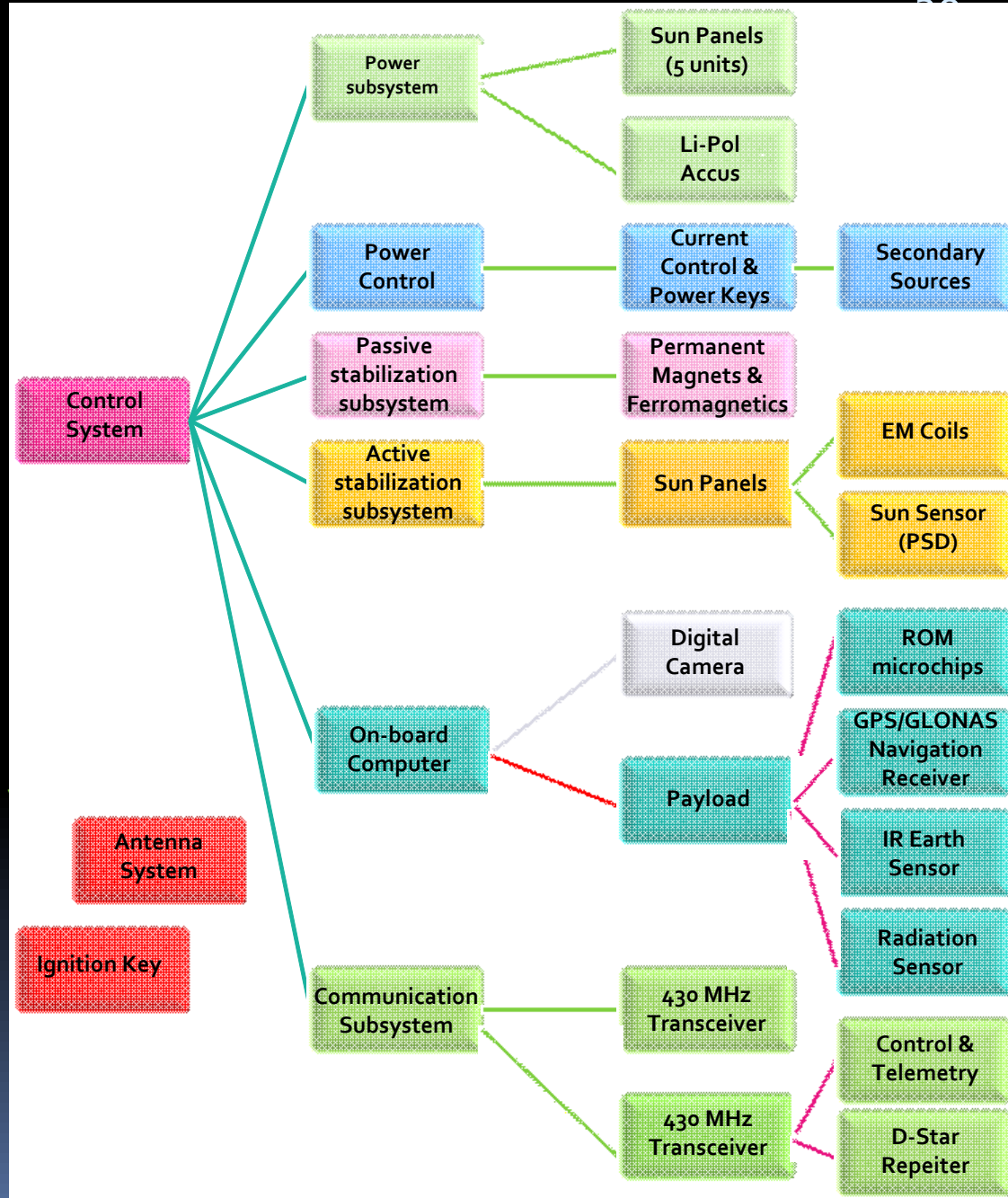
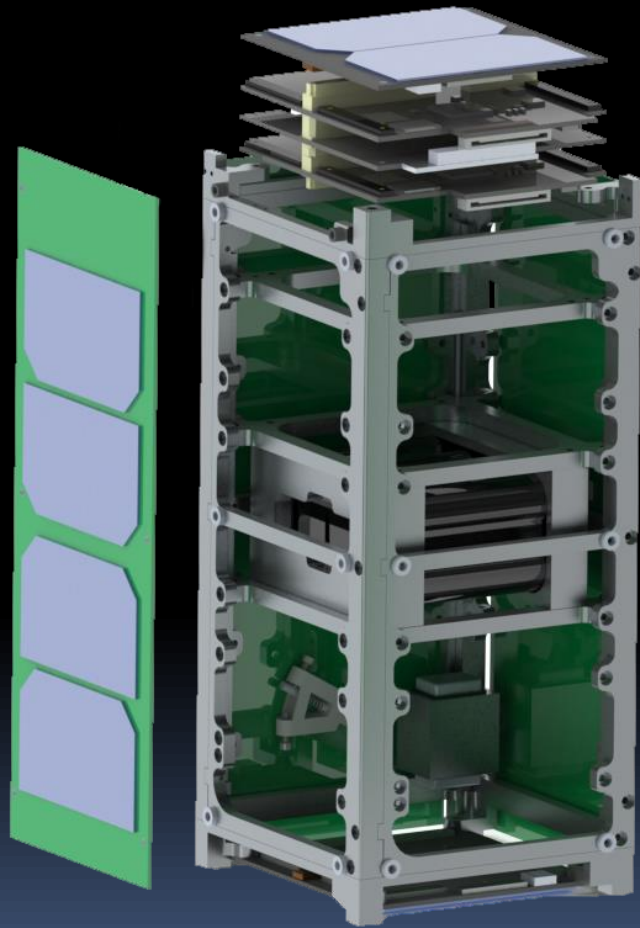
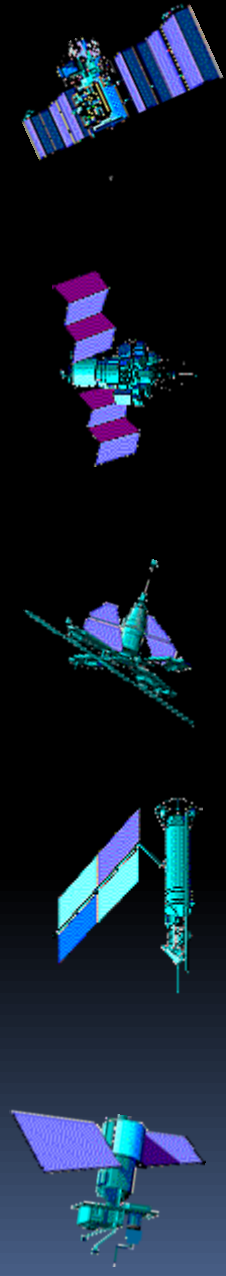
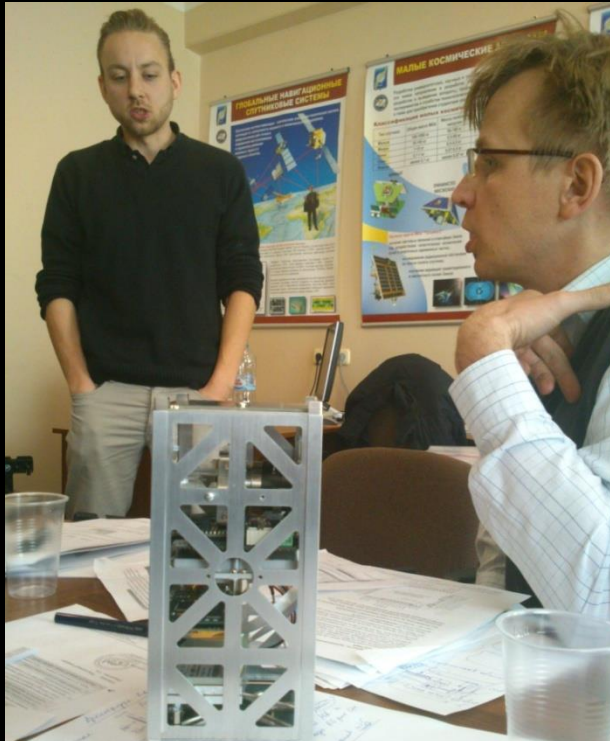


