

The OUFTI-1 nanosatellite in mid-2012: architectures of ground and space segments

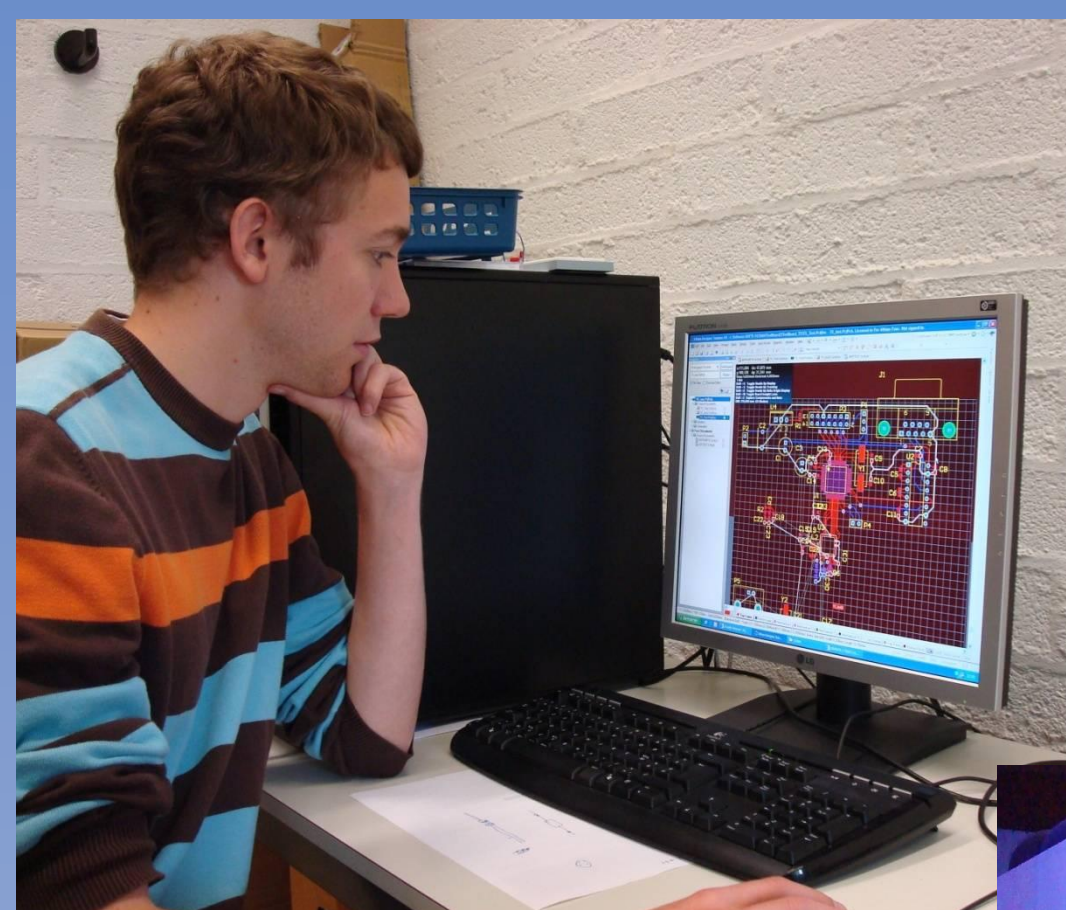


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Educational project

Hands-on satellite experience for students, through a series of satellites dedicated to scientific experiments.



Academic and industrial supervisors

Since 2007: more than 40 students from universities of Liège and Louvain, and from engineering schools



