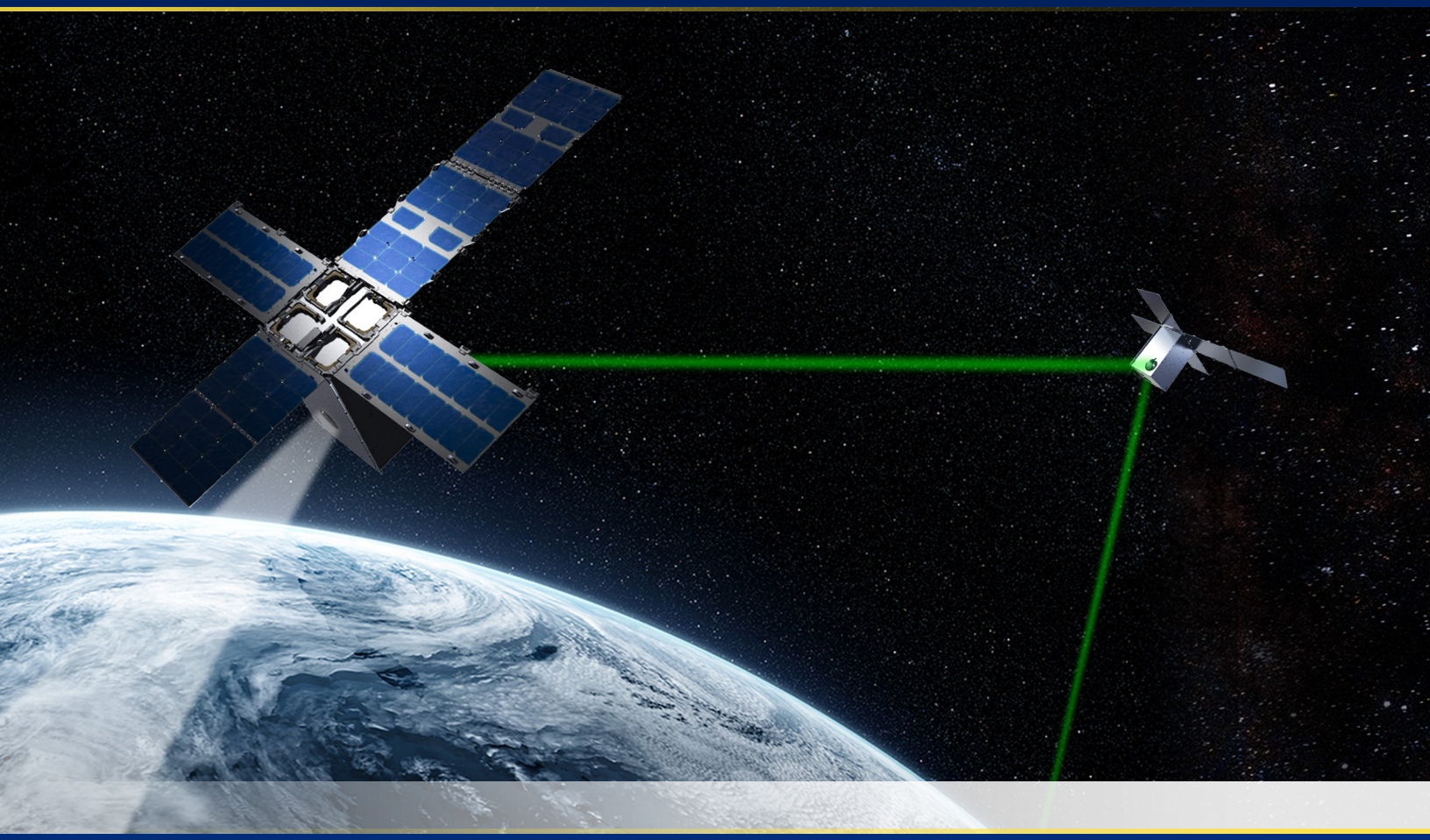
LCT

LASER COMMUNICATION TERMINAL



General Atomics Electromagnetic Systems' (GA-EMS) Laser Communication Terminals (LCTs) are enabling faster, higher fidelity communication transmissions through modern Optical Inter-Satellite Links (OISL). LCTs support vast networking of satellites, the sharing of data and information, and collective on-orbit computing resources in space. GA-EMS' LCTs are facilitating the next evolution of modular, space-based communications services, providing a more resilient architecture to ensure 24/7 total connectivity from earth, to space, and beyond.

GENERAL ATOMICS
ELECTROMAGNETICS

LASER COMMUNICATION TERMINALS

OVERVIEW

GA-EMS' LCTs enable robust space-to-space, space-to-air, and space-to-ground communications between multiple spacecraft in a variety of orbits. The LCTs improve resiliency and security as well as providing increased satellite crosslink and downlink data rates when compared to legacy radio-frequency (RF) systems.

2021 DEMONSTRATION DATA

LCT

Wavelength: 1550 nm

Data Rate: Up to 5GB per sec

Max Range: 5000 km

SATELLITE

Mission: First Department of Defense contracted inter-satellite LCT payload technology demonstration

Satellites: Two GA-EMS 12U CubeSats

Orbit: Low Earth Orbit (LEO)

OPERATIONAL CHARACTERISTICS

Higher Directivity with Less Power and Lower Mass

The smaller aperture size required for optical communication relative to conventional RF technology, allows for a smaller, lighter LCT package with the additional benefit of less beam spreading.

High Bandwidth

The optical system's higher carrier frequency increases its information carrying capacity.

Less Crowded Spectrum

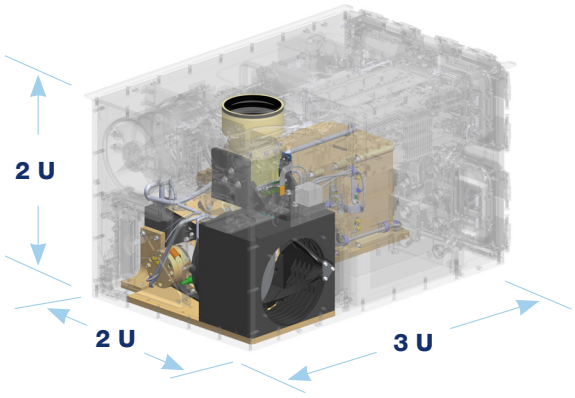
Narrow, optical beams reduce interference with adjacent carriers, reducing overall spectrum congestion.

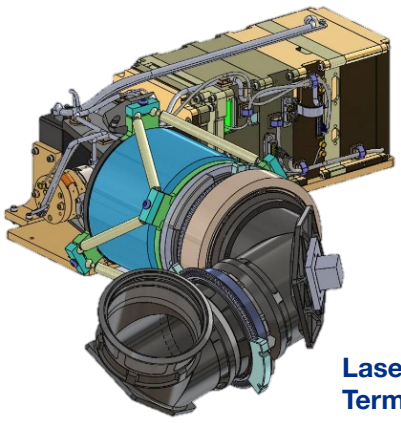
High Security

The highly directional, narrow beam divergence of optical communication has inherent low probability of intercept and detection (LPI/LPD).

Scalable for Cislunar Operation

GA-EMS' LCTs provide communication throughout the cislunar environment to support Space Domain Awareness and other missions.





Laser Communication Terminal (LCT)

REV A 1020