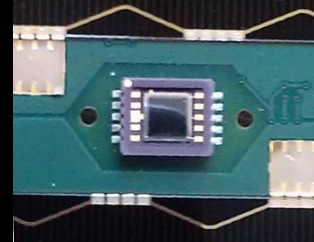
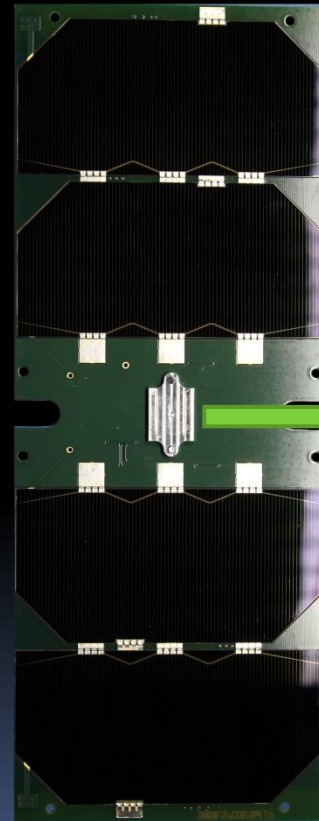
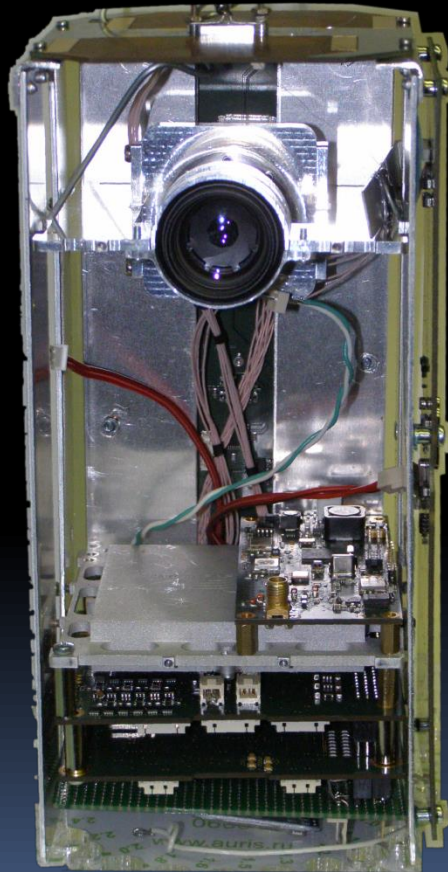
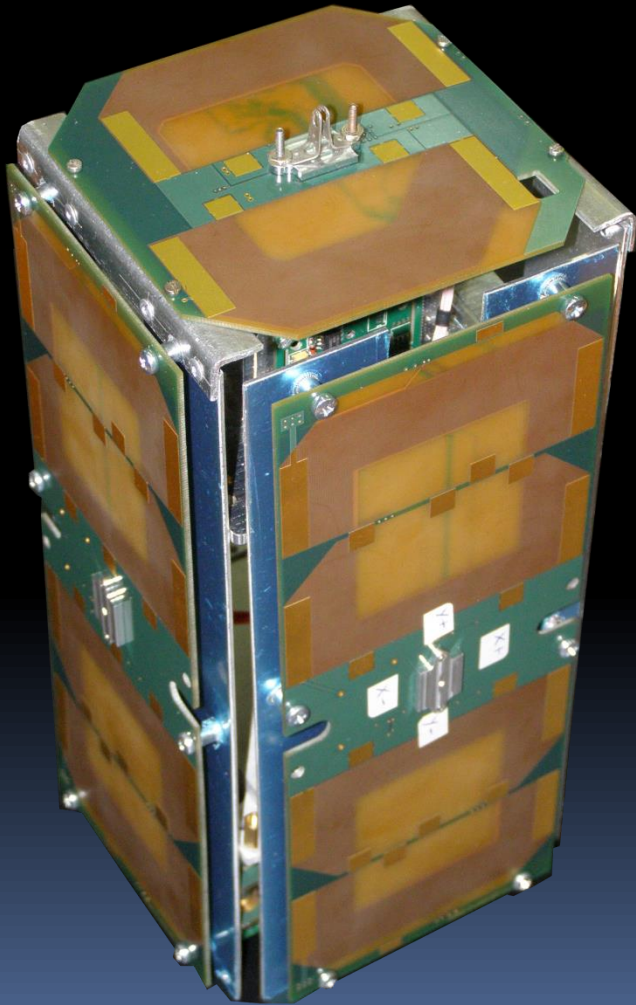
Block diagram CubeBEL-1



