
Thu 20/06/02	CQM SCAL design review	On schedule
Thu 13/12/01	CQM PCAL design review	On schedule
Fri 22/03/02	CQM PCAL to ATC	On schedule
Fri 18/10/02	CQM SCAL to RAL	On schedule
Tue 04/02/03	PFM calibrators design review	On schedule
Wed 14/05/03	PFM PCAL to ATC	On schedule
Wed 01/10/03	PFM SCAL to RAL	On schedule
Wed 03/09/03	FS PCAL to ATC	On schedule
Tue 09/12/03	FS SCAL to RAL	On schedule

13. Schedule Changes

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Work Package SCAL

1. Subsystem Progress Since Project Inception		
SCAL completely redesigned – photometric modelling showed inability to match telescope spectrum with previous design. New design almost complete. Thermal model validated design.		
2. Subsystem Progress This Month		
New design nearing completion. Thermal prototypes built & tested – validated design. Basic mechanical tests passed – will perform warm vibration at MSSL in early September.		
3. Problem Areas	Remedial Action	
None		
4. Subsystem Management Issues		
Two new design engineers appointed for SPIRE/HFI – Brian Kiernan started work 6/8/01 DDR date fixed for 18/9/01 Jeff Beeman & Ernst Kreysa confirmed attendance as external reviewers at DDR		
5. Engineering Activities		
New thermal/mechanical prototypes in manufacture		
6. Design Changes		
New design of complete SCAL system (including structure) almost complete – interface drawings in production.		
7. PA/QA Activities		
PA plan complete. Compiling DML and DPL. FMECA complete.		
8. Actions Requiring Immediate Attention		
9. Status of Previous Actions		
10. Activities Yet to be Achieved		
11. Budgets		
12. Milestones – NB. These are common with PCAL		Status
Tue 05/12/00	QMW Source Design review	Complete
Tue 03/04/01	Prototype source testing complete	Tests continuing – not driving schedule
Tue 22/05/01	Calibrators design review (Internal)	Complete
Wed 27/03/02	SCAL STM delivery to RAL	On schedule
Thu 20/06/02	CQM SCAL design review	On schedule
Thu 13/12/01	CQM PCAL design review	On schedule
Fri 22/03/02	CQM PCAL to ATC	On schedule
Fri 18/10/02	CQM SCAL to RAL	On schedule
Tue 04/02/03	PFM calibrators design review	On schedule
Wed 14/05/03	PFM PCAL to ATC	On schedule
Wed 01/10/03	PFM SCAL to RAL	On schedule
Wed 03/09/03	FS PCAL to ATC	On schedule
Tue 09/12/03	FS SCAL to RAL	On schedule
13. Schedule Changes		

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Work Package Filters

1. Subsystem Progress Since Project Inception	
SPIRE filtering scheme finalised. Prototyping in progress. Filter SSSD updated for DDR. Slight change of MW band for commonality with HFI band.	
2. Subsystem Progress This Month	
Filter SSSD updated for DDR. Slight change of MW band for commonality with HFI band.	
3. Problem Areas Space limitations from structure mean Cardiff have to investigate the use of dichroic rings which are thinner than desired in order to avoid warpage	Remedial Action Prototype rings are being designed, and will be tested for flatness at 77K, using a mylar film as the suspended medium.
4. Subsystem Management Issues New filter technician started 1/8/01 300mK interface with JPL BDAs needs immediate resolution – no information from JPL. Also need delivery dates for each model for the 300mK filters. Resolution in progress – MJG to push for resolution at Caltech meeting – 5/9/01.	
5. Engineering Activities Prototyping	
6. Design Changes none	
7. PA/QA Activities PA plan and DPL/DML complete. FMECA performed on all filter components.	
8. Actions Requiring Immediate Attention Resolution of 300mK filter interfaces with JPL. Delivery dates of 300mK filters to JPL for each model.	
9. Status of Previous Actions None	
10. Activities Yet to be Achieved Demonstration of working prototype dichroics & beam splitters (hot pressed, rather than vacuum gap).	
11. Budgets	
12. Milestones Wed 21/11/01 STM filters to RAL Wed 19/06/02 CQM Delivery to RAL Tue 14/10/03 PFM delivery to RAL Wed 15/09/04 FS delivery to RAL TBD 300mK CQM filters to JPL TBD 300mK PFM filters to JPL TBD 300mK FS filters to JPL	Status On schedule On schedule On schedule On schedule Need info. From JPL Need info. From JPL Need info. From JPL
13. Schedule Changes None	

