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**SPIRE**

**Instrument Qualification Review**

**Board Report**

**Herschel / Planck Project**

**16 November 2004**  
**ESTEC**

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approved by	G. Crone (SCI-PT)
Reference	SCI-PT/33134
Issue	1
Revision	0
date of issue	8 February 2005

**D I S T R I B U T I O N**

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Board Members	
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## **CHANGE LOG**

<b>date</b>	<b>issue</b>	<b>revision</b>	<b>pages</b>	<b>reason for change</b>
28/01/05	Draft	1	All	Board internal distribution only
08/02/05	1	0	All	Formal distribution

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## 1 INTRODUCTION

The Instrument Qualification Review (IQR) kick-off meeting of the Spectral and Photometric Imaging REceiver (SPIRE) was held at ESTEC on 16<sup>th</sup> November 2004. The IQR data package was handed to the board during the kick-off meeting. As result of the review process 36 RID's have been raised by the reviewers and have been delivered to SPIRE on 2<sup>nd</sup> and 3<sup>rd</sup> December 2004. SPIRE's position was provided on 10<sup>th</sup> December 2004 to all Board Members and RID's originator or their representatives. RID Co-location meeting was held on 13<sup>th</sup> and 14<sup>th</sup> December 2004 at the Rutherford Appleton Laboratory (RAL) in Oxfordshire, in the form of dedicated telecons with the involvement of all relevant RID originators or their representatives. 35 action items have been generated during the Co-location meeting. This report provides the Review Board findings, recommendations and conclusions.

## 2 REVIEW OBJECTIVES

The review objectives have been defined in "Instrument Qualification Review Proceedings" (SCI-PT-27108, v2, Aug 26, 2004):

- Confirmation of instrument hardware and software qualification
- Assessment of scientific performance and compliance with scientific requirements
- Completion of instrument design verification and compliance with requirements
- Identification and confirmation of improvements/modifications for FM
- Completion of OBSW design and demonstration of functionality
- Confirmation of EGSE design and demonstration of functionality
- Confirmation of instrument operability and User Manual

### 3 SPIRE INSTRUMENT HARDWARE DESIGN REVIEW BOARD

<i>Name</i>	<i>Affiliation</i>	<i>Function</i>
G. Crone	ESA	Chair
G. Pilbratt	ESA	Co-Chair
C. Scharmberg	ESA	Secretary
J. Rautakoski	ESA	Member
F. Pedersen	ESA	Member
T. van der Laan	ESA	Member
M. Schmidt	ESA	Member
S. Leeks	ESA	Member
B. Collaudin	ASPI	Industry Representative
O. Bauer	MPE	PACS Representative

The Board was supported by a review team of experts from ESTEC and Industry.

### 4 DOCUMENTATION REVIEWED / PROCEEDING

The list of documents reviewed is attached in Annex 9.1. All documents were delivered in time at the Kick-Off meeting. Presentations given during Kick-Off are integral part of the review. RID's from the review team have been send by email to SPIRE on 02/12/04. SPIRE replied to all RID's on 10/12/04. A collocation meeting was held at RAL on 13<sup>th</sup> and 14 December 2004 with telephon participation of all RID originators, respectively it's representative.

### 5 REVIEW ITEM DISCREPANCY (RID) STATISTICS

RID's raised ( <b>major</b> /minor)	36 ( <b>25</b> /11)
RID's closed during Co-location ( <b>major</b> /minor)	16 ( <b>5</b> /11)
RID's open at Co-location ( <b>major</b> /minor)	20 ( <b>20</b> /0)
RID's open at 08/02/05 ( <b>major</b> /minor)	18(18/0)
Action Items generated during Co-location	35
Open Action Items at 08/02/05	24

Minor classified RID's have been closed during the co-location meeting by action items, major classified RID's will stay open pending closure of relevant action items.

## 6 BOARD FINDINGS

The Board notes with satisfaction the very good progress made since the IHDR, which became visible from the documentation and presentations during the kick-off meeting.

### 6.1 Confirmation of instrument hardware and software qualification

Warm electronics boxes:

SPIRE WU have not been qualified yet. All warm electronic units (DCU, FCU, DPU) are only available as functional EM or DM units, which are sufficient to run functional tests on instrument level and system level, but environmental qualification (sine/random vibration-, shock-, EMC- and TV- tests) will be done separately with the qualification models in early 2005, and will be subject of a delta IQR.

DRCU schedule has been recovered to comply with system needs, by introduction of a second qualification model (QM2), which will be used for early PFM system level tests prior to DRCU FM availability.

The DPU schedule has not yet been finally consolidated, due to programmatic difficulties with funding and structure of industrial/IFSI contracts with ASI. The Board notes with grave concern that the DPU schedule has been continuously delayed since IHDR.

FPU/JFET's:

Sine and random vibration at qualification levels have been successfully performed on CQM FPU including both CQM JFET boxes. Parts of the configured subsystems during vibration test are not fully flight like. Main differences are:

- Thermal L0 and L1 supports material is stainless steel (FM: CFRP).
- L0 thermal straps copper purity slightly different from flight ones.
- 4 out of 5 BDA's are STM build standard.
- Entire spectrometer part, and in particular the SMEC is of STM build standard.

With the exception of the BDA, which has already been qualified on subsystem level, all other subsystems still have to be qualified on subsystem level. Special attention should be taken on the SMEC which subsystem vibration test has been stopped after low level, due to technical problems caused by too high clearance on the launch lock mechanism, which need technical modification.

Instrument EMC:

Due to unavailability of flight representative warm electronics units, instrument level EMC tests according IID-A have not yet been performed on SPIRE. However, some limited conducted susceptibility test carried out during instrument level cold tests, indicated potential problems, that may be caused by an improper EMC test configuration, but could also be caused by the electronics boxes itself. Taking into account, that the baselined instrument level EMC test is planned very late in the program (Second PFM cryogenic test in late summer 2005), the Board strongly

recommends to start instrument level EMC tests during the first PFM cold test in early 2005, in order to identify potential problems as early as possible.

OBSW:

SPIRE onboard software has been successfully debugged during CQM instrument level testing, but does still not contain all required functionalities for the flight model. Software acceptance test has demonstrated that version 1 is adequate to run the EQM system tests. However, full flight version, which will be available late in the program, still need to be fully qualified/accepted.

PA:

As the CIDL was not provided for the review the configuration baseline with respect to the as-built status is not clear and this has a direct impact on the visibility and completeness of the qualification status. Without clearly determining the configuration and the as-built status, the status of qualification cannot be clearly determined, i.e. what was actually qualified. Furthermore the changes between qualification model and the design baseline for the flight model is not completely clear nor complete.

The Board notes with concern, that the overall product assurance documentation has not yet reached the level that it should have in this phase of the programme, nor was it possible to fully assess the compliance of the PA programme with respect to the requirements at this point. Several documents need to be updated, they will be reviewed in the frame of the delta IQR.

## 6.2 Assessment of scientific performance and compliance with scientific requirements

Due to the nature of the SPIRE CQM FPU it has not been possible to verify all instrument requirements during ILT (Instrument Level Test). SPIRE CQM only contained the photometer part, and there only one functional detector array. The entire spectrometer part is of structural build standard only. It is therefore obviously not possible to conclude compliance with all instrument requirements. Two sets of cold ILT measurements were actually carried out, CQM-ILT1 (prior to the cryogenic vibration test) and CQM-ILT2. (after completion of cryogenic vibration test) CQM-ILT1 is described in the document SPIRE-RAL-REP-002083, while preliminary CQM-ILT2 results were given in presentations during Kick-Off meeting. However, it is also not obviously clear as to what extent the instrument requirements have been fulfilled in the case of the tests performed with the CQM.

During the co-location meeting, SPIRE accepted to create a full compliance matrix w.r.t. the IRD requirements, with a column to include summary information on the results of CQM and PFM testing, and indicating the status of verification. This document will be maintained and updated as CQM and PFM test progress, so that an up to date record will be available. The first version was due on 17/12/04, but has not yet been provided by SPIRE.



Possibly mainly or at least partially due to the immature documentation, but also due to the nature of the test set-up and learning curve of operating SPIRE, it is not straightforward to conclude whether the achieved tests results are compliant (or not) with expectations for the tests carried out under the conditions they were carried out. The Board insist, that this **MUST NOT** happen and **WILL NOT BE CONSIDERED ACCEPTABLE** for the flight model.

The changed DRCU model philosophy does not include SPIRE PFM instrument level tests together with the FM DRCU prior to instrument delivery. The Board highly recommends SPIRE to check whether at least limited PFM ILT with the entire flight configuration would be possible in order to ‘end to end’ test the entire FM signal chain particularly taking into account the FM specific electrical properties (e.g. by using DRCU FM prior to environmental acceptance tests during one of the PFM ILT’s).

SPIRE Calibration requirements are not yet finalized, and will be influenced by CQM and PFM1 ILT results. Calibration Plan needed to be updated, and will be reviewed in the frame of a delta IQR.

### 6.3 Completion of instrument design verification and compliance with requirements

The current SPIRE VCD only demonstrates the verification status w.r.t. the SPIRE Instrument Requirement Document, but not w.r.t to the H/P Instrument Interface Document. SPIRE shall provide the verification control database, respectively an extracted report in the frame of the Delta IQR in order to demonstrate full compliance against IID-B.

SPIRE CQM has demonstrated its stable design for the photometer part of the instrument during two cryogenic Instrument Level Tests.

However, a few subsystems are well behind the general maturity level, particularly the Spectrometer mechanism SMEC and the on-board software.

Although the design is generally mature and most materials and processes are known the Declared Materials Lists and the Declared Processes Lists are far from being complete and are missing from several sub-systems.

### 6.4 Identification and confirmation of improvements/modifications for FM

As already known since IHDR, the material of SPIRE L0 & L1 thermal supports will change to CRFP for the PFM in order to improve thermal characteristics. Unfortunately the redesigned thermal supports have not been ready for the CQM program, and thus need to be qualified separately on subsystem level. Evaluation of thermal performance will be done in the frame of the forthcoming PFM1 ILT.

Unacceptable high clearance have been found on the SMEC launch lock during SMEC vibration tests, which leads to a need for modification of current design. SMEC is clearly the schedule driver of the SPIRE system, and causes 3 months delay in SPIRE PFM instrument delivery to ESA, that is not any longer compliant with the Herschel/Planck program schedule. The Board strongly recommends SPIRE to closely monitor SMEC program, and to investigate measure for schedule recovery.

SPIRE L0 thermal straps have been redesigned to achieve better thermal performance. The new design has not been used during CQM ILT, but will, however, be part of the EQM test campaign at ASSED-OTN.

### 6.5 Completion of OBSW design and demonstration of functionality

OBSW development and verification of all Herschel instrument has been flagged as being critical during instrument IHDR one year ago. ESA had initiated a review by CAPTEC, an independent company, which had provided their findings / recommendations within a report. Although the OBSW document status has significantly improved since then, not all recommendations have been implemented yet.

Current OBSW does not contain all features that are needed for full flight functionality, but has been used and debugged during various instrument tests in order to support the entire EQM campaign. In parallel the flight OBSW development is continuing. However, the Board is highly concerned about the OBSW developer manpower resources, that seem too small to complete the flight software and the relevant mandatory documentation in time with the needs.

### 6.6 Confirmation of EGSE design and demonstration of functionality

SPIRE Instrument level EGSE was successfully used during several test campaigns at RAL together with the real SPIRE CQM instrument and with the SPIRE instrument simulator. During these tests the proper functionality of the EGSE has been demonstrated.

### 6.7 Confirmation of instrument operability and User Manual

SPIRE User Manual is under preparation, but was not available for the review due to limited manpower resources, that mainly focused on recent ILT and preparation of EQM system level procedures to switch-on and operate SPIRE during forthcoming EQM tests. SPIRE is aware of the need and agreed to issue IUM by 31<sup>st</sup> January 2005. However, SPIRE had performed 2 successful cryogenic ILT's, that demonstrated operability of the photometer part of the instrument.

Although the implementation of the peak-up mode is baselined, relevant parameters for calculating the peak-up corrections are still missing, as an assessment of achievable

performance. Furthermore SPIRE shall provide a command sequence in order to verify peak-up mode implementation within the AIV tests.

SPIRE FDIR does not include an assessment of impact on performance caused by potential instrument internal failure cases. SPIRE shall clarify the impact in the frame of the HSIA update due for a delta IQR.