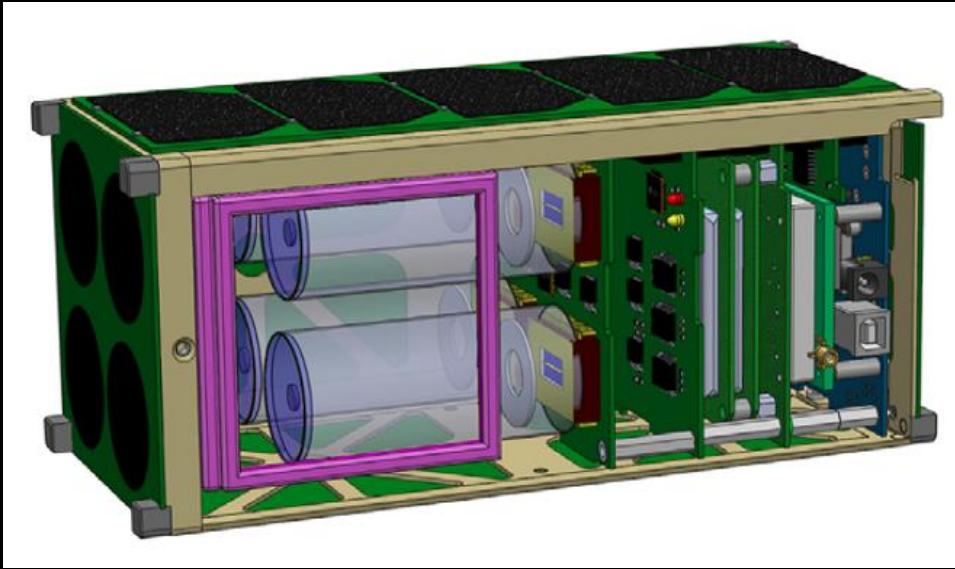
Primary satellite team, mission discussion



