

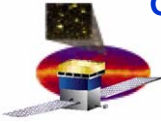
GLAST Large Area Telescope

Systems Engineering

Test Status, NCRs and Verification Status

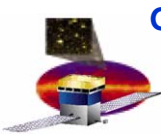
Pat Hascall
Systems Engineering
Joe Cullinan
Quality

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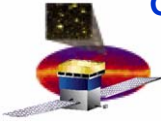
LAT Test Status

- **The LAT CPT test status**
 - **Completed Spacecraft B side testing, no significant issues**
 - **Supporting command/telemetry QAR resolution**
 - **My assessment**
 - Telemetry drops are largely explained with a low risk that there is any flight hardware involved, work continuing
 - Command drops are partially explained
 - » AstroRT buffer overwrite fixed March 30 during CPT (checksum errors)
 - » QAR 1196-5013 covers dropped commands between AstroRT and the spacecraft FSW
 - Other misc issues are being resolved as we work through the list
- **Radiator installation**
 - **Three thermistor pairs appear to be swapped**
 - **Unpowered test planned to verify understanding**
 - **Expected resolution is to change paper**
- **EMI test preparations**
 - **Unshielded temperature sensors not an issue**
 - **Analysis and test results resolved**
 - Final LAT analysis/test assumes as built harness shielding and no blanket shielding
 - SC circuits easily handle the generated voltage
 - Report in process
 - **Requires blankets to be properly dressed for EMI testing**



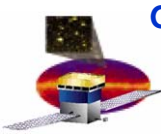
NCR Summary Status

| Closure Plan | Definition | Count |
|-----------------|---|-------|
| Work continuing | | |
| QAR | CND or other issue transferred to a QAR | 9 |
| In process | Investigation ongoing | 1 |



NCR Progress

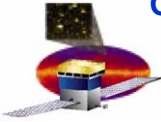
- **NCRs closed**
 - **NCR 983 LTC file size changed**
- **NCRs in process**
 - **NCR 992 (TEM phasing errors)**
 - GSFC asked for additional information on this based on comments from the PER team.
 - ASICs were received as bare dice, so life testing was not performed on as-received lots
 - » All ASIC testing was performed at MCM assembly level, 85 C, 168 hours
 - To mitigate some observed shorting, PWBs were baked out at Teledyne prior to assembly beginning in Feb. 2005; affected MCM was built April 2005
 - Isolated part failure (internal short in either ASIC or PWB) remains the most likely root cause after additional investigation.
- **NCRs closing**



Summary of 50V ceramic capacitors in low voltage applications on LAT

Follow up from PER:

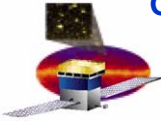
- QAR 1196-5184 has been opened to track and document this LAT issue
 - Creating this QAR addresses PER RFA #17
- 100% of 50V capacitors screened for low voltage failure susceptibility have passed
 - unscreened parts are identical to screened parts except for different date lot codes
 - GSFC to complete DPA and final report on screened parts, ECD 5/31/07



LAT Level Verification Status

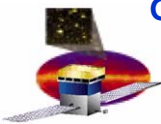
| Category | Verification Method | | | | | Totals | |
|--------------------------------|---------------------|-----------|------------|------------|-----------|------------|--------|
| | Test | Demo | Analysis | Inspection | Children | Complete | % Comp |
| | # Comp | # Comp | # Comp | # Comp | # Comp | | |
| Requirement Identified | 120 | 73 | 206 | 37 | 22 | 458 | 100.0% |
| Flow Down Complete | 120 | 73 | 206 | 37 | 22 | 458 | 100.0% |
| Draft Verification Plans | 120 | 73 | 206 | 37 | 22 | 458 | 100.0% |
| Final Verification Plans | 120 | 73 | 206 | 37 | 22 | 458 | 100.0% |
| Verification Plans Executed | 102 | 63 | 194 | 35 | 16 | 410 | 89.5% |
| Verification Reports Submitted | 102 | 63 | 194 | 35 | 16 | 410 | 89.5% |
| Requirements Sold | 100 | 63 | 191 | 35 | 16 | 405 | 88.4% |
| Expect Compliance | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| Verifications Plan Deferred | 18 | 10 | 12 | 2 | 6 | 48 | 10.5% |
| Requirements Issues | 0 | 0 | 0 | 0 | 0 | 0 | 0.0% |
| Total VPs | 120 | 73 | 206 | 37 | 22 | 458 | |

- **Progress this month**
 - All 458 VPs are Final
 - All VPs planned for execution to this point have been performed
 - 410 VPs have been executed to date
 - 405 VPs approved and 5 VPs conditionally approved by GSFC
- **Status**
 - VCRM version 25 released
 - All deferred GRB reqts will be sold post FSW B1.0 installation



Tracker Efficiency Update

- We have observed what appeared to be a step change in tracker efficiency after the LAT was integrated to the spacecraft
 - Efficiency numbers were down to 99% against a spec of 98%
 - Efficiency numbers are rising toward the normal level
- Review of historical data shows that this metric drops whenever the LAT has been unpowered for a length of time
 - LAT has had the longest unpowered intervals after the final stand-alone testing
 - Did not drop when unpowered during TV after initial bakeout
- Tracker team is fully involved to see if they can understand the phenomenon
- Following plots illustrate the history of the phenomenon
 - The metric is from the digi files and is related to 1-efficiency
 - Magenta line shows the times when the LAT was off
 - B side LAT CPT continued the expected downward trend



History at GD

