LAT Planning Meeting

Mechanical Systems
April 2004
Marc Campell
Grid #1 5 Axis Machining

You said “Thru Hole”, right?
Grid #1 Finish Machining
Interdependencies

• S/C - need tool to drill S/C I/F on Grid (Apr 04)
  – S/C Flexures for GBA static load test (Sep 04)
• ACD – need BFA to match drill Grid-BEA I/F (May 3-19)
  – Coordinate shipping & ACD witness
  – Resolve whether drilling at LAT level
• IPO – LM ITAR hardware in B33
  – CCHP’s are ready to deliver
• ELEC – TCS design, prototype fab
  – TCS EGSE design & fab for Radiator Thermal balance test
    • LM needs input & output requirements
  – Internal design review MECH + ELEC
• I&T - Schedule space in B33 for MECH Assy
  – Plans for X-LAT plate fit check during I&T
  – Plans for Radiator fit check prior to ship to NRL
Open Flight Design Issues

• Grid-TRK interface definition CLOSED
  – Pressed bushings into grid eliminated
• X-LAT ground cooling heat transfer media (liquid vs gas)
  – Used to cool LAT during I&T operations
  – Design parameters for each medium being analyzed
  – Gas concerns – cooling pipe stiffness may degrade X-LAT plate to E-box thermal joint & condensation from cold gas flow
  – Inert liquids identified (safe for electronics)
• TCS – location of Grid heaters, thermostats, RTD’s and associated wiring needs to be finalized (top assembly drawing)
  – Grid thermostats are rated to 30V & 2A
  – Planned operation at 35V & 1A
  – Vendor has some test data at 35V up to xx cycles
  – Only thermostat with 3 deg on off differential (power concern)
• Define GBA Static Load test requirements & plans
  – Interface loads developed
  – Detailed load cases & STE being developed
Open Flight Design Issues (cont)

- TCS validation vs. LM modified Radiator Thermal Vacuum & Balance plans
  - What are TCS test requirements?
  - TCS risk assessment and Qual test plan requested by GSFC
- Radiator integration sequence
  - Grid modified to allow installation using pure translation
  - Wet joint trials underway. Disassembly a concern
- Radiator VCHP Helium leak rate may impact ACD PMT’s CLOSED
  - Worst case analysis shows no problem
- Radiator level EMI test was deleted
  - Engineering test at this level has been proposed
  - LM will perform Dev test with heaters & aluminum tape
- RFA’s closure
  - working with Pat Hascall
## Risk List

<table>
<thead>
<tr>
<th>Problem</th>
<th>Impact</th>
<th>Mitigation</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Failure of Radiator VCHP to Down-spout &amp; X-LAT HP thermal joint during LAT TH/Vac testing</td>
<td>Day for day LAT schedule slip during anomaly resolution</td>
<td>Installation process control and prototype verification of 3 way joint</td>
<td>Verification tests planned for May ‘04</td>
</tr>
<tr>
<td>Failure of Grid thermal control components during LAT TH/Vac testing</td>
<td>Day for day LAT schedule slip during anomaly resolution</td>
<td>Perform ambient continuity &amp; isolation test of heaters. Thermo-stats tested at part level.</td>
<td></td>
</tr>
<tr>
<td>Availability of Grid &amp; ACD’S BFA for match drilling</td>
<td>Schedule slip for either subsystem</td>
<td>Multiple windows have been established</td>
<td>Currently planned for 5/3 – 5/19/04</td>
</tr>
</tbody>
</table>
Concerns

- Tapemation Grid #1 delivery schedule
- Tapemation Grid #2 production schedule
- Grid Box Assy Static Load test will be performed on Grid #2 after start of I&T on flight unit. This increases risk.
- Coordination of MECH assembly plans and LAT I&T integration plans.
  - Late delivery of Grid to SLAC drives what work will be performed prior to delivery to I&T