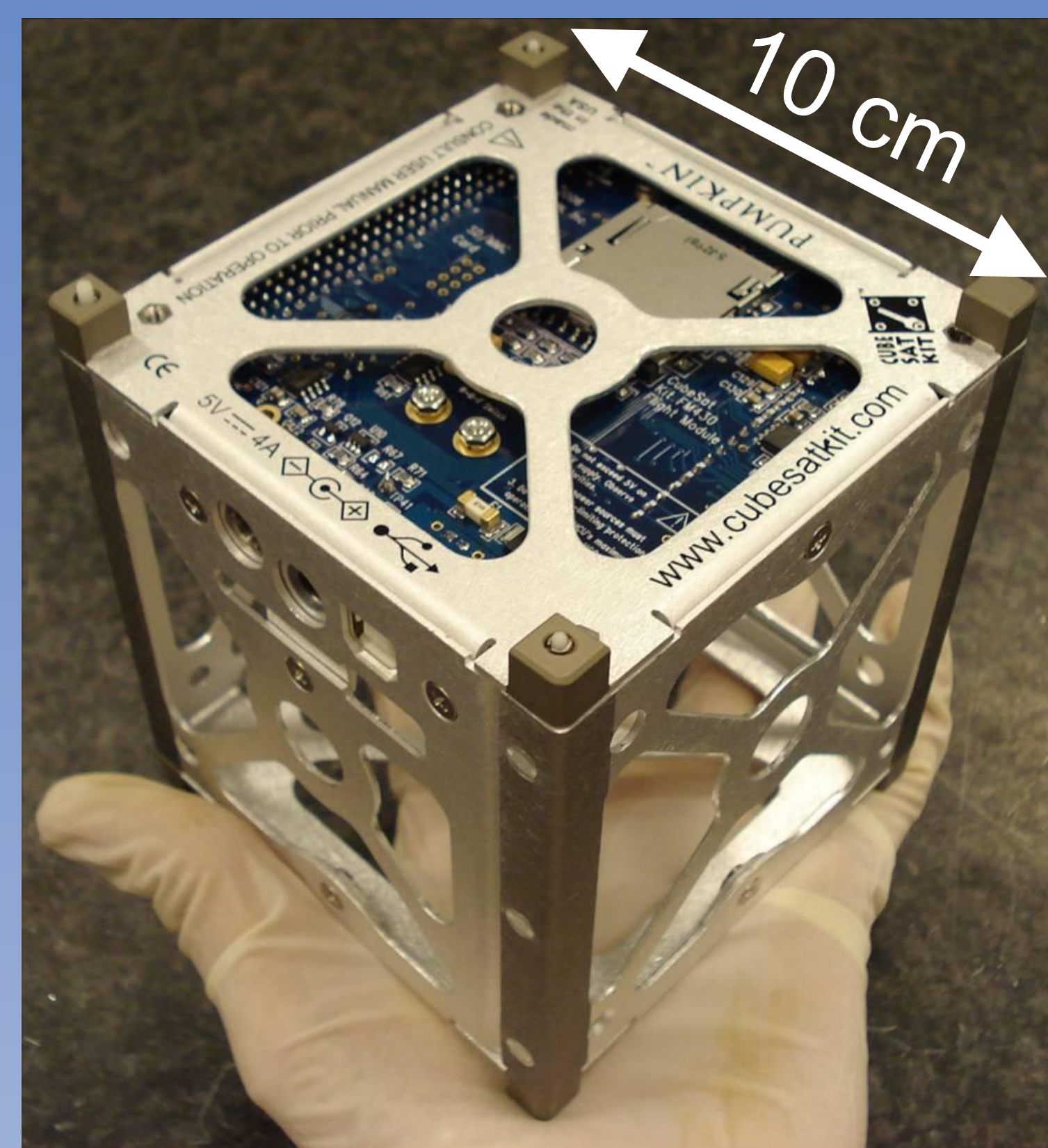
CubeSat concept

“CubeSat”? Standard for nanosatellites developed by CalPoly & Stanford universities.

→ Easier access to space

→ Shorter development time

1 kg
liter
watt



Space segment

Payloads:

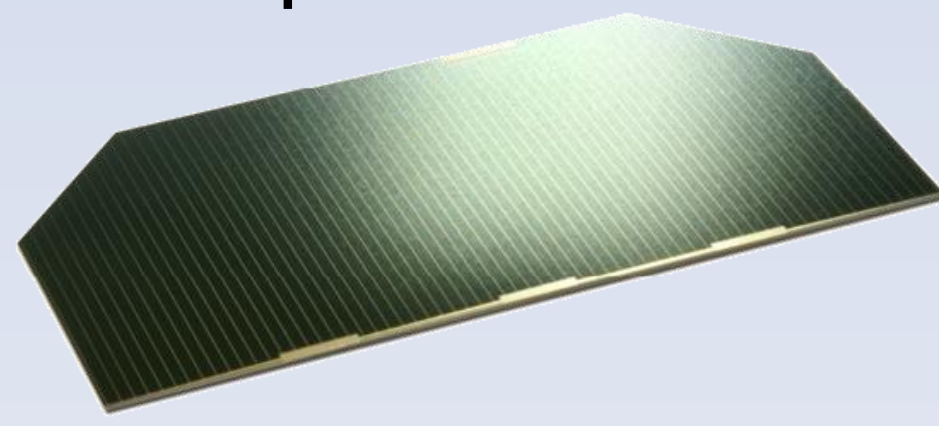
D-STAR

- New amateur-radio digital radio-communications protocol
- First use in space!

