

May 25, 2012

**To:** Dr. T. Gregory Guzik - HASP Program Director  
**From:** Patrick Doyle – University of Minnesota (UMN)  
High Altitude X-Ray Detector Testbed (HAXDT) Team Lead  
**RE:** HASP Monthly Status Report

### **1. Activities**

Payload structure design has progressed to the point where we are looking at material and machining costs. The structure is to be constructed with 6061-T6 aluminum. The exterior sides will be painted white, while the interior of the structure will be polished. Final drawings and construction are expected to be complete in June.

Modeling and design of the detector mount has begun. The mount will also be made of 6061-T6 aluminum. Final design and construction also expected to be complete in June.

All detector materials to be purchased other than the photodiode have been ordered. It is expected that detector construction will be complete by June 11, whereupon it will be taken to Lockheed Martin Space Systems Company in Sunnyvale, CA for testing.

The flight computer is now operational and collecting data from the IMU and GPS. The total current measured while powering the flight computer and sensors is 200mA, which leaves 300mA to power the x-ray detector with the HASP flight system.

### **2. Issues Encountered**

Time will become an issue if we do not receive our photodiode by June 8. The company we have chosen has been contacted multiple times, and a response from them should be received by the date of this report, but it is uncertain when the photodiode will be shipped and received.

### **3. Milestones Achieved**

Amptek Inc. has agreed to become a sponsor for our payload and donated two crucial components to our x-ray detector system. Without the donated parts, we would have been unable to interface with the hardware that Lockheed is providing.

The power conversion and protection circuit is powering the flight computer and ancillary sensors with a 30VDC supply, while the flight computer is collecting and storing data from the attitude determination system.

#### 4. Current Student Team

<b>Name</b>	<b>Academic Level</b>	<b>Responsibilities</b>
Patrick Doyle	Graduate Student – 1 <sup>st</sup> year	Team Lead and systems engineer. X-Ray detector and GPS integration
Curtis Albrecht	Graduate Student – 1 <sup>st</sup> year	Power management design and flight computer operations.
John Fraatz	Undergraduate – graduated	Attitude determination sensor testing analysis.
Sean Grogan	Undergraduate – Soph.	Structure design and mechanical drawings.
Mark Abbotosway	Undergraduate – Senior	Detector mounting design, thermal protection and monitoring, and construction.