



Category: Electronics & Optoelectronics

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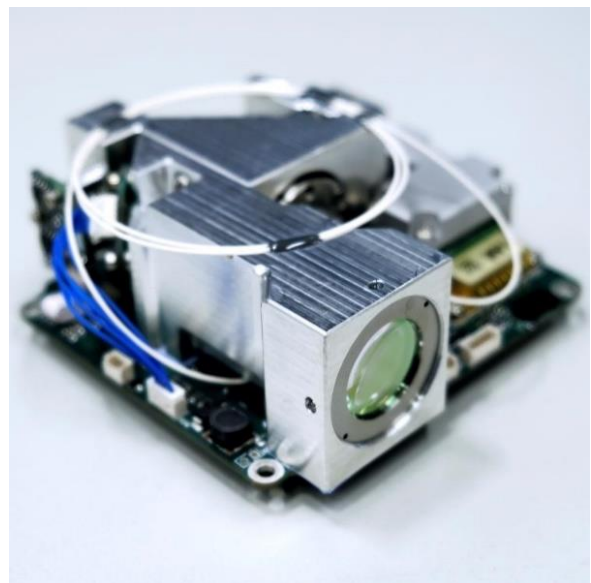
CubeCT - Smallest laser communication transmitter worldwide

The technology consists of an ultra-light optical terminal that is currently the smallest device of its kind in the world.

The device allows for very fast data transmission (up to 100 megabits per second) from LEO (Low Earth Orbit) satellites to the Earth.

It is particularly suitable for being used in small satellites: the reduced mass of ca. 350 gr and the small Volume of ~ 0,3 U (9 x 9.5 x 3.5 cm³) in combination with a power consumption of 8 W makes it an excellent technology for these applications.

Due to physical attributes of laser communication the technology is not altered by ITU requirements and simultaneously independent of frequency bands. Moreover, optical communication connections are unimpeded per se and resistant against interception.



The device was designed in cooperation with the DLR Institute of Communications and Navigation. Due to its accuracy and the large operating range various terrestrial applications could be considered, e.g. for robotics, automotive, or operating on UAVs.

Range	LEO to ground
Channel Data Rate	100Mbps LEO to ground; 1 Mbps TC Channel ground to LEO
Mass	360 gr
Size	9 x 9.5 x 3.5 cm ³ (~ 0,3U)
Power Consumption	8 W
Field of Regard	S/C body pointing +/- 1° & integrated Fine Steering Mirror
Lifetime	5 years in LEO orbit
Data Interface	LVDS
Available	1 st Mission P1xL in 2019, FM available
Roadmap	Expandable for Optical Intersatellite Links
Transmit Power	100mW
Technical Features	Laser communication terminal for lowest size, weight and power consumption; optimized for 60cm aperture optical ground station with uplink beacon; 1550nm IM DD technology; 10 minutes communication time per ground station pass; CCSDS compatible.

Innovative Aspects:

The size of the product is its main advantage: it represents the smallest Laser Communication Terminal (LCT) worldwide that is nonetheless very powerful in transmitting data. This makes it extremely advantageous for applications where small size, reduced weight and low power consumption matter, e.g., cubesats and UAVs.

Application Areas:

- Data Relay
- Constellation
- Direct to earth

Novel communication possibilities in the terrestrial realm are conceivable.

Cooperation:

There is interest in cooperations and joint ventures as well as in customer-specific developments.