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Massachusetts Institute of Technology
Kavli Institute for Astrophysics and Space
Research (MKI)

In-Process and Final Inspection

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Preface

Revision A was the Initial Release of 99-02009 written by Brian Klatt 03/20/91 and checked by William Mayer on 03/25/91.

Revision B issued a new format and general editorial update on 07/16/14.

1.0 Scope

The purpose of this procedure is to document mandatory inspection points and to ensure compliance to Project Requirements.

2.0 Reference Documents

- NASA-STD-8739.1 Workmanship Standard for Staking and Conformal Coating of Printed Wiring Boards and Electronic Assemblies
- NASA-STD-8739.4 Crimping, Interconnecting Cables, Harnesses, and Wiring
- NASA-STD-8739.5 Fiber Optic Terminations, Cable Assemblies, and Installation
- NASA-STD-8739.6 Implementation Requirements for NASA Workmanship Standards
- GSFC-STD-6001 Ceramic Column Grid Array Design and Manufacturing Rules for Flight Hardware
- IPC-J-STD-001ES Joint Industry Standard, Space Applications Electronic Hardware Addendum(except Chapter 10 of this standard and Chapter 10 of IPC-J-STD-001E)

MIT Documents

- 99-01003 Electrostatic Discharge (ESD) Handling of Parts and Equipment
- 99-02003 Calibration Procedure for Measuring and Test Equipment

- Applicable drawing, at the current revision
- MKI Procedures, if listed on the drawing
- Applicable Assembly Work Order (AWO)
- Applicable Configuration Traceability List
- Applicable Schematic

3.0 Inspector Requirements

Current certification in the following: NHB 5300.4 (3A1), (3G), (3J), and Rework Repair and Modification.

Training in Electrostatic Discharge MIT #99-01003

4.0 Tools

- Microscope, 3x to 10x
- Vernier, calibrated
- ESD Station and strap
- Meter, calibrated
- U.V. light

5.0 Sponsor Source Inspection

If the sponsor requests inspection of any part, subassembly, or contract end item, the sponsor or sponsor's representative shall be given 48 hours advanced notice, before material is ready for inspection.

6.0 Quality Assurance

Acceptance is dependent on all of the following:

6.1 General:

- Verify that the Assembly Work Order (AWO) has been signed by the required management. Mandatory Inspection Points (MIOs) will be identified in the AWO.
- Verify that the AWO accompanies the assembly being inspected.
- The assembly must be done in the correct sequence.
- A supervisor's approval is required to skip a step.

6.2 In Process Inspection:

6.2.1 Electronic Parts:

Insure that each part is correctly identified, reference the Configuration Tractability List. An incorrect or damaged part shall be returned to Bonded Stock for replacement, using the Return Policy Form. Verify that all polarities are correct. Refer to the drawing. Insure the project's requirements of IPC-J-STD-001ES, including but not limited to tinning, gold removal, mounting, lead form, stress relief, solder, cleanliness, staking and conformal coat, are satisfied.

6.2.2 Mechanical Hardware:

Assure that the hardware is correct. Refer to Configuration Tractability List. Incorrect or damaged hardware shall be returned to Bonded Stock for replacement, using the Return Policy Form. Verify that torque tools are calibrated, per 99-02003. Parts shall be torqued before soldering, per AWO.

6.2.3 Cables:

Verify correct wire, contacts & connectors, per the CTL. Wrong or damaged parts shall be returned to Bonded Stock for replacement, using the Return Policy Form. To assure compliance with NASA-STD-8739.4, verify all of the following (where applicable):

- All strands are free from damage: refer to NASA-STD-8739.4.
- Tinning, gold removal, and solder meet NASA-STD-8739.4.
- Crimp is correctly located, per NASA-STD-8739.4.
- Crimp is indented correctly, per NASA-STD-8739.4.
- Crip tool, meter and pull tester are calibrated.
- Verify that Destructive Pull Tests were performed and recorded. Record the force and locations of each break in the Tensile Test Log.
- Refer to Drawing and NASA-STD-8739.4 for marking criteria.
- Verify connections using a meter and schematic.
- All connector pins shall be pushed tested to assure proper seating into the connector body, refer to NASA-STD-8739.4.

6.2.3.1 Subtitle 5.1.1.1

7.0 Discrepancies:

Any deviation from either the AWO, Drawing or the applicable procedure shall be discussed with the Flight Manufacturing Manager.

- 7.1 Procedure:**
If a discrepancy is caused by a change to the process, the AWO must be revised. Affix a red rejection stamp to the Fault Log, until a change has been made. A blue stamp shall override the red stamp upon acceptance, date.
- 7.2 Specification:**
If a discrepancy is a deviation from the drawing or any of the specifications, affix red rejection stamp to the Fault Log, date, and proceed to 7.3 or 7.6 as applicable.
- 7.3 Rework Authorized:**
Rework shall be done in accordance with the AWO and applicable Drawings and Specifications.
- 7.4 Successful Rework:**
On completion of rework, part will be re-inspected. All MIT and Sponsor requirements must be satisfied. Blue acceptance stamp will override the red rejection stamp, date.
- 7.5 Unsuccessful Rework:**
In the event of unsuccessful rework, this shall be indicated on the Fault Log, also on MIT's Non Conforming Material's Report #99-02004. Notify the QA Manager or the Project Manager, as to the need for disposition on the part.
- 7.6 Rework Declined:**
If the Fabrication Supervisor declines rework, initiate MIT #99-02004, Non Conforming Material Report. The Q.A. Manager or Project Manager shall be informed, as to the need for disposition of the part.
- 7.7 Material Review Board:**
Parts shall be segregated in a locked cabinet, pending the decision of the MRB. Parts shall be processed according to the decision of the Material Review Board. These parts do not have to meet the contractual requirements. Specific conditions may be allowed by MRB that would not be approved under ordinary circumstances. The NMR will be closed out accordingly. The AWO will be updated to reflect the board's action. Blue acceptance stamp shall interlock with red, if determined that the part may be used as is, or that the repair meets the specific criteria of the MRB.
- 8.0 Final Inspection:**
- Assure that the AWO is completely filled out.
 - Assure that the AWO mixing log (for chemicals) is complete.
 - Assure that the mate/demate log is complete, reference NHB5300.4 (3H).
 - Assure that all ECOs have been incorporated.
 - Assure that all fault log items have been satisfied.
 - Assure that all parts are correct, per drawing.
 - Assure that all parts show no sign of damage.
 - Affix a blue acceptance stamp and date to the AWO.