Mechanical Systems
June 2003 GSFC Status

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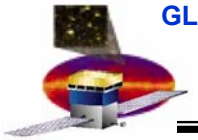
Accomplishments

- **Accomplishments during July**
  - Complete 1 x 4 Grid fabrication
  - Complete technical evaluation of Grid proposal
  - Define & validate CAL-Grid interface
  - Radiator IDD released
  - Downspout & Top Flange Heat Pipe SCD's released
  - Conduct LM Manufacturing Readiness Review for Heat Pipes
  - Begin re-plan of 4.1.8

Issues & Concerns

- **Top 5 threats to maintaining schedule**
  - Completion of Grid detailed Stress analysis – is in work
  - Inadequate manpower – 1 offer pending
  - CAL-Grid interface design implementation (design modifications)
  - Resolution of X-LAT – E-Box interface
  - EM tests and flight designs are being performed in parallel – increases impact of any EM test failure

- **Top 5 threats to staying within cost**
  - As CDR design and fabrication plans solidify, we may find that fabrication costs exceed what was budgeted (which was based on preliminary/conceptual designs)- Grid costs OK
  - Grid Box Assy Test program may exceed what was budgeted due to scope increase – especially Static Load test
  - TCS prototype costs (may require PDU, SIU & GASU boards for LM Radiator Thermal Balance test)
  - CAL-Grid interface design taking longer than budgeted
  - EM program taking longer than budgeted



Open Flight Design Issues

ISSUE	CLOSURE
1. Finalize CAL-Grid interface design	Analysis,design finalization, GSFC approval
2. Finalize X-LAT to E-box design	Analysis,design finalization, GSFC approval
3. Close the loop on Grid-ELEC interface (grounding & EMI)	Meeting req'd for consistent implementation across LAT
4. Delete Radiator level EMI test requirement?	perform EM test w/ D. Nelson
5. Mechanically install Radiators for LAT EMI test?	EMI test plan out for review
6. Grid-TRK interface define Grid datums & TRK tooling interface	Investigating use of existing TRK drill fixture
7. Define GBA Static Load test requirements & plans	Working w/ analyst
8. S/C Flexures for GBA static load test?	Working w/ analyst & GSFC
9. GBA Thermal cycle vs Thermal Vacuum test approval	What paper needs to be submitted
10. RFA on adding a U heat pipe to X-LAT plate in case of XLHP failure	Working w/LM on implementation impacts
11. Other RFA's closure	
12. Examine removing X-LAT plates from GBA static load and thermal cycle tests to beak schedule dependency	Working schedules with LM
13. How to handle ITAR hardware in B/33	Working with SLAC legal & I&T

Mech Sys Parts List

- All mechanical parts are approved by SLAC & GSFC

	Inorganic	Polymer & Composite	Lubricant	Process	Total
Mechanical	78	26	4	11	119

  - Expect ~5 miscellaneous fasteners to be added to this list

- 9 EEE parts for Thermal Control System are not yet approved
  - 1 Thermistor submitted
  - 3 Thermal Switches (2 Grid, Radiator) awaiting set point definition
  - 4 Heaters (2 Grid, Radiator reservoir and anti-freeze) awaiting final sizing
  - 1 RTD (for Radiator) awaiting definition

3 Month Milestones

Milestone Description	ECD	Major Requirements to Achieve Milestone
CCHP MRR	Jul-03	Completed
Grid Box detailed stress analysis	Aug-03	In work
Grid Box Design Review (SLAC)	Sep-03	Complete stress analysis. CAL-Grid interface closure. Incorporate design mods as req'd.GSFC complete drawing package review.
Cal-Grid RFA closure meeting	Aug-03	Complete conceptual drawings of shear fittings and grid. Develop approved LAT test plan. Develop approved LAT Analysis Plan. Obtain concurrence and required analyses from NRL. Complete stress analysis showing positive margins. Complete concepts for cabling.
X-LAT I/F RFA closure meeting	Aug-03	Develop shim budget and shim plan for E-boxes. Complete and document stress analysis on heat pipes and heat pipe bonded joint. Complete and document thermal distortion and ascent loads senitivity analysis. Complete component thermal test on interface joint.
Deliver 1 x 4 Grid to I&T	Sep-03	Complete 1x4 testing
Grid MRR	Sep-03	Award 4X4 Grid contract. Supplier develops manufacturing and test plan per SOW LAT-CR-02252-01. SLAC reviews and approves.
Radiator MRR	Sep-03	Spec & IDD complete and sent to LM. LM complete Radiator TCS & mechanical designs. Close CDR RFA's. EEE parts list approved. Radiator stress analyses complete.
Grid Billets Available	Sep-03	Ultrasonic inspection
Rough machine grid billets	Oct-03	Grid MRR