

# GLAST Large Area Telescope: Performance & Safety Assurance

Darren Marsh  
SLAC  
Performance & Safety Assurance Manager

Marsh@SLAC.Stanford.Edu  
650-926-4577

## 4.1.A P&SA – Significant Accomplishments

### February 2005

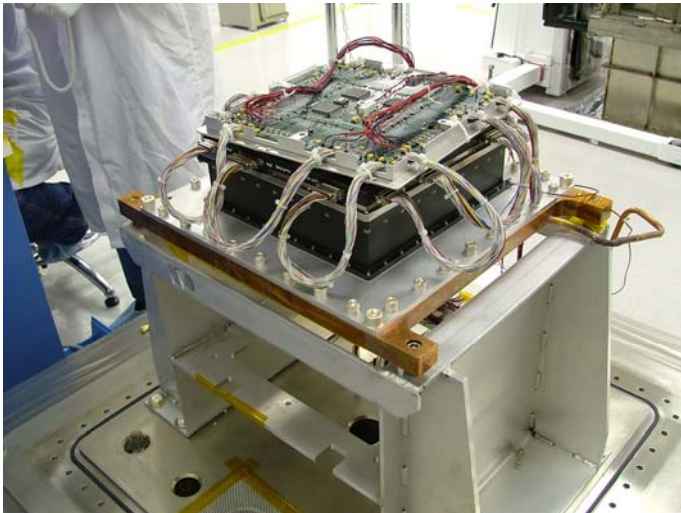
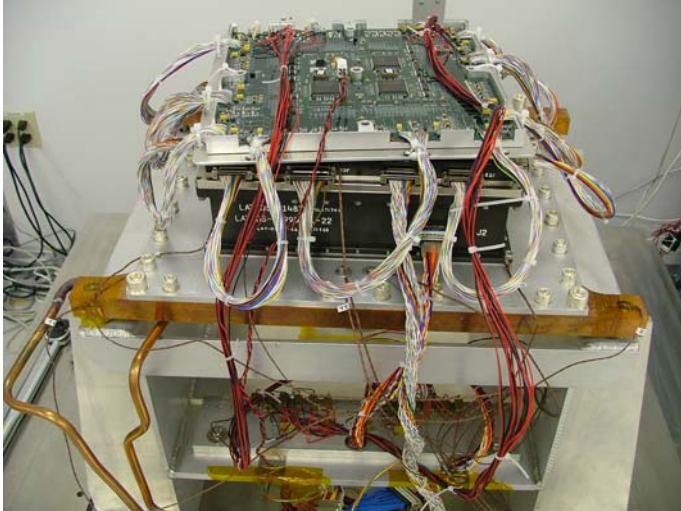
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- Supported integration and test activities of flight Tracker Tower (Tower A), Calorimeter Module (FM 104) and TEM/TEM-PS
  - Witness all lifts and hardware moves
  - Ensure compliance with ESD controls
  - Witness all mate/demate's
  - Ensure compliance with applicable work orders and procedures
  - Final acceptance of test results
  - Second shift QA coverage
    - Daily QA hand-off meeting
    - Daily Shift Report

