

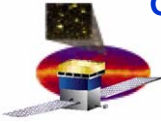
# GLAST Large Area Telescope

## Systems Engineering

# Test Status, NCRs and Verification Status

Pat Hascall  
Systems Engineering  
Joe Cullinan  
Quality

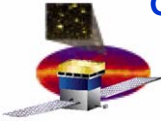
Stanford Linear Accelerator Center



# LAT Test Status

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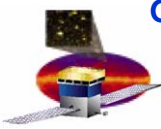
- The LAT CPT test status
  - Supporting command/telemetry QAR resolution
    - My assessment
      - Telemetry drops are largely explained with a low risk that there is any flight hardware involved
      - Command drops are partially explained
        - » AstroRT buffer overwrite fixed March 30 during 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)

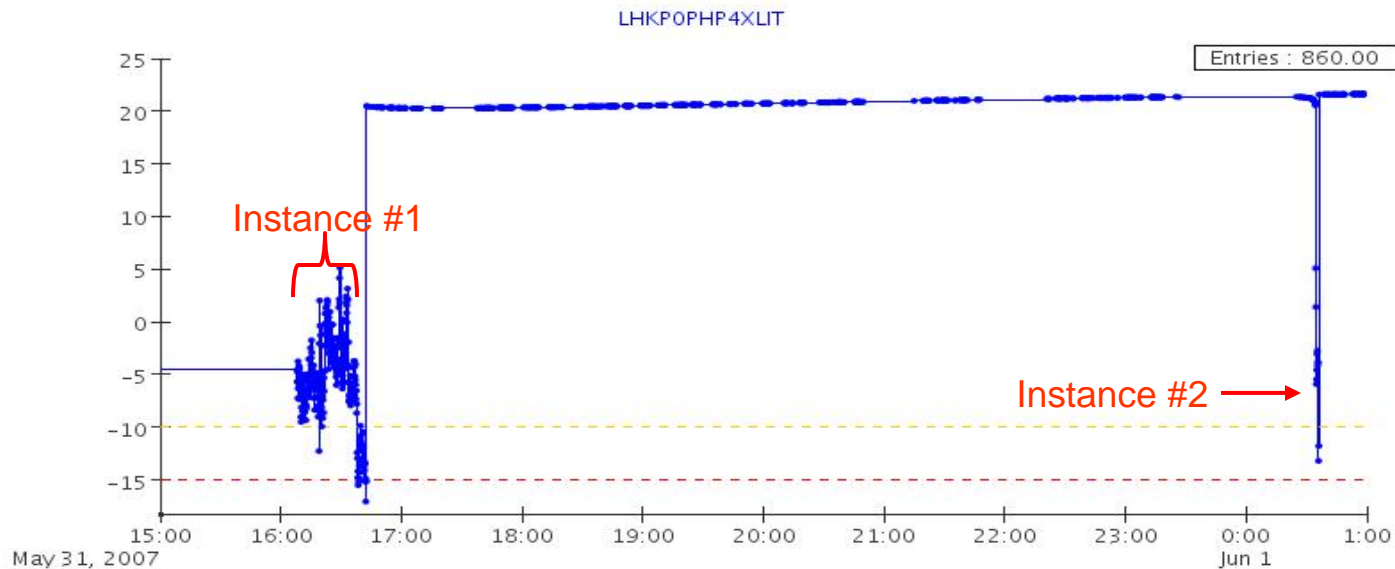
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- **EMI Test Progress/Issues**
  - **Test coordination issues resulted in physics runs much longer than expected (believed resolved – longest run as of 6/5 2:20 PDT was less than 1 hour)**
  - **Three instances of telemetry glitches**
    - **All three 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**

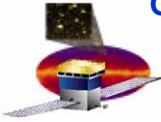


# VCHP-XLHP Temperature Sensor Anomaly

- Two instances of anomalous telemetry was found for the primary LAT +Y VCHP-XLHP heatpipe #4 thermistor.



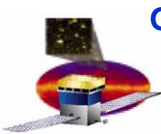
- First instance occurred for ~35 min on May 31 during LAT power up and configuration for self-compatibility side-A.
- Second instance occurred at ~3 min on June 1, minutes after telemetry was reestablished after PTP issues were resolved



# Status

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- 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

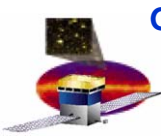


# NCR Summary Status

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Closure Plan	Definition	Count
Work continuing		
QAR	CND or other issue transferred to a QAR	9

- NCRs closed
- NCRs (re)closed
  - NCR 992 (TEM phasing errors)
    - GSFC questions answered
- NCRs closing

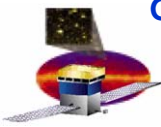


## Summary of 50V ceramic capacitors in low voltage applications on LAT

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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

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%
<b>Total VPs</b>	<b>120</b>	<b>73</b>	<b>206</b>	<b>37</b>	<b>22</b>	<b>458</b>	

- **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<sup>8</sup>

NCRs and Waivers