CP8
The IPEX Mission
Cal Poly PolySat and JPL

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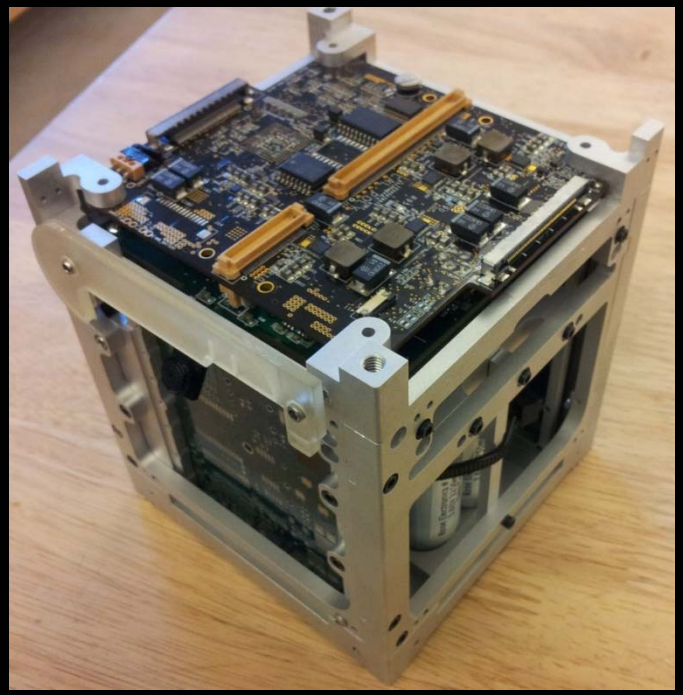
PolySat

CP8 - IPEX - Intelligent Payload Experiment

- 1U with CalPoly PolySat avionics
- Four Cameras
- Space Cube Mini – Nasa Goddard FPGA based onboard image processing hardware
- Casper – JPL's Intelligent operations management software



Status

- Engineering unit complete by summer
- Radio working reliably down to -116 dbm
- Casper integrated with core flight software
- Engineering Unit structure built
- Space Cube Mini scheduled to be delivered in Winter

Colorado Space Grant Consortium and EOSS Balloon Flight

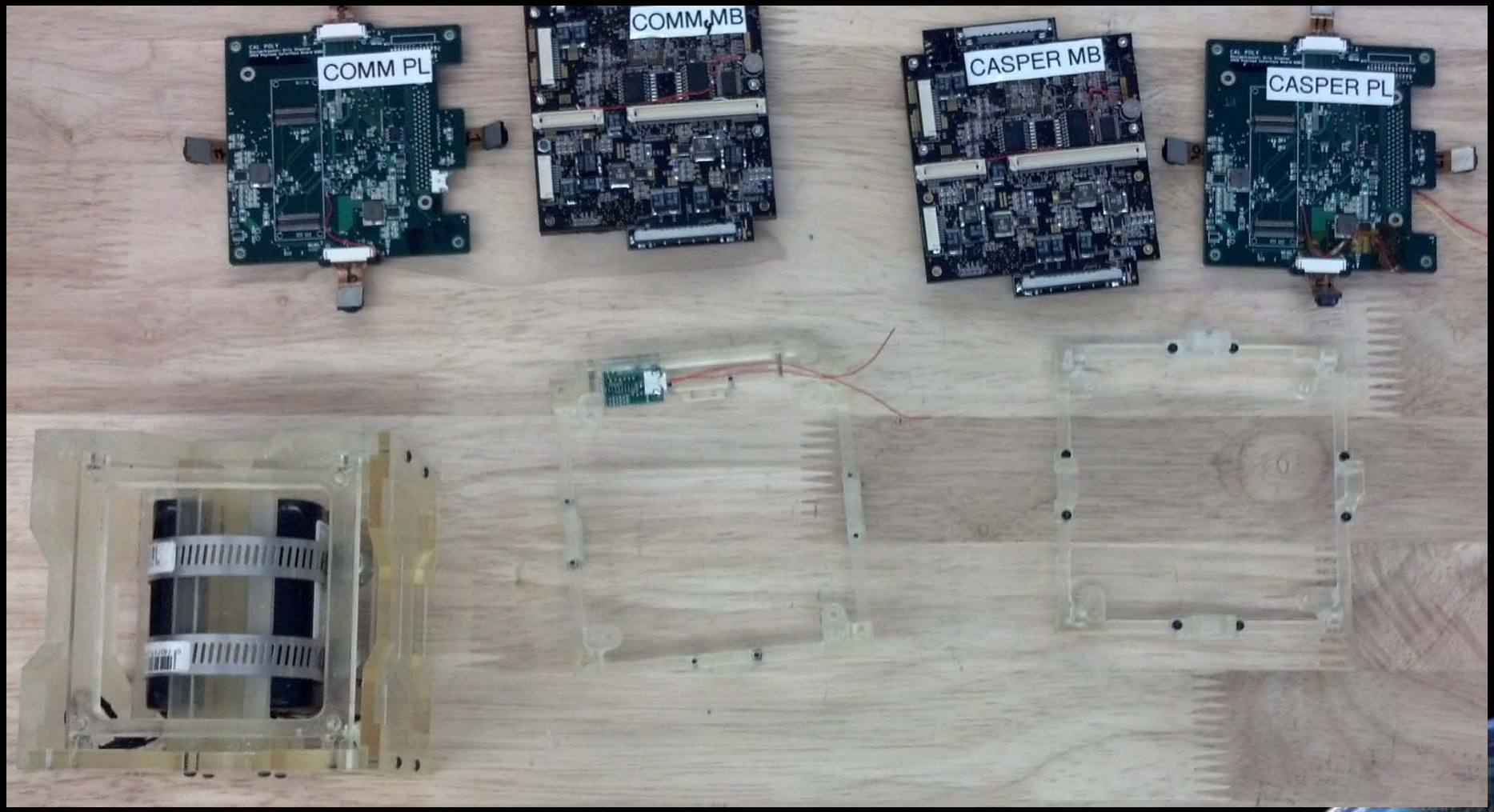
System Test Goals:

