 FIRST/Planck Project	MINUTES OF MEETING	Date : 15/03/1999
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SUBJECT: FIRST instrument meeting with SPIRE


PLACE: ESTEC room Ea112 on 15-03-1999, starting at 09:00 hrs.

<i>Participants</i>	<i>Organisation</i>	<i>Distribution</i>
M. Griffin K. King B. Swinyard C. Cunningham Th. Passvogel H. Schaap G. Pilbratt	QWMC RAL RAL ROE ESTEC ESTEC ESTEC	SPIRE team:SA-DMS ESTEC: FF; TP; MA; BG; PE; FV; GP; MvH; BC; HS.

AGREEMENTS STATEMENTS	ACTION
<p>The meeting followed the agenda as in PT-06495 amended with a list of SPIRE questions as per PT-06509 (attachments A1-A3)</p> <p>1. Next meeting date</p> <ul style="list-style-type: none"> - 22-07-1999 will be the date for the next technical meeting. It will possibly take place in the UK. - SPIRE have scheduled an internal Systems meeting on 19-05-1999 in Pasadena. This meeting will be followed by a detector meeting on 20,21-05-1999 also in Pasadena. - SPIRE have also scheduled their PDR, which has been split into two parts. Part 1 will cover the FPU and will be held 12/14-07-1999 at RAL. Part 2 will cover the electronics and will be held in the week beginning 27-09-1999 at CEA. For both reviews SPIRE will invite 2 to 3 external experts. Attachments B1-B4 show the preliminary review outline. <p>2. Status of AI's from previous meetings</p> <ul style="list-style-type: none"> - AI-SPIRE-04, 06, 18, 22 and 24 are closed. For AI-SPIRE-08 the new due date is now 31-03-1999. PR relevant info (AI-SPIRE-26) will be sent to G. Pilbratt asap. The status of AI-SPIRE-21 and 27 is: Open. - SPIRE suggested that AI's from the videoconference (PT-MM-06274) be added to the AI list. <p>3. Instrument design/development status</p> <ul style="list-style-type: none"> - B. Swinyard presented the overall status (attachment C1-C18) 	



AGREEMENTS STATEMENTS	ACTION
<ul style="list-style-type: none">- The internal optics lay-out has been changed, which resulted in a reduction of one more element.- A recent Photometer redesign has lead to the capability of an increased FOV from 4 x 4 to 4 x 8 arcmin. Should the extended view capability be implemented then the number of detectors will have to be doubled (attachment D1-D5). The availability of resources (JFET dissipation, space for additional detectors, cryoharness wires etc.) is being studied at the moment.- There are some ideas to use the chopper also as a shutter.- All of the FPU connections will be fed through the JFET box. In the case where JFET's are not necessary the "JFET" box will contain filters only.- The position of the focus on the optical bench should not be changed anymore from what has been defined now, as this would impact on the FPU design.- It is difficult if not impossible to perform some of the internal instrument definition (baffling) due to an incomplete telescope design.- The question was also raised whether the size of the secondary needs to be specified.- Segmentation of the telescope is a serious concern. Analysis will be performed by SPIRE as soon as further info is are available.- In case of a higher TM data rate i.e. 200 kbps there might not be the need for a SPU, as there will be less detector processing tasks on-board. These detector tasks could probably be performed by the DPU. A meeting has been planned at CEA on 24,25-03-1999 to discuss the matter, SPIRE will prepare a note on the meeting outcome.- C. Cunningham presented the status on thermal aspects as well as the JFET box and the various cryoharness options (attachment E1-E10)- The FPU dissipation tables contain a 25 % margin.- An overall FPU structure review will be held on 27-03-1999.- The location of the JFET box, i.e. could it be incorporated into the FPU or alternatively could it be added to the FPU, has not	AI-SPIRE-28

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AGREEMENTS STATEMENTS	ACTION
<p>been defined yet. SPIRE will check its assumptions on the size of the JFET box with HFI, which have a similar configuration.</p> <ul style="list-style-type: none"> - ESA raised a concern on the possible cryoharness requirements for the TES option, where not only resistance but also inductance and capacitance criteria will have to be met. <p>4. Documentation status</p> <ul style="list-style-type: none"> - SPIRE has issued the Instrument Development Plan (SPIRE-RAL-PRJ-000035) issue 0.1. An update of the Development Plan, particularly in the area of the schedule, will be available end of May. A further update will be available after the SPIRE PDR. - Document Tree (SPIRE-RAL-PRJ-000033) issue 0.2 has also been issued. ESA will comment the document. - The monthly/quarterly reports to ESA should also include planned meetings. - For reasons of internal design, SPIRE can not give-up the corner of their FPU to accommodate HIFI. This needs further discussion between the three FIRST instrument groups. <p>5. IID-B update</p> <ul style="list-style-type: none"> - Updates for chapter 5 were received by email from C. Cunningham on 12-03-1999 and updates for chapters 3 and 4 were handed over by M. Griffin at the meeting. These updates will be incorporated. Further updates will not be available until the SPIRE PDR. <p>It was agreed that document SPIRE/RAL/N/0046 (Power profiles) would be included as a reference document into the IID-B. An update of this document is expected soon.</p> <p>6. Status of early development items</p> <ul style="list-style-type: none"> - Detector selection will be based on information available in January 2000. Any detector technology, for which information is not available on that date, will be deselected automatically. - FTS development might be affected by a financial problem in France. The matter will be discussed with L. Vigroux. - The 0.3 K cooler is a TRP item, which should be compatible with 	<p>AI-SPIRE-29</p>