Engineer Model

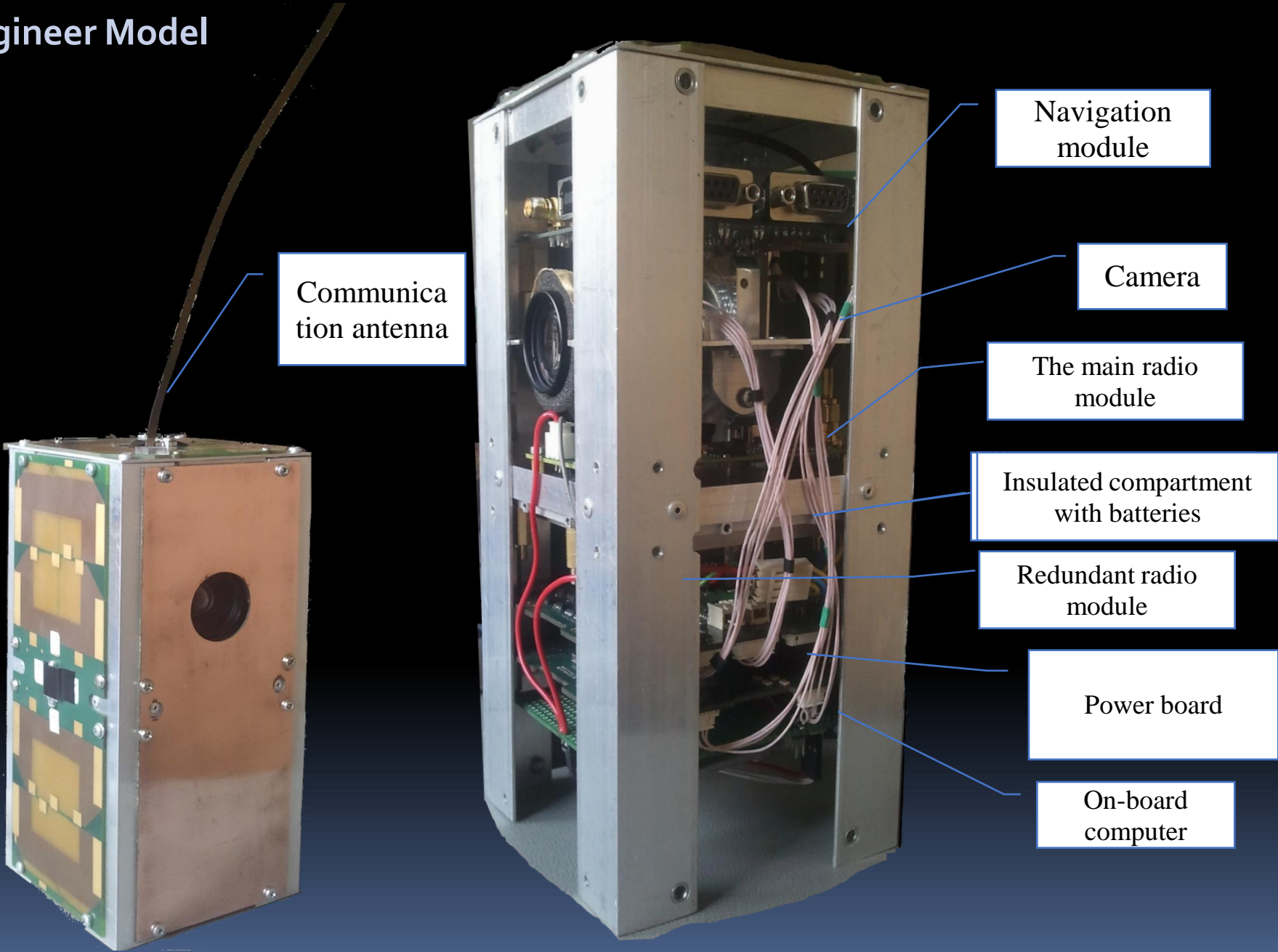


Engineer Model

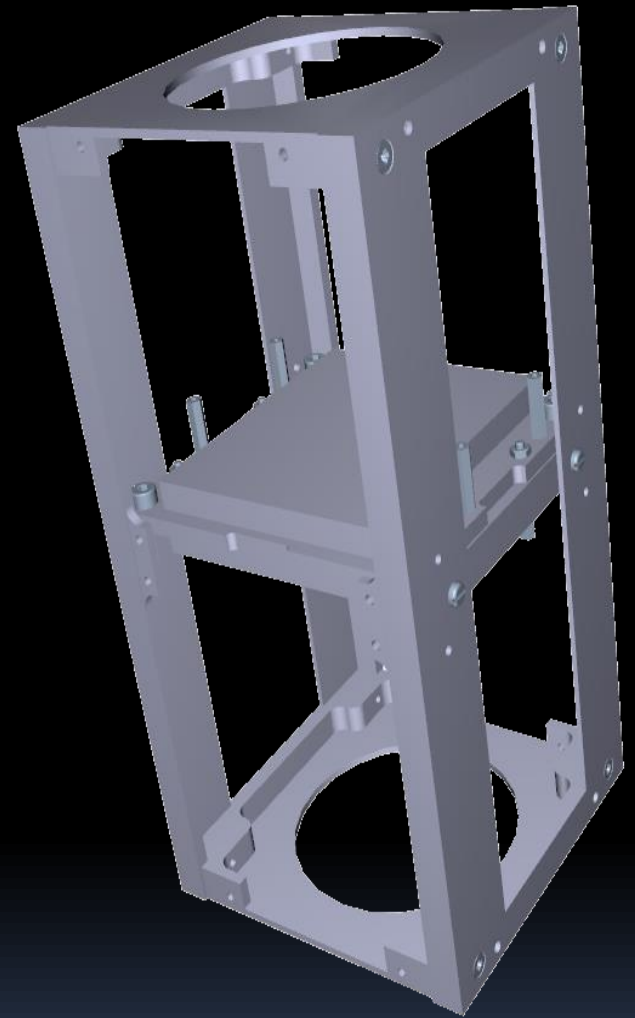