# 4.1.A P&SA – Significant Accomplishments

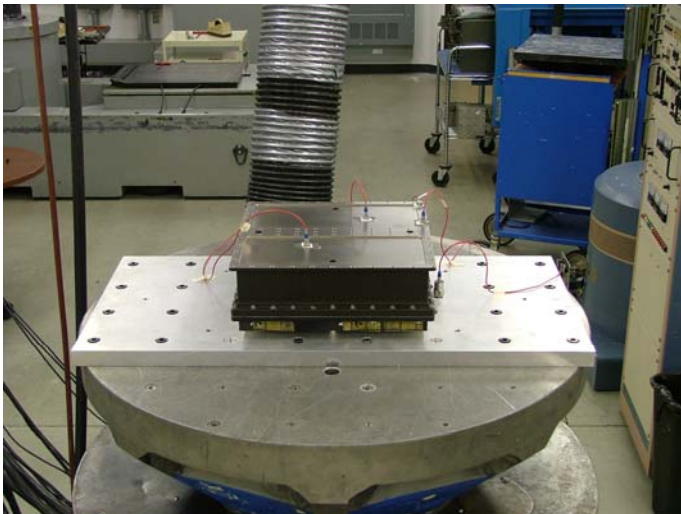
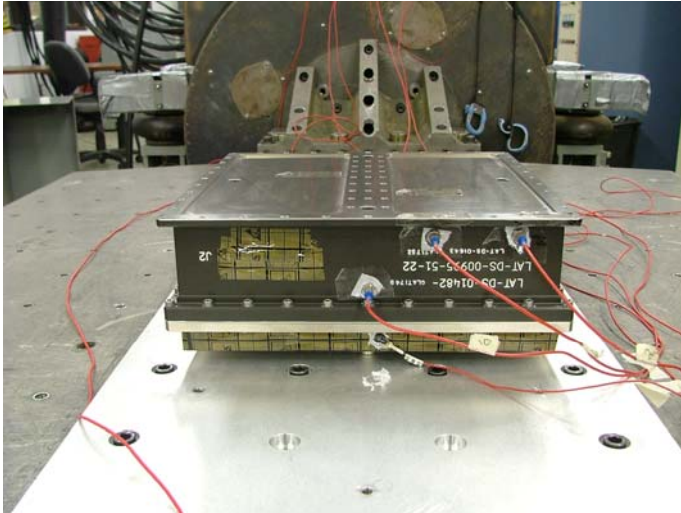
## February 2005



- Supported TEM/TEM-PS T/V test activities (SLAC)
  - Reviewed test set-up and T/V chamber operations
  - Witnessed critical steps
  - Coordinated T/V post test data review for GLAT 1752 and 1753
    - Reviewed T/V results with DAQ and Systems Engineering personnel
    - Reviewed procedure and work order red-lines
    - Discussed NCRs generated
  - T/V results passed and accepted for both units

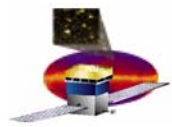
# 4.1.A P&SA – Significant Accomplishments

## February 2005



- Supported TEM/TEM-PS vibration testing
  - Surveyed and qualified vibration test facility (Wyle Laboratory)
  - Witnessed vibration test activities at Wyle
  - Reviewed vibration test results with DAQ and Systems Engineering personnel
  - Reviewed vibration procedure and work order
  - Vibration test results acceptable for GLAT 1752, 1753 and 1754





## 4.1.A P&SA – Significant Accomplishments February 2005

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- Supported Technical Exchange Meeting at Cicon (LAT external harness assembly house).
  - Follow-up meeting held with Cicon technical personnel to review action items and initial harness assembly activities
    - > 350 harnesses are expected to be assembled by Cicon
- Supported EEE Parts Meeting at SLAC with GSFC Project Office and LAT EEE Parts Engineering personnel.
  - Reviewed LAT EEE Parts Lists (DAQ, Mechanical, Tracker) to identify and review issues, update parts lists and ensure closure plans identified in place
    - No actions were identified for SLAC LAT – requirements and parts status are well understood
    - GSFC and LAT EEE Parts Engineer to meet with GLAST Parts Engineer to review DPA requirements and activities and review updated parts list notes



## 4.1.A P&SA – Significant Accomplishments February 2005

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- Supported LAT DAQ cPCI installation qualification efforts
  - cPCI connectors utilized on DAQ crate backplane board and LCB board
    - Hand solder, hot air and wave solder processes will be executed for both the backplane and LCB boards and qualification samples sent to GSFC for evaluation
      - Hand soldered boards completed and in route to SLAC
  - Coordinated telecon between SLAC, Aeroflex and GSFC to review cPCI connector installation development plan
- 15 first article internal harnesses were received from Glenair
  - LAT QA had full-time oversight at Glenair during the assembly of these harnesses
    - LAT QA inspections were performed at required MIPs
  - First article internal harnesses accepted by DAQ and LAT QA
  - 18 additional harnesses to be received this week