- Long range radio test
- Image acquisition
- Environmental systems test
- Further validation of the system and bus

CP8 Balloon Unit Construction

- Two independent system boards with 4 cameras each.
- 3MP Cameras – OmniVision OV03642
- Two batteries 4.4 Amp hour, 3.7V
- UHF monopole at 437 Mhz
- Rapid Prototyped structure

Internal Construction



Balloon Flight Preparations

Dry Ice Test -60° Celsius

- Boards were placed directly on dry ice
  - On-board temperature of -40 was measured
- Boards remained functional
  - All on-board sensors and cameras remained functional
- No visible damage

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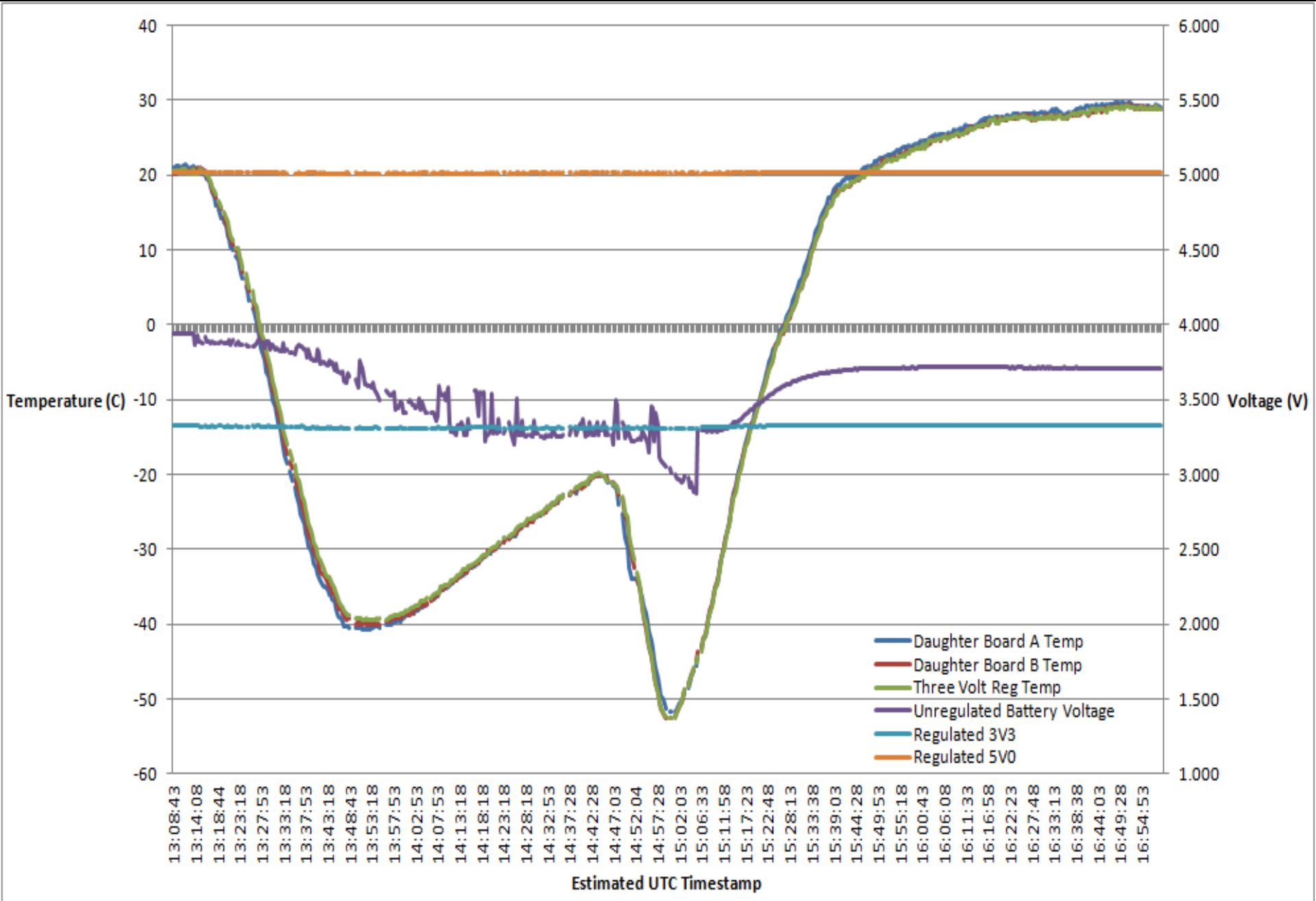
Long Range Communications Test

- Satellite placed 3km away from the ground station which was made from identical satellite hardware.
- Initially 9.6k baud for beacons.
- Increased to 100k baud to downlink an image.

Launch Day

- Windsor, Colorado.
- Hydrogen inflated balloon
  - 3000 grams
  - Two other payloads
- Estimated burst altitude 108k feet
- GPS over APRS tracking

Voltage/Temperature Data



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