



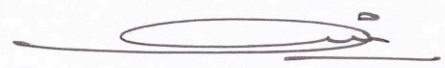
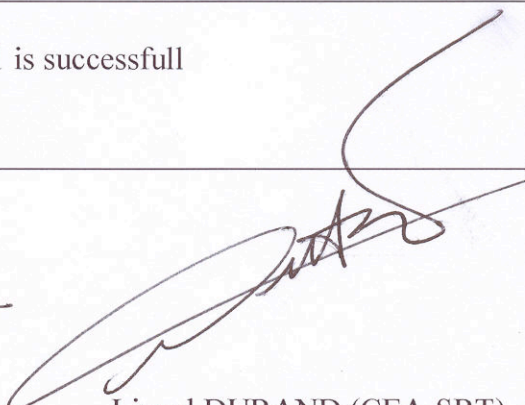


DSM/DRFMC/Service des Basses Températures

**Minutes of Meeting ref. : HSO-SBT-MoM-122**

**Date : November 18<sup>th</sup> 2004**

<b>Subject SPIRE FM1 DELIVERY REVIEW BOARD</b>	
<b>Meeting date : Nov. 18<sup>th</sup> 2004</b>	<b>Place : SBT</b>
<b>Chair :</b>	<b>Copies : Those present +</b>
<b>Present :</b>  <b>Laurent Clerc / CEA-SBT</b> <b>Lionel Duband / CEA-SBT</b> <b>Michel Dubois / BV</b> <b>Doug Griffin / RAL</b>	

<b>CONCLUSION OF DELIVERY REVIEW BOARD</b>		
Acceptance of cooler SPIRE FM1 is successfull		
<b>Visa :</b>		
		
Doug GRIFFIN (RAL)	Michel DUBOIS (BV)	Lionel DUBAND (CEA-SBT)



Description	Action/Date
<p>Inspection of hardware and completion of Outgoing inspection report – RAL document reference : SPIRE-RAL-REP-002218</p> <p>See comments on RAL document (attached to these minutes). Selected points :</p> <ul style="list-style-type: none"><li>- measurement on switch interfaces : SBT points out that the measurements on the depth of level 0 interfaces should be considered carefully as they could not be done using a tri dimensional device (clean room).</li><li>- Locking philosophy : all screws are locked using correct torques (see drawing 2000-14 B100 PL 1/3 joined to EIDP (HSO-SBT-ADP-108). No glue was foreseen.</li></ul> <p>Cooler is inspected by D. Griffin in clean room. Connector savers removed to check for any damaged pins or debris : no problem spotted. Cleanliness checked using UV light : few dust spotted on external surfaces – Will be removed at RAL using vacuum cleaner</p> <p>Savers put back, transit screws mounted. Doug points that the anti rotating tool is not needed (a dedicated one is used for SPIRE). Thus the tool will remain at SBT premises</p> <p>Review of EIDP : OK</p> <p>Packing of cooler in transport container – Checked.</p> <p>Delivery Review Board Minutes from RAL issued in version 0.1 – Will be updated after SPIRE project PA and H/W managers have reviewed the documentation. These minutes (0.1) are attached to the present document.</p> <p>Cooler in its transport container including documentation delivered to Doug Griffin. Transport to RAL via train by Doug Griffin.</p>	<p>RAL 15/12/04</p>

# SSTD Outgoing Inspection Report

Spacecraft/Project    **HERSCHEL / SPIRE**

Document Number    **SPIRE-RAL-REP-002218**

Issue    **1.0**

Sub System    **Sorption Cooler**

Date    **18-nov-04**

Model    **PFM**

## OUTGOING INSPECTION REPORT

FROM
<p><b>CEA-SBT</b>  <b>17 Rue Des Martyrs</b>  <b>38054</b>  <b>Grenoble CEDEX 9</b></p>

TO
<p><b>RAL-SSTD</b>  <b>Chilton, Didcot</b>  <b>OX11 0QX</b>  <b>UK</b></p>

Applicable sections	
External Visual Inspection	YES
External Connector	YES
Verification of Interfaces	YES
Documentation	YES
Containers	YES
Extra Comments Sheets	NO