SPIRE System FMECA is outdated and need to be updated, particularly to cover DPU and DRCU issues.

## 6.8 Other Findings

The real cause of the JFET membrane failure could not be identified. However, SPIRE has deeply analysed the failure case, and takes measure to prevent all potential causes of the relevant anomaly.

The Board notes with some concern, that several instrument deliveries contain no margin, and are very much success oriented. Also the SPIRE Masterschedule does not include any margins and relies on timely delivery of all subsystems.

The Board notes with grave concern that the contract between ASI and CGS to manufacture the QM/FM DPU is still not settled, and has already caused significant delay to the program.

The Board is concerned that funding agencies may not release additional resources that are obviously needed to accommodate the launch delay, and thus to ensure the entire SPIRE program.

## 7 BOARD RECOMMENDATIONS

1. Verify by measurements with PFM all scientific performance requirements and demonstrate compliance with SPIRE IRD. Initial results of Spectrometer measurements from PFM1 shall be available in the frame of a delta IQR.
2. Finalise hardware qualification and provide traceability link of SPIRE VCD against Instrument Interface Documents.
3. Closely monitor SMEC qualification and FM manufacturing with the aim to recover the announced schedule delay, in order to comply with the overall Herschel/Planck planning.
4. Perform initial conducted susceptibility EMC tests during PFM1 ILT in order to identify and assess potential problems early.
5. Update calibration plan prior delta review.

6. Ensure timely implementation of all ‘flight’ requirements into the SPIRE OBSW and the relevant verification process.
7. Finalize peakup mode requirements and implement the corresponding verification approach.
8. To provide a complete CIDL presenting the design baseline for the qualification model, that is clearly traced to the as-built and qualified model. Further the changes from the qualification model towards the flight model needs to be clearly identified and traced in a CIDL presenting the design baseline for the flight model.
9. Ensure and closely monitor appropriate PA approach at subsystem level and close communications between system and subsystem PA.
10. Update HSIA within the frame of a delta IQR.
11. Ensure that the Declared Materials Lists and the Declared Processes Lists are updated and finalised to reflect the current status.
12. Provide SPIRE User Manual, which is urgently needed by industry to support the forthcoming EQM test campaign, and by ESOC to support the instrument simulator development.

## **8 BOARD CONCLUSIONS**

The Board congratulates SPIRE team for their efforts to arrive at the design maturity demonstrated in their documentation and during the presentations.

However, due to the nature of SPIRE CQM, not all review objectives have been met. The entire spectrometer part of SPIRE and all warm units (DCU, FCU, DPU) have not yet been qualified. Scientific performance measurements with the spectrometer part have not been performed. Scientific measurements with the photometer have been made however an assessment against the relevant requirements has not been done. Thus the Board concludes that a delta Instrument Qualification Review is necessary, once all remaining subsystems, in particular the warm units are finally qualified, and results from PFM1 ILT are available and analysed.

The Schedule remains highly critical and SPIRE needs to establish means to ensure close monitoring and follow-up with subsystems, particularly with SMEC.

Although the PA and Configuration Management is not yet at the level that would be required at this stage of the project the board notes with satisfaction that considerable improvement has been made since the previous review.

The Board expects the issues raised in the recommendations in this report, as well as in the RIDs transmitted to SPIRE, to be addressed and resolved prior the delta IQR, which is expected in April/May 2005 timeframe.

## 9 ANNEX

### 9.1 Documentation reviewed

Document Title	SPIRE Doc number or reference	Issue	date	Mandatory Document	Supplementary Document	Req for delivery review
<b>Hardware Design / Development / Interfaces</b>						
IID-B	<u>SCI-PT-IIDB-SPIRE-02124 SPIRE-ESA-DOC-000275</u>	3.3	21/06/2004	X		
Instrument Master Schedule	<u>14 11 04</u>		14/11/2004	X		
Instrument Budgets	<u>SPIRE-RAL-PRJ-000450</u>	4	01/06/2003	X		
Design Description	<u>SPIRE-RAL-PRJ-000620</u>	2			X	
SPIRE HDD 1.2 pr	<u>SPIRE-RAL-DOC-000608</u>		15/11/2004		X	
<b>Qualification</b>	-					
<b>Instrument AIV Plan</b>	<u>SPIRE-RAL-PRJ-000410</u>	3 Draft	01/05/2003	X		
<b>Instrument Calibration Plan</b>	<u>Calibration Requirements SPIRE-RAL-PRJ-001064</u>	Draft	03/01/2002	X		
<b>Instrument Verification Control Document (incl. Verification Control Matrix)</b>	<u>SPIRE instrument qualification requirements SPIRE-RAL-PRJ-0000592</u>	1.1	29/03/2001	X		
SM Verification Matrix	<u>SPIRE-RAL-PRJ-001860</u>	1	21/11/2003	X		X
AM Verification Matrix	<u>SPIRE-RAL-PRJ-001861</u>	1	21/11/2003	X		X
CQM1 Verification Matrix Report	<u>SPIRE-RAL-REP-002095</u>	1	15/11/2004	x		X
Scientific Performance Test Specification	<u>CQM Instrument level Test Plan SPIRE-RAL-DOC-001049</u>	2	08/07/2004		X	

Document Title	SPIRE Doc number or reference	Issue	date	Mandatory Document	Supplementary Document	Req for delivery review
	<u>CQM performance test specification SPIRE-RAL-DOC-001123</u>	draft 4	29/05/2002			
<b>Scientific Performance Test Report</b>	<u>CQM Performance Test Report SPIRE-RAL-REP-002083</u>	Draft	14/07/2004	X		X
<b>ILT Summary Test Report</b>	<u>CQM functional test report SPIRE-RAL-REP-002084</u>	1	12/07/2004	X		
<b>FPU Vibration Test Report</b>	<u>SPIRE-MSS-REP-002049</u>	1.3	01/09/2004	X		X
<b>Vibration Test Specification for all units</b>						
FPU and JFETS	<u>SPIRE-RAL-DOC-1955</u>	1	04/06/2004		X	
<b>Vibration Test ‘as-run’ Procedures for all units</b>						
FPU and JFETS	<u>SPIRE-RAL-PRC-001956</u>	3	30/03/2004		X	X
<b>Thermal Test Specification for all units</b>						
FPU and JFETS	<u>CQM Instrument level Test Plan SPIRE-RAL-DOC-001049</u>	2	08/07/2004		X	
<b>Thermal Test ‘as-run’ Procedures for all units</b>						
FPU and JFETS	<u>CQM Cold Verification 1 Master Procedure SPIRE-RAL-DOC-001888</u>	1	22/01/2004		X	X
<b>Thermal Test Reports for all units</b>						
FPU and JFETS	<u>Thermal Validation Report SPIRE-RAL-REP-002078</u>	1	10/11/2004	X		X
<b>EMC Test Reports for all units</b>						
SPIRE	<u>SPIRE-RAL-REP-002167</u>	0-d1	12/11/2004	X		X
PSU (power supply for DCU/FCU)	<u>HSPiR-PSU-REE-DA0018814-V-ASTR</u>	draft				
<b>On-Board Software</b>						

Document Title	SPIRE Doc number or reference	Issue	date	Mandatory Document	Supplementary Document	Req for delivery review
SPIRE OBS URD	<u>SPIRE-IFS-PRJ-000444</u>	1.3	27/09/2004		X	
SPIRE Autonomy Requirements	<u>SPIRE-RAL-PRJ-001855</u>	Draft 2	07/01/2004			
SPIRE Peak Up Mode Requirements	<u>SPIRTE-RAL-PRJ-001969</u>	Draft 1	Mar-04			
SPIRE OBS SSD	<u>SPIRE-IFS-PRJ-001036</u>	1.1	15/08/2004		X	
SPIRE Data ICD	<u>SPIRE-RAL-PRJ-001078</u>	1.2k	15/11/2004			
SPIRE DRCU/DPU EICD	<u>SPIRE-SAP-PRJ-001324</u>	1.0 Redlined	25/06/2004			
SPIRE OBS SVVP	<u>SPIRE-IFS-DOC-001392</u>	1.3	Aug 04		X	X
SPIRE OBS Acceptance Test Report	<u>SPIRE-IFS-REP-001393</u>	1.3	01/10/2004			
SPIRE OBS User Manual	<u>SPIRE-IFS-PRJ-001391</u>	1	18/08/2004			
Herschel DPU/ICU Switch On Procedure	<u>SPIRE-IFS-DOC-000994</u>	1	12/10/2001			
DPU BSW SRD	<u>SPIRE-IFS-PRJ-001030</u>	2	18/07/2001			
DPU BSW ADD	<u>SPIRE-IFS-PRJ-001029</u>	1	18/07/2001			
Herschel DPU/ICU Switch On Procedure TM Packets User Manual	<u>SPIRE-CGS-DOC-001753</u>	Draft 2	20/03/2003			
DPU BSW SVVP	<u>SPIRE-CGS-DOC-001776</u>	1	05/04/2002	X		
DPU BSW Test Report	<u>SPIRE-IFS-REP-002196</u>	1	05/04/2002			
DPU BSW User Manual	<u>SPIRE-CGS-DOC-001777</u>	1	05/04/2002			
SPIRE DPU Virtual Machine	<u>SPIRE-IFS0DOC-001622</u>	2.1	21/09/2004			
<b>Software Installation Guide</b>				X		X
SPR/SCR List	<u>SPIRE-RAL-DOC-002069</u>	Draft 1	02/07/2004	X		
SPIRE OBS Status Inventory Report	<u>H-P-1-CAP-RP-0007</u>	1	11/06/2004			
<b>Operations and EGSE</b>						
HSIA Worksheets	<u>SPIRE-RAL-NOT-001719</u>	1.2	12/07/2004	x		x
FDIR Procedure Definition	<u>SPIRE-RAL-PRJ-001978</u>	1	13/07/2004	x		x
<b>EGSE User Manual</b>						



Document Title	SPIRE Doc number or reference	Issue	date	Mandatory Document	Supplementary Document	Req for delivery review
CDMS Simulator User Guide	<u>SPIRE-RAL-PRJ-000807</u>	2.2	12/03/2003	x		x
EGSE Specification	<u>SPIRE-RAL-NOT-001463</u>	0.1	12/12/2002		x	
Transport and Handling Procedures	<u>SPIRE-RAL-PRC-001923</u>	2	21/10/2004	x		x
Integration Procedures	<u>SPIRE-RAL-PRC-001923</u>	2	21/10/2004		x	x
GSE Safety Analysis (if applicable)	<u>MSSL/SPIRE/PA016.01</u>	1	01/10/2004	x		x
<b>PA</b>						
<b>CIDL/ABCL (As Built) Config. Item Data List</b>	SPIRE-RAL-PRJ-001134 2.0 CIDL(working draft).doc	2		x		x
<b>CIL Critical Items List</b>	presentation during kick-off			x		x
<b>Safety Analysis</b>	<u>SPIRE-RAL-DOC-001293</u>	4		x		x
<b>FMECA</b>	<u>System Interface FMECA SPIRE-RAL-PRJ-001260</u>	1	01/11/2002	X		x
	<u>Interface FMECA qualification status report for CDR SPIRE-RAL-NOT-002087</u>	1	12/07/2004	x		
<b>DMPL Declared Mechanical parts</b>	<u>SPIRE-RAL-PRJ-001094</u>	3	06/11/2004	x		x
<b>DML Declared Materials List</b>	<u>SPIRE-RAL-PRJ-001092</u>	3	06/11/2004	x		x
<b>DPL Declared Processes List</b>	<u>SPIRE-RAL-PRJ-001093</u>	3	06/11/2004	x		x
<b>EEE Parts List</b>	<u>SPIRE-RAL-PRJ-001095</u>	3	06/11/2004	x		x
<b>ECR Status Report</b>	<u>SPIRE-RAL-PRJ-001080</u>	4	16/11/2004	x		x
<b>NCR Status Report</b>	<u>SPIRE-RAL-PRJ-001079</u>	5	16/11/2004	x		x
<b>RfId/ RfW Status Report</b>	<u>SPIRE-RAL-PRJ-001081</u>	4	16/11/2004	x		x

