

## SPIRE response to Action 3 from the June 19 Herschel/Planck Payload Funding Review

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**Date :** 18 July 2002

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### 1. Introduction

This note is in response to Action 3 from the Herschel/Planck Payload Funding Review at ESTEC on 19 June, and has been drawn up in consultation with the SPIRE Co-PI and the SPIRE Steering Group.

The action states:

*Herschel/Planck PI's to establish a plan of action in order to maximise the benefit for the instrument teams of the CPPA procurement taken over by ESA and to achieve a re-distribution of resources as necessary and possible.*

*Three milestones should be defined for this action:*

1. *Evaluation of saving to each instrument institute/funding agency in relation to the available funding – due 5 July.*
2. *Evaluation of additional possible contribution of institute to the instrument with respective Co-I's – due 19 July.*
3. *Presentation of findings and approach to the respective funding agency for endorsement and implementation – due end July.*

## 2. Update on Payload Funding Status

We note and welcome the statement in the draft minutes of the June 19<sup>th</sup> meeting that ESA will take on the cost of Herschel instrument cold vibration. As indicated in the SPIRE presentation at the meeting, the UK had allocated 200k€ for cold vibration, and the stated UK hardware funding deficit is thus reduced from 1700k€ to 1500k€

### Item 1: Evaluation of saving to each instrument institute/funding agency in relation to the available funding

The following information table is based on information provided by Thomas Passvogel for the Payload Funding Review. With ESA paying for all CPPA costs, the benefits (all figures in k€) to the various countries and agencies are as follows:

|              | Belgium | France      | Germany | Italy | NL  | Poland | Spain | UK | Total |
|--------------|---------|-------------|---------|-------|-----|--------|-------|----|-------|
| <b>HIFI</b>  |         | 750         | 391     | 658   | 969 | 586    | 64    |    | 3418  |
| <b>PACS</b>  | 1008    | <i>1461</i> | 118     | 658   |     |        | 978   |    | 4223  |
| <b>SPIRE</b> |         | <i>2896</i> |         | 658   |     |        |       | 11 | 3565  |
| <b>Total</b> | 1008    | 5107        | 509     | 1974  | 969 | 586    | 1042  | 11 | 11206 |

Note: We have identified some discrepancies in the numbers. The figures in italics should be corrected as follows:

- France PACS: *1461* should be 1344
- France SPIRE: *2896* should be 2248

It is probable that other corrections need to be made, and indeed there may be differing views as to what many of the numbers should be. Nevertheless, we believe that this table can be seen as fairly representative of the overall situation.

The table shows that, within the SPIRE consortium, France and Italy receive the direct benefits, with the UK receiving a small amount. The major issue for SPIRE is a resolution of the UK hardware programme shortfall of 1500k€

Based on the inputs to the June 19 meeting, and summarised in the SPIRE presentation to the meeting, it can be concluded that the overall resource input to Herschel through the CPPA payment by ESA (approx. 11M€) is sufficient to accommodate the funding shortfalls identified for France, the UK, Italy, and Germany.

In broad terms, a workable solution for Herschel (we do not consider the case of Planck in this note) could involve the following effective transfers (the numbers should be regarded as indicative):

- France: 800 to SPIRE (UK)
- Italy: 700 to SPIRE (UK), 300 to PACS (Ger)
- Spain: 900 to PACS (Ger)

### Item 2: Evaluation of additional possible contribution of institute to the instrument with respective Co-I's

**UK:** Institutes in the UK are not independently funded for Herschel or Planck work - PPARC is the only possible source of additional funding. PPARC reserves contingency funding for Herschel/Planck, around 800k€ of which is potentially available to SPIRE. This contingency is less than the UK shortfall, and is also meant to cover the whole life of the project in. Using it all to solve the current difficulty would leave the project exposed

in the event of later technical or schedule problems. A realistic solution must not rely on use of the PPARC contingency at this stage.

**France:** Our understanding is that the situation is similar in France, with CNES identifying a certain level of contingency to cover the complete duration of the project.

**Other countries:** To our knowledge there are no other possibilities for significant additional agency or institute funding.

### **Item 3: Presentation of findings and approach to the respective funding agency for endorsement and implementation.**

We have so far identified three redistribution options for SPIRE:

- **Direct transfer of funds from ASI and CNES to PPARC.**

This would be the neatest and most straightforward option from the point of view of the instrument team, but is it compatible with the rules under which national agencies operate?

- **French or Italian institutes such as CEA or IFSI take on the formal responsibility for delivering elements of SPIRE that will be done in the UK, and issue contracts to the relevant UK institutes.**

This could apply, for instance, to the Beam Steering Mechanism or the FPU filters - they could essentially be purchased by France or Italy. The contractual arrangements would presumably need to be compatible with legal requirements and the rules and regulations adopted by the relevant institutes.

- **Agreements between PPARC and other agencies concerning future projects allowing additional UK funding for SPIRE to be released by PPARC.**

We regard a solution based on this approach as difficult to implement as it further complicates an already confused situation and spreads the present instability into other projects. However, it is up to the agencies to say what they regard as feasible.

### **3. Conclusions**

1. The global input to the Herschel consortia and supporting agencies through ESA's generous payment of CPPA and cold vibration costs is sufficient to solve the current funding problems in the participating European countries.
2. Aside from the ESA support, the only potential source of additional funding is from the national agencies. This could come from contingency, thereby exposing the instrument to high risk in the future - thus the project would not be brought into a financially credible state; and the amounts so released would not be enough in any case to accommodate the current shortfalls.
3. In order to effect a practical solution, some mechanism for the redistribution of the CPPA resources must be found.
4. In keeping with the Action defined at the June 19 meeting, we invite the comments of CNES and ASI concerning the feasibility of the mechanisms that we have listed above, or suggestions concerning other mechanisms, for the "redistribution of resources as necessary and possible".
5. We strongly maintain that a satisfactory resolution of this issue will require the coordinated efforts of ESA, the national agencies and the PIs, and we recommend that ESA lead this actively. That would avoid the continuing fragmented and confused activity in different quarters, which we fear is unlikely to result in a workable, coherent, and well-understood outcome.