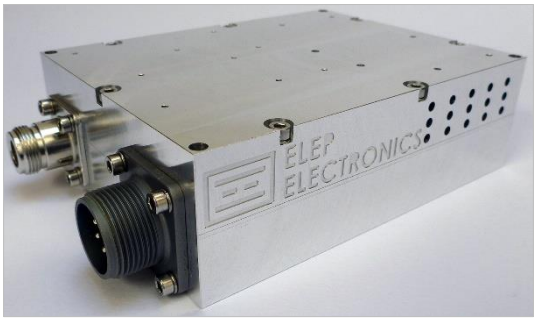
X-band Programmable Downconverter

DCP-X is a frequency programmable downconverter which translates the X-band satellite frequency range (7.8 – 8.4 GHz) to a fixed IF intermediate frequency (typ. 720 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 UHF 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 *
- Fixed IF output frequency: 720 MHz *
- Conversion gain: 40 dB min. *
- Ultra low phase noise: -95 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 (720MHz): N-F *
- Input DC voltage: 15 V
- ASCII-based programmable commands (USB)

  * Custom options possible



Options:

- X-band LNA: single or dual stage, NF <0.55 dB (typ.)

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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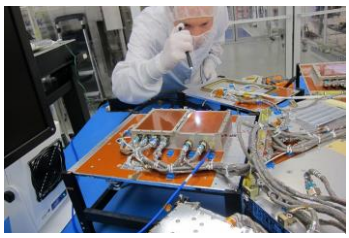
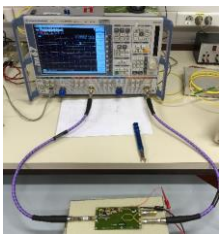
Company's profile:

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).

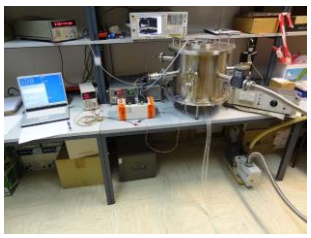


NEMO-HD microsatellite integration and testing ©SPACE-SI 2016

X-band transmitter TVAC testing

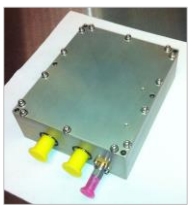


RF&microwave evaluation

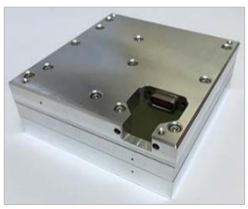


X-band transmitter payload final testing

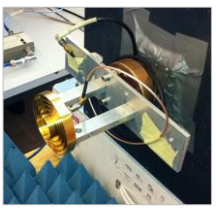
ELEP Electronics dedicated R&D for the SATCOM and aerospace market resulted in various products:



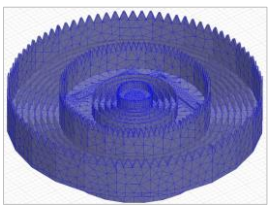
Microsatellite X-band transmitter payload (TRL9)



200Mbit/s nanosatellite X-band transmitter payload



Antennas, parabolic dish feeds & subsystems



Advanced design and simulation of electromagnetic structures

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