Monthly Mission Review

LAT Shipping and Environmental Test Planning

March 30, 2006

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GLAST Project Office and GSFC Transportation Office will take responsibility for the shipping of LAT to NRL and to Spectrum Astro

- GPO will take lead responsibility in developing requirements, documentation, and schedule. GPO (Coltharp) has draft transportation plan.
- Ownership of LAT will temporarily transfer to GSFC during the shipping.
  - Where is LAT when the transfer is made? In the truck, on clean room floor, depending on who “owns” the fork lift.
- Final transfer of LAT to GSFC responsibility will occur at Spectrum Astro after completion of LAT post-ship testing by LAT team

Baseline shipping method is via air-ride enclosed truck arranged by GSFC Transportation Office.

- GSFC will transport LAT in its shipping container.
- GSFC Transportation Office will provide all required instrumentation.
- LAT will be responsible for the ground shipment of all non-flight MGSE / EGSE.
- SLAC & NRL will provide Fork Lifts for loading trucks at SLAC/NRL. GPO will provide the Fork Lift at SASS.
- Demo test ride of Transport Container w/ mass simulator was successfully completed March 13th.

B. Graf is organizing a LAT Transportation Review with GSFC Code 300
LAT Road Trip

Installation of cover

Fork to van

Load on van from the side door

Tie down in van
Road Test Summary

No problems.

- Data is still being processed at GSFC
- Most high g events were related to handling prior to and post road trip.

Example events from LAT interface plate (isolated frame) during road trip:

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<th>Peak X (g)</th>
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# Environmental Test: Plan-Level Documents and Status

## Table of Documents

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<th>Document</th>
<th>Title</th>
<th>Status</th>
<th>ECD</th>
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<tr>
<td>LAT-MD-02717-01</td>
<td>LAT Environmental Test Sequence</td>
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<tr>
<td>LAT-MD-01196-03</td>
<td>LAT Dynamics Test Plan</td>
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<td>LAT-MD-00276-02</td>
<td>LAT EMI/EMC Test Plan</td>
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<td>LAT-MD-01600-03</td>
<td>LAT Thermal-Vacuum Test Plan</td>
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<td>LAT-SS-06640-01</td>
<td>LAT Environmental Test MGSE/STE Requirements</td>
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<tr>
<td>LAT-PS-06898-01</td>
<td>LAT Environmental Test Implementation Plan</td>
<td>Final draft in work. Need to incorporate recent QA, Safety and Contamination inputs</td>
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<td>LAT-MD-06560-01</td>
<td>Plan for Integrating and Testing the LAT on the Observatory</td>
<td>Content being transferred to SpecAstro ICD ICN-099</td>
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<td>LAT-MD-07727-01</td>
<td>LAT Environmental Test Pathfinding</td>
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# Environmental Test: Configuration Drawings and Status

**Configuration Drawings and Status**

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<tr>
<td>LAT-DS-06188</td>
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<td>LAT-DS-06185</td>
<td>Thermal-Vacuum Test Configuration Assembly</td>
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<td>LAT-DS-06187</td>
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<td>LAT-DS-06190</td>
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<td>LAT-DS-06186</td>
<td>Handling Configuration Assembly</td>
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<td>LAT-DS-06184</td>
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<td>LAT-DS-06189</td>
<td>EMI/EMC Test Configuration Assembly</td>
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<td>LAT-DS-06191</td>
<td>Mass Properties Configuration Assembly</td>
<td>Draft in Development</td>
<td>Mid Apr</td>
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Transport Container
- Manufacture complete; Analyses complete
- Proof test complete
- Demo Road Test complete
- Ready to ship – need GSFC definition of bulkhead connector for instrumentation package – critical path
- Waiting for free ride (NAVSEA) – week of 4/7/06 if bulkhead modification made.

Test Interface Plate
- Complete

Test Stand/Spreader Bars
- Complete, used in pathfinding

TVAC Sink Plates – ACD & S/C Simulator
- Complete, used in pathfinding 2

TVAC Cal-Rod Cage
- Complete, used in pathfinding 2

Acoustic Simulator
- Complete

Mass Properties Plate
- Load Cell Interface in manufacture – ECD: 4/03/06
Facilities

- Thermal Vacuum Test
  - Cables and Port Plates – complete
  - Mechanical analyses complete
  - Trolley (cart) – complete, used in pathfinding
  - Chamber rails upgrade – complete and proof tested
  - Pathfinding 2 – complete
  - Chamber refurb, cleaning and recommissioning - started, ECD: 4/17/06
  - GSE bakeout and STE Validation – ECD: 4/27/06

- Acoustic Test
  - Ramp manufacture complete

- Vibration Test
  - Expander head load frame procurement - delivered
  - Load frame manufacture – complete
  - Installation and proof test – ECD: 3/06/06

- EMI/EMC Test
  - Ramp manufacture – complete, used in pathfinding
Pathfinding Part Deux

- Executed Mar 21-24, 2006
- Objectives
  - Radiator installation/removal procedures including timed trial runs (adhesive pot life)
  - TVAC prep work – mount S/C simulator sink plate
  - TVAC configure – another rotation and install on Table / Cart
    - Improved handling procedures for installation and use of test stand extensions
  - Installation of TVAC STE – heater cages, ACD sink plates
  - Transport into TVAC chamber and working around LAT and STE inside chamber.
  - TVAC cable installation and routing
Pathfinding Summary

- Part Deux was very successful and beneficial to all involved.
  - No major handling or operations issues identified.
  - Minor mods to MGSE and procedures will improve safety and execution efficiency.

- Radiator Installation
  - Process could be performed within adhesive pot life
  - Need some special tools to facilitate installation
  - Improvements to scaffolding to protect radiators / personnel
  - Apply adhesive to panel flanges

- TVAC Preps
  - S/C sink plate installation – protect the radiators
  - Heater cage setup – protect the radiators
  - ACD sink plates – cable interferences require modifications, in process
  - Detailed timeline and sequence for STE installation was developed based on lessons learned.
Radiator Installation

Radiator installation test

Radiator flange access
Thermal STE

S/C Sink Plate Configuration

Heater Cage Configuration

Installation of ACD Sink Plate Panels (5)