Drawings / Documents Attached
PFM EIDP HSO-SBT-ADP-108 1.0
HSO-SBT-LB-114 1.0

**INSPECTION CONDUCTED BY**

**WITNESS BY**

NAME
Douglas Griffin

DATE
18/11/04

NAME
Michel Dubois

DATE
18/11/04

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Date      18-nov-04

Model      **PFM**

## INSTRUMENT VISUAL INSPECTION

CHECK LIST	REMARKS	RESULTS
Contents against shipping list		<b>CORRECT</b>
All closure procedures completed.		<b>CORRECT</b>
Instrument label		<b>CORRECT</b>
Note status of external contamination	Examined visually with UV lamp. Trace particulate contamination. To be cleaned at RAL	<b>ACCEPTABLE</b>
Degradation of paintwork or Coating?		<b>ACCEPTABLE</b>
Fasteners correctly locked?	Not performed on cooler. Fasteners torqued to correct value.	<b>SEE REMARKS</b>
Check protective covers are correctly labelled and fitted?	NA	<b>ACCEPTABLE</b>
Double Bagged ?	Not applicable. Unit sealed in hermetic transport contained with N2	<b>ACCEPTABLE</b>
Additional Comments		

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**INSPECTION OF ALL CONNECTORS**

CHECK LIST	REMARKS (LIST CONNECTOR NUMBERS)	RESULTS
Pin Alignment		NONE
Damaged Sockets		PASS
Internal Debris		NONE
Connector Covers fitted	None required	See remark
Connector Savers Fitted	Yes	See remark
EMC Covers Fitted	None required	See remark
RED Tag Item / Green Tag Items fitted	NA	See remark
Additional Comments		

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## Verification of Interfaces

**Mechanical interface:** dimensions specified in the interface control documents such as mass, flatness of surfaces, location of fixing holes and overall dimensions should be measured accurately and recorded. Record Test Report Number, or confirm that measurement result is included in delivery documentation, (EIDP).

<b>INSPECTION / TEST REPORT NUMBER</b>	See Section 15, FM Test Report Appendix B
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<b>CHECKED</b>	YES
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**Electrical interfaces:** verifying the location and types of connectors against interface control document is normally carried as part of mechanical verification, confirm this has been done.  
Functional testing: final functional test report number should be noted.

<b>INSPECTION / TEST REPORT NUMBER</b>	See Section 15, FM Test Report (HCR #103)
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<b>CHECKED</b>	YES
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# SSTD Outgoing Inspection Report

<b>Spacecraft/Project</b>	HERSCHEL / SPIRE
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<b>Document Number</b>	SPIRE-RAL-REP-002218
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<b>Issue</b>	1.0
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<b>Sub System</b>	Sorption Cooler
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<b>Date</b>	18-nov-04
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<b>Model</b>	PFM
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<b>DOCUMENTATION CHECK LIST</b>
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Check	REMARKS	RESULTS
End Item Data Pack		YES
Transportaion Documents		YES
Packing un- Packing instructions	See EIDP	Yes
Additional Comments		None

# SSTD Outgoing Inspection Report

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## CONTAINER INSPECTION

TRANSPORT CONTAINERS EXTERNAL CONDITION	REMARKS	Status
Mechanical damage to container fasteners, locks, clips or handling provisions		None
Security / Locking Fitted	Carried by DKG at all times between SBT and RAL	N/A
Markings for destination and description		N/A
Warning labels relating to handling lifting and stacking limits		N/A
Any additional Comments		Checked

TRANSPORT CONTAINERS INTERNAL CONDITION	REMARKS	Status
Check Mounting fixtures fitted internal packaging		Checked
Internal padding / packaging required		Checked
and adequate?		Checked
Any additional Comments		