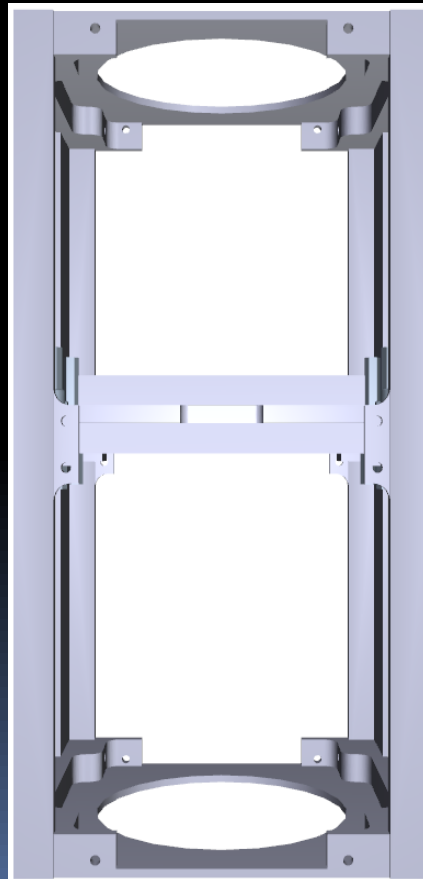
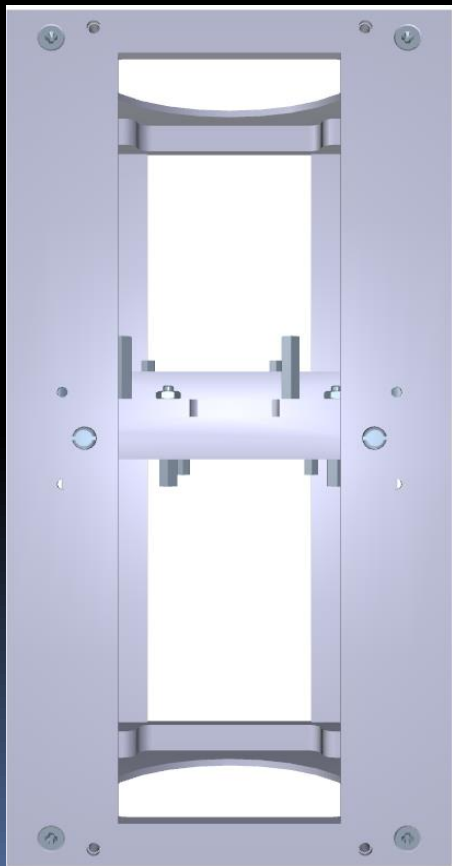
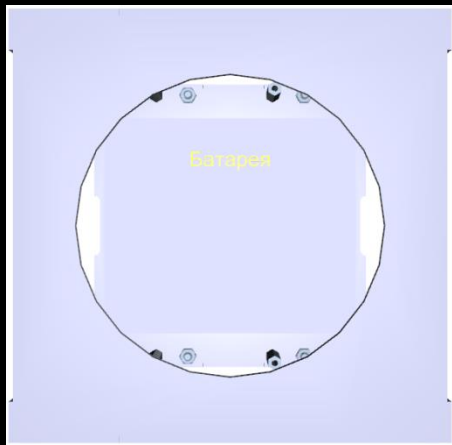