9.2 RID Overview (Status 8<sup>th</sup> February 2005)

ID Number	Originator reference	Originator	RID title	RID Classification	RID Close Out	Final Status
1	BC-01	B.Collaudin	SPIRE Qualification ?	Major		Open
2	DG-1	D.Guichon	peak up Draft document	Minor	Closed during Co-location by Action Item (AI #22)	Closed
3	DG-2	D.Guichon	Peak up simulation report	Minor	Closed during Co-location by Action Item (AI #23)	Closed
4	DG-3	D.Guichon	peak up performance assessment	Major		Open
5	DG-4	D.Guichon	peak up correction range	Major		Open
6	DG-5	D.Guichon	peak up convention	Major	Closed during Co-location (see RID disposition).	Closed
7	DG-7	D.Guichon	PKP-CAL-010	Minor	Closed during Co-location (see RID disposition).	Closed
8	DG-8	D.Guichon	peak up Raw data in telemetry	Minor	Closed during Co-location (see RID disposition).	Closed
9	DG-9	D.Guichon	peak up end to end test	Major		Open
10	NBG-01	N.Bouvier-Gonget	FDIR	Major		Open
11	NBG-02	N.Bouvier-Gonget	FMECA	Major	Closed during Co-location (see RID disposition).	Closed
12	DJS-01	D.Jollet-Segura	SPIRE FPU Cold vibrations	Major		Open
13	DJS-02	D.Jollet-Segura	cold vibration data for system test	Minor	Closed during Co-location meeting by action item (AI #34)	Closed
14	BC-02	B.Collaudin	SPIRE VCD wrt IID's	Major	Closed during C0-location (see RID Disposition)	Closed
15	BD-01	B.Demolder	Thermal control	Minor	Closed during C0-location (see RID Disposition)	Closed
16	BD-02	B.Demolder	deffective Temperature sensors	Major	Closed during C0-location (see RID Disposition)	Closed

ID Number	Originator reference	Originator	RID title	RID Classification	RID Close Out	Final Status
17	AL-01	A.Luc	HSPSU, Out of limit in CE on secondary power lines	Minor	Closed during Colocation by Action (AI #26).	Closed
18	AL-02	A.Luc	Susceptability on primary power lines	Major		Open
19	GLP-01	G.L.Pilbratt	Scientific performance non-assessment	Major		Open
20	GLP-02	G.L.Pilbratt	Missing instrument requirements compliance matrix	Major		Open
21	GLP-03	G.L.Pilbratt	Outdated calibration requirements	Major		Open
22	FMM-01	F. Martinez Martin	EEE parts without approval	Major		Open
23	JR-01	J. Rautakoski	NCR status list	Major	NCR list has been provided by email from Eric Sawyer on 01/02/05	Closed
24	JR-02	J. Rautakoski	SPIRE CQM Instrument Level Test Plan	Minor	Closed during Colocation by Action (AI #4).	Closed
25	JR-03	J. Rautakoski	Missing documents	Major		Open
26	JR-04	J. Rautakoski	Request For Waiver Status Report	Major	Updated document has been provided by email from Eric Sawyer on 01/02/05	Closed
27	JR-05	J. Rautakoski	Verification Control Document, VCD, is missing	Major		Open
28	LP-01	L Pambaguian	DML	Minor	Closed during Colocation by Action (AI #12).	Closed
29	LP-02	L Pambaguian	DPL	Major		Open

ID Number	Originator reference	Originator	RID title	RID Classification	RID Close Out	Final Status
30	LP-03	L Pambaguian	DMPL	Major		Open
31	OB-01	O. Bauer	FMECA	Major		Open
32	OB-02	O. Bauer	EGSE UM/Specifications	Minor	Closed during Co-location (13/12/04) by accepting RID reply.	Closed
33	CS-01	C. Scharmberg	OBSW Acceptance	Major		Open
34	CS-02	C. Scharmberg	OBSW UM	Minor	Closed during CO-location by action item (AI #36)	Closed
35	CS-03	C. Scharmberg	IUM	Major	Closed by existing Action Item from SPIRE DRB (see RID disposition).	Closed
36	TR-01	T. Rohr	Combined DML and DPL	Major		Open

### 9.3 RID Compilation (Status 8<sup>th</sup> February 2005)

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number :BC-01</b>  Originator : <a href="#">B.Collaudin</a>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID : <a href="#">SPIRE Qualification ?</a></b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">all</a>	
<b>Classification :</b> <a href="#">Major</a> (Minor / Major)	
<b>Discrepancy :</b> The review is supposed to be the SPIRE QM qualification. The document presented is related to the qualification of the photometer part of the FPU (with STM's of the spectrometer), plus the description of the (DPU) software. It is understood that the functional tests and thermal qualification of the Spectrometer will be performed on the FM1 model. The qualification of the warm units will be performed on QM2 (DCU/FCU) end 04 to 1st quarter 05.	
<b>Date :</b>	<b>Signature Originator:</b>
<b>Initiator recommended action or solution :</b> It seems difficult to get relevant conclusions on the SPIRE Qualification status from the proposed datapackage. Only aimed to demonstrate that the delivered FPU & warm units are suitable for the EQM activities. The qualification process must then be performs in 2 steps: Step 1: Photometer FPU & software (now) Step 2: Spectrometer FPU & warm units	
<b>Date :</b>	<b>Signature:</b>

**Position of Organisation/Company:**

As noted in previous reviews, due to constraints on availability of subsystems, the SPIRE CQM is properly representative of only the photometer side of the instrument, and does not contain working beam steering or spectrometer mechanisms.

Each subsystem has its own qualification programme, with qualification vibration levels for the FPU subsystems derived been derived from the STM/CQM vibration test results.

At this time, all FPU subsystems are qualified at unit level with the exception of the SMEC and L-0 thermal straps and CFRP supports.

As noted in the presentation by Eric Sawyer "Qualification Summary" at the IQR kick-off meeting, the following units/subsystems are not yet fully qualified

- DPU (Confidence Model)
- DCU (QM2- Partially qualified on STM, structure/thermal)
- FCU (QM2- Partially qualified on STM, structure thermal)
- SMEC (DM, warm test next week, cold vib December)
- Dichroics (Now in hand after problem with inappropriate test procedure)
- JFETS (Now qualified; failure of JFET membrane in CQM under investigation; MRB planned 15 Dec.; failure not believed to raise any question concerning the qualification of the design)
- Thermal straps
- CFRP mounts
- PTC (Photometer thermal control, qualification now completed at unit level)

The instrument-level qualification programme for SPIRE will need to be completed on the PFM. We propose to develop the detailed procedure for this in consultation with ESA and Industry through the regular working meetings and telecons.

Date :

Signature:

**RID Disposition :**

Due to technical problems not all subsystems are already qualified. DCU and FCU qualification will be finalized by end of February 05. DPU qualification will be finalized by May 05. Functional and performance qualification on the spectrometer part will be done with the PFM1 ILT. Missing qualification shall be reviewed within the frame of a delta IQR, which most likely can take place end of April 05 (after PFM1 ILT).

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

**RID Close Out :**

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<div style="display: flex; justify-content: space-between;"> <div style="width: 40%;"> <b>HERSCHEL / PLANCK SPIRE IQR</b> </div> <div style="width: 55%;"> <b>Rid Number :DG-1</b> </div> </div>	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <b>Subsystem or equipment : SPIRE</b> </div> <div style="width: 50%;"> <b>Originator : D.Guichon</b> </div> </div>	
<div style="display: flex; justify-content: space-between;"> <div style="width: 50%;"> <b>Subsystem or equipment : SPIRE</b> </div> <div style="width: 45%;"> <b>Organisation/Company :</b> </div> </div>	
<b>Title of the RID : peak up Draft document</b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> SPIRE peak up mode requirement SPIRE-RAL-PRJ-001969 draft	
<b>Classification :</b> <span style="margin-left: 100px;">Minor</span> (Minor / Major)	
<b>Discrepancy :</b> Document is draft	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">Date :</div> <div style="width: 50%;">Signature Originator:</div> </div>	
<b>Initiator recommended action or solution :</b> Configured version of document shall be provided for review	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">Date :</div> <div style="width: 50%;">Signature:</div> </div>	
<b>Position of Organisation/Company:</b> The necessity for a Peak-up mode is still under consideration. The document was prepared to give an indication of the likely requirements if it is needed. The document will be issued when the decision to implement the mode is taken.	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">Date :</div> <div style="width: 50%;">Signature:</div> </div>	
<b>RID Disposition :</b> Implementation of peak-up mode is baselined. Considered that the interfaces are already finalized in IID-A/B, SPIRE will update the document by 29/04/05.	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">Date :</div> <div style="width: 50%;">Date :</div> </div>	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">Signature (Contractor) :</div> <div style="width: 50%;">Signature (Board Chairman) :</div> </div>	
<b>RID Close Out :</b> Closed during Co-location by Action Item (AI #22)	
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">Date :</div> <div style="width: 50%;">Date :</div> </div>	





**HERSCHEL PLANCK**



Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	Rid Number : <b>DG-2</b>  Originator : <b>D.Guichon</b>
Subsystem or equipment : <b>SPIRE</b>	Organisation/Company :
Title of the RID : <b>Peak up simulation report</b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> SPIRE peak up mode requirement SPIRE-RAL-PRJ-001969 draft	
<b>Classification :</b> <span style="margin-left: 150px;"><b>Minor</b></span> (Minor / Major)	
<b>Discrepancy :</b> RD 01 "peak up mode implementation and simulation" is not part of Data package	
Date :	Signature Originator:
<b>Initiator recommended action or solution :</b> RD 01 "peak up mode implementation and simulation" shall be provided for review.	
Date :	Signature:
<b>Position of Organisation/Company:</b> The document will be provided at the co-location meeting.	
Date :	Signature:
<b>RID Disposition :</b> SPIRE will provide the relevant document by 14/12/04.	
Date :	Date :
Signature (Contractor) :	Signature (Board Chairman) :
<b>RID Close Out :</b> Closed during Co-location by Action Item (AI #23)	
Date :	Date :
Signature (Contractor) :	Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number :DG-3</b>  Originator : <a href="#">D.Guichon</a>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID : <a href="#">peak up performance assessment</a></b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">SPIRE peak up mode requirement SPIRE-RAL-PRJ-001969 draft</a>	
<b>Classification :</b> <a href="#">Major</a> (Minor / Major)	
<b>Discrepancy :</b> <a href="#">It is understood that peak up is proposed as fulfillment of IID-A requirement about instrument detector LOS attitude estimation accuracy (all detectors) (which shall be less than 1 arsec). No performance assessment is provided</a>	
Date :	Signature Originator:
<b>Initiator recommended action or solution :</b> <a href="#">A. Please confirm</a> <a href="#">B. Please provide performance demonstration (bias, long term and short term budgets are to be presented)</a> <a href="#">C. Please present performance assessment verification by simulation or test.</a>	
Date :	Signature:
<b>Position of Organisation/Company:</b> <a href="#">A.</a> <a href="#">Peak-up mode is not designed to calibrate the LoS pointing wrt the star trackers. This should be done with dedicated mapping measurements to be analysed on the ground. Some confusion may have arisen due to the title of the relevant note "Astrometric Accuracy Achievable with SPIRE Peak-up Mode" SPIRE-UCF-NOT-001818, which actually analyses the accuracy that can be achieved using analysis of the data on ground. Numerical simulations of point source mapping observations are currently being written up and will be included in a re-issued version of this document (at the same time the terminology will be clarified). The conclusions will not be fundamentally different: attaining an accuracy of less than 1" with SPIRE is unlikely and unnecessary for SPIRE.</a>	
Date :	Signature:
<b>RID Disposition :</b> <a href="#">A.</a> <a href="#">SPIRE position accepted.</a> <a href="#">B. &amp; C.</a> <a href="#">SPIRE to update and provide the document "Astrometric Accuracy Achievable with SPIRE Peak-up Mode" Ref. SPIRE-UCF-NOT-001818 by 23/12/04. This document shall include the performance assessment.</a>	

