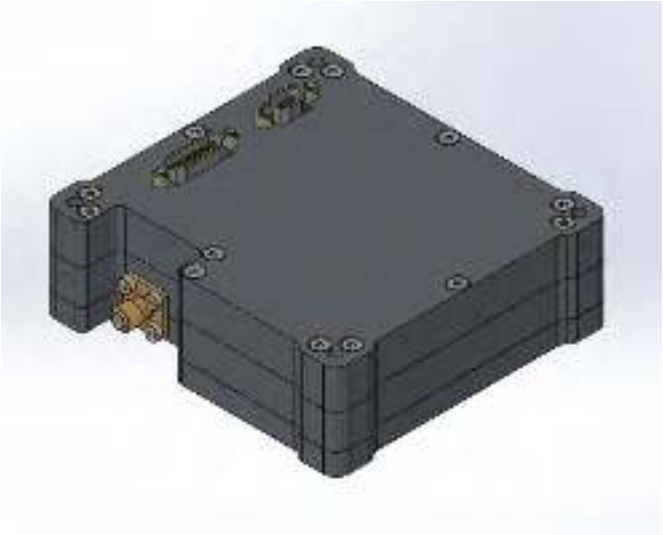
Cubesat X-band Transmitter

The Cubesat X-band Transmitter brings flight-proven transmitter technology by SAIT to the cubesats.



Applications

- Cubesats
- Small satellites

Features

- High throughput in the cubesat formfactor
- Flexible state-of-the-art modulation and error correction coding
- Adaptive coding and modulation to maximize throughput for various Es/No
- Customizable data and control interfaces

Specifications

Carrier frequency			8200 MHz (factory settable 8.1-8.5 GHz)
Throughput			**up to 1 Gbps**
Output power (max T, EOL)			2.5 W
Modulation			QPSK, 8PSK, 16APSK, 32APSK
Symbol rate			250 Msymb/s (customizable)
Error correction coding and framing			DVB-S2
Spectral mask			SFCG-21-2R4; baseband SRRC 0.35
Frequency stability, including temperature and aging			±10 ppm
Power consumption			16 W
Power supply			12 V (11 - 16 V) non-isolated
Weight	380g	Size	87x93x28 mm
Operating temperature			-20 °C to +50 °C
Survival temperature			-50 °C to +65 °C
MTBF	250k hours	Design life	3 years
Radiation at the component level			>6 krad (average enclosure shielding 1.5 g/cm^2)
SEL tolerance			most parts >40 MeV·cm^2/mg, overcurrent protection
Data interface			Customizable LVDS or CMOS. 5 pairs for serial data (clock input/output, data, optional enable)
Control and telemetry interface			RS-485 or I2C or CAN-2B
Discrete telemetry			1 temperature sensor DS18S20
Connectors			Micro-D (MIL-DTL-83513) female (9-pin power, 21-pin data/control) SMA female 50 Ω RF output

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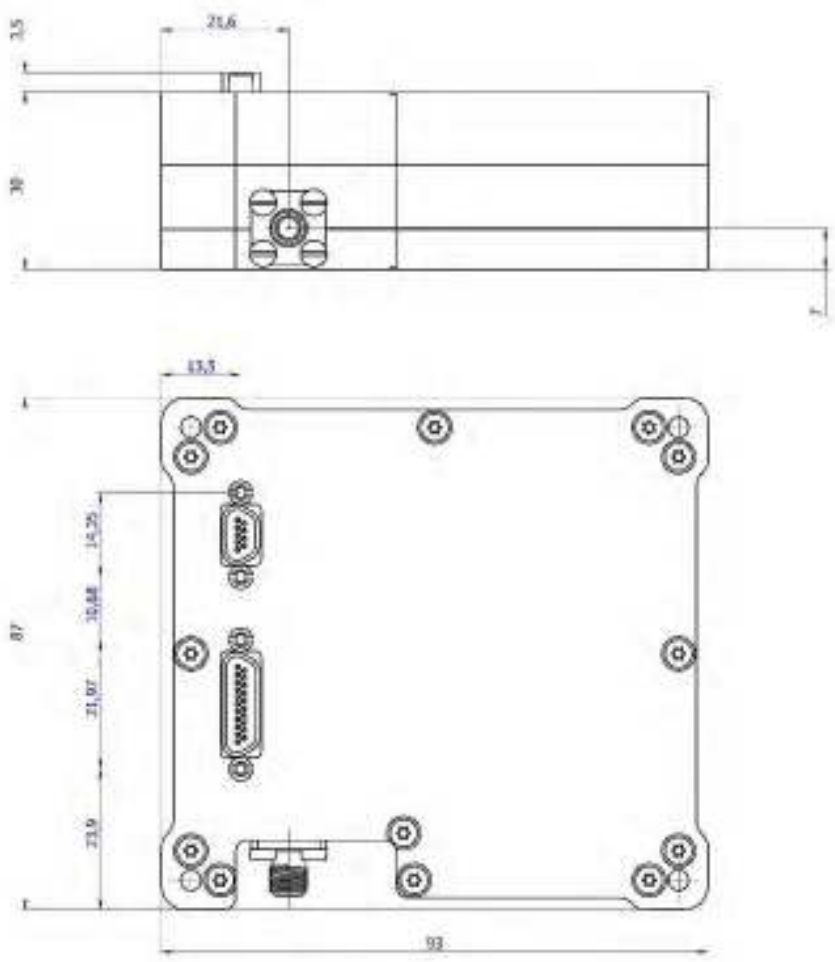
Mechanical Outline Drawing



Heritage

High-speed X-band transmitters successfully work on the following spacecraft: ISS (previous generation transmitter) – 7.5 years, AIST-2D – 2 years and on the other satellites.