- Test the functionality of subsystems within the BC board
- Calibrated inertial sensor
- Developed GUI application for managing the satellite model, telemetry and control display

Engineer Model

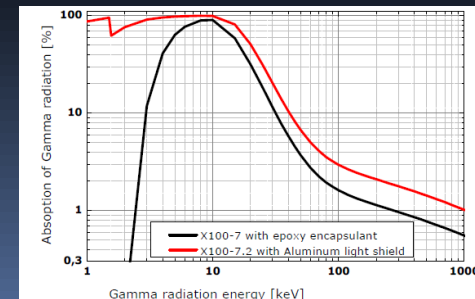
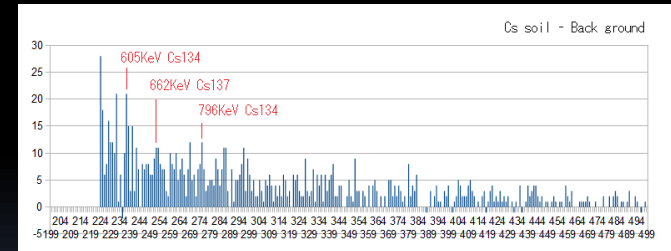
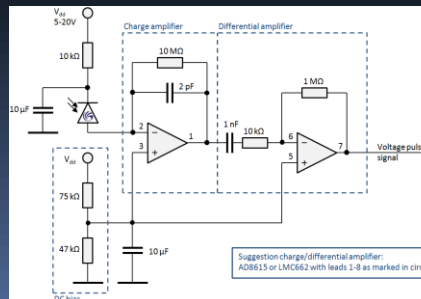
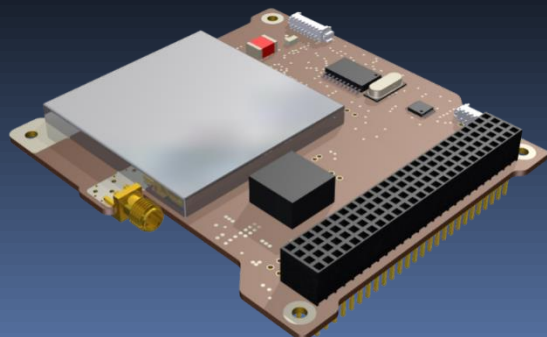
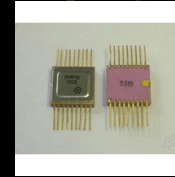
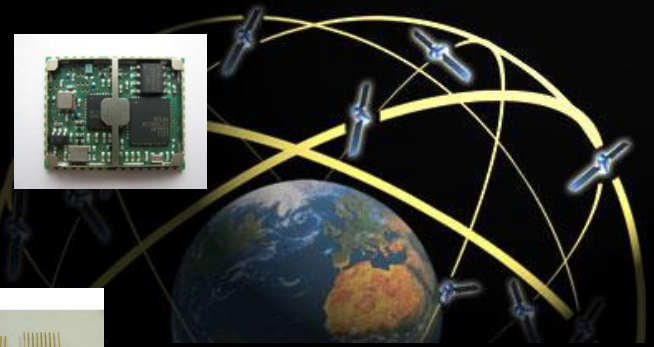


Constraction parametric model



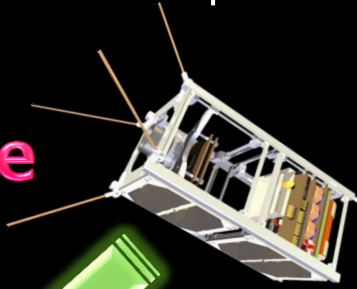
Payloads

- 2 frequency GPS/GLONAS navigation receiver: NAV-01 (GLONASHA), NT-Lab Company (Minsk). Three types of messages: RANGEB, GPSEPHEMB, GLOEPHEMERISB NOVATEL OEMv4.
- Gamma ray Geiger-Mueller Indicator: JSC «Polimaster" (Minsk) (from 0.06 to 1.33 MeV).
- Radiation resistance of special use ROM 1635RT2U, 512K (64Kx8). JSC "Belmikrosititemy", (Minsk).
- Infrared sensor - calibrated temperature measurement in the direction on the Earth (MLX90614 MELEXIS). (-40 ... + 125C), +/- 0.1C.
- Solid-pin-diode (PS100-7-CER-PIN 100mm²) + scintillation screen + metal screen + integrating circuit + ADC + Soft = gamma-ray spectrometer.
- 640x480 Digital camera.