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Work Package 300mK straps

1. Subsystem Progress Since Project Inception		
Thermal test dewar ready Thermal interface tests in progress		
2. Subsystem Progress This Month		
None		
3. Problem Areas	Remedial Action	
4. Subsystem Management Issues		
No progress on this subsystem this month – this will receive full attention from Cardiff after filter & calibrators DDR.		
5. Engineering Activities		
Cryostat modification to enable bus-bar tests to proceed – new thermal link from He3 head to bus bar in manufacture		
6. Design Changes		
7. PA/QA Activities		
None		
8. Outside Agency Interfaces		
MSSL for drawings and hardware		
9. Actions Requiring Immediate Attention		
Routing of 300mK bus bars in photometer & spectrometer 2K boxes. Specification document Re-definition of development plan.		
10. Status of Previous Actions		
None		
11. Activities Yet to be Achieved		
12. Budgets		
13. Milestones		Status
Mon 12/02/01	He-7 fridge shield ready	Complete
Thu 25/01/01	GRTs from Lakeshore	Complete
Tue 27/02/01	Test dewar ready	Complete
Wed 09/05/01	Interface study complete	Late
Wed 28/02/01	Design Review - LBDR1	Development plan to be re-defined (see above)
Thu 12/04/01	LBP1 to QMW (2 off)	Development plan to be re-defined (see above)
Tue 29/05/01	Design Review - LBDR2	Development plan to be re-defined (see above)
Wed 11/07/01	LBP2 to Cardiff (2 off)	Development plan to be re-defined (see above)
Thu 02/08/01	Design report	Development plan to be re-defined (see above)
Thu 23/08/01	Light baffle design complete	Development plan to be re-defined (see above)
Thu 23/08/01	Prototype light baffle design	Development plan to be re-defined (see above)
Fri 24/08/01	Design Review - CSDR1	Development plan to be re-defined (see above)
Mon 10/12/01	Cold strap prototypes - Test Report	On schedule
Mon 28/01/02	STM design review - CSDR2	On schedule
Tue 23/04/02	STM/CQM straps ready for integration	On schedule
Wed 03/09/03	PFM straps ready for integration	On schedule
Wed 29/10/03	FS straps ready for integration	On schedule
14. Schedule Changes		
Development plan to be re-defined		

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Work Package AIV participation

1. Subsystem Progress Since Project Inception		
Cryogenic black body & flip mirror/shutter concept produced – approved at AIV review		
2. Subsystem Progress This Month		
None		
3. Problem Areas		Remedial Action
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4. Subsystem Management Issues		
Development plan and specification/design documents needed. This will receive attention from Cardiff after filters & calibrators DDR		
5. Engineering Activities		
none		
6. Design Changes		
Constant!		
7. PA/QA Activities		
None		
8. Outside Agency Interfaces		
RAL for design changes & interface definition.		
9. Actions Requiring Immediate Attention		
Resolution of shutter/CBB interface		
10. Status of Previous Actions		
None		
11. Activities Yet to be Achieved		
Production of CBB & flip mirror module. Provision of reference detector Provision of FTS		
12. Budgets		
13. Milestones		Status
14. Schedule Changes		
None		

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Work Package JPL BDA test support

1. Subsystem Performance Progress Since Project Inception	
Optics modules designed manufactured Test cryostats at JPL Fridge #1 at JPL	
2. Subsystem Progress This Month	
Second fridge completed by Simon Chase & sent to JPL. Optics modules ready for shipping. Filters in manufacture.	
3. Problem Areas According to JPL, problems with first fridge - poor hold time – out of spec. – elevated temperature of evaporator head during He3 condensation – seems to be caused by poor cooling power of He4 pump – leak??	Remedial Action PCH consulting with Simon Chase
4. Subsystem Management Issues	
5. Engineering Activities Filters in production.	
6. Design Changes	
7. PA/QA Activities None	
8. Outside Agency Interfaces Janis Cryogenics for test dewars. Chase research for fridges. Tekdata for wiring harnesses. Symons mirror technology for mirrors. Deteronics (TBC) for connectors (hermetic). TMC for machining work (optics module)	
9. Actions Requiring Immediate Attention	
10. Status of Previous Actions None	
11. Activities Yet to be Achieved To be defined	
12. Budgets	
13. Milestones	Status
14. Schedule Changes None	