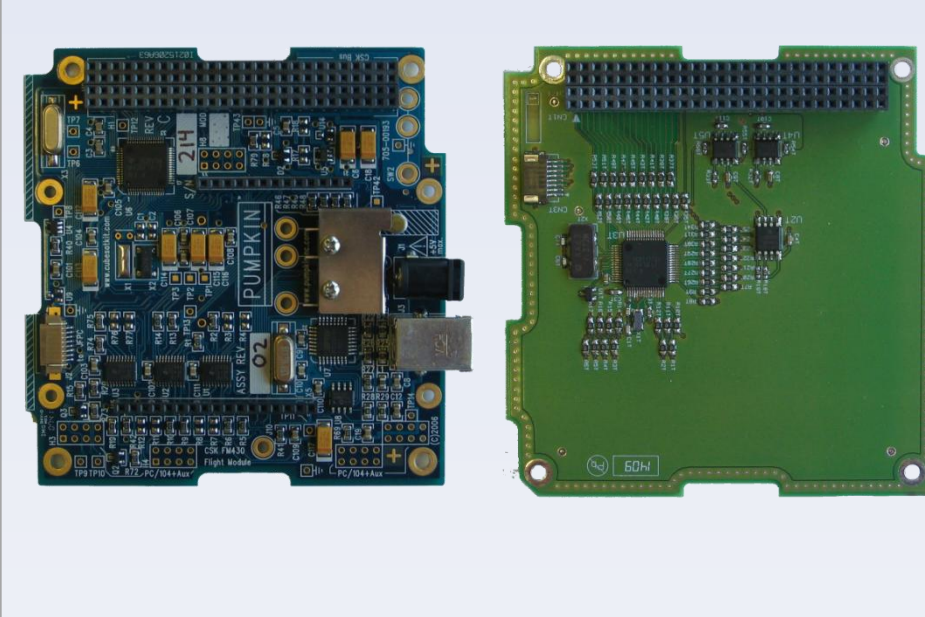


New solar cells

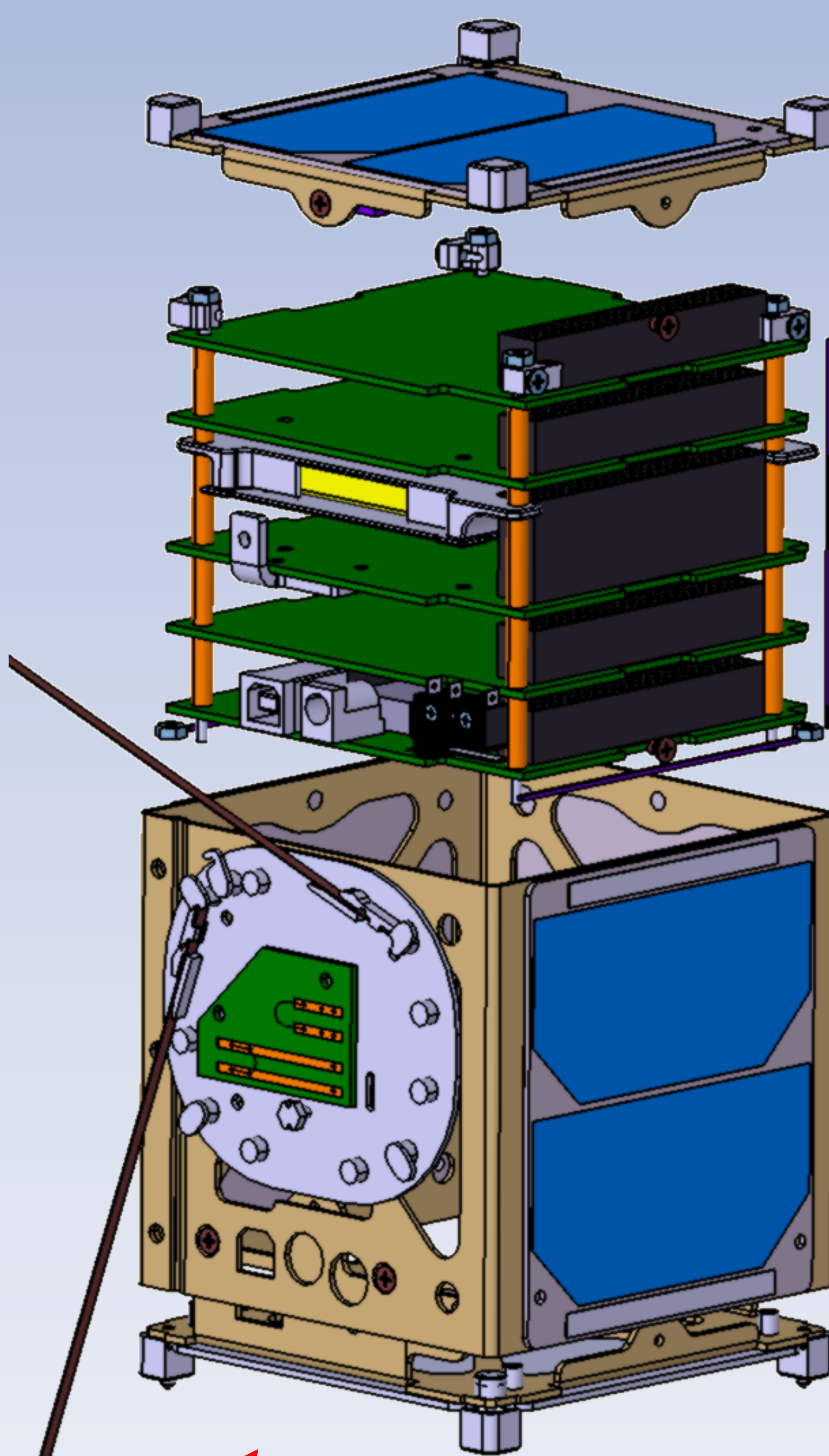
