GLAST Large Area Telescope

ISIS Post Acceptance Test Review
28 January 2005

ISIS Completion Status

Jana Thayer
Stanford Linear Accelerator Center

jana@slac.stanford.edu
(650) 926-4956
The following items were successfully completed on the date given:

- **Safe Connection Procedure - December 16, 2004**
  - Test Report: LAT-MD-05691
  - Witnesses: Joe Cullinan (QA), Eric Hansen (TD), Jana Thayer (TC)

- **Acceptance Test Procedure – January 21, 2005**
  - Test Report: LAT-MD-05690
  - Witnesses: Kelly Burlingham (QA), Dave Harmon (GSFC), Eric Hansen (TD/TC), Jana Thayer (TD/TC), Tim Morse (Spectrum), and others

- **Post Acceptance Test Review – January 28, 2005**
  - Witnesses: Jeff Fisher, Mike Huffer, Dick Horn, Erik Andrews, Eric Hansen

- **ISIS shipped – January 28, 2005**
Safe Connection Procedure

- Successfully completed on December 16, 2004
- Report in LATDocs: LAT-MD-05691

- Objective of test is to verify that
  - EGSE equipment can be safely mated to all ISIS connectors
  - All ISIS internal connections are good
  - Resistors/RTDs used to simulate or measure temperatures have the expected value at room temperature

- Tests run for each connector:
  - Electrical Continuity Check, Power and Power Return
  - Electrical Isolation Check, Power to Power Return
  - Electrical Isolation, Signal Isolation from Power and Power Return

- Connectors tested:
  - Main Power Feed (primary and redundant): JL-1, JL-2
  - SIU Power Feed: JL-119
  - SIU/Spacecraft Discretes: JL-121
  - 1553 interface: JL-232, JL-233
  - Environmental Simulator: JL-123, JL-131, JL-144, JL-152, JL-238, JL-239
Safe Connection Procedure

• Test Personnel
  – Test Director: Eric Hansen
  – Test Conductor: Jana Thayer
  – Quality Assurance: Joe Cullinan

• ISIS Safe Connection Procedure (LAT-TD-03541)
  – Annotated and signed copy has been scanned into LATDocs as LAT-TD-03541, Revision 1
  – A photocopy travels with the ISIS
Acceptance Test Procedure - Objective

- Successfully completed on January 21, 2005
- Report in LATDocs: LAT-MD-05690

- Objective of test is to
  - Verify that ISIS is a high-fidelity LAT simulator
    - Test ability of ISIS to manage power to TEMs, EPUs
    - ISIS power demands replicate LAT power demands
    - ISIS monitors internal voltages
    - ISIS simulates temperature sensors using fixed resistors in the range of the device they are simulating (tested as part of Safe Connection Procedure)
  - Validate the ISIS/Spacecraft interface
    - Reset and discretes
    - LGIO/Science data interface
  - Verify ISIS/Spacecraft communication over 1553
    - Exchange of telecommands and telemetry
Acceptance Test Procedure - Tests

- Requirements tested, verification matrix in LAT-TD-05398
- Test scripts run:
  - CPU Boot Process and Reset Signal
  - Set and Read Discretes
  - Alert Telemetry
  - Routing of Commands
  - No-op Commands
  - Ancillary, Attitude, and Time Tone (Magic 7) Commands
  - GBM Signals
  - Automatic Repoint Requests
  - Power Management
  - Power Draw
  - LAT Voltage Monitoring
- Test Personnel:
  - Test Director/Conductor: Jana Thayer
  - Test Conductor/Director: Eric Hansen
  - Quality Assurance Engineer: Kelly Burlingham
  - Observers: David Harmon (GSFC), Tim Morse (Spectrum)

Summary
Acceptance Test Procedure – Supporting Data

- ISIS Acceptance Test Procedure (LAT-TD-05398)
  - Annotated and signed copy was scanned into LATDocs under LAT-TD-05398, Revision 1
  - A photocopy travels with the ISIS
- ISIS_ATP CD
  - Copy of CD travels with ISIS
  - Contains the data listed:
    - DBX files (ISIS ITOS database)
    - Record of HW, FSW, and ISIS Test Script versions
    - Test scripts (CVS tag ISIS_ATP_04)
    - Test script results (html files)
    - Science Data Archive files
    - Miscellaneous include files (AstroRT specific)
Acceptance Test Procedure - Summary

- Successfully completed on January 21, 2005
- Report in LATDocs: LAT-MD-05690

- Deviations from procedure
  - Error in output html file for ISIS_Power.pl
    - Voltage of TEM reported instead of voltage of EPU
    - Test was aborted and restarted, skipping hardware configuration
  - Reported in JIRA (ISIS-2)
  - Minor procedural errors were redlined in document
Finishing touches

• Follow ISIS to Spectrum Astro (tentative 2/21)
  – Run safe-to-mate and test scripts to validate
  – Training
    • PowerPoint presentation
    • User’s guide – short, sweet, to-the-point

• Follow up on
  – ITOS translation issues
  – SDIS issues