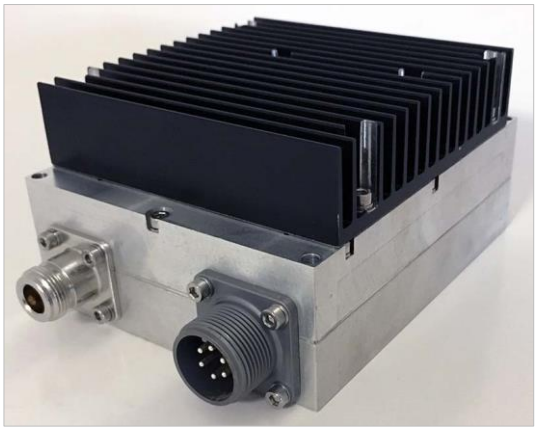
X-band Block Downconverter

DCB-X is a low-noise frequency downconverter which translates the X-band satellite frequency range (7.8 – 8.4 GHz) to a lower L-band frequency range (800 – 1400 MHz). It has a compact size, low weight, excellent RF performance and is intended to be mounted at the feed point of the ground station parabolic reflector antenna. Transferring the L-band signals to the control room, RF cabinet or the communication utility, instead of the X-band signals, enables a higher signal-to-noise ratio in the RF receiver chain and thus a higher quality and reliability of the space-to-Earth ground station operations.

SPECIFICATIONS:

- RF input frequency range: 7.8 – 8.4 GHz *
- IF output frequency range: 0.8 – 1.4 GHz *
- Conversion gain: 40 dB min. *
- Ultra low phase noise: -100 dBc/Hz @10 kHz typ.
- Low noise figure: 2.5 dB typ.
- No frequency inversion
- High image rejection: 60 dB typ. *
- Internal TCXO or OCXO frequency reference
- Rugged and reliable
- RF input connector (X-band): SMA-F *
- RF output connector (L-band): N-F *
- Input DC voltage: 15 V

  * Custom options possible



APPLICATIONS:

a. LEO AND GEO TRACKING GROUND STATIONS
b. X-BAND RECEIVING STATIONS
c. WEATHER SATELLITE DIRECT READOUT OPERATIONS
d. TACTICAL/MILITARY INSTALLATIONS

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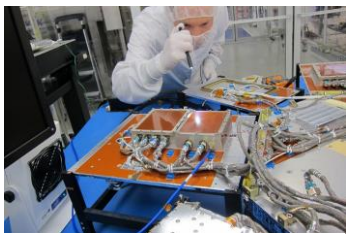
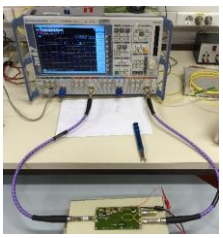
Company's profile:

ELEP Electronics is a small company active in the field of advanced radio communication technologies. Its strength is in an innovative R&D, proven expertise in the RF/microwave/millimeter-wave engineering and high-performance hardware manufacturing. We specialize in the custom developments from DC to 1+ THz. ELEP had actively participated in the first Slovenian microsatellite development (NEMO-HD @SPACE-SI, launched in 2020). In addition, ELEP designed and manufactured a X-band high-speed data downlink transmitter payload for the NEMO-HD spacecraft - TRL9 achieved in 2021. Company's current focus are ground-segment SATCOM technologies and on-board spacecraft communication payloads. ELEP released a new world-class product: X-band data downlink transmitter payload for the micro- and nano-satellites with the data rates up to 200 Mbps. For the low Earth orbit (LEO) ground stations ELEP Electronics designed and manufactured a state-of-the-art auto-track dual-band feed (S-band: TX/RX, X-band: simultaneous RHCP/LHCP RX).

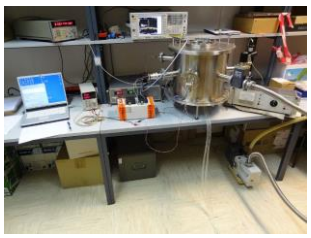


NEMO-HD microsatellite integration and testing ©SPACE-SI 2016

X-band transmitter TVAC testing

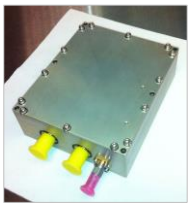


RF&microwave evaluation

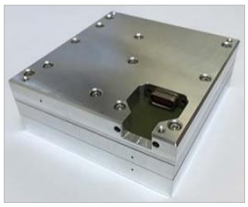


X-band transmitter payload final testing

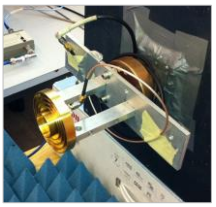
ELEP Electronics dedicated R&D for the SATCOM and aerospace market resulted in various products:



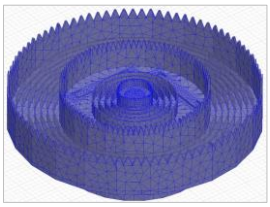
Microsatellite X-band transmitter payload (TRL9)



200Mbit/s nanosatellite X-band transmitter payload



Antennas, parabolic dish feeds & subsystems



Advanced design and simulation of electromagnetic structures

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