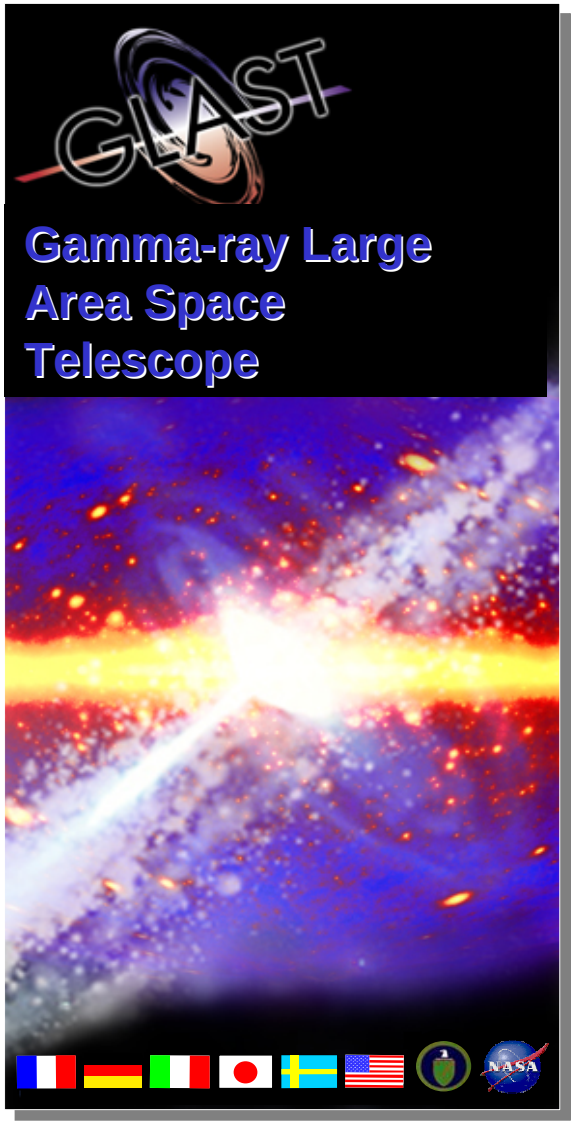

GLAST Large Area Telescope:

Performance & Safety Assurance

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Mechanical Subsystem – QA Activities

- Source inspection of grid fabrication activities
  - Plating evaluation and final visual inspection
  - Inspection and data review performed at Tapemation
- Mechanical Subsystem parts inspection and acceptance status
  - TCS EEE parts
    - 4 part types received and have gone through incoming inspection to date (4 total parts required)
    - 3 part types approved for “flight use”
      - Qual testing of thermostats submitted to LAT PCB
  - Grid assembly mechanical parts
    - 38 mechanical parts will be required for grid assembly activities
    - QA meeting regularly with Mechanical Subsystem personnel on part status
      - Mechanical subsystem is following up on part order/location for parts not inspected
      - LAT QA has inspected and accepted 36 parts received
- Manufacturing Readiness Review (MRR) held for Grid assembly activities
  - Drawings and procedures need to be released and work order generated
  - Outstanding NCRs related to grid fabrication activities on path for closure

Mechanical Subsystem – QA Activities (Con't.)

- **Source inspection of radiator panel fabrication at LM**
  - **Tooling fit check for heat pope bonding to radiator faceskins**
  - **Inspection performed after heat pipe bonding**
    - **No issues identified**

Tracker Subsystem QA Activities

- Tracker issues being addressed
  - Flex cables
    - Coupon failures
      - Coupon evaluation results received from GSFC on initial flex cable revealed internal annular rings missing and separations between barrel plating and internal layers
      - Process changes were initiated at Parlex (drill speed and feed modifications and circuit X-ray incorporated)
        - » Post-process change flex cable coupons appear to indicate corrective actions were adequate (3 of 4 coupons samples submitted passed)
    - Workmanship issues
      - Source inspection on 8 post-process change flex cables was performed at Parlex week of 10/25
      - Several workmanship issues were identified
        - » Excessive bubble in adhesive between Omnetic connectors, foreign material on cables, voids in epoxy, damaged connectors, etc.
        - » Flex cable assembly activity stopped, corrective action requested from Parlex
      - A meeting is taking place Thursday, 11/4 to discuss workmanship issues and review corrective actions

Tracker Subsystem QA Activities

- MCMs Issues
  - Pitch adaptor trace cracking
    - Traces on the MCM pitch adaptor show cracking in the nickel at the bend region; some cracks result in open traces
    - Initial qualification of "revised" pitch adaptors design (no nickel or gold plating in bond area) not successful; second design iteration in progress
      - Pitch adaptors (second design) still not delivered from supplier
  - Workmanship issues (pealing of conformal coating, bubbles, and solder and solder on connector leads)
    - Reinspection of MCMs delivered to SLAC completed
    - Corrective action associated with workmanship issues discussed at Teledyne on 9/27 and 10/8
      - Follow-up visit to Teledyne planned on 11/8
    - Rework plan developed and completed
      - Rework risk assessment performed and discussed at MRB on 11/3
    - Source inspection at Teledyne will be performed by SLAC quality personnel on interim basis (previously performed by on-site inspector)
      - SLAC personnel have extensive hands-on experience with MCM workmanship inspection

Tracker Subsystem QA Issues (Con't.)

