

<b>SPIRE</b> (Cardiff)	<b>Monthly Report –November 2001</b>	<b>Date:</b>	15/12/01
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## Work Package

**PCAL**

**SPIRE-UCF-REP-001203**

<b>1. Subsystem Progress Since Project Inception</b>		
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		
<b>2. Subsystem Progress This Month</b>		
Updating ICD HB6 tests complete – device easily meets SPIRE requirements (photometric output & speed). Next device (HB7) will be “tweaked” to attempt to attain the speed goal.		
<b>3. Problem Areas</b>	<b>Remedial Action</b>	
<b>4. Subsystem Management Issues</b>		
none		
<b>5. Engineering Activities</b>		
none		
<b>6. Design Changes</b>		
Minor design changes are in progress following suggestions from DDR panel. These will not affect any interface to other subsystems		
<b>7. PA/QA Activities</b>		
PA database under development.		
<b>8. Actions Requiring Immediate Attention</b>		
Completion of ICD		
<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	Late – re-scheduled for 21/12/01
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>		
DM PCAL delivery to ATC – 17/10/01 slip to 21/12/01		

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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		
Updating ICD New drawings for prototype components submitted for manufacture		
3. Problem Areas	Remedial Action	
None		
4. Subsystem Management Issues		
None		
5. Engineering Activities		
New thermal/mechanical prototypes in manufacture		
6. Design Changes		
Minor design modifications are in progress following suggestions from DDR panel. These will not affect any interface to other subsystems		
7. PA/QA Activities		
PA database under development.		
8. Actions Requiring Immediate Attention		
Completion of ICD Agreement on revised electrical interface.		
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
Fri 22/03/02	CQM SCAL to RAL	On schedule
Fri 18/10/02	PFM calibrators design review	On schedule
Wed 14/05/03	PFM SCAL to RAL	On schedule
Wed 03/09/03	FS SCAL to RAL	On schedule
13. Schedule Changes		

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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>		
Prototyping of dichroics and beam dividers 300mK filter interface defined and agreed. 300mK filter clamp designed and submitted for manufacture.		
<b>3. Problem Areas</b>	<b>Remedial Action</b>	
Problems with evaporator – copper deposition onto polypropylene has been problematic recently – suspect vacuum/cleanliness problem		
<b>4. Subsystem Management Issues</b>		
<b>5. Engineering Activities</b>		
Prototyping		
<b>6. Design Changes</b>		
<b>7. PA/QA Activities</b>		
PA database under development.		
<b>8. Actions Requiring Immediate Attention</b>		
<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>		<b>Status</b>
Wed 21/11/01	STM filters to RAL	Late – need to re-work schedule with MSSL and RAL
Wed 19/06/02	CQM Delivery to RAL	On schedule
Tue 14/10/03	PFM delivery to RAL	On schedule
Wed 15/09/04	FS delivery to RAL	On schedule
TBD	300mK CQM filters to JPL	Need info. From JPL
TBD	300mK PFM filters to JPL	Need info. From JPL
TBD	300mK FS filters to JPL	Need info. From JPL
<b>13. Schedule Changes</b>		
STM filters to RAL – due 21/11/01 - need to re-work schedule with MSSL and RAL		

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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 conductivity and thermal interface tests continuing. Design validation prototypes in manufacture for “loo roll” suspension concept. Preliminary tests indicate that the thermal impedance of a pressed copper-copper joint at 340-370mK agrees with Wiedermann-Franz predictions (electrical measurements).		
<b>3. Problem Areas</b>		<b>Remedial Action</b>
Had further problems with BACUS dewar – leak from He can to vacuum vessel		Stripped down dewar, found leak and successfully repaired with Stycast 1266.
<b>4. Subsystem Management Issues</b>		
This system has the full attention of the Cardiff SPIRE team, and will be treated as the highest priority work package		
<b>5. Engineering Activities</b>		
Design validation prototypes in manufacture for “loo roll” suspension concept.		
<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>		
<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		

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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>		
None		
<b>3. Problem Areas</b>	<b>Remedial Action</b>	
None	.	
<b>4. Subsystem Management Issues</b>		
<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>		
<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		

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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 Optics modules shipped	
<b>2. Subsystem Progress This Month</b>	
Filters in production. Optics modules and heat switches shipped. Additional components in manufacture.	
<b>3. Problem Areas</b>	<b>Remedial Action</b>
<b>4. Subsystem Management Issues</b>	
<b>5. Engineering Activities</b>	
Filters in production. Additional components in manufacture – (baffles)	
<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	