# 4.1.A P&SA – Significant Accomplishments

## February 2005

- **Worked in concert with Tracker technical personal to resolve MCM pitch adaptor cracking issue.**
  - **53 of 60 passed maximum cracked trace requirement**
    - **Assignable cause for 7 rejected parts at MIP-1**
    - **Inspection report maintained with results at each MIP**

MCM S/N	Tall / Short	Teledyne Tracking No.	Flex Attach					MIP-1			
			Flex S/N	Fixture #	Flex Attach Date	Reason for Reject	Teledyne Reject Date	# Cracked Traces	Disposition	Reason for Reject	MIP1 Date
2028	short	790	2460	4	02/24/05			0	OK		02/28/05
2159	short	779	2365	1	02/24/05			0	OK		02/28/05
2198	short	782	2390	1	02/24/05			0	OK		02/28/05
2242	short	781	2385	3	02/24/05			0	OK		02/28/05
2321	short	784	2394	2	02/24/05			0	OK		02/28/05
2322	short	788	2408	2	02/24/05			0	OK		02/28/05
2362	short	785	2398	3	02/24/05			0	OK		02/28/05
2413	short	786	2404	4	02/24/05			0	OK		02/28/05
2446	short	787	2407	1	02/24/05			0	OK		02/28/05
3027	Tall	84	2361	4	02/22/05			0	OK		02/28/05

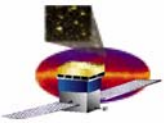


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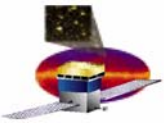
- **Supported Technical Exchange Meeting at Aeroflex for PDU and GASU assembly activities**
  - **LAT QA will full time source inspector on-site during assembly activities**
    - **On-site source inspector reviewed kitted parts shipped to Aeroflex and assisted with the resolution of parts issues**
    - **Reviewed assembly travelers and incorporated appropriate Mandatory Inspection Points for LAT QA sign-off**
  - **SMT on PDU started this week and progressing well**
- **69 SLAC LAT Nonconformance Reports were closed this last month**





# LAT NCR Metrics

Subsystem	Open NCR's	Closed NCR Last 30 days	No. > 60 Days Open
DAQ	6	24	1
Tracker (SLAC)	23	33	5
Tracker (INFN)	51	94	51
Mechanical	2	3	2
Calorimeter	20	30	*
ACD	33	*	*
I&T	16	9	0
* Not provided			



# Issues and Concerns

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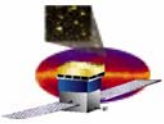
- **Parlex flex cable technical and quality issues**
  - **Assembly workmanship issues**
  - **Parlex facility contamination**
  - **Annular ring failures**
  - **Documentation deficiencies**
- **Maintaining high level of involvement and interaction with Parlex**
  - **One LAT QA Engineer dedicated solely to flex cable activities**
- **Flex Cable installation summary**
  - **Tower A – 1 cable with back coupon – MRB approved**
  - **Tower B and tower 1 – All good coupons**
  - **Tower 2 – 2 cables with bad coupons (maybe three based on INFN NCR reported this week)**
  - **Tower 3 – TBD**
- **All flex cables are fully inspected by LAT QA and functionally tested prior to shipment to INFN**



## 4.1.A P&SA – Planned Accomplishments March 2005

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- **Planned accomplishments for March**
  - **Continue efforts to coordinate closure of SLAC LAT Nonconformance Reports. Particular focus is still on Tracker flex cables, MCM's and Tracker Tower NCR's**
  - **Ensure all Tracker MCM PWBs and pitch adaptors are inspected in a timely manner**
  - **Ensured appropriate planning in place for receipt of ISIS from Spectrum Astro**
    - **Handling procedure**
    - **Bake out**
    - **Shipping container**
  - **Support DAQ PDU, TEM & TEM-PS testing at SLAC**



# Cost Variance Analysis

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- **Cumulative CV = -\$7K**
  - Weekend QA support required for Tracker Tower A receiving activities
  - QA support required on January holiday for urgent parts inspection and Tracker Tower A test activities