Distributed network based on WEB portal for amateur radio operators and partners

Satellite



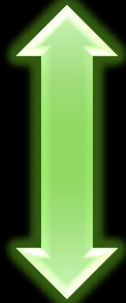
Web site



Network of project participants



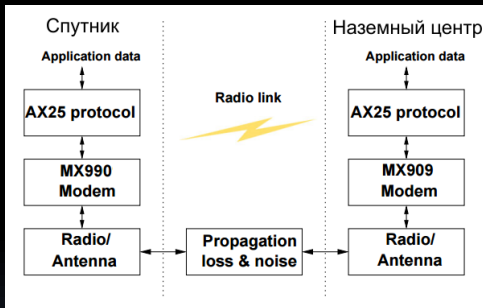
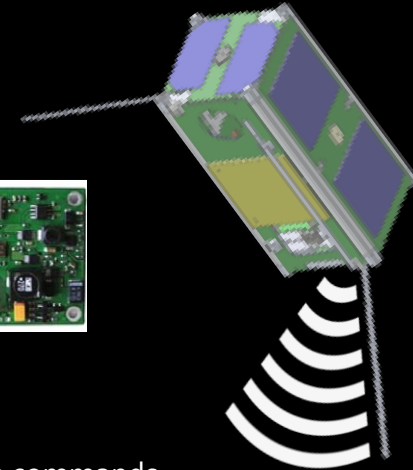
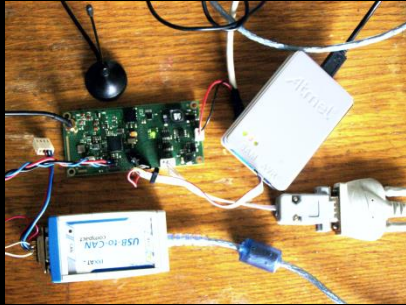
Database



Engineering kit onboard and ground communications equipment (For debugging software, the radio test, alignment of antennas)

Equipment

433,625 MHz radio modem, power amplifier c temperature control,
DVB-T receiver (SDR RTL2832U + R820T), spectrum analyzer ANRITSU MS2691A, antenna)

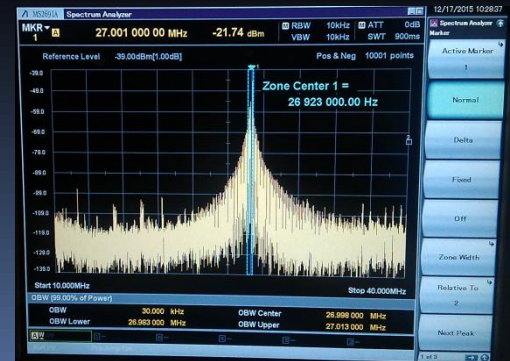


Transmitter: up to 1.5W, Senses. reception: -112dbm

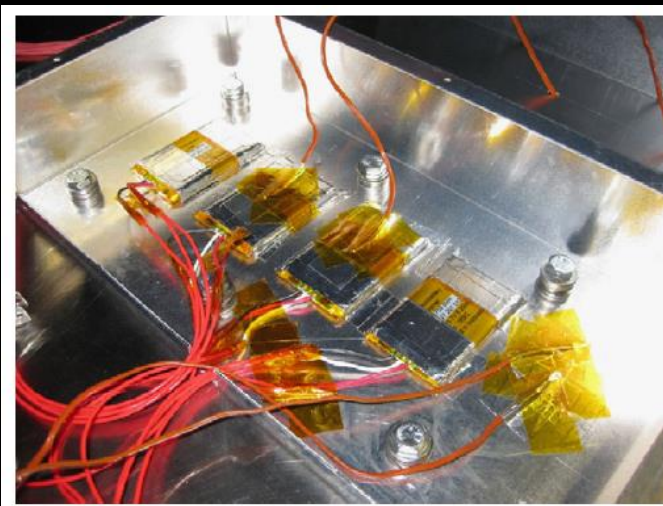
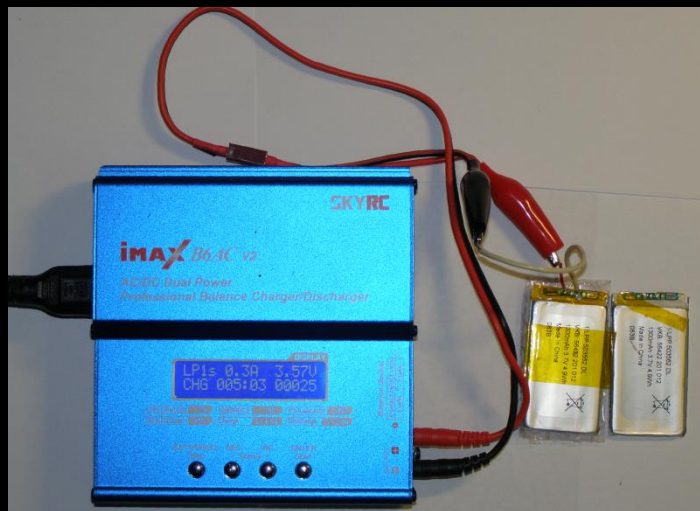
UP-Link ↑ 9600 baud, GMSK, Mobitex, encryption of data, remote commands

