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|--------------------|-------------------------|-------------|---------------------------|-----|---|
| Spacecraft/Project | HERSCHEL | Document No | SPIRE-RAL REP-001762 | | |
| Instrument/Model | SPIRE | Issue No | 1 | REV | 0 |
| Subsystem | RF Filter Modules (JPL) | Date | 13 th Aug 2003 | | |

Report at receipt/delivery or other major movement of instrument/hardware and associated GSE.

| | |
|--------------------------|----------------------------|
| Inspection Report | Incoming / outgoing |
|--------------------------|----------------------------|

| FROM | TO |
|-------------|------------|
| JPL | RAL |

| <i>Inspection conducted by</i> | | <i>Witnessed by (Product Assurance)</i> | |
|---------------------------------------|-------------------------|--|-------------------------|
| Name | Signature / Date | Name | Signature / Date |
| Eric Clark | | | |



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INTRODUCTION

This inspection report shall be completed for formal transfers of hardware between RAL and customers, agencies or collaborating organisations

The following must be inspected:

| | | |
|-------------------------------|---------|---|
| Documentation | SECTION | 1 |
| Containers | | 2 |
| Visual Inspection of Hardware | | 3 |
| Interface Verification | | 4 |

Each section contains a checklist that shall be completed.

Unused boxes should have N/A entered.

Deviations e.g. items not delivered or incomplete documentation must be noted in the comments column.

For previously agreed deviations refer to the Delivery Review Board (DRB) minutes of meeting (MOM) or similar.

NCR's must be raised for other deviations, damage or defects noted.



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SECTION 1: DOCUMENTATION

Documentation shall be checked for completeness, any items not received or to be delivered later should be noted.

Note 1: The delivery review board minutes should list outstanding items, e.g. open work, open NCRs and Waivers etc. A copy should accompany or form part of the EIDP. If there is no EIDP then it should be referenced on this report.

Note 2: All items dispatched from the Laboratory must have a Dispatch Note completed and signed, with a copy filed in the appropriate section of the EIDP.

| No. | Procedure | Comments (Include NCR Number if applicable) | Check N/A or ✓ |
|-----|--|---|-------------------|
| 1.1 | Is the documentation complete | | ✓ |
| 1.2 | Is the accompanying documentation compliant with project requirements | | ✓ |
| 1.3 | Note DRB/MoM Document Number, minutes and note any discrepancies with respect to agreements recorded. OR attach copy of minutes. | | |
| 1.4 | Additional Remarks | Items are quite small and were delivered with EIDP in Same container | |



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SECTION 2: INSPECTION OF CONTAINERS

| No. | Procedure | Remarks (Include NCR Number if applicable) | Check N/A or ✓ |
|---|---|---|-------------------|
| Transport Containers – External condition. | | | |
| 2.1 | Inspect the outside of the containers for obvious mechanical damage: Cracks, fasteners/locks clips, physical damage, dents or scratches etc. Handling provisions, Other damage | | ✓ |
| 2.2 | Markings for description and destination | | ✓ |
| 2.3 | Packing / unpacking instructions | | N/A |
| 2.4 | Warning labels relating to handling, lifting, stacking limits | | N/A |
| 2.5 | Additional Remarks Check security of container | | N/A |
| Transport Containers – Internal condition | | | |
| 2.6 | Check environmental monitors such as humidity indicators, shock recorders and record the location and readings on the inspection | None Fitted | |
| 2.7 | Check mounting fixtures or brackets and screws, padding and packing. | | ✓ |
| 2.8 | Additional Remarks Check security of container | | |



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SECTION 3: VISUAL INSPECTION OF HARDWARE

Insert one copy of the following section for each configuration item, OR Individual unit.

Note: Section 3 when used with the front sheet may be used as a complete report for small units prior to final closure, if this is done confirm unit interior check carried out before closure Interior check will be limited to visible items.

| CI NUMBER | SERIAL NUMBER |
|-----------|---------------|
|-----------|---------------|

| No. | Procedure | Remarks (Include any NCR Numbers if Applicable) | Check N/A or ✓ |
|-----|--|---|-------------------|
| 3.1 | Check contents against shipping list | | ✓ |
| 3.2 | Note external contamination | SN 009 had burn spatter along weld to socket SN 012 had heat discolouration marks SN end | |
| 3.3 | Inspect the outside for physical damage, cracks, dents, scratches | | ✓ |
| 3.4 | Degradation of painting | | N/A |
| 3.5 | Mounting provisions | | N/A |
| 3.6 | Fasteners correctly locked | | N/A |
| 3.7 | Check for protective covers on all electrical and fluid connectors and on optical and sensor apertures | No covers fitted to any of the connectors | |