AGREEMENTS STATEMENTS	ACTION
<p>SPIRE requirements, but only as a baseline for further development work by SPIRE. It might have been vibrated, but not qualified! The cooler is a Co Pi provided item.</p> <ul style="list-style-type: none"> - The FET box will be prototyped by JPL. <p>7. Instrument management</p> <ul style="list-style-type: none"> - The Management Plan has nearly been completed and needs to be formally agreed by the consortium. <p>8. Straylight study reporting</p> <p>Due to lack of time not discussed at the meeting. Item will be subject of a meeting (teleconference) scheduled for 17-03-1999.</p> <p>9. AOB:</p> <p>Optical Bench sharing:</p> <ul style="list-style-type: none"> - The status of the optical bench layout, specifically w.r.t. HIFI is awaiting further input from HIFI. In addition SPIRE are requested to define the FPU envelope (3D). <p>Questions M. Griffin (see attachment A2 and A3):</p> <ol style="list-style-type: none"> 1. The Project has started calculations on the whole of the CVV thermal load (AI-SPIRE-21), but will make this part of an industrial study of which the results will be available in the month of May. 2. On the assumption that the BAU will thermally be decoupled from the S/C, ESA will provide the mounting bracket structure to the CVV. Provision of the cryoharness is TBD pending the BAU design (pigtail harness). 3. The power requirement for the warm boxes is growing considerably. The recently received updates to the IID-B show a level of up to 150 W. for the DRCU. ESA will clarify the SPIRE situation w.r.t. power requirements. 4. ESA has no experience with Kapton ribbon cable for the cryoharness. Some samples were shown at the meeting. C. Cunningham will arrange for JPL to provide information to ESA directly. 	<p style="text-align: right;">AI-SPIRE-32</p> <p style="text-align: right;">AI-SPIRE-30</p>



AGREEMENTS STATEMENTS	ACTION
<p>5. For manufacturing reasons (connecting the cryoharness wires) the choice of connectors was limited to one with only 2 rows of pins i.e. 37 pins maximum.</p> <p>6. The surface roughness values for the telescope are given in the telescope specification in terms of PSF at 3 ' angular distance. (TEPE-095)</p> <p>7. There is no way to introduce passive filtering on the CVV connectors, as filter pins for these connectors do not exist. Shielding the 15K enclosure therefore seems to be the only way to achieve the objective.</p> <p>8. There is presently no information available on S/C induced micro-vibration. The Project is also not aware of any information from ISO experience.</p> <p>9. For the moment a downlink rate of 200 kbps. can be assumed. A meeting to discuss the downlink rate issue within ESA has been scheduled for the beginning of April.</p> <p>10. Partial answers were given at the meeting. (attachment A4 and A5) The matter is being followed-up by the ESA project team.</p> <p>11. This has been accepted.</p> <p>12. ESA will study the possibility to set-up a contract with industry to cover EMC issues on FIRST.</p>	<p>AI-SPIRE-31</p>



FIRST/Planck Project:

Action Item Initiation Sheet

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Title: FIRST Instrument meeting with SPIRE
Place: ESTEC room Ea112

Ordinal Action Number	Title and Description	Due Date	Originator		Actionee		Completion	
			Firm	Person	Firm	Person	Date	By Document No.
AI-SPIRE-28	SPIRE to write a note on the impact of having a higher telemetry data rate i.e. 200 kbps	30-03-1999	ESA	Passvogel	SPIRE	Griffin		
AI-SPIRE-29	Send comments on SPIRE Work Break-down Structure document	26-03-1999	SPIRE	King	ESA	Passvogel		
AI-SPIRE-30	Comment on the present status of SPIRE power dissipations (warm)	15-04-1999	SPIRE	Griffin	ESA	Passvogel		
AI-SPIRE-31	ESA to outline a possible EMC design approach for FIRST	15-04-1999	SPIRE	Griffin	ESA	Schaap		
AI-SPIRE-32	SPIRE to give the envelope of their FPU (3D)	31-03-1999	ESA	Passvogel	SPIRE	Griffin		