The packet length from 4 to 4608 bytes + 7 bytes header + CRC + FEC

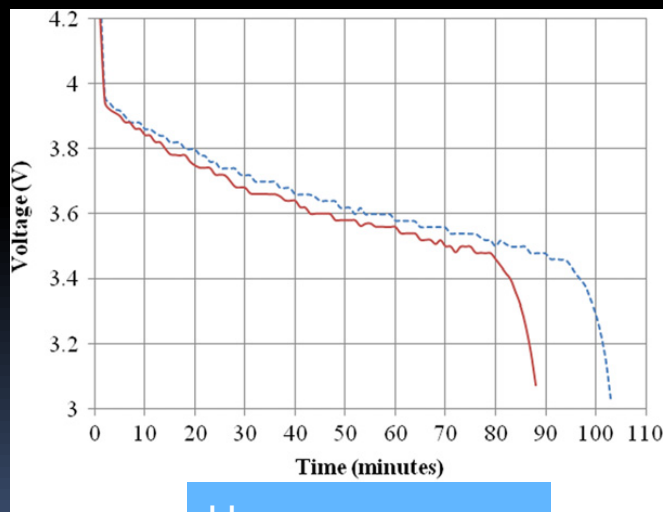
Down-Link ↓ 9600 baud, GMSK, Mobitex, AX.25 / kiss, Encryption



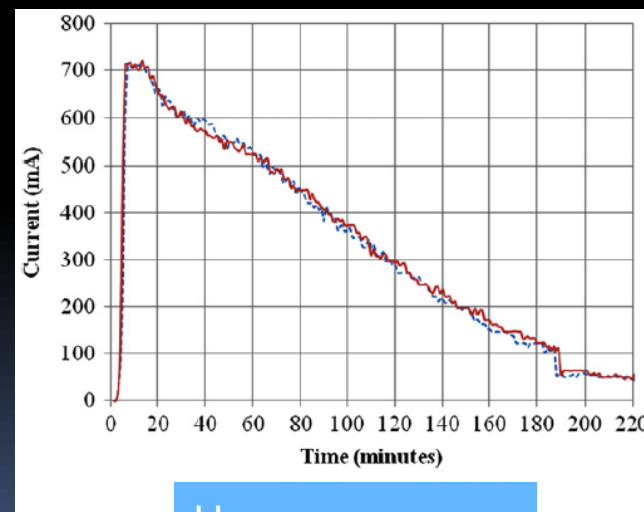
Stand for testing and balancing batteries



LiPolymer
4 x elements 1300 mAh



Цикл заряда

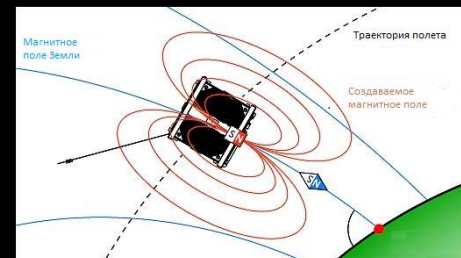


Цикл разряда

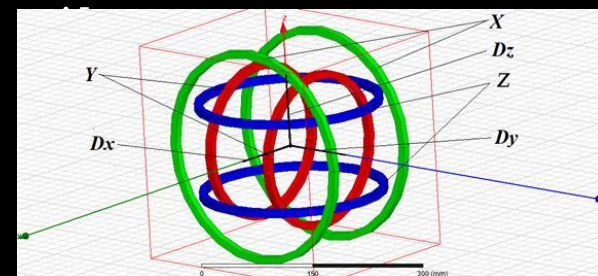
Stand for testing the MEMS sensors and testing of the satellite stabilization algorithms (orientation axis of rotation and the rotation speed control)



Magnetic induction field of the Earth $\approx 50\text{mTl}$,
Coils reproduce magnetic field up to 300mTl



Three pairs of Helmholtz



The distribution of the magnetic induction B in the central section

