MISSION ASSURANCE

BRIAN KLATT
MISSION ASSURANCE MANAGER
GENERAL

- PERFORMANCE ASSURANCE IMPLEMENTATION PLAN
  - LRO MAR
  - Model PAIP
  - CRaTER PAIP is 32-01204, Rev. F - Approved by GSFC
  - PAIP applies equally to BU, MIT, and Aerospace Corp.
QUALITY ASSURANCE

- QUALITY MANAGEMENT SYSTEM

- REQUIREMENTS FLOW-DOWN IMPLEMENTED THROUGH:
  - SUBCONTRACT (CDRLs)
  - PAIP
  - PURCHASE ORDERS
SYSTEM SAFETY

• NO CHANGES

HAZARD ANALYSIS REPORTS UPDATED AND SUBMITTED - see 32-04015

Hazard Verification and tracking is 32-04014
RELIABILITY

• Failure Modes and Effects Analysis Prepared (see 32-04009)

• Part Stress Analysis Prepared (see 32-04010)
  • Derating per EEE-INST-002

• Reliability Assessment (see 32-04003)
  • Probability of Mission Success $P_s = 96.5\%$
Cosmic Ray Telescope for the Effects of Radiation
SOFTWARE ASSURANCE

- NO CHANGES - NO SOFTWARE
DESIGN REVIEWS

• Formal Reviews
  • Preliminary Design Review (IPDR) - held at MIT on 9/28/05
    • 5 RFAS: 4 closed, 1 in-work at MIT & GSFC
  • Critical Design Review (ICDR) - held at MIT on 6/27/06

• Peer Reviews
  • Mechanical peer review held at MIT on 5/5/06
    • 17 Comments in process at MIT
  • Electrical peer review held at GSFC on 5/22/06
    • 15 Comments with responses to initiators
DESIGN VERIFICATION

• Performance and Environmental Verification Plan - see 32-01206

• Performance Verification - Comprehensive Performance Testing (CPT) is performed during extremes and at completion of Environmental Verification

• Environmental Test Matrix - see 32-01206.01
WORKMANSHIP and ELECTRONIC PACKAGING

• **WORKMANSHIP** - Recertification scheduled for late August
  • Staking and Conformal Coating
  • Soldered Electrical Connections
  • Crimping, Cables, Harnesses, and Wiring
  • Electrostatic Discharge (ESD) Avoidance

• **PRINTED CIRCUIT BOARDS**
  – Coupons submitted for Engineering PCBs. Coupons passed but comments have prompted redesign for flight hardware.
MATERIALS and PROCESSES

• **Materials**
  - Changed from AL 7075-T651 to Al 7075-T73
  - Fasteners were bought to NASA Directive 541-PG-8072.1.2

• **Processes**
  - Conversion Coating is Alodine only
EEE PARTS

• PART SELECTION, SCREENING, QUALIFICATION and DERATING is per EEE-INST-002

• ALERTS
  – Review ALERTS and NASA Advisories monthly - report to GSFC
CONTAMINATION CONTROL

• Contamination Control Plan is CRaTER document number 32-01203

• CRaTER Contamination Sensitivity - quite insensitive
  – Detector is not hermetically sealed and has .001 aluminum bond wires (purge)
Cosmic Ray Telescope for the Effects of Radiation