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

**RID Close Out :**

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	Rid Number : <b>DG-4</b>  Originator : <b>D.Guichon</b>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID :</b> <b>peak up correction range</b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> SPIRE peak up mode requirement SPIRE-RAL-PRJ-001969 draft	
<b>Classification :</b> <b>Major</b> (Minor / Major)	
<b>Discrepancy :</b> What is the maximum possible correction sent as a result of peak up procedure ? In others words, is the peak procedure working properly for correction until 10 arcsec (10 arcsec is coming from SRS requirement).	
Date :	Signature Originator:
<b>Initiator recommended action or solution :</b> Please answer.	
Date :	Signature:
<b>Position of Organisation/Company:</b> Maximum correction is $\pm 10$ arcsecs (IIA Part A – SCI-PT-IIBA-04624)	
Date :	Signature:
<b>RID Disposition :</b> SPIRE to provide the k-value for the 16 bit rotation angle by 31/01/05.	
Date :	Date :
Signature (Contractor) :	Signature (Board Chairman) :
<b>RID Close Out :</b>	
Date :	Date :
Signature (Contractor) :	Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number :DG-5</b>  Originator : <a href="#">D.Guichon</a>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID : <a href="#">peak up convention</a></b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">SPIRE peak up mode requirement SPIRE-RAL-PRJ-001969 draft</a>	
<b>Classification :</b> <a href="#">Major</a> (Minor / Major)	
<b>Discrepancy :</b> <a href="#">How sign convention specified in IID-A been verified ?</a>	
Date :	Signature Originator:
<b>Initiator recommended action or solution :</b> <a href="#">Please provide method for sign convention verification</a>	
Date :	Signature:
<b>Position of Organisation/Company:</b> <a href="#">Verified during ground testing with a simulated point source offset from the instrument centre. Careful verification in flight will also be needed – sign convention errors are often difficult to eliminate until final checking.</a>	
Date :	Signature:
<b>RID Disposition :</b> <a href="#">SPIRE will verify compliance to the sign convention errors during PFM2 ILT using a off-line source.            SPIRE will demonstrate compliance also with their AVM.            Alcatel/Alenia will verify compliance within the frame of the AVM test program.            Above activities are considered as normal work. No additional action item needed, therefore the RID is closed.</a>	
Date :	Date :
Signature (Contractor) :	Signature (Board Chairman) :
<b>RID Close Out :</b> <a href="#">Closed during Co-location (see RID disposition).</a>	



**HERSCHEL PLANCK**



Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<p style="text-align: right;">Rid Number : <b>DG-7</b></p> <p><b>HERSCHEL / PLANCK</b> <b>SPIRE IQR</b></p> <p style="text-align: right;">Originator : <b>D.Guichon</b></p>	
Subsystem or equipment : <b>SPIRE</b>	Organisation/Company :
Title of the RID : <b>PKP-CAL-010</b>	
<p><b>Document Identification (Title, Vol, Sect., Para...)</b> SPIRE peak up mode requirement SPIRE-RAL-PRJ-001969 draft</p> <p><b>Classification :</b> <span style="margin-left: 150px;"><b>Minor</b></span> (Minor / Major)</p> <p><b>Discrepancy :</b> Please clarify difference between requirement 5a and 5b of PKP-CAL-010.</p> <p>Date : <span style="float: right;">Signature Originator:</span></p>	
<p><b>Initiator recommended action or solution :</b> Please provide clarifications</p> <p>Date : <span style="float: right;">Signature:</span></p>	
<p><b>Position of Organisation/Company:</b> When chopping, NDCU frames are read at each chop position (on and off source). Requirements 5a and 5b add the on source values and subtract the off source values from the sample value to give a value reflecting the difference (i.e. the actual signal from the source)</p> <p>Date : <span style="float: right;">Signature:</span></p>	
<p><b>RID Disposition :</b> SPIRE reply is accepted.</p> <p>Date : <span style="float: right;">Date :</span></p> <p>Signature (Contractor) : <span style="float: right;">Signature (Board Chairman) :</span></p>	
<p><b>RID Close Out :</b> Closed during Co-location (see RID disposition).</p> <p>Date : <span style="float: right;">Date :</span></p>	





**HERSCHEL PLANCK**



Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<p style="text-align: right;"><b>Rid Number :DG-8</b></p> <p><b>HERSCHEL / PLANCK</b> <b>SPIRE IQR</b></p> <p style="text-align: right;">Originator : <a href="#">D.Guichon</a></p>	
<p><b>Subsystem or equipment : SPIRE</b></p>	<p><b>Organisation/Company :</b></p>
<p><b>Title of the RID :</b> <a href="#">peak up Raw data in telemetry</a></p>	
<p><b>Document Identification (Title, Vol, Sect., Para...)</b>  <a href="#">SPIRE peak up mode requirement SPIRE-RAL-PRJ-001969 draft</a></p>	
<p><b>Classification :</b> <a href="#">Minor</a> (Minor / Major)</p>	
<p><b>Discrepancy :</b>  <a href="#">Are the "value" and "sample" parameter of PKP-Cal-010 put in telemetry for ground assessment ? What is the associated frequency ?</a></p>	
<p>Date :</p>	<p>Signature Originator:</p>
<p><b>Initiator recommended action or solution :</b>  <a href="#">Ensure peak up raw data are in telemetry for in flight verification PV.</a></p>	
<p>Date :</p>	<p>Signature:</p>
<p><b>Position of Organisation/Company:</b>  <a href="#">The intention is that the raw data should be placed into the telemetry as normal so that on-ground verification can be made. A requirement to do this will be added to the document.</a></p>	
<p>Date :</p>	<p>Signature:</p>
<p><b>RID Disposition :</b>  <a href="#">SPIRE update document by end of April 2005. RID is closed, because the action is covered by other RID DG-1</a></p>	
<p>Date :</p>	<p>Date :</p>
<p>Signature (Contractor) :</p>	<p>Signature (Board Chairman) :</p>
<p><b>RID Close Out :</b>  <a href="#">Closed during Co-location (see RID disposition).</a></p>	
<p>Date :</p>	<p>Date :</p>



**HERSCHEL PLANCK**



Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<div style="display: flex; justify-content: space-between;"> <div style="width: 40%;"> <p><b>HERSCHEL / PLANCK</b> <b>SPIRE IQR</b></p> </div> <div style="width: 55%;"> <p>Rid Number : <b>DG-9</b></p> <p>Originator : <b>D.Guichon</b></p> </div> </div>	
<p>Subsystem or equipment : <b>SPIRE</b></p>	<p>Organisation/Company :</p>
<p>Title of the RID : <b>peak up end to end test</b></p>	
<p><b>Document Identification (Title, Vol, Sect., Para...)</b>            SPIRE peak up mode requirement SPIRE-RAL-PRJ-001969 draft</p>	
<p><b>Classification :</b> <span style="margin-left: 150px;"><b>Major</b></span> (Minor / Major)</p>	
<p><b>Discrepancy :</b>            How will the system test be possible on AVM (Alenia avionic bench) and System level (on Spacecraft with real instrument) ? Does it exist a specific test mode where an equivalent of the peak up correction is provided by instrument EM or FM so that an end to end test could be performed ? Is a stimulator exists to use the real peak up mode ?</p>	
<p>Date :</p>	<p>Signature Originator:</p>
<p><b>Initiator recommended action or solution :</b>            Ensure possibility to perform end to end test at AVM and system level</p>	
<p>Date :</p>	<p>Signature:</p>
<p><b>Position of Organisation/Company:</b>            The AVM will simulate an off-centre source and can be used to perform an end-to end test. It is possible to generate the peak-up event packet from the instrument (without any stimulation) by use of a test command list in order to check the response of the satellite.</p>	
<p>Date :</p>	<p>Signature:</p>
<p><b>RID Disposition :</b>            SPIRE to provide the command list concerning the AVM test to verify peak-up mode implementation by the s/c by 31/01/05.</p>	
<p>Date :</p>	<p>Date :</p>
<p>Signature (Contractor) :</p>	<p>Signature (Board Chairman) :</p>
<p><b>RID Close Out :</b></p>	



**HERSCHEL PLANCK**



Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number :NBG-01</b>  Originator : <a href="#">N.Bouvier-Gonget</a>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID : <a href="#">FDIR</a></b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">SPIRE FDIR ref SPIRE RAL PRJ 001978 issue 1.0 dated 13/07/04</a> <a href="#">HSIA ref SPIRE RAL PRJ 001719 issue 1.2 dated 12/07/04</a>	
<b>Classification :</b> <span style="margin-left: 150px;"><a href="#">Major</a></span> (Minor / Major)	
<b>Discrepancy :</b> <a href="#">1/ §2.3 DRCU board temperatures : In case of temperature indicator is out of hard limits for MAC, SMEC or BSM temp, the SPIRE action is "switch off MCU".</a> <a href="#">- what is the impact of MCU switch off on SPIRE performances ?</a> <a href="#">- what is the SPIRE following actions which enable to maintain the instrument performances ?</a> <a href="#">-&gt; idem for DAQ_if temp and the "switch off DCU" : SPIRE performances, actions?</a> <a href="#">-&gt; idem for LIA temp and the "switch off LIA": SPIRE performances, actions?</a> <a href="#">2/ §2.6 SCU Heater failure :</a> <a href="#">- in case of heater failure the action is "switch off OOL heater" ..... what is the impact on SPIRE of this switch OFF?</a> <a href="#">- is it possible to switch automatically on redundant side to avoid a SPIRE mission interruption?</a> <a href="#">-&gt; idem for others heaters or subsystem failure.</a> <a href="#">3/ Thermistors</a> <a href="#">:- how do you do the distinction between a thermistor failure and a real hardware failure?</a> <a href="#">- Could you confirm us that a thermistor single failure not lead to an instrument performances interruption?</a>	
Date :	Signature Originator:
<b>Initiator recommended action or solution :</b> <a href="#">1/ to clarify</a> <a href="#">2/ to clarify and if necessary to propose solution that enable reduction of instrument mission outage</a> <a href="#">3/ to clarify and if necessary to propose solution to avoid SPIRE mission interruption in case of sensor failure</a>	
Date :	Signature:
<b>Position of Organisation/Company:</b> <a href="#">1. Impact of MCU or DCU switch-off: no further use of SPIRE until ground contact As noted in document SPIRE-RAL-PRJ-001128 "FDIR Policy", there is no provision for autonomous SPIRE actions beyond SPIRE requesting itself to be switched off.</a> <a href="#">2. We will update the document to clarify the effect on SPIRE performance of the loss of a pump heat switch (slow degradation of sensitivity over a period of time; no immediate impact on operations). Note that under no circumstances is switching to the redundant electronics carried out autonomously.</a> <a href="#">3. Diagnosis based on on-ground analysis of data. In the event of an SCAL heater failing in operation, SCAL will be switched off. Operations can continue but with some loss of data quality.</a>	
Date :	Signature:

**RID Disposition :**

1. Reply accepted.
2. HSIA update for delta IQR.
3. If thermistor limits exceed the limit, HSIA defines the action to switch-off the heater. Any further distinction will be done offline on ground.

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

**RID Close Out :**

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<p style="text-align: right;"><b>Rid Number :</b> <b>NBG-02</b></p> <p><b>HERSCHEL / PLANCK</b> <b>SPIRE IQR</b></p> <p style="text-align: right;">Originator : <b>N.Bouvier-Gonget</b></p>	
<b>Subsystem or equipment :</b> SPIRE	<b>Organisation/Company :</b>
<b>Title of the RID :</b> <b>FMECA</b>	
<p><b>Document Identification (Title, Vol, Sect., Para...)</b>            SPIRE FMECA ref SPIRE RAL NOT 002087 issue 1.0 dated 12/07/04</p>	
<p><b>Classification :</b> <span style="margin-left: 150px;"><b>Major</b></span> (Minor / Major)</p>	
<p><b>Discrepancy :</b>            1/ the failure describe in the FDIR document "SPIRE RAL PRJ 001978" doesn't appeared in the document. So these failure have an impact on the CDMS and the instrument performances and shall be included in the FMECA.</p>	
Date :	Signature Originator:
<p><b>Initiator recommended action or solution :</b>            1/ to update the FMECA with all failures and in particular the failures which involve CDMS actions and failures that involve instrument mission interruption.</p>	
Date :	Signature:
<p><b>Position of Organisation/Company:</b>            The FMECA applies to SPIRE-Herschel interfaces, and is not intended as the input to the HSIA. A full FMECA on the entire SPIRE system has not been carried out. The critical failures and appropriate actions are analysed in the HSIA.</p>	
Date :	Signature:
<p><b>RID Disposition :</b>            SPIRE's reply is accepted.</p>	
Date :	Date :
Signature (Contractor) :	Signature (Board Chairman) :
<p><b>RID Close Out :</b>            Closed during Co-location (see RID disposition).</p>	





**HERSCHEL PLANCK**



Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :



**Position of Organisation/Company:**

- 1 There were insufficient accelerometer channels to do a full correlation. A quick check was performed and results agreed well.
- 2 Table will be updated to clarify axis.
- 3 SPIRE consider that using an average value is realistic and even a conservative approach. Please note that all subsystems including the detectors have been (or will be in the case of the SMEC) qualified (cold) at subsystem level. This test was not designed to be a qualification of the main subsystems.
- 4 The required curves can be supplied.
- 5 The pivots used in the SMEC mass dummy were of a completely different design to the flight model. Teflon bushes were used in place of the steel flex pivots. They were designed to give similar stiffness in lateral directions only, so that the vibration behaviour would be similar. Movement occurred due to the low friction between the clamps and the Teflon sleeves. This in no way affects the performance of the flight model.
- 6 Analysis of the dynamic behaviour described has been carried out and discussed with ESA. This information can be supplied to Alcatel.

