GLAST Large Area Telescope

Systems Engineering

Test Status, NCRs and Verification Status

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LAT Test Status

• The LAT CPT test status
  – **Supporting command/telemetry QAR resolution**
  • **My assessment**
    – Telemetry drops are largely explained with a low risk that there is any flight hardware involved
    – 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, instrumentation in place

• Radiator installation
  – Three thermistor pairs appear to be swapped
  – Unpowered test planned to verify understanding (pending radiator removal/ installation)
    – Expected resolution is to change paper

• XLHP Temp Sensor (see later chart)
• Aliveness Test completed successfully
LAT Test Status (Continued)

• EMI Test Progress/Issues
  – Test coordination issues resulted in physics runs much longer than expected (believed resolved – longest run as of 6/5 2:20 PDT was less than 1 hour)
  – Three instances of telemetry glitches
    • All three instances have multiple telemetry points affected within a packet (looks like packet corruption)
    • Two were in first packet after tlm outage/rate swap
    • Data passed to GD for review/flag generation, they are checking the AstroRT telemetry archive for consistency
  – GPS lock has been intermittent
    • Provided GPS lock info from the timetones to GD
    • GD changed requirement on number of satellites required
    • Recent lack of GPS lock attributed to test setup, still working with GD to reconcile loss of lock list
  – Tracker noise flare in review
Two instances of anomalous telemetry was found for the primary LAT +Y VCHP-XLHP heatpipe #4 thermistor.

- First instance occurred for ~35 min on May 31 during LAT power up and configuration for self-compatibility side-A.
- Second instance occurred at ~3 min on June 1, minutes after telemetry was reestablished after PTP issues were resolved.
Status

• Temp sensor is used by LTC
• Temp sensor is part of the radiator assembly so we have limited data at the Observatory level of assembly.
  – Radiator integration electrical test occurred April 12.
• Only temperature sensor to exhibit this behavior in these time periods. All other temp sensors are OK.
• No reoccurrence of this anomaly since behavior was first noticed.
• Review of telemetry history reveals possibly four similar glitches occurring during LAT Pre-TV CPT.
  – Magnitude of the glitches range from ~1 DegC to ~9 DegC
  – Duration is on the order of minutes
• Need FRB to determine impact to EMI testing
## NCR Summary Status

<table>
<thead>
<tr>
<th>Closure Plan</th>
<th>Definition</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work continuing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QAR</td>
<td>CND or other issue transferred to a QAR</td>
<td>9</td>
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</tbody>
</table>

- NCRs closed
- NCRs (re)closed
  - **NCR 992 (TEM phasing errors)**
    - GSFC questions answered
- NCRs closing
Follow up from PER:

- 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
    - Preliminary look by Thom indicates no issues
    - Final evaluation by Tom Duffy to be completed by next week
LAT Level Verification Status

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
  - Two reopened to add details, closure plan in place

Status
- VCRM version 25 released
- All deferred GRB reqts will be sold post FSW B1.0 installation