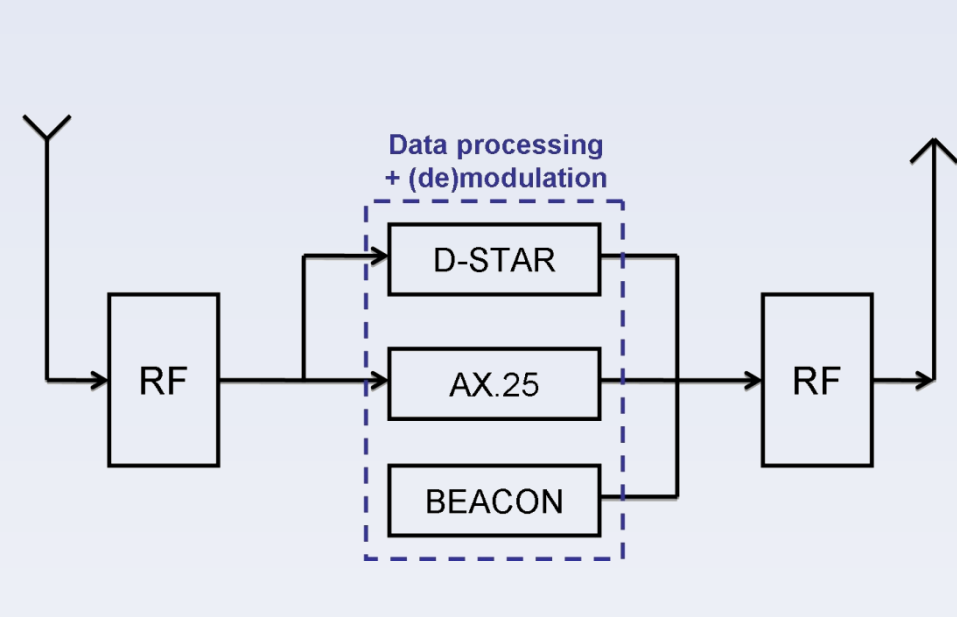
- Triple junction
- High efficiency: 30%
- Developed and provided by AzurSpace