ENVIROMENTAL MONITORS																										
Temperature	Not Fitted	Condition	N/A	<table border="1"> <thead> <tr> <th colspan="4">Shock Sensors Triggerd Information</th> </tr> <tr> <th colspan="4">Level Unknown</th> </tr> </thead> <tbody> <tr> <td>X Axis</td> <td></td> <td></td> <td>Both</td> </tr> <tr> <td>Y Axis</td> <td></td> <td></td> <td>Both</td> </tr> <tr> <td>Z Axis</td> <td>N/F</td> <td>N/F</td> <td>N/F</td> </tr> </tbody> </table>			Shock Sensors Triggerd Information				Level Unknown				X Axis			Both	Y Axis			Both	Z Axis	N/F	N/F	N/F
Shock Sensors Triggerd Information																										
Level Unknown																										
X Axis			Both																							
Y Axis			Both																							
Z Axis	N/F	N/F	N/F																							
Humidity	Not Fitted	Condition	N/A																							



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<b>EXTRA COMMENT SHEET</b>
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**Delivery Review Board Minutes of Meetings  
(MoM) & Check list**

**PRODUCT ASSURANCE  
Space Science and Technology  
Department**

<b>EIDP DRB Subject :</b>	<b>Herschel/SPIRE PFM Cooler</b>	<b>DRB MoM N°:</b>	<b>SPIRE-RAL-MoM-002217</b>	<b>Issue N°:</b>	<b>0.1</b>	<b>Page 1 of 7</b>
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<b>EIDP Doc N°/issue:</b>	<b>HSO-SBT-ADP-108</b>	<b>DRB Location:</b>	<b>CEA-SBT Grenoble</b>	<b>DRB Date:</b>	<b>18/11/04</b>
<b>Spacecraft / Project:</b>	<b>HERSCHEL / SPIRE</b>	<b>Instrument / Model:</b>	<b>PFM</b>	<b>Ser No:</b>	<b>2000-14 B 000 S/N: 1</b>

**AGENDA & PARTICIPANTS**

<b>Participants:</b>		<b>Agenda:</b>
<i>Print Name</i>	<i>Signature Required</i>	
<b>Company / Institute: CEA-SBT Lionel Duband</b>		Hardware inspection (ref: SPIRE-RAL-REP-002218) EIDP review Acceptance review including test results Acceptance of cooler
<b>Company / Institute: Michel Dubois</b>		
<b>Company / Institute: RAL Douglas Griffin</b>		
<b>Company / Institute:</b>		
<b>Company / Institute:</b>		
<b>Company / Institute:</b>		
<b>Company / Institute:</b>		
<b>Company / Institute:</b>		
<b>Company / Institute:</b>		
<b>Company / Institute:</b>		
		<b>Additional Distribution</b>
		<b>Jean-Louis Augueres – CEA SAP</b>

<b>EIDP DRB Subject :</b>	<b>Herschel/SPIRE PFM Cooler</b>	<b>DRB MoM N°:</b>	<b>SPIRE-RAL-MoM-002217</b>	<b>Issue N°:</b>	<b>0.1</b>	<b>Page 2 of 7</b>
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<b>Action</b>			<b>Title &amp; Description</b>
<b>No</b>	<b>Responsibility</b>	<b>Due Date</b>	
<b>1</b>	<b>RAL-DKG</b>	<b>2/12/04</b>	Controlled documents have been approved by SBT, but documents need to be reviewed and approved by RAL
<b>2</b>	<b>RAL-DKG</b>	<b>2/12/04</b>	Noted that philosophy of not using locking inserts or fastener staking adopted. This is to be reviewed.
<b>3</b>	<b>RAL-DKG</b>	<b>2/12/04</b>	Minor amount of particulate debris on external structure. Item to be cleaned at RAL during incoming inspection
<b>4</b>	<b>RAL-DKG</b>	<b>2/12/04</b>	RAL to review SPIRE Project PA documents relevant to Cooler
<b>5</b>	<b>RAL-DKG</b>	<b>2/12/04</b>	Bakeout products not monitored, nor bakeout pressure (primary vacuum only). To be reviewed by SPIRE Project

<b>EIDP DRB Subject :</b>	<b>Herschel/SPIRE PFM Cooler</b>	<b>DRB MoM N°:</b>	<b>SPIRE-RAL-MoM-002217</b>	<b>Issue N°:</b>	<b>0.1</b>	<b>Page 3 of 7</b>
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**CHECK LIST**

