

**Work Package**

**PCAL**

**SPIRE-REP-UCF-000969**

<b>1. Subsystem Progress Since Project Inception</b>		
<p>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. Design almost complete in run-up to DDR</p>		
<b>2. Subsystem Progress This Month</b>		
<p>Documentation heavily updated for DDR. Dewar adapted ready for HB6 tests</p>		
<b>3. Problem Areas</b>		<b>Remedial Action</b>
<b>4. Subsystem Management Issues</b>		
<p>DDR took place on Sept. 18<sup>th</sup> at Cardiff. Successful – only RID was the absence of ICDs – this will be corrected by the end of October.</p>		
<b>5. Engineering Activities</b>		
<b>6. Design Changes</b>		
<p>Minor design changes are in progress following suggestions from DDR panel. These will not affect any interface to other subsystems</p>		
<b>7. PA/QA Activities</b>		
<p>Cardiff PA plan completed. FMECA complete. PA database under development.</p>		
<b>8. Actions Requiring Immediate Attention</b>		
<b>9. Status of Previous Actions</b>		
<b>10. Activities Yet to be Achieved</b>		
<b>11. Budgets</b>		
<b>12. Milestones – NB. These are common with SCAL</b>		<b>Status</b>
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
<b>13. Schedule Changes</b>		
None		

<b>SPIRE</b> (Cardiff)	<b>Monthly Report –September 2001</b>	<b>Date:</b> 28/09/01
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**Work Package SCAL**

<b>1. Subsystem Progress Since Project Inception</b>		
SCAL completely redesigned – photometric modelling showed inability to match telescope spectrum with previous design. New design almost complete. Thermal model validated design.		
<b>2. Subsystem Progress This Month</b>		
Documentation heavily updated for DDR. Design finalised.		
<b>3. Problem Areas</b>	<b>Remedial Action</b>	
None		
<b>4. Subsystem Management Issues</b>		
DDR took place on Sept. 18 <sup>th</sup> at Cardiff. Successful – only RID was the absence of ICDs – this will be corrected by the end of October.		
<b>5. Engineering Activities</b>		
New thermal/mechanical prototypes in manufacture		
<b>6. Design Changes</b>		
Minor design modifications are in progress following suggestions from DDR panel. These will not affect any interface to other subsystems		
<b>7. PA/QA Activities</b>		
PA plan complete. Compiling DML and DPL. FMECA complete. PA database under development.		
<b>8. Actions Requiring Immediate Attention</b>		
<b>9. Status of Previous Actions</b>		
<b>10. Activities Yet to be Achieved</b>		
<b>11. Budgets</b>		
<b>12. Milestones – NB. These are common with PCAL</b>		<b>Status</b>
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
<b>13. Schedule Changes</b>		

<b>SPIRE</b> (Cardiff)	<b>Monthly Report –September 2001</b>	<b>Date:</b> 28/09/01
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**Work Package          Filters**

<b>1. Subsystem Progress Since Project Inception</b>	
SPIRE filtering scheme finalised. Prototyping in progress. Filter SSSD updated for DDR. Slight change of MW band for commonality with HFI band.	
<b>2. Subsystem Progress This Month</b>	
Documentation heavily updated for DDR. Design finalised.	
<b>3. Problem Areas</b> Space limitations from structure mean Cardiff have to investigate the use of dichroic rings which are thinner than desired in order to avoid warpage	<b>Remedial Action</b> Prototype rings are being designed, and will be tested for flatness at 77K, using a mylar film as the suspended medium.
<b>4. Subsystem Management Issues</b> 300mK interface with JPL BDAs needs immediate resolution. Also need delivery dates for each model for the 300mK filters. Resolution in progress – Cardiff have proposed an interface (slight modification of JPL proposal) which involves Cardiff building a clamp ring and pre-mounting the filter – this assembly then bolts to the detectors with six bolts. We are awaiting a response from JPL.	
<b>5. Engineering Activities</b> Prototyping	
<b>6. Design Changes</b> 300 mK filter clamp	
<b>7. PA/QA Activities</b> PA plan and DPL/DML complete. FMECA performed on all filter components. PA database under development.	
<b>8. Actions Requiring Immediate Attention</b> Resolution of 300mK filter interfaces with JPL. Delivery dates of 300mK filters to JPL for each model.	
<b>9. Status of Previous Actions</b> None	
<b>10. Activities Yet to be Achieved</b> Demonstration of working prototype dichroics & beam splitters (hot pressed, rather than vacuum gap).	
<b>11. Budgets</b>	
<b>12. Milestones</b> 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	<b>Status</b> On schedule On schedule On schedule On schedule Need info. From JPL Need info. From JPL Need info. From JPL
<b>13. Schedule Changes</b> None	