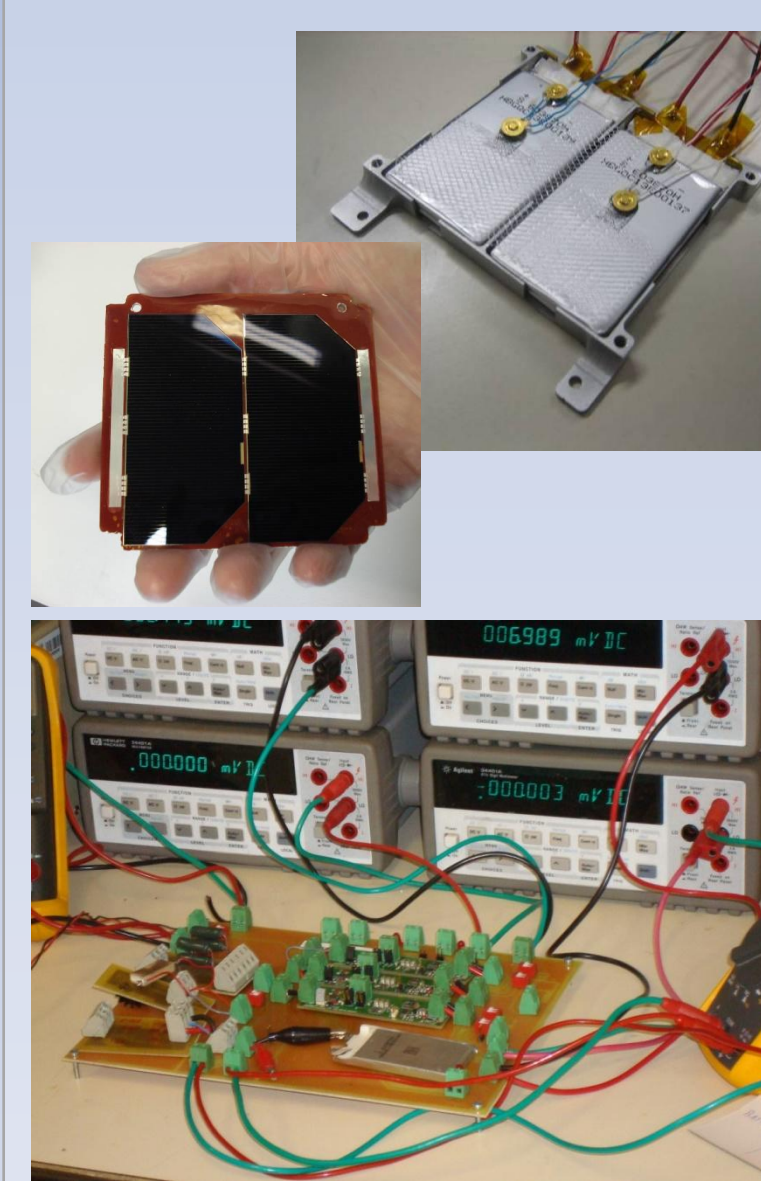
OBC: COTS & home-made



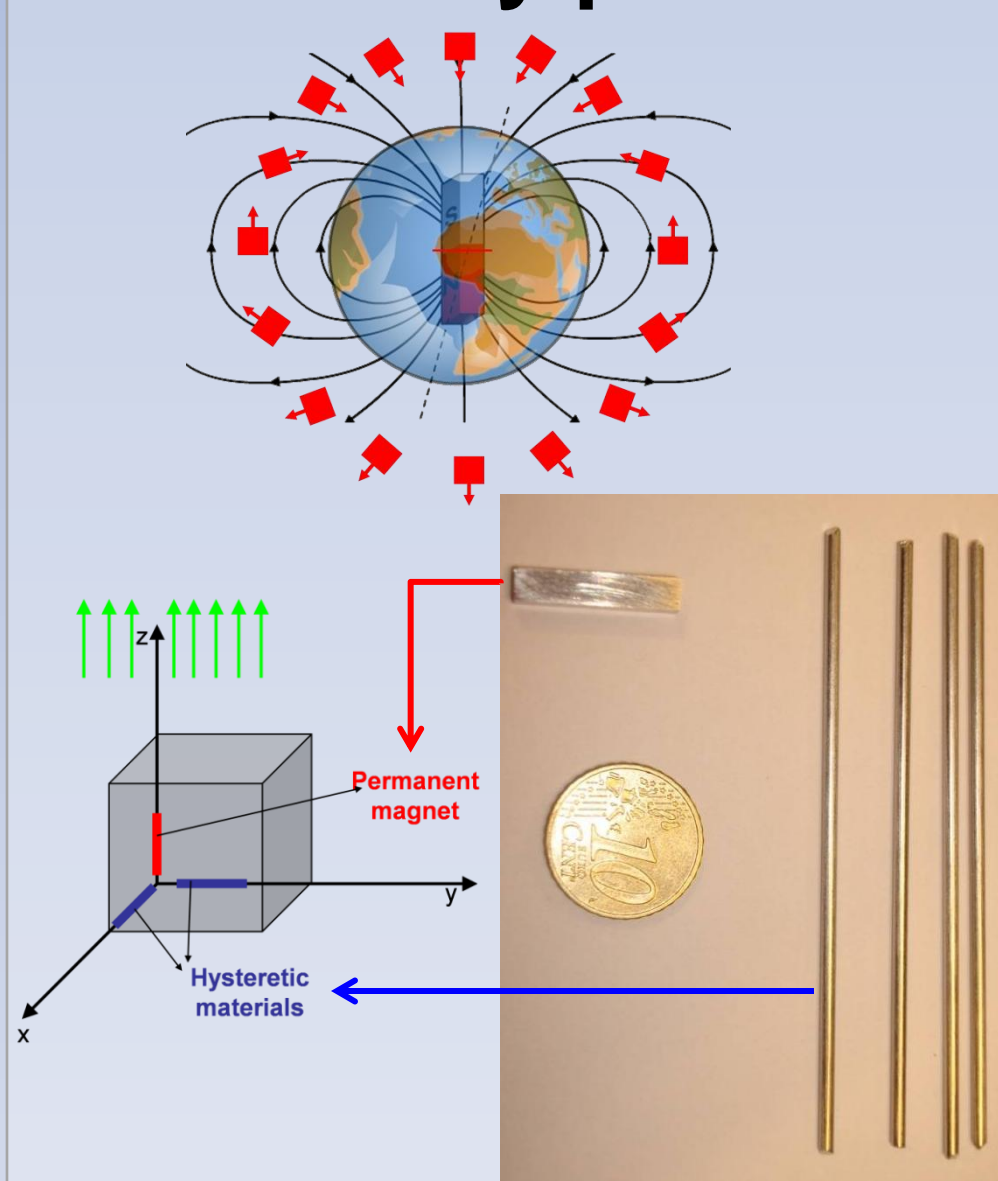
COM: D-STAR + AX.25 + BCN