Date :

Signature:

**RID Disposition :**

1. SPIRE to provide information on similarity between test result and analysis by 17/01/05
2. Test report to be updated, including the tables by 31/01/05
3. SPIRE to answer by 17/01/05
4. Reply accepted. SPIRE to provide curves by 17/01/05.
5. Reply is accepted.
6. SPIRE to provide information 31/01/05

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

**RID Close Out :**

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	Rid Number : <b>DJS-02</b>  Originator : <a href="#">D.Jollet-Segura</a>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID :</b> <a href="#">cold vibration data for system test</a>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">FPU Vibration Test Report. SPIRE-MSS-REP-00204_1.3 from 01/09/2004</a>	
<b>Classification :</b> <a href="#">Minor</a> (Minor / Major)	
<b>Discrepancy :</b> <a href="#">SPIRE to transmit the accelerometer data for F71, F73, F63 (FPU top optical bench) in electronic version (cryo vibration test Sinus et Random all axes) to be compared to system level tests.</a>	
Date :	Signature Originator:
<b>Initiator recommended action or solution :</b> <a href="#">provide data</a>	
Date :	Signature:
<b>Position of Organisation/Company:</b> <a href="#">This information is available and will be passed on to Alcatel.</a>	
Date :	Signature:
<b>RID Disposition :</b> <a href="#">SPIRE to provide information by 31/01/05.</a>	
Date :	Date :
Signature (Contractor) :	Signature (Board Chairman) :
<b>RID Close Out :</b> <a href="#">Closed during Co-location meeting by action item (AI #34)</a>	
Date :	Date :



**HERSCHEL PLANCK**



Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number :BC-02</b>  Originator : <a href="#">B.Collaudin</a>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID : <a href="#">SPIRE VCD wrt IID's</a></b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">CQM1 Verification Matrix Report SPIRE-RAL-REP-002095</a>	
<b>Classification :</b> <a href="#">Major</a> (Minor / Major)	
<b>Discrepancy :</b> <a href="#">The VCD is written for the instrument requirement, and the qualification requirement which is old, and do not capture the evolution of the interfaces. There is no VCD for SPIRE Interface requirements (IID-A &amp; IID-B).</a>	
Date :	Signature Originator:
<b>Initiator recommended action or solution :</b> <a href="#">demonstrate that interfaces are properly verified</a>	
Date :	Signature:
<b>Position of Organisation/Company:</b> <a href="#">This response also covers RID JR-05 which is essentially the same as BC-02.</a>  <a href="#">At the time when the IRD was written, the IID-B was in a very rudimentary state of development. SPIRE will update the IRD to include reference to IID-B Chapter 5, with appropriate requirements on the instrument. Therefore, verification will be traceable through the VCD. The timescale is TBD (to be discussed with ESA and Industry).</a>	
Date :	Signature:
<b>RID Disposition :</b> <a href="#">RID disposition is fully covered by JR-05, therefore it is closed</a>	
Date :	Date :
Signature (Contractor) :	Signature (Board Chairman) :



**RID Close Out :**

Closed during C0-location (see RID Disposition)

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number :BD-01</b>  Originator : <a href="#">B.Demolder</a>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID : <a href="#">Thermal control</a></b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">SPIRE-RAL-REP-002078, iss 1 SPIRE CQM THERMAL BALANCE TEST REPORT</a>	
<b>Classification :</b> <a href="#">Minor</a> (Minor / Major)	
<b>Discrepancy :</b> <a href="#">p.22, evaporator heat switch takes 2 to 4 times more to switch than the pup heat switch. What is the reason for the different durations, what is the impact on the recycling duration.</a>	
Date :	Signature Originator:
<b>Initiator recommended action or solution :</b> <a href="#">Please clarify</a>	
Date :	Signature:
<b>Position of Organisation/Company:</b>  <a href="#">- An NCR (NCR HR-SP-RAL-NCR-62v1) was raised on the SPIRE CQM cooler to track this anomalous switch-on behaviour</a> <a href="#">o The NCR was closed out after the ILT CQM programme when the switch had performed as expected apart from the switch-on time</a> <a href="#">- The subsystem provider (CEA-SBT) implemented an extra set of testing and screening procedures for the PFM/FS Cooler AIT programme. The PFM/FS switches have been tested and characterised at component level prior to integration into the cooler sub-system. All of these switches perform according to specification.</a>  <a href="#">- The CQM cooler will be used during SPIRE IMT testing in the Herschel EQM campaign</a> <a href="#">o The information required to recycle the cooler will be supplied with the SPIRE IMT Test Procedures.</a> <a href="#">o Despite the slow switch on time, the entire cooler recycle can be completed within the required 2 hour period.</a>	
Date :	Signature:
<b>RID Disposition :</b> <a href="#">SPIRE's reply is accepted.</a>	
Date :	Date :





Signature (Contractor) :

Signature (Board Chairman) :

**RID Close Out :**

Closed during C0-location (see RID Disposition)

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>													
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number :BD-02</b>  Originator : <a href="#">B.Demolder</a>												
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>												
<b>Title of the RID : <a href="#">defective Temperature sensors</a></b>													
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">SPIRE-RAL-REP-002078, iss 1 SPIRE CQM THERMAL BALANCE TEST REPORT</a>													
<b>Classification :</b> <a href="#">Major</a> (Minor / Major)													
<b>Discrepancy :</b> 2) p.41, The number of defective sensors level1, 2, 3 for CQM1/2 is: <table style="margin-left: 40px; border-collapse: collapse;"> <thead> <tr> <th></th> <th style="text-align: center;">CQM1</th> <th style="text-align: center;">CQM2</th> </tr> </thead> <tbody> <tr> <td>Level 2</td> <td style="text-align: center;">0</td> <td style="text-align: center;">1</td> </tr> <tr> <td>Level 1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">4</td> </tr> <tr> <td>Level 0</td> <td style="text-align: center;">3</td> <td style="text-align: center;">9</td> </tr> </tbody> </table> All the sensors defective for CQM1 were found defective for CQM2! 4 flight sensors are defective on CQM2 What is the recovery action to make those sensors operating for PFM test and for flight?			CQM1	CQM2	Level 2	0	1	Level 1	2	4	Level 0	3	9
	CQM1	CQM2											
Level 2	0	1											
Level 1	2	4											
Level 0	3	9											
Date :	Signature Originator:												
<b>Initiator recommended action or solution :</b> <a href="#">provide recovery solution</a>													
Date :	Signature:												
<b>Position of Organisation/Company:</b> A clarification needs to be made regarding Table 5-2 of SPIRE-RAL-REP-002078. The column heading "Type" refers to the LOCATION of the thermistor and not the actual component. All thermistors used during the CQM test campaign were non flight, commercial grade sensors. This was due to the fact that the flight grade sensors were delivered to SPIRE after the CQM programme had commenced.  For the initial testing of the PFM instrument (i.e. PFM-I) the same commercial grade thermistors will be used to monitor the instrument temperatures. However, no thermal tests will be carried out during this campaign and absolute accuracy is not required.  The flight grade sensors will be integrated into the instrument for the second cool down when thermal testing/qualification will be carried out. These sensors will be mounted differently to the ones used during the CQM programme in order to minimise self heating effects. The flight sensors have been supplied with the calibration data which should resolve the issue regarding calibration.													
Date :	Signature:												

**RID Disposition :**

SPIRE's reply is accepted.

Thermal sensors and it's mounting has been changed for PFM, and will be verified during PFM2 ILT.

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

**RID Close Out :**

Closed during C0-location (see RID Disposition

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number :AL-01</b>  Originator : <a href="#">A.Luc</a>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID : <a href="#">HSPSU, Out of limit in CE on secondary power lines</a></b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">HSPSU Spire, HSPIR-PSU-REE-DA0018814-V-ASTR</a>	
<b>Classification :</b> <span style="margin-left: 150px;"><a href="#">Minor</a></span> (Minor / Major)	
<b>Discrepancy :</b> <a href="#">Conducted emission test performed on secondary power lines has shown out of limit in common mode: it seems following the measurements plots that the exceedings are coming either from the DC/DC converter frequency or from a 1 MHz clock,</a> <a href="#">- is the power supply filtered at secondary output level ?</a> <a href="#">- is it possible to perform a zoom of the plot around 40 MHz?</a>	
Date :	Signature Originator:
<b>Initiator recommended action or solution :</b> <a href="#">provide answers</a>	
Date :	Signature:
<b>Position of Organisation/Company:</b> <a href="#">1) The RID does not indicates against which specification the test report shows inconsistency.</a>  <a href="#">2) Secondary power lines of HSPSU are internal i/f of DRCU. No specs of CE on secondary i/f are found in IID-A or in SPIRE project docs. The "out-of limit" probably refers to CEA's specification. CEA's system engineer is competent to decide if the DRCU can meet its performance requirements in these conditions.</a>  <a href="#">3) CQM ILT results show that under nominal conditions, the DRCU and its power supply do not compromise the detector noise levels.</a>	
Date :	Signature:
<b>RID Disposition :</b> <a href="#">Reply is not answering the questions. SPIRE to provide proper answers by 31/01/05.</a>	
Date :	Date :
Signature (Contractor) :	Signature (Board Chairman) :



**RID Close Out :**

Closed during Colocation by Action (AI #26).

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number :AL-02</b>  Originator : <a href="#">A.Luc</a>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID : <a href="#">Susceptibility on primary power lines</a></b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">Spire CQMII EMC test report, SPIRE-RAL-REP-002167</a>	
<b>Classification :</b> <a href="#">Major</a> (Minor / Major)	
<b>Discrepancy :</b> <a href="#">This document is a draft version and is difficult to analyse, however it shows that susceptibilities have been detected in particular at 16 MHz and upper frequencies in Differential Mode and also in Common mode. Have the susceptibility levels been measured ?</a> <a href="#">Are this susceptibilities related to the use of internal clocks in Spire units ?</a> <a href="#">What was the test set-up ?</a>	
Date :	Signature Originator:
<b>Initiator recommended action or solution :</b> <a href="#">Update the draft version of the test report</a>	
Date :	Signature:
<b>Position of Organisation/Company:</b> <a href="#">Should "CE" above be "CS"? Should "secondary" be "primary"?</a>  <a href="#">It is acknowledged that the document is in draft format and is difficult to analyse. Given the deficiencies of the test that have been widely discussed, it is planned to make the following minimal updates to the document:</a> 1. Grounding diagram for the test 2. Test configuration for the DM/CM CS testing 3. Plots of raw data 4. Brief summary and conclusions  <a href="#">Future SPIRE EMC control activities will be focused on (1) the detailed planning and preparation for instrument level EMC testing that will be carried out on the PFM and (2) preparation for the RS testing during the EQM programme.</a>  <a href="#">Re: Susceptibility levels; during the CM and the DM tests, the injected level was reduced below the IID-A levels and no immunity level was found</a>  <a href="#">Re: Coupling via SPIRE clocks; Susceptibilities were found over a broad frequency range (0.75MHz to tens of MHz) which would suggest that the internal SPIRE clocks are not responsible for the EMI coupling. Re: Test set-up; this will be included in the updated test report.</a>	
Date :	Signature:

**RID Disposition :**

Note: RID title was corrected during Co-location meeting.  
SPIRE to update the document as indicated by 31/01/05