<b>No</b>	<b>Record applicable answers and provide explanations in comment column</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Comments</b>	<b>Responsible Sign &amp; Date</b>
1	Are all Documents, Drawings, etc complete, approved and under configuration control		No		Documents have been approved by SBT, but documents need to be reviewed and approved by RAL	
2	Do the Released items above reflect all approved Changes	Yes			CIDL/ABCL contains references to all approved ECRs	
3	Is the Hardware identical to other Hardware delivered? If not provide difference list		No		<ul style="list-style-type: none"> <li>• CQM did not have flight grade heaters and thermometers</li> <li>• Increase of He-3 charge ref. HR-SP-RAL-ECR-078 wrt CQM</li> <li>• Anomalous behaviour of CQM cooler heat switch turn-on time resolved on PFM</li> <li>• Minor changes as documented in CIDL/ABCL</li> </ul>	
4	Does the Hardware fulfil its functional requirements, Specifications? RFW's, ICD's etc.	Yes				
5	Does the As built Configured Items List reflect instrument as delivered	Yes				
6	Have all required environmental tests & analyses been completed	Yes				
7	Have all the required Tests and Qualification procedures and reports been completed and available to review.	Yes				

<b>EIDP DRB Subject :</b>	<b>Herschel/SPIRE PFM Cooler</b>	<b>DRB MoM N°:</b>	<b>SPIRE-RAL-MoM-002217</b>	<b>Issue N°:</b>	<b>0.1</b>	<b>Page 4 of 7</b>
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No	Record applicable answers and provide explanations in comment column	Yes	No	N/A	Comments	Responsible Sign & Date
8	Have all the Declared Lists, i.e. DML, DMPL, DPL & components (EEE Parts) list been released (May not be included in EIDP, but must be available)	Yes			No updates or changes from CQM	
9	Have PADS been raised and approved where required.				EEE parts (connectors/heaters/thermistors) supplied by CEA-SAp	
10	Are the Test Readiness Review (TRR) minutes and the Post Test Reviews (PTR) complete and available?	Yes				
11	EIDP CHECK (Refer to EIDP Contents list) Are all agreed sections of the EIDP complete. Record any anomalies.	Yes				



**Delivery Review Board Minutes of Meetings  
(MoM) & Check list**

**PRODUCT ASSURANCE  
Space Science and Technology  
Department**

<b>EIDP DRB Subject :</b>	<b>Herschel/SPIRE PFM Cooler</b>	<b>DRB MoM N°:</b>	<b>SPIRE-RAL-MoM-002217</b>	<b>Issue N°:</b>	<b>0.1</b>	<b>Page 5 of 7</b>
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**If all above points are satisfactory then the item may be accepted.**

**If not the item may be accepted with the caveat that the requirement in question will be met within an agreed time scale, (Listed Below).**

**LIST OF CAVEATS / SPECIAL CONDITIONS OF ACCEPTANCE / RID'S**

<b>Caveats / Special Conditions</b>	<b>Completion Date</b>
<b>SPIRE Project PA and H/W Managers to review documentation and comment</b>	<b>15/12/04</b>

<b>EIDP DRB Subject :</b>	<b>Herschel/SPIRE PFM Cooler</b>	<b>DRB MoM N°:</b>	<b>SPIRE-RAL-MoM-002217</b>	<b>Issue N°:</b>	<b>0.1</b>	<b>Page 6 of 7</b>
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NOTES:

**No tolerance on the lateral and angular alignment of the Pump and Evaporator HS thermal interfaces. Metrology of interfaces contained in inspection report and confirmed as being acceptable.**

<b>EIDP DRB Subject :</b>	<b>Herschel/SPIRE PFM Cooler</b>	<b>DRB MoM N°:</b>	<b>SPIRE-RAL-MoM-002217</b>	<b>Issue N°:</b>	<b>0.1</b>	<b>Page 7 of 7</b>
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**DELIVERY ACCEPTED BY:**

<b>RAL.</b>	
<b>Name</b>	<b>Signature &amp; Date</b>
<b>Project Manager:</b>	
<b>PA Manager:</b>	
<b>System Engineer:</b>	
Doug Griffin (DRB Chair)	

<b>Customer / Industry / Supplier.</b>	
<b>Name</b>	<b>Signature &amp; Date</b>
<b>Project</b>	
<b>Product Assurance</b>	