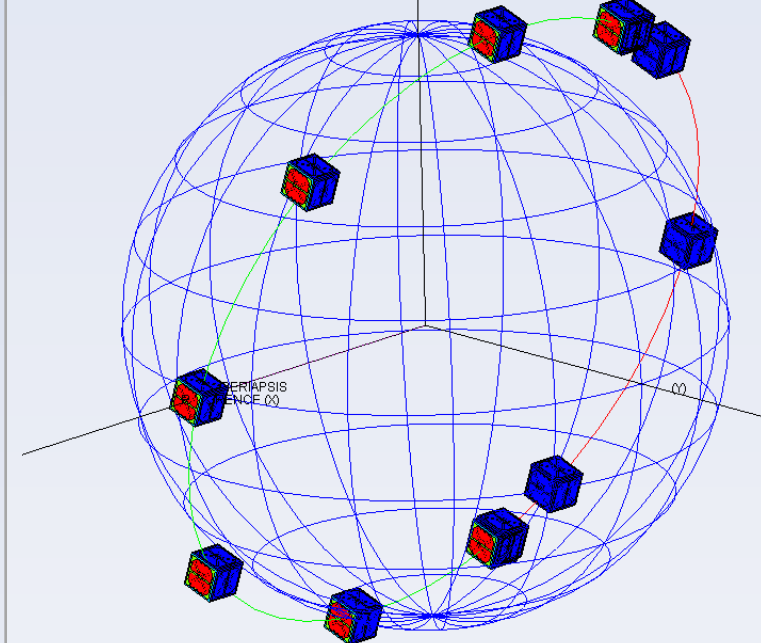
EPS



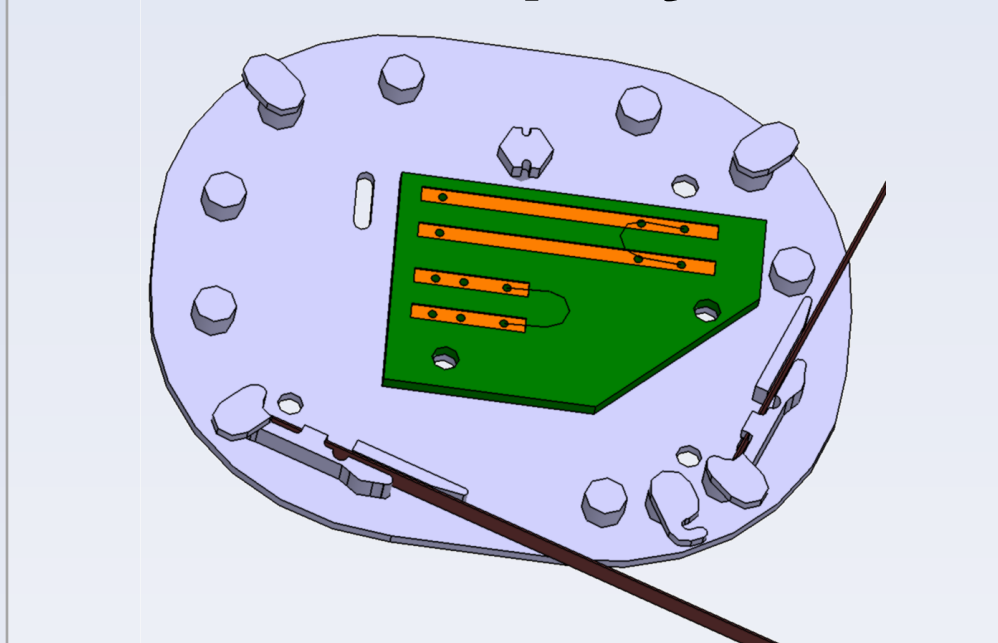
ADCS: fully passive



THER: mainly passive

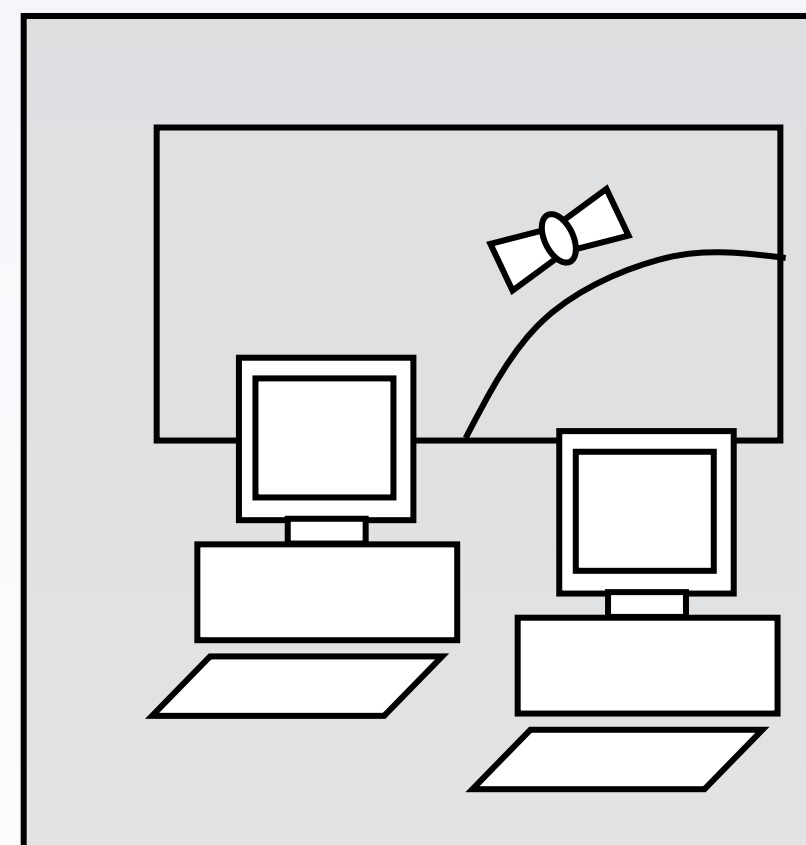


