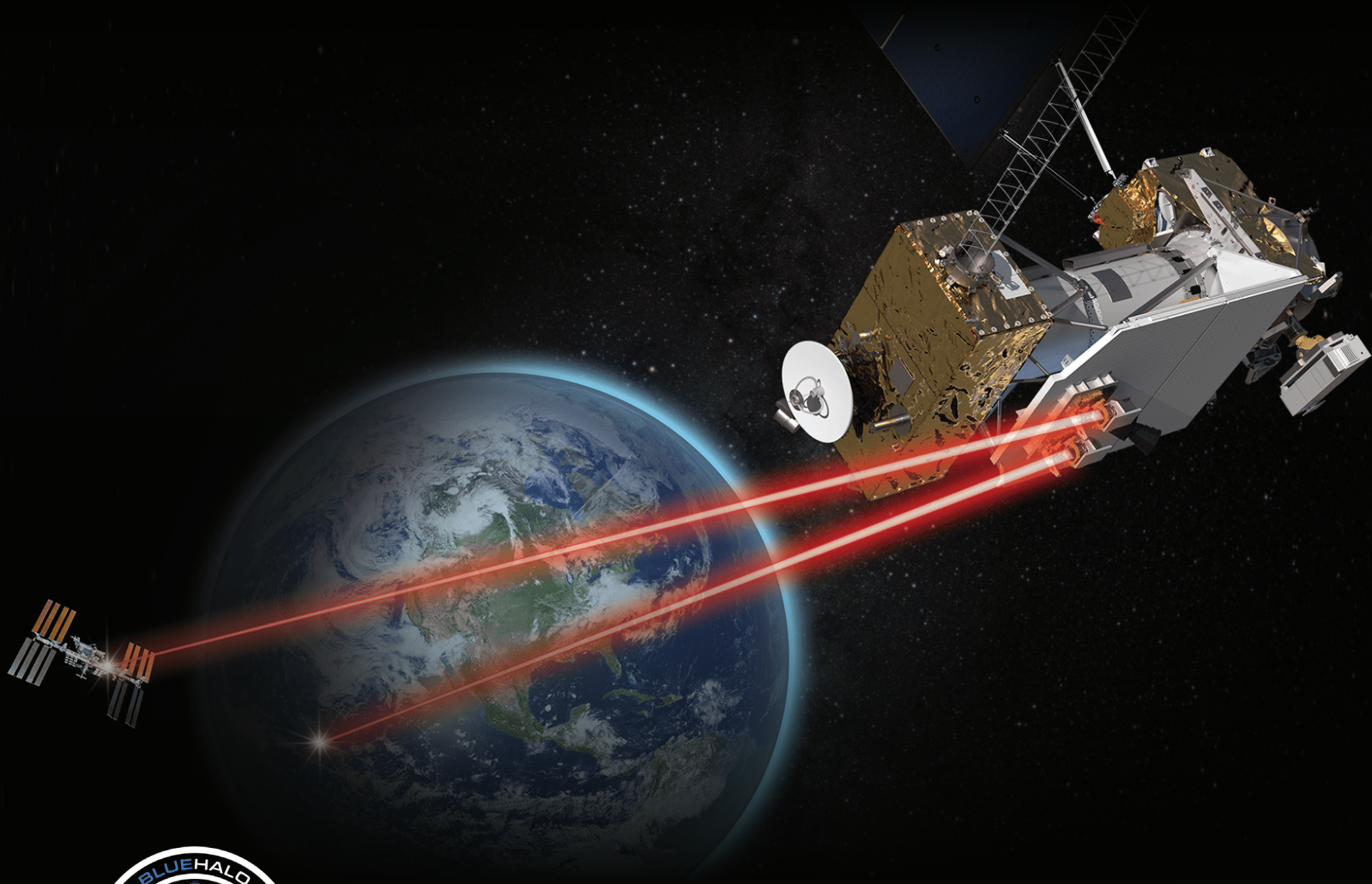


Laser Communications



Solving Hard Optical Communications Problems and Delivering Solutions

For successful optical communications, the terminals that make up the link must precisely measure and eliminate jitter to ensure line-of-sight stabilization is maintained. BlueHalo's 40+ years of experience in optical jitter control and precision pointing is the hallmark behind our optical communication terminals.

BlueHalo's flexible optical designs include precise vibration measurement of external forces and active control to suppress vibration forces necessary for multiple types of precision optical systems, including high energy lasers, laser communications, and precision optical imaging systems.

BlueHalo delivered in 2021, two laser communication gimbals to the Massachusetts Institute of Technology Lincoln Laboratory (MIT LL) to be integrated into two laser communication optical terminals for NASA, one to be flown on the International Space Station (ISS), and the second on the first manned mission to the moon for the Orion Program.

BlueHalo is delivering in 2022, a geosynchronous laser communications optical head assembly (OHA) to an international customer. This OHA will support data rates up to 10 Gbps space-to-ground.

BlueHalo was recently awarded a contract that leverages our past successes and investments to deliver Space-to-Space and Space-to-Ground Optical Terminals to provide high data rate communications and positioning and timing over optical links.

BlueHalo continues to push optical communications advancements to **SOLVE THE HARD PROBLEMS!**

Optical Communications Terminals (OCTs)

BlueHalo is developing an end-to-end system of optical communications terminals and ground stations.

For small satellite platforms, we offer a 10 cm aperture gimbaled telescope assembly with advanced line-of-sight stabilization, pointing and tracking technologies, and a backend optics assembly that is interoperable with a variety of optical modem technologies.

This terminal can support coherent, dual-polarization, quadrature phase-shift keying (QPSK) modems for ultra-high data rates (up to 100 Gbps) and on-off-keying (OOK) and pulse-position modulation (PPM) modems compatible with the emerging Space Development Agency (SDA) specifications.

For microsatellite and unmanned aerial vehicle (UAV) platforms, our low size, weight, and power (SWaP) terminals feature a 5 cm aperture telescope and a high-photon-efficiency pulse position modulation (PPM) optical modem, providing data rates of 20+ Mbps for low Earth orbit-to-geosynchronous Earth orbit (LEO-to-GEO) relay links, and significantly higher for space to ground links.

Positioning and Timing

BlueHalo is developing LEO-to-GEO, GEO-to-Ground low SWaP optical communications terminals that include a positioning and timing processing system and associated ground stations.