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

**RID Close Out :**

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number :</b> GLP-01  <b>Originator :</b> G.L.Pilbratt
<b>Subsystem or equipment :</b> SPIRE	<b>Organisation/Company :</b>
<b>Title of the RID :</b> <a href="#">Scientific performance non-assessment</a>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">Draft SPIRE test report (SPIRE-RAL-REP-002083) [doc]</a> and presentation by Bruce Swinyard during the IQR KO mtg [pres].	
<b>Classification :</b> <span style="margin-left: 150px;">Major</span> (Minor / Major)	
<b>Discrepancy :</b> <p>It has not been possible to fully assess the scientific performance of SPIRE, thus it is not possible to conclude that it is compliant with the requirements.</p> <p>Due to the nature of the SPIRE CQM FPU it was known beforehand that it would not be possible to fully assess the scientific performance; after all it is only equipped with one live detector array, and has no spectrometer mechanism. Two sets of cold ILT measurements were actually carried out, CQM-1 and CQM-2. CQM-1 is described in [doc], while preliminary CQM-2 results are given in [pres].</p> <p>Possibly mainly or at least partially due to the immature documentation, but also due to the nature of the test set-up and learning curve of operating SPIRE, it is not straightforward to conclude whether the achieved tests results are compliant (or not) with expectations for the tests carried out under the conditions they were carried out. Thus, I am unable to conclude whether the test results are satisfactory or not even for the one live array available for testing.</p>	
<b>Date :</b>	<b>Signature Originator:</b>
<b>Initiator recommended action or solution :</b> As a minimum I would request the following:	
<p>Provide a spread-sheet type listing of what measurements were carried out at CQM level, preferably in the form of the spread-sheet applicable for the PFM so that it is also clear what has not been done at CQM level.</p> <p>Provide an analysis of each test result in the context of an “instrument model” so that the achieved results can be compared with the results expected if SPIRE were meeting its specifications – we can thus conclude for each measurement whether we are in line with expectations or not.</p> <p>Based on the results of the previous action, construct a compliance matrix between scientific requirements and ILT results as interpreted in the “instrument model”.</p> <p>Provide a prediction of in-orbit performance based on the “instrument model” and the actual test results. SPIRE should provide their own assessments and conclusions of the full ILT programme.</p>	
<b>Date :</b>	<b>Signature:</b>
<b>Position of Organisation/Company:</b>	
See attached note.	
<b>Date :</b>	<b>Signature:</b>



**RID Disposition : See RID Disposition GLP-02**

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

**RID Close Out :**

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

**Position of Organisation/Company :**

This response is intended to cover RIDs GLP-01 and GLP-02, which are closely related.

As noted above, the CQM is not fully equipped and so cannot be used to verify all aspects of SPIRE's scientific performance.

We will create a full compliance matrix with respect to the IRD requirements, with a column to include summary information on the results of CQM and PFM testing, and indicating the status of verification. This document will be maintained and updated as CQM and PFM tests progress, so that an up-to-date record will be available as to the expected compliance with all top-level requirements. A report will be extracted at the end of each model programme. We will discuss with the Project Scientist how to highlight the requirements relating to performance.

In addition, the detailed CQM Verification Test Matrix Report (SPIRE-RAL-REP-002095) will be maintained, and a similar document created for the PFM. These documents will cover many additional requirements, and contain more detailed information including references to the appropriate test reports.

On the question of verification of scientific requirements by CQM testing, the top-level conclusions can be summarised as follows:

In the CQM tests, the following key aspects of instrument performance have been verified:

**1. Detectors/JFETs/analogue signal chain:**

**Bolometer parameters:** The CQM PLW array is not science grade, having bolometer yield and optical efficiency which do not meet the specifications. Nevertheless it is adequate for instrument test purposes and the results can be reliably extrapolated to the performance levels expected of science-grade detectors.

The baseline noise levels and load curves are as expected from JPL test data on the array, and taking into account the fact that the detector operating temperature was higher than nominal and the electronics noise higher than nominal due to a known problem with the DCU QM 1 noise. Both of these issues are being addressed for the PFM.

**Detector linearity:** Measurements made but not yet analysed in detail to compare with expected results. Requirement on instrument linearity is for corrected data. Compliance will need to be demonstrated after linearity is characterised and correction factors determined.

**2. Detector operating temperature:**



Cooler performance is as expected for this cooler (problems of underfilling and slow heat-switch response are corrected for the PFM).

Non-flight standard thermal strap and supports prevented attainment of the correct operating temperature.

Detector operating temperature compliance to be verified on PFM

Cooler hold-time in flight environment to be verified on PFM.

Thermal performance is as predicted by thermal model.

Temp fluctuations and drifts have not been analysed in detail yet but bolometer noise levels imply that there is not a major problem.

### 3. Instrument efficiency:

The load curve measurements show that, to an accuracy of about 10%, the power levels absorbed by the detectors when viewing a known-temperature black body are as expected from the unit-level measurements of BDA optical efficiency and filter transmission characteristics.

The CQM array is not science grade and does not meet the specifications on yield, DQE or optical efficiency.

The CQM optics and filter chain are of flight design and standard, and are compliant with the overall instrument efficiency requirement.

### 4. Spectral response:

The overall spectral response of the CQM PLW channel is consistent with expectations based on unit level measurements of filters and feedhorns, and to spec.

From 1-4 we can conclude that under the CQM operating conditions, the system was behaving as expected, and that with flight grade arrays operating under nominal flight conditions, the basic instrument sensitivity requirements for the photometer will be met.

### 5. Optical alignment :

All alignment requirements have been verified on the AM.

The FIR image quality is in spec. except at edges of arrays due to a known problem with the alignment of the external telescope simulator (NCR raised and problem to be addressed on PFM1)

The beam profile in spec. for the array centre. Test results are inconclusive for the outer parts of the array due to the test optics alignment problem noted above. Note that verification is only for the PLW channel on the CQM.

### 6. Internal calibrator (PCAL) performance:

Usable signals were recorded with expected time constant for the CQM PCAL device. Compliance with the requirements on achieved S/N and uniformity of array illumination have yet to be analysed.

6. Stray light: No problems were encountered with stray light within the instrument or AIV facility.

7. Microphonics: No problems with the detectors.

8. EMC: See other RIDs

The following key aspects of instrument performance have not been verified in the CQM programme, and will need to be verified by PFM ILT:

1. The correct operation of the mechanisms (SMEC and BSM).
2. The performance of the spectrometer and photometer flight model detector arrays within SPIRE.
3. Full three-band photometer performance



- 
4. The operation and performance of the spectrometer calibrator, SCAL.
  5. The overall performance of the SPIRE thermal system (cooler, 300-mK straps; 300-mK thermal control; L-0 straps).
  6. AOT optimisation and verification.

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number :GLP-02</b>  Originator : <a href="#">G.L.Pilbratt</a>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID : <a href="#">Missing instrument requirements compliance matrix</a></b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">SPIRE CQM qualification matrix (SPIRE-RAL-DOC-002165 v2)SPIRE CQM verification matrix report (SPIRE-RAL-REP-002095 v1)</a>	
<b>Classification :</b> <span style="margin-left: 150px;"><a href="#">Major</a></span> (Minor / Major)	
<b>Discrepancy :</b> <a href="#">Due to the nature of the SPIRE CQM FPU it has not been possible to test all instrument requirements. It is therefore obviously not possible to conclude compliance with all instrument requirements. However, it is also not obviously clear as to what extent the instrument requirements have been fulfilled in the case of the tests actually carried out. A comment "tested" does not provide information about compliance. (It could be that the docs identified are not meant to fulfill this, then the required doc appears missing.)</a>	
Date :	Signature Originator:
<b>Initiator recommended action or solution :</b> <a href="#">Provide and assessment and construct a compliance matrix, preferably in the PFM format so that it is obvious both: which instrument requirements were actually tested for at CQM level (the others will then obviously be addressed for the first time at PFM level) which instrument requirements were actually fulfilled already at CQM level.</a>	
Date :	Signature:
<b>Position of Organisation/Company:</b>  <a href="#">See response to GLP-01.</a>	
Date :	Signature:
<b>RID Disposition :</b>  <a href="#">SPIRE to provide summary table demonstrating achieved measured scientific performances and indicating what has not been measured. (Due date: 17/12/04)</a> <a href="#">Assessment of performance achievement as assessed by SPIRE shall be reported in the test report. (Due date: 15/01/05)</a>	
Date :	Date :
Signature (Contractor) :	Signature (Board Chairman) :
<b>RID Close Out :</b>	
Date :	Date :
Signature (Contractor) :	Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<p><b>HERSCHEL / PLANCK SPIRE IQR</b></p>	
<p style="text-align: right;">Rid Number : <b>GLP-03</b></p> <p style="text-align: right;">Originator : <b>G.L.Pilbratt</b></p>	
<p><b>Subsystem or equipment : SPIRE</b></p>	<p><b>Organisation/Company :</b></p>
<p><b>Title of the RID :</b> <b>Outdated calibration requirements</b></p>	
<p><b>Document Identification (Title, Vol, Sect., Para...)</b>            SPIRE calibration requirements document (SPIRE-RAL-PRJ-001064 draft)</p>	
<p><b>Classification :</b> <span style="margin-left: 100px;"><b>Major</b></span> (Minor / Major)</p>	
<p><b>Discrepancy :</b>            This doc is totally outdated. My worry is, (how) has this affected the CQM test requirements? Is this just a case of not having had the resources to update the document (minor RID), or this the problem (much) more profound (major RID)?</p>	
<p>Date :</p>	<p style="text-align: right;">Signature Originator:</p>
<p><b>Initiator recommended action or solution :</b>            Provide answers to my questions above. Convince me that we are in good shape for planning the PFM programme. Update the document.</p>	
<p>Date :</p>	<p style="text-align: right;">Signature:</p>
<p><b>Position of Organisation/Company:</b></p> <ol style="list-style-type: none"> <li>1. The document is old but not outdated – the calibration requirements have not changed.</li> <li>2. The CQM test programme was designed to test the operation and test procedures for the instrument and the AIV facility itself. The programme was not intended to calibrate the CQM, except in its basic characteristics.</li> <li>3. Following the experience gained on the CQM programme, we are now in a good position to define the detailed calibration procedures to be carried out on the PFM. We are considering producing a separate Ground Calibration Test Plan to distinguish between instrument testing/verification and calibration.</li> <li>4. The in-flight calibration requirements section of the document is very sketch at present and must be attended to in good time for PFM calibration.</li> </ol>	
<p>Date :</p>	<p style="text-align: right;">Signature:</p>
<p><b>RID Disposition :</b>            Calibration (inflight and ground based) requirements are not yet finalized. Results of CQM and PFM1 testing will influence the requirements. SPIRE calibration plan need update. SPIRE will review the current calibration plan (ICC document), and provide the update to Goeran and Sarah by 07.01.05.</p>	
<p>Date :</p>	<p style="text-align: right;">Date :</p>



Signature (Contractor) :

Signature (Board Chairman) :

**RID Close Out :**

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number :FMM-01</b>  <b>Originator : F. Martinez Martin</b>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID : <a href="#">EEE parts without approval</a></b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">SPIRE RAL_PRJ 0001095 issue 3.0 COMBINED LIST OF EEE PARTS FOR THE SPIREINSTRUMENT</a>	
<b>Classification :</b> <a href="#">Major</a> (Minor / Major)	
<b>Discrepancy :</b> <a href="#">There are some parts in the DCL without proof of approval:doc: LAM/ELE/SPI/QUA/000201, LED OD-880W Photodiode S2386-18K TIA front end pre-amplifier hybrid module To5doc:</a>  <a href="#">HERS-GEN-LI-CGS-001: JANTXV 2N5153</a>  <a href="#">doc: SPIRE-ATC-PRJ-000704: items under paragraph 2.2 non standard parts list.</a>	
<b>Date :</b>	<b>Signature Originator:</b>
<b>Initiator recommended action or solution :</b> <a href="#">To be clarified and PADs to be submitted if necessary</a>	
<b>Date :</b>	<b>Signature:</b>
<b>Position of Organisation/Company:</b> <a href="#">The above comments will be forwarded to the appropriate Subsystem for clarification and Pad's raised where required.However it should be noted that in most of the above cases the item had already been annotated, indicating that they are for comment (LAM/ELE/SPI/QUA/000201) or PAD's to be raised (SPIRE-ATC-PRJ-000704) and HERS-GEN-LI-CGS-001 is a draft document created by CGS as a result of comments on the IFSI combined document at the IHDR.</a>	
<b>Date :</b>	<b>Signature:</b>

**RID Disposition :**

Action for SPIRE

1. to provide dedicated PADS on below parts by 31/01/05

LED OD-880W

Photodiode S2386-18K

TIA front end pre-amplifier hybrid module To5doc:

JANTXV 2N5153

2. To provide BSM verification test report (22.12.04)

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

**RID Close Out :**

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :



<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number : JR-01</b>  <b>Originator : J. Rautakoski</b>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID : <a href="#">NCR status list</a></b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">SPIRE-RAL-PRJ-0001079, issue 6.0</a>	
<b>Classification :</b> <span style="margin-left: 200px;"><a href="#">Major</a></span> (Minor / Major)	
<b>Discrepancy :</b> <a href="#">1. The list is not complete. A large number of NCRs are missing from the list.</a>	
Date :	Signature Originator:
<b>Initiator recommended action or solution :</b> <a href="#">1. To be clarified why some NCRs are not included and update the status list</a>	
Date :	Signature:
<b>Position of Organisation/Company:</b> <a href="#">There are NO QM NCR's missing from the list, the missing numbers refer to PFM, Facility, GSE etc and were therefore not included for the IQR</a>	
Date :	Signature:
<b>RID Disposition :</b> <b>Action for SPIRE:</b> <a href="#">SPIRE to issue an NCR list that covers all NCR's from the SPIRE program (not only CQM ones). Due date: 17/12/04</a>	
Date :	Date :
Signature (Contractor) :	Signature (Board Chairman) :
<b>RID Close Out :</b> <a href="#">NCR list has been provided by email from Eric Sawyer on 01/02/05</a>	
Date :	Date :



**HERSCHEL PLANCK**



Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<p style="text-align: right;">Rid Number : <b>JR-02</b></p> <p><b>HERSCHEL / PLANCK</b> <b>SPIRE IQR</b></p> <p style="text-align: right;">Originator : <b>J. Rautakoski</b></p>	
Subsystem or equipment : <b>SPIRE</b>	Organisation/Company :
Title of the RID : <b>SPIRE CQM Instrument Level Test Plan</b>	
<p><b>Document Identification (Title, Vol, Sect., Para...)</b> SPIRE-RAL-DOC-001049 issue 2.0 section 4</p> <p><b>Classification :</b> <span style="margin-left: 150px;"><b>Minor</b></span> (Minor / Major)</p>	
<p><b>Discrepancy :</b> The flow chart provided in this document is applicable to the CQM and not the FM, but it is assumed that the flow is similar for the FM. An additional MIP during the integration of the FPU is requested or to convert the existing KIP to a MIP.</p> <p>Date : <span style="float: right;">Signature Originator:</span></p>	
<p><b>Initiator recommended action or solution :</b> Add additional MIP, or convert KIP to MIP, during the integration phase of the FPU. The exact point of the MIP during integration to be agreed at the co-location.</p> <p>Date : <span style="float: right;">Signature:</span></p>	
<p><b>Position of Organisation/Company:</b> The AIT flow for the PFM will be different to the CQM.SPIRE can and will add extra MIPs or convert a MIP to KIP as requested.</p> <p>Date : <span style="float: right;">Signature:</span></p>	
<p><b>RID Disposition :</b> SPIRE to update PFM Instrument Level Test Plan, which shall contain a MIP prior to each closure of the RAL cryostat in the flowchart. (Due date: 23/12/04).</p> <p>Date : <span style="float: right;">Date :</span></p> <p>Signature (Contractor) : <span style="float: right;">Signature (Board Chairman) :</span></p>	



**RID Close Out :**

Closed during Colocation by Action (AI #4).

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number : JR-03</b>  Originator : <a href="#">J. Rautakoski</a>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID : <a href="#">Missing documents</a></b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">Various</a>	
<b>Classification :</b> <a href="#">Major</a> (Minor / Major)	
<b>Discrepancy :</b> The following documents are missing: <a href="#">CIDL SPIRE-RAL-PRJ-001134</a> <a href="#">SW CIDL</a> <a href="#">Safety analysis SPIRE-RAL-DOC-001293</a> <a href="#">Parts stress analysis</a> <a href="#">Worst Case Analysis</a> <a href="#">PAD status report SPIRE-RAL-REP-001670</a>	
Date :	Signature Originator:
<b>Initiator recommended action or solution :</b> <a href="#">Provide the missing documents</a>	
Date :	Signature:
<b>Position of Organisation/Company:</b> <a href="#">CIDL was changed ref the CQM DRB therefore the updated version was not ready for the IQR but is in version 2 of the EIDP to be released for 15th December 04</a>  <a href="#">SW CIDL not available for the IQR to be provided a.s.a.p. – we are in contact with IFSI on this issue.</a>  <a href="#">Safety analysis SPIRE-RAL-DOC-001293 included in CQM EIDP and on Livelink, missing from IQR Document Pack</a>  <a href="#">Parts stress analysis &amp; Worst Case Analysis where applicable are Subsystem documents and were not included.</a>  <a href="#">PAD Status report: No change from previous report as no formal reply from ESA received re PAD's submitted</a>	
Date :	Signature:

**RID Disposition :****Action:**

CIDL on ftp site 15/12/04

SW CIDL to be included version of the EIDP (17/01/05)

Safety Analysis is available and has been accepted.

SPIRE shall prove that the derating requirements concerning DRCU are covered either by PSA, WCA or other evidence. (Due date 31/01/05)

SPIRE will update the PAD report, once ESA has provided recently signed PAD's. (23/12/04)

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

**RID Close Out :**

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number : <a href="#">JR-04</a></b>  <b>Originator : <a href="#">J. Rautakoski</a></b>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID : <a href="#">Request For Waiver Status Report</a></b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">SPIRE-RAL-PRJ-001081 issue 5.0</a>	
<b>Classification :</b> <a href="#">Major</a> (Minor / Major)	
<b>Discrepancy :</b> <a href="#">Up until now only 4 RFWs have been received from SPIRE. In the status report in the "Status/Remarks" column the ESA and Prime status is noted as pending for a large number of RFWs that haven't been submitted to ESA. There is no indication if these RFWs are internal or if they will be submitted to ESA.</a>	
<b>Date :</b>	<b>Signature Originator:</b>
<b>Initiator recommended action or solution :</b> <a href="#">It has to be clarified which RFWs need to be submitted to ESA and which are internal. It also needs to be clearly indicated in the list, which RFWs are internal to SPIRE and will thus not be submitted. If a RFW is not submitted to ESA or Prime the status cannot be "pending".</a>	
<b>Date :</b>	<b>Signature:</b>
<b>Position of Organisation/Company:</b> <a href="#">The RFW status follows the ESA ECSS system of 1 = pending, 2 = Rejected, 3 = Approved. There is No category for Not Applicable or Project only, the default setting is 1 pending.If we are to remain compliant ESA should add a suitable category. In many cases the term "Project only", or "Project approved" has been added to indicate None ESA involvement etc, However this has not been done in every case and is not ideal.ESA to advise on solution.</a>	
<b>Date :</b>	<b>Signature:</b>
<b>RID Disposition :</b> <a href="#">SPIRE will implement a new status (4=SPIRE internal only) indicating SPIRE project level RfW's approval. These RfW's are not necessarily transmitted to ESA. Action item to update document. (Due date: 31/01/05)</a>	
<b>Date :</b>	<b>Date :</b>
<b>Signature (Contractor) :</b>	<b>Signature (Board Chairman) :</b>



**RID Close Out :**

Updated document has been provided by email from Eric Sawyer on 01/02/05

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :



<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number : JR-05</b>  Originator : J. Rautakoski
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID : Verification Control Document, VCD, is missing</b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> VCD	
<b>Classification :</b> Major (Minor / Major)	
<b>Discrepancy :</b> The draft of the VCD is missing from the data package showing the full status of verification with respect to all requirements. None of the provided matrixes shows the verification status with respect to the IID-A and IID-B.	
Date :	Signature Originator:
<b>Initiator recommended action or solution :</b> The draft VCD shall be provided detailing the full verification status at this time for all requirements from IID-A and IID-B to internal requirements.	
Date :	Signature:
<b>Position of Organisation/Company:</b> same response as BC-02.  At the time when the IRD was written, the IID-B was in a very rudimentary state of development. SPIRE will update the IRD to include reference to IID-B Chapter 5, with appropriate requirements on the instrument. Therefore, verification will be traceable through the VCD. The timescale is TBD (to be discussed with ESA and Industry).	
Date :	Signature:
<b>RID Disposition :</b> SPIRE's VCD demonstrate compliance against the SPIRE IRD. All IID-B requirements shall be included in IRD. However it is difficult to trace compliance against IID-B. SPIRE will provide the Verification control database or the relevant report demonstrating compliance against IID-B. Due date: 28/02/05. The IRD will be updated by 23/12/04 to include proper links to IID-B requirements.	
Date :	Date :
Signature (Contractor) :	Signature (Board Chairman) :

RID Close Out :

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<p style="text-align: right;"><b>Rid Number :LP-01</b></p> <p><b>HERSCHEL / PLANCK</b> <b>SPIRE IQR</b></p> <p style="text-align: right;">Originator : <a href="#">L Pambaguan</a></p>	
<p><b>Subsystem or equipment : SPIRE</b></p>	<p><b>Organisation/Company :</b></p>
<p><b>Title of the RID : <a href="#">DML</a></b></p>	
<p><b>Document Identification (Title, Vol, Sect., Para...)</b>  <a href="#">SPIRE –RAL PRJ 001092</a></p>	
<p><b>Classification :</b> <a href="#">Minor</a> (Minor / Major)</p>	
<p><b>Discrepancy :</b>  <a href="#">MSSL/SPIRE/PA002: format is not in line with ESA template and difficult to review.SPIRE-ATC-PRJ-710: No corresponding DPL found in the documents received. The format of the dml is not the ESA one making the list difficult to review.HSO-CDF-LI-074: No corresponding DPL found in the documents received.Item 6.1 and 6.2 should be passivatedSap-SPIRE-NC-0060-02: The provided DML is not very advanced, full of TBD.</a>   <a href="#">HSO-SBT-LI-004: item 1.1 &amp; 1.2 have low SCC resistance and should not be used unless duly justified.SPI.PFM.00.LM.01.A: should be according to template of ESA PSS. The information requested is not provided and there is no DPL</a></p>	
<p>Date :</p>	<p>Signature Originator:</p>
<p><b>Initiator recommended action or solution :</b>  <a href="#">MSSL/SPIRE/PA002: update format for next issueSPIRE-ATC-PRJ-710: provide DPL update format for next issueHSO-CDF-LI-074: provide DPL.Item 6.1 and 6.2 indicate if passivatedSap-SPIRE-NC-0060-02: fill as much as possible before next issue.HSO-SBT-LI-004: item 1.1 &amp; 1.2 justified wrt SCCSPI.PFM.00.LM.01.A: modify and provide DPL</a></p>	
<p>Date :</p>	<p>Signature:</p>
<p><b>Position of Organisation/Company:</b>  <a href="#">SPIRE –RAL PRJ 001092 a revised copy of this document incorporating up issued subsytem DML’s will be issued for the CQM EIDP issue 2 and put on Live Link, however it will not cover all the comments above. The above problems will be taken up with the appropriate subsystem and the DML will be upissued accordinglyIt should be noted however that no formal response to the Subsystem DML’s already forwarded to ESA earlier this year has been received prior to the IQR.</a></p>	
<p>Date :</p>	<p>Signature:</p>
<p><b>RID Disposition :</b>  <a href="#">1. Corresponding DPL was included in the overall DPL (SPIRE-RAL-PRJ-001092)</a>  <a href="#">2. SPIRE will update subsystems DML's (preferable in word format) for ESA review. Due date 31/01/05.</a></p>	
<p>Date :</p>	<p>Date :</p>



Signature (Contractor) :

Signature (Board Chairman) :

**RID Close Out :**

Closed during Colocation by Action (AI #12).

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

### Review Item Discrepancy

Rid Number : **LP-02**

**HERSCHEL / PLANCK  
SPIRE IQR**

Originator : **L Pambaguian**

**Subsystem or equipment : SPIRE**

**Organisation/Company :**

**Title of the RID : DPL**

**Document Identification (Title, Vol, Sect., Para...)**

SPIRE –RAL PRJ 001093

**Classification :** **Major** (Minor / Major)

**Discrepancy :**

SPIRE-LAM-PRJ-000919: The correspondence of this list in the DML's has not been found. Item 1: the SMD shall be approved by ESA the operators and inspectors shall be certified HSO-SBT-LI-005: There is no link between the DML and the DPL – some processes do not have a specific number e.g. 6.1 is applied several times while each process should have its own numbering system (to link both lists) Several process descriptions are missing – item 16.1 is critical but no mean to assess the process is provided Sap-Spire-NC-0061-02: item 5.1(1): is CEA operator certified for the specific process? – what is the difference with 5.1(2)? Item 7.1, 8.1 to 8.3, 9.1 How to assess space experience of a contractor before selecting the contractor?