MECH: antenna deployment

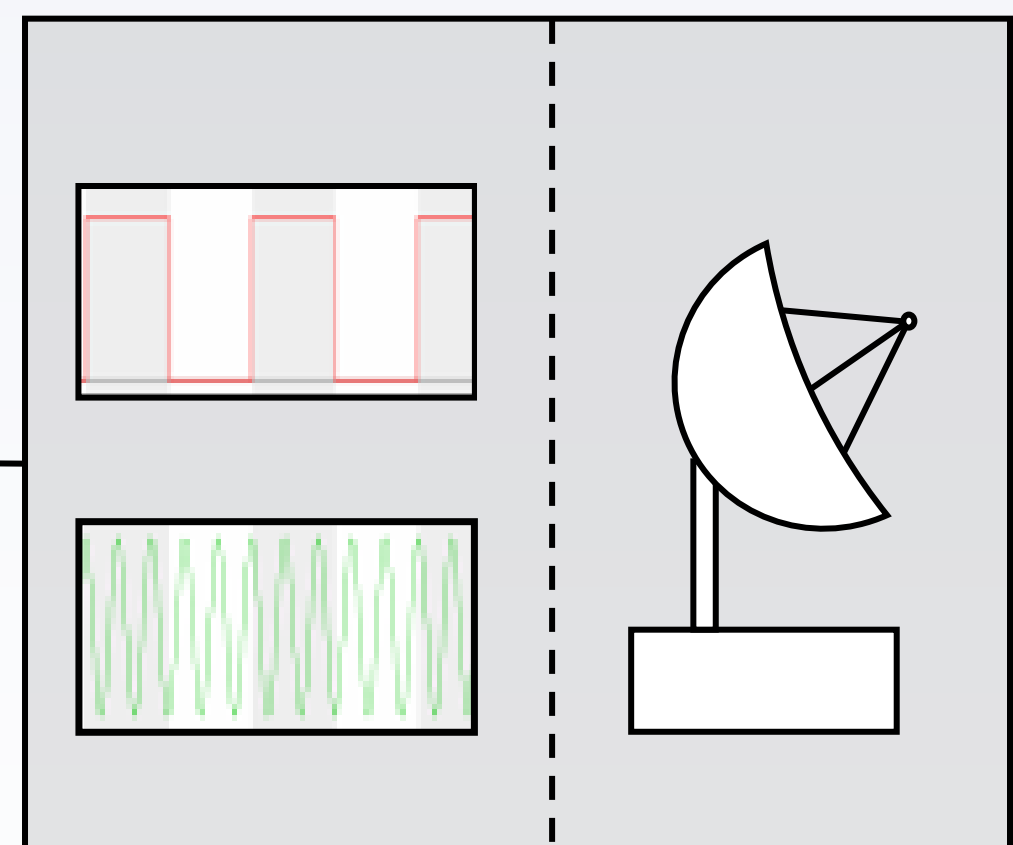


Ground segment

Mission Control Center



Ground Station

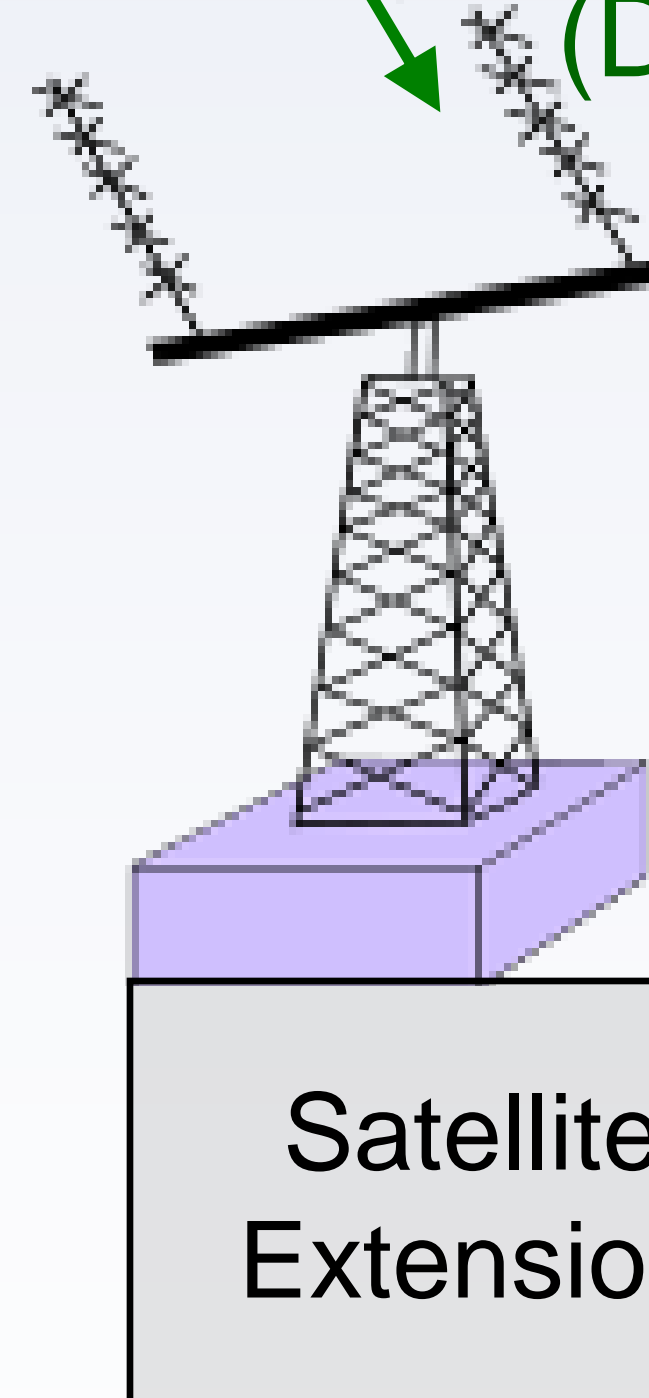


TCP/IP

TM / TC channel
(AX.25)

Beacon channel
(CW - OOK)

User channel
(D-STAR)



Satellite
Extension

D-STAR
Repeater

D-STAR
network