Launch Readiness Review

West Virginia Rocketeers
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Mission Overview

The mission of the WV RockSat payload is to build, test, and fly a number of space science experiments:

- A plasma physics experiment
- Two flight dynamics experiments (Wesleyan and WVU)
- A radio communication system
- A set of cameras
Payload

- The payload contains all boards except the two cameras. Their mounting brackets are still being worked on.
- It contains power supplies.
- We have run functional tests and obtained data.
Tests at WVU: Results for Geiger Counter

- The energetic-electron experiment has been integrated on the payload plates.
- Before integration it was tested with a radioactive source.
Functional Tests at WVU: June 9

- Tests were done at the RockSat lab and plasma lab during the previous week and on June 9.
- The following data are shown here: A2D sensors (right), IMU (bottom right), and 3 PWMs for plasma experiment (below).
Functional Tests at ATK: June 10

- The payload was tested at the ATK facility of Allegany Ballistics Lab on June 10.
- Data taken during the functional test shown here.
  - The plasma experiment (LP, RPE) and energetic-particle experiment did not have any useful data.
Data Acquisition From Random-Vibration Test, ATK:

- Random and sine-sweep test (both with data) and a thermal-vac test (no data returned) were also done.
- A tantalum capacitor malfunctioned during the thermal test and has been replaced.
## User Guide Compliance

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Status/Reason (if needed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center of gravity in 1&quot; mid-can?</td>
<td>0.3”</td>
</tr>
<tr>
<td>Contained in can</td>
<td></td>
</tr>
<tr>
<td>Connected to can by 4/5 bulkheads on top and bottom only</td>
<td></td>
</tr>
<tr>
<td>No voltage on the can</td>
<td></td>
</tr>
<tr>
<td>Activation wires at least 4 ft</td>
<td></td>
</tr>
<tr>
<td>Activation wire at least 24 gauge</td>
<td>30 gauge</td>
</tr>
<tr>
<td>Early Activation: current &lt; 1 A</td>
<td>0.1 A</td>
</tr>
<tr>
<td>T-0 Activation: current &lt; .1 A</td>
<td>Not using</td>
</tr>
<tr>
<td>Battery Type</td>
<td>Nickel-Hydride</td>
</tr>
</tbody>
</table>
Integration Plan and Procedure

• The integration is proceeding.
  – We had to change the location of the cameras and Pis several times. We have longer ribbon cables in case we need to relocate them.
  – We need to complete the bracket for the camera.

• The integration procedure for Wallops is not written. procedure complete and written.

• A concern is that the location of the optical port relative to the wireway needs to be verified.
Level of Readiness

• Experiments that are ready and have been tested:
  – Flight dynamics
  – Plasma physics: Langmuir probe
  – SPACE
  – ARC

• Experiments that are not ready:
  – Cameras have been tested, but not integrated.
  – Plasma physics: the radio plasma experiment board is ready for integration but needs additional testing.
Level of Readiness

• Action items between now and June 19:
  – Integrate cameras and re-test.
  – Test radio plasma experiment.
Check-In Inspections

• We have gone over the check-in procedures and discussed them in the June 4 telecon.

• We will prepare the check-in document.
Final Questions

• We have not received the special port (or have a tracking number).
• We would like to verify early activation is ok.
• We need to verify the location of the optical port relative to the wireway.
Discussion

• The final report is being prepared.
• The WVU team members will make a presentation to the RockOn workshop attendees on Wednesday, June 25.
• The check-in procedure was discussed in the June 4 LRR telecon.
• Logistics of participants in the integration phase have been discussed.