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Check All Connectors

| No. | Procedure | Remarks (Include NCR Number if applicable) | Check N/A or ✓ |
|--------|------------------------------------|---|-------------------|
| 3.8.1 | Bent pins | | ✓ |
| 3.8.2. | Internal / external damage | | ✓ |
| 3.8.3 | Internal debris | | ✓ |
| 3.8.4 | Connector covers fitted | No | |
| 3.8.5 | Connector savers in position | No | |
| 3.8.6 | EMC Covers Fitted | | N/A |
| 3.8.7 | RED tag items/covers fitted | | N/A |
| 3.8.8 | Any other damage | See attchement | |



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Check any harness and associated connectors associated with the Hardware

| No. | Procedure | Remarks (Include NCR Number if applicable) | Check N/A or ✓ |
|-------|------------------------------------|---|-------------------|
| 3.9.1 | Bent pins | | N/A |
| 3.9.2 | Internal / external damage | | N/A |
| 3.9.3 | Internal debris | | N/A |
| 3.9.4 | Protection caps fitted | | N/A |
| 3.9.5 | Connector Savers fitted | | N/A |
| 3.9.6 | EMC Covers Fitted | | N/A |
| 3.9.7 | RED tag items/covers fitted | | N/A |
| 3.9.8 | Any other damage | | N/A |



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Pre Closure Checks

| No. | Procedure | Remarks (Include NCR Number if applicable) | Check N/A or ✓ |
|--------|---|---|-------------------|
| 3.10.1 | All internal units securely fastened locked | | N/A |
| 3.10.2 | All internal connector fasteners locked | | N/A |
| 3.10.3 | All cabling secure | | N/A |
| 3.10.4 | No internal debris | | N/A |
| 3.10.5 | Check packaging is correct | | N/A |
| 3.10.6 | Shock recorders reset | | N/A |
| 3.9.7 | Additional remarks | | N/A |



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SECTION 4: VERIFICATION OF INTERFACES

Confirm all required interface-checking activities have been carried out.

- 4.1 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).
- 4.2 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.

| No. | Procedure | Remarks (Include NCR Number if applicable) | Check N/A or ✓ |
|-----|------------------------------------|---|-------------------|
| 4.1 | Mechanical Interfaces Verification | HR-SP-JPL-NCR-001 | |
| 4.2 | Electrical Interfaces Verification | | |

Attachment to Incoming inspection report SPIRE-RAL-REP-001762

| Ser No | Critical Dimension 29.98 ±0.25 i.e. limits = 29.73 to 30.13 | | Mass < 25gm Scales RAL 41810 | | G56 Clean room Prep area Temp 18°C |
|-------------|--|------------------|---------------------------------|-------|--|
| | Measured | Measured bottom | RAL | JPL | Comments |
| 001 | 30.1 | 30.0 | 30.4 | 31.3 | |
| 002 | 30.0 | 30.1 | 29.8 | 30.2 | |
| 003 | 30.0 | 30.1 | 29.6 | 30.2 | |
| 004 | 30.0 | 30.1 | 30.1 | 30.8 | |
| 005 | 30.0 | 30.0 | 30.5 | 31.1 | |
| 006 | 30.0 | 30.0 | 29.6 | 30.4 | |
| 007 | 30.0 | 30.1 | 29.7 | 30.2 | |
| 008 | 30.0 | 30.1 | 30.0 | 30.5 | |
| 009 | 30.0 | 30.0 | 29.9 | 30.3 | Weld/Burn Spatter socket end weld (Note 3) |
| 010 | 30.0 | 30.1 | 29.7 | 30.4 | |
| 011 | 30.0 | 30.0 | 30.9 | 31.3 | |
| 012 | 30.1 | 30.0 | 29.9 | 30.4 | Heat discolouration by side welds Serial number End. (Note 3) |
| | | Total MASS | 360.1 | 367.1 | RAL had accepted unit mass < 29.0grams =348gms. Should be note in EIDP |
| EXCESS MASS | | Total -(29 x 12) | 12.1 | 19.1 | |

Notes

- 1 Clean room vernier used for measurements only had resolution to one decimal place (JD thought this was acceptable).
- 2 Drawing No 10209723 note 10 specifies "Unit Mass is 25.0 Grams Max". All units failed HR-SP-JPL-NCR-001 raised.
- 3 Some slight heat discolouration visible on most units the two mentioned are the most noticeable. Not thought to be a problem