Date :

Signature Originator:

**Initiator recommended action or solution :**

SPIRE-LAM-PRJ-000919: indicate what this list refers to in the bunch of DML Item 1: provide proof that the process is robust and performed according to space quality reliability standard. HSO-SBT-LI-005: indicate on which material is the treatment applied – allocate 1 process per number – update the process descriptions – item 16.1 provide test or verification mean. Sap-Spire-NC-0061-02: item 5.1(1): specify which process will be used 5.1 (1) or (2) Item 7.1, 8.1 to 8.3, 9.1 identify contractor.

Date :

Signature:

**Position of Organisation/Company:**

SPIRE –RAL PRJ 001093 a revised copy of this document incorporating up issued subsystem DPL's will be issued for the CQM EIDP issue 2 and put on Live Link, however it will not cover all the comments above.

The above problems will be taken up with the appropriate subsystem and the DPL will be upissued accordingly. It should be noted however that No formal response to the Subsystem DPL's already forwarded to ESA earlier this year has been received prior to the IQR.

Date :

Signature:

**RID Disposition :**

SPIRE to provide updated subsystems DPL's & DML's (Due date: 17/12/04).

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

**RID Close Out :**

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number :LP-03</b>  Originator : <a href="#">L Pambaguan</a>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID : <a href="#">DMPL</a></b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">SPIRE –RAL PRJ 001094</a>	
<b>Classification :</b> <a href="#">Major</a> (Minor / Major)	
<b>Discrepancy :</b> <a href="#">SPIRE-ATC-PRJ-000709: all the stainless steel screws should be passivated</a> <a href="#">HESR-SPIRE-LI-CGS-002: idem... all stainless steel screws and nuts should be passivated.</a> <a href="#">HSO-CDF-LI-075: the chemical nature of the parts shall be provided not only "stainless steel but also the type of. - Item 57.1 is an EEE part</a>	
Date :	Signature Originator:
<b>Initiator recommended action or solution :</b> <a href="#">SPIRE-ATC-PRJ-000709: state passivation of all the stainless steel screws</a> <a href="#">HESR-SPIRE-LI-CGS-002: idem... state passivation of all the stainless steel screws.</a> <a href="#">HSO-CDF-LI-075: provide details on the chemical nature of the parts. - Item 57.1 move to component list</a>	
Date :	Signature:
<b>Position of Organisation/Company:</b> <a href="#">SPIRE –RAL PRJ 001094 a revised copy of this document will be issued for the CQM EIDP issue 2 and put on Live Link, however it will not cover all the comments above.</a>  <a href="#">The above problems will be taken up with the appropriate subsystem and the DMPL will be upissued accordingly</a>	
Date :	Signature:
<b>RID Disposition :</b> <a href="#">SPIRE to update DMPL until 15/01/05 except Item 57.1, which will be handeled separately by Jan Rautakoski. AI (ESA) to clarify passivation requirements. (Due date: 17/12/04)</a>	
Date :	Date :
Signature (Contractor) :	Signature (Board Chairman) :



# **HERSCHEL PLANCK**

**RID Close Out :**

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :



<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	Rid Number : <b>OB-01</b>  Originator : <b>O. Bauer</b>
Subsystem or equipment : <b>SPIRE</b>	Organisation/Company :
Title of the RID : <b>FMECA</b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <b>SPIRE-RAL-PRJ-001260</b>	
<b>Classification :</b> <span style="margin-left: 200px;"><b>Major</b></span> (Minor / Major)	
<b>Discrepancy :</b> <b>FMECA is outdated, and not in line with HSIA worksheets.</b>	
Date :	Signature Originator:
<b>Initiator recommended action or solution :</b> <b>Update FMECA</b>	
Date :	Signature:
<b>Position of Organisation/Company:</b> Same response as to NBG-01: The FMECA applies to SPIRE-Herschel interfaces, and is not intended as the input to the HSIA. A full FMECA on the entire SPIRE system has not been carried out. The critical failures and appropriate actions are analysed in the HSIA.	
Date :	Signature:
<b>RID Disposition :</b> <b>SPIRE to update subsystem FMECA's concerning DPU and DRCU, and to incorporate into HSIA if needed. (Due date: 31/03/05).</b>	
Date :	Date :
Signature (Contractor) :	Signature (Board Chairman) :
<b>RID Close Out :</b>	
Date :	Date :



**HERSCHEL PLANCK**



Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number :OB-02</b>  Originator : <a href="#">O. Bauer</a>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID : <a href="#">EGSE UM/Specifications</a></b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">SPIRE-RAL-NOT-001463</a>	
<b>Classification :</b> <span style="margin-left: 150px;"><a href="#">Minor</a></span> (Minor / Major)	
<b>Discrepancy :</b>  <a href="#">(1) EGSE User Manuals: There are more Manuals available, written by HIFI and PACS, as the EGSE is a common task.</a> <a href="#">(2) EGSE Specification outdated.</a>	
Date :	Signature Originator:
<b>Initiator recommended action or solution :</b>  <a href="#">(1) SPIRE to add these documents to the IQR document list.</a> <a href="#">(2) SPIRE to update EGSE Specification. To be traced by EGSE WG.</a>	
Date :	Signature:
<b>Position of Organisation/Company:</b> <a href="#">(1) The EGSE WG is coordinating the collection of EGSE documentation. The available documents have been added to the IQR documentation.</a>  <a href="#">(2) The EGSE Specification will be updated. But since the EGSE is already delivered, this will be a lower priority task.</a>	
Date :	Signature:
<b>RID Disposition :</b> <a href="#">SPIRE's position is accepted.</a>	
Date :	Date :
Signature (Contractor) :	Signature (Board Chairman) :



**RID Close Out :**

Closed during Co-location (13/12/04) by accepting RID reply.

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :



Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

**RID Close Out :**

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number :CS-02</b>  Originator : <a href="#">C. Scharmberg</a>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID : <a href="#">OBSW UM</a></b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">SPIRE-IFS-PRJ-001391</a>	
<b>Classification :</b> <a href="#">Minor</a> (Minor / Major)	
<b>Discrepancy :</b> <a href="#">1. Section 2.1 (External Components) shall exactly specify the detailed hardware/software requirements to run the compiler and associated tools. The statement "on a windows machine" is not sufficient at all.</a>	
Date :	Signature Originator:
<b>Initiator recommended action or solution :</b> <a href="#">1. Specify technical requirements to run the compiler. Specify the compiler (version) and all required libraries/tools needed to compile the software. Update document accordingly.</a>	
Date :	Signature:
<b>Position of Organisation/Company:</b> <a href="#">1. Agreed - an action will be placed on IFSI to update the document.</a>	
Date :	Signature:
<b>RID Disposition :</b> <a href="#">SPIRE to update OBSW UM by 31/01/05 accordingly</a>	
Date :	Date :
Signature (Contractor) :	Signature (Board Chairman) :
<b>RID Close Out :</b> <a href="#">Closed during C0-location by action item (AI #36)</a>	
Date :	Date :



**HERSCHEL PLANCK**



Signature (Contractor) :

Signature (Board Chairman) :



## Review Item Discrepancy

Rid Number : **CS-03**

**HERSCHEL / PLANCK  
SPIRE IQR**

Originator : **C. Scharmberg**

**Subsystem or equipment : SPIRE**

**Organisation/Company :**

**Title of the RID : IUM**

**Document Identification (Title, Vol, Sect., Para...)**

**Classification :** **Major** (Minor / Major)

**Discrepancy :**

SPIRE operability cannot be assessed, due to missing instrument user manual. IUM is urgently needed to support the forthcoming EQM campaign.

Date :

Signature Originator:

**Initiator recommended action or solution :**

Issue IUM

Date :

Signature:

**Position of Organisation/Company:**

The IUM is under construction, but PFM integration and testing is highest priority at present. To complete the IUM as specified in the template is a major task, and many elements of it are not relevant to the needs of instrument testing. It is our intention to focus on the procedures for switching on and operating the instrument in its basic modes, and to build up the document in order of need and priority.

Date :

Signature:

**RID Disposition :**

Note: RID was reclassified to "minor" during C0-location meeting.

IUM issuing is covered by Action Item (AI #14) of SPIRE DRB.

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

**RID Close Out :**

Closed by existing Action Item from SPIRE DRB (see RID disposition).



**HERSCHEL PLANCK**



Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number :TR-01</b>  Originator : <a href="#">T. Rohr</a>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID : <a href="#">Combined DML and DPL</a></b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b> <a href="#">SPIRE-RAL-PRJ-001092</a> <a href="#">SPIRE-RAL-PRJ-001093</a>	
<b>Classification :</b> <span style="margin-left: 200px;"><a href="#">Major</a></span> (Minor / Major)	
<b>Discrepancy :</b> <b>Combined DML SPIRE-RAL-PRJ-001092:</b> DML: MSSL/SPIRE/PA002. Discrepancy: 1. Item 10.1, 15.1: No outgassing data and process parameters specified 2. Item 18.3, 20.2, 20.3: No outgassing data specified  DML: HERS-SPIRE-LI-CGS-001. Discrepancy: 3. Item 10/02: Two processes are defined for curing. Only one process can be approved. In case more processes are needed for different applications, how is the traceability guaranteed? 4. Item 19/04: No outgassing data specified  DML: SPIRE-ATC-PRJ-710. Discrepancy: 5. Item 10a, 10b, 11, 35: No process parameters specified  DML: HSO-CDF-LI-074. Discrepancy: 6. Item 10-1 to 10-4, 18-1 to 18-3, 19-1, 20-1: No outgassing parameters specified, ESA approval is mentions but no reference document  DML: HSO-SBT-LI-004. Discrepancy: 7. Item 10-1: No process parameters specified 8. Item 20-1, 20-5: No outgassing parameters specified  Combined DPL SPIRE-RAL-PRJ-001093: 9. No DPL for DML SPIRE-ATC-PRJ-710 nor for DML HSO-CDF-LI-074	
<b>Date :</b>	<b>Signature Originator:</b>



**Initiator recommended action or solution :**

1. Item 10.1, 15.1: Please update document
2. Item 18.3, 20.2, 20.3: Please update document
3. Item 10/02: Please clarify
4. Item 19/04: Please update document
5. Item 10a, 10b, 11, 35: Please update document
6. Item 10-1 to 10-4, 18-1 to 18-3, 19-1, 20-1: Please provide documents for ESA approval and flight qualification respectively
7. Item 10-1: Please update document
8. Item 20-1, 20-5: Please update document
9. Please provide DPL

Date :

Signature:

**Position of Organisation/Company:**

Revised copy of these documents incorporating up issued subsystem DL's will be issued for the CQM EIDP issue 2 and put on Live Link, however it will not cover all the comments above.

The above problems will be taken up with the appropriate subsystem and the DPL/DML will be upissued accordingly. It should be noted however that No formal response to the Subsystem DPL's and DML's already forwarded to ESA earlier this year have been received prior to the IQR.

Date :

Signature:

**RID Disposition :**

SPIRE to provide updated subsystems DML/DPL (Due date: 31/01/05).

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

**RID Close Out :**

Date :

Date :

Signature (Contractor) :

Signature (Board Chairman) :

<b>Review Item Discrepancy</b>	
<b>HERSCHEL / PLANCK SPIRE IQR</b>	<b>Rid Number :</b>  <b>Originator :</b>
<b>Subsystem or equipment : SPIRE</b>	<b>Organisation/Company :</b>
<b>Title of the RID :</b>	
<b>Document Identification (Title, Vol, Sect., Para...)</b>	
<b>Classification :</b> (Minor / Major)	
<b>Discrepancy :</b>	
<b>Date :</b>	<b>Signature Originator:</b>
<b>Initiator recommended action or solution :</b>	
<b>Date :</b>	<b>Signature:</b>
<b>Position of Organisation/Company:</b>	
<b>Date :</b>	<b>Signature:</b>
<b>RID Disposition :</b>	
<b>Date :</b>	<b>Date :</b>
<b>Signature (Contractor) :</b>	<b>Signature (Board Chairman) :</b>
<b>RID Close Out :</b>	
<b>Date :</b>	<b>Date :</b>
<b>Signature (Contractor) :</b>	<b>Signature (Board Chairman) :</b>