- **MCMs Issues**
  - **Charge injection read-back errors at +60C**
    - **Traced to GTRC timing margins, which were found to be sensitive to clock duty factor**
      - **Plan is to utilize 75 ohm resistor (instead of 100 ohm) on flex cables to resolve problem**
  - **MCM board shorts**
    - **8 MCMs have developed internal board shorts (3 more MCMs may be suspect)**
      - **Leakage current between layers 7 and 8 PWB**
    - **GSFC performing DPA on MCMs submitted**
    - **Additional MCM to be submitted to U of Maryland for evaluation (based on recommendation from GSFC)**
    - **Analysis and evaluations continuing**
      - **Plan for closure converging**

DAQ Part Activities

- **EEE Parts inspection and acceptance activities are discussed in DAQ Production Meeting**
  - **DAQ EEE Parts are inspected as they are received**
    - **No backlog exists**
  - **All required DPA samples have been submitted to GSFC (with the exception of FPGAs)**
- **Part Issues**
  - **MEC FPGA's returned to Actel, UMC to be delivered this week**
    - **Decision to be made on replacement of MEC FPGA's on first 3 TEM's**
  - **cPCI connector qualification plan requires finalization**
    - **LAT QA to set-up meeting with DAQ and GSFC personnel to discuss connector assembly process**
  - **NCRs identified during receiving inspection of EEE and mechanical parts being addressed**
    - **Two open NCRs**

DAQ ASICs Inspection & Test Status

- GLTC3 – 645 each (GASU); GTCC1 – 881 each (TEM); GCCC1 – 824 each (TEM)
  - Screening and Qualification Plan, LAT-TD-02656, released and approved
    - Visual inspection and serialization completed
    - Thermal cycling completed
      - GTCC1 and GCCC1 have completed thermal cycling 4/2/04
      - GLTC3 completed thermal cycling 10/11
    - Electrical testing and burn-in performed at SLAC in Building 33 (LAT I&T Facility)
      - Initial Electrical Test at 25C
        - » GTCC1 – 384 of 405 accepted
        - » GCCC1 – 192 of 221 accepted
        - » GLTC3 – To be performed
      - Dynamic Burn in for 168 hrs. at 85C
        - » GTCC1 – 384 of 384 accepted
        - » GCCC1 – 192 of 192 accepted
        - » GLTC3 – To be performed
      - Electrical Test post burn in at 25C
        - » GTCC1 – 224 of 224 accepted (Enough GTCC1s for 28 TEMs)
        - » GCCC1 – 112 of 112 accepted (Enough GCCC1s for 28 TEMs)
        - » GLTC3 – To be performed
    - DPA evaluation performed on all three ASICs and passed

TEM & TEM-PS Assembly QA Activities

- Travelers & Controlled Assembly Aid (CAA) reviewed for completeness by LAT QA and Manufacturing personnel
  - Final approval of travelers & CAA performed by LAT Source Inspector
- Production activities commenced week of 9/27 on Qual + 2 units
  - Technical issues have surfaced on TEM-PS assembly activities requiring evaluation and corrective action
    - Thermally conductive adhesive .010 max. bond line requirement could not be met
      - Drawing change initiated to eliminate requirement for adhesive under ASICs
    - FPGA's received at GTC with leads not meeting coplanarity requirements
      - Rework of leads performed at GTC, success of rework to be reported this week

LAT I&T QA Activities

- Facility Readiness Review (SLAC I&T Facility – Building 33) was performed by LAT QA on May 19th & 24th
  - Facility Readiness Review performed to evaluate readiness of facility to receive, store, assemble and test flight hardware
    - 4 findings and 22 observations were identified and documented
      - All findings and observations were closed
  - Weekly surveillance of I&T facility is performed by LAT QA to verify compliance to cleanroom facility requirements
    - Performed with participation of I&T personnel
    - 1 finding and 10 observations are open
- Working in concert with I&T personnel on the review of I&T procedures and documentation
  - ESD controls are being reviewed and required equipment being procured
- "ACD Tent" Operational and ready for grid assembly activities