

GLAST Large Area Telescope

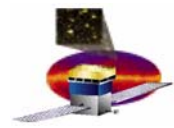
LAT Systems Engineering Engineering Model Test Data Package Requirements

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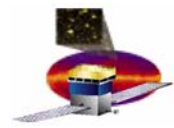
Engineering Model Pre-Ship Review Contents

- **Unit Revision status**
 - *How does this unit compare to a Qualification Model, Proto-Flight or Flight Model?*
- **Tests Performed and Summary Report**
 - *What tests have been performed on this unit?*
 - *What was the test program?*
- **Performance Review Summary**
 - *How did the unit perform against the specification (L-IV?) or your expectations?*
- **Test Data summary**
 - *Present a summary of the data collected on the test program.*
 - *Show trends and calibrations.*
- **Problem / Failure Reports & Status**
 - *Did you document failures on NCR's?*
 - *Present the information and planned dispositions*
- **Issues and Concerns**
 - *Are there any issues that the EM raised against the design, implementation or operation?*



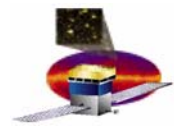
Unit Revision Status

- **What are the key differences between the EM and Flight unit?**
 - **Mechanical**
 - **Materials**
 - **Mass**
 - **Form**
 - **Interfaces**
 - **Electrical**
 - **Power**
 - **Interfaces**
 - **Signal quality**
 - **Electronics**
 - **Components**
 - **ASIC's**
 - **Circuit stability**
 - **Software or Firmware**



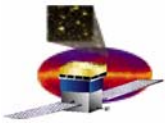
Tests Performed on an EM

- **What Tests have been performed from the flight Test Plan?**
 - **Electrical tests**
 - **Power Consumption**
 - **EMI/EMC**
 - **Grounding/Isolation/Insulation resistance**
 - **Functional Tests**
 - **Comprehensive Performance**
 - **Aliveness**
 - **Calibrations**
 - **Mechanical**
 - **Vibration**
 - **Thermal / Thermal Vacuum**



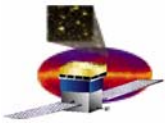
Performance Review & Test Data Summary

- **How did the EM Perform?**
 - **Met specifications (L-IV?)**
 - **Met expectations?**
 - **Failed Miserably?**
- **Provide the Supporting Test Data:**
 - **Analysis of data collected**
 - **Calibration & performance factors**
 - **Baseline performance data**



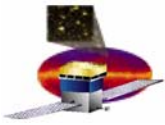
Quality Assurance Issues

- **What did we learn from the EM?**
 - Did it address and reduce risks
 - Processes developed successfully
 - Procedures developed for repeatable results?
- **Failures and Anomalies**
 - Were records made of the results that were not as expected?
 - Is there a closure plan for the next unit?
 - Are there any parts/materials/process problems?
- **Issues and Concerns**
 - What questions has the EM presented?
 - What action needs to be taken to resolve open issues?
 - Has the testing adequately addressed the issues?
 - Is more work on the EM required?
 - Are there design deficiencies?



EM Test Data Package Summary

- **ID and Configuration Information**
 - What comprises this unit?
 - What portion is like the flight unit?
 - What portion is simulated or uses a ground test aid?
- **Mechanical Summary Data**
 - Show conformance to the subsystem component ICD
- **Electrical Interface Data**
 - Show conformance to the subsystem component ICD
 - What portions have the same electrical performance as a flight unit?
- **Software Configuration**
 - What's there, what's not?
- **Unit Calibration Data**
 - Provide the calibration data required to operate the unit properly
- **Unit Performance Data**
 - Provide the data necessary to determine like or degrading performance
 - Provide “Functional Test” performance summaries



EM Test Data Package_(continued)

- **Provide Unit Support Data to:**
 - **successfully operate the unit at SLAC for further testing**
 - **support the configuration of the EM**
 - **Internal component Cal Curves (like thermistors)**
 - **Dead Channel Lists**
- **Provide Operational Support Data in the form of:**
 - **Procedures**
 - **What procedures were used to test and operate the unit?**
 - **Test Scripts**
 - **What test scripts were used to test and operate the unit?**
- **Quality Data**
 - **NCR summary**
 - **Were discrepancies from the expected results tracked on NCR's?**