

# CubeSat High Speed Downlink Meeting

AstroDev Products and Development

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# AstroDev

## Traditional Spacecraft Approach

- Buy 1 or 2 Flight Units (\$50k)
- Buy 1 Qual Unit (\$25k)
- Radios are application specific
- Radios fit only one place
- Closed Software/No Examples
- ***Fighting to keep costs high***

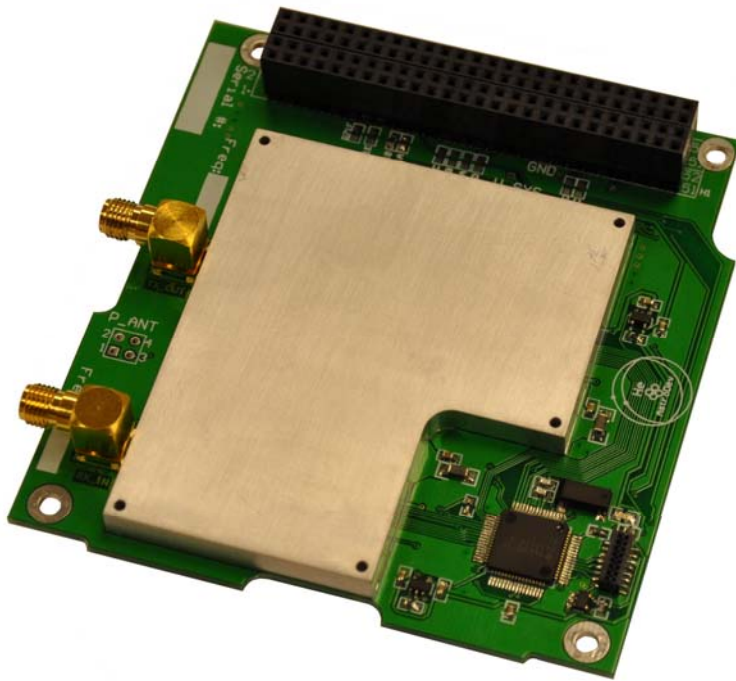
***‘Why build 1 when you can build 2 for double the price?’***

## AstroDev Approach

- Buy 10 Flight Units (\$50k)
- Radios are a commodity
- Radios are agnostic
- Open Software/Example Implementations
- ***Fighting to keep costs low***

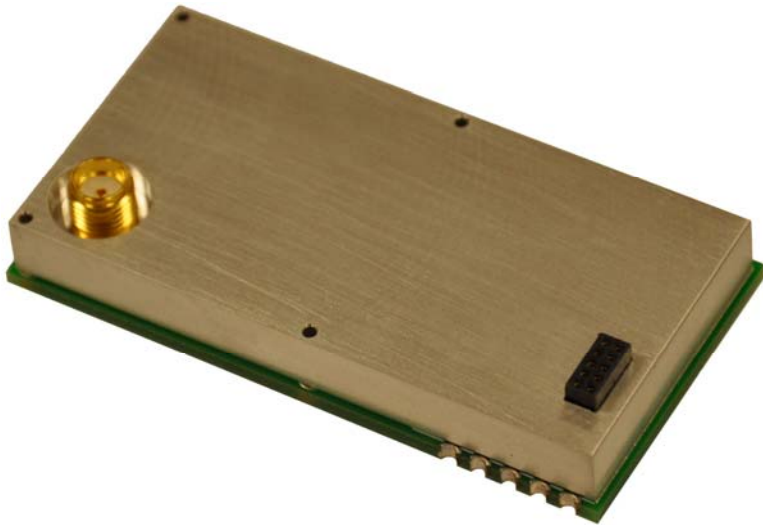
***‘Why build 1 when you can build 5 for the same price?’***

# Helium



- UHF/VHF Duplex
- Bands:
  - 120-150 MHz
  - 400-450 MHz
  - Or Custom 200-600 MHz
- 9600 - 38400bps
- CubeSat Kit Form
- GFSK

# Lithium

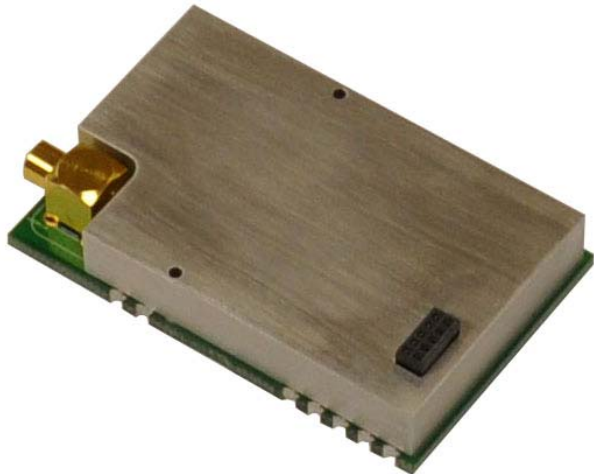


- UHF or VHF Half Duplex
- Bands:
  - 120-150 MHz
  - 400-450 MHz
  - Or Custom 200-600 MHz
- Small PCB Mount
- 9600-38400 bps
- GFSK

# Beacons

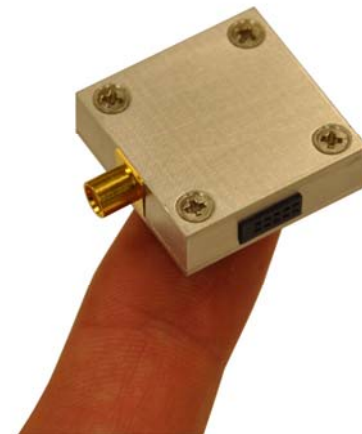
## Hydrogen

- VHF or UHF
- Small PCB Mount
- GFSK

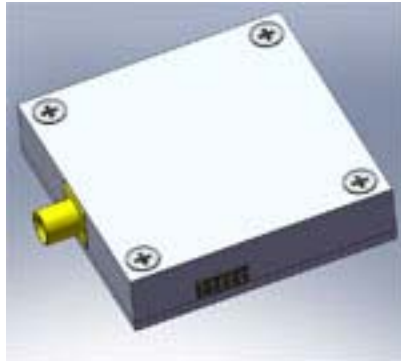


## Neon

- UHF
- GFSK/PSK
- Small, Easy, Cheap



# Beryllium



- In Prototyping
- S-Band Transmitter
  - 2100-2400
  - 2400-2700
- BPSK, 10-1000's kbps
- 30 dBm
- Open protocol
- Ettus SDR Example
  - `benchmark_tx.py`
- ETA 04/2010

# Spectrum Licensing

- Gauging Industry Interest in Commercial Approach
  - Sell Radio + Spectrum Lease + FCC Experimental App
  - Spectrum Width + Contract Length + FCC Experimental App
- Asking feedback:
  - [kevin@astrodev.com](mailto:kevin@astrodev.com) or [info@astrodev.com](mailto:info@astrodev.com)
  - Comments welcome
- Current Frequencies:
  - 10 MHz at L Band
  - >400 MHz at 28 GHz