<b>SPIRE</b> (Cardiff)	<b>Monthly Report –September 2001</b>	<b>Date:</b> 28/09/01
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**Work Package 300mK straps**

<b>1. Subsystem Progress Since Project Inception</b>		
Thermal test dewar ready Thermal interface tests in progress		
<b>2. Subsystem Progress This Month</b>		
Thermal interface tests resumed		
<b>3. Problem Areas</b>	<b>Remedial Action</b>	
<b>4. Subsystem Management Issues</b>		
This system now has the full attention of the Cardiff SPIRE team, and will be treated as the highest priority work package		
<b>5. Engineering Activities</b>		
Cryostat modification to enable bus-bar tests to proceed – new thermal link from He3 head to bus bar in manufacture		
<b>6. Design Changes</b>		
<b>7. PA/QA Activities</b>		
None		
<b>8. Outside Agency Interfaces</b>		
MSSL for drawings and hardware		
<b>9. Actions Requiring Immediate Attention</b>		
Routing of 300mK bus bars in photometer & spectrometer 2K boxes. Specification document Re-definition of development plan.		
<b>10. Status of Previous Actions</b>		
None		
<b>11. Activities Yet to be Achieved</b>		
<b>12. Budgets</b>		
<b>13. Milestones</b>		<b>Status</b>
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
<b>14. Schedule Changes</b>		
Development plan to be re-defined		

<b>SPIRE</b> (Cardiff)	<b>Monthly Report –September 2001</b>	<b>Date:</b> 28/09/01
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**Work Package            AIV participation**

<b>1. Subsystem Progress Since Project Inception</b>		
Cryogenic black body & flip mirror/shutter concept produced – approved at AIV review Conceptual design presented at AIV DDR.		
<b>2. Subsystem Progress This Month</b>		
Thermal model produced		
<b>3. Problem Areas</b>	<b>Remedial Action</b>	
None	.	
<b>4. Subsystem Management Issues</b>		
Still need requirements document from RAL.		
<b>5. Engineering Activities</b>		
none		
<b>6. Design Changes</b>		
<b>7. PA/QA Activities</b>		
None		
<b>8. Outside Agency Interfaces</b>		
RAL for design changes & interface definition.		
<b>9. Actions Requiring Immediate Attention</b>		
Resolution of all interfaces		
<b>10. Status of Previous Actions</b>		
None		
<b>11. Activities Yet to be Achieved</b>		
Production of CBB & flip mirror module. Provision of reference detector Provision of FTS		
<b>12. Budgets</b>		
<b>13. Milestones</b>	<b>Status</b>	
<b>14. Schedule Changes</b>		
None		

<b>SPIRE</b> (Cardiff)	<b>Monthly Report –September 2001</b>	<b>Date:</b> 28/09/01
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**Work Package            JPL BDA test support**

<b>1. Subsystem Performance Progress Since Project Inception</b>	
Optics modules designed manufactured Test cryostats at JPL Fridge #1 at JPL Fridge #2 at JPL	
<b>2. Subsystem Progress This Month</b>	
Optics modules ready for shipping. Filters in manufacture. Second fridge tested at JPL – performs to spec.	
<b>3. Problem Areas</b> 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??	<b>Remedial Action</b> PCH consulting with Simon Chase
<b>4. Subsystem Management Issues</b>	
<b>5. Engineering Activities</b> Filters in production.	
<b>6. Design Changes</b>	
<b>7. PA/QA Activities</b> None	
<b>8. Outside Agency Interfaces</b> 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)	
<b>9. Actions Requiring Immediate Attention</b>	
<b>10. Status of Previous Actions</b> None	
<b>11. Activities Yet to be Achieved</b> To be defined	
<b>12. Budgets</b>	
<b>13. Milestones</b>	<b>Status</b>
<b>14. Schedule Changes</b> None	