NASA Lasercom Development

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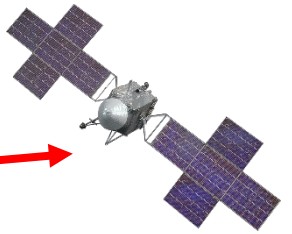
NASA Lasercom Portfolio Development
LEO, GEO, Lunar, and Beyond

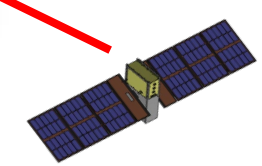
LCRD (launched 7 Dec 2021)
1.244 Gbps relay from GEO

ILT (launched 9 Nov 2023)
LEO to GEO connection from the International Space Station

O2O (launching Sep 2025)
250 Mbps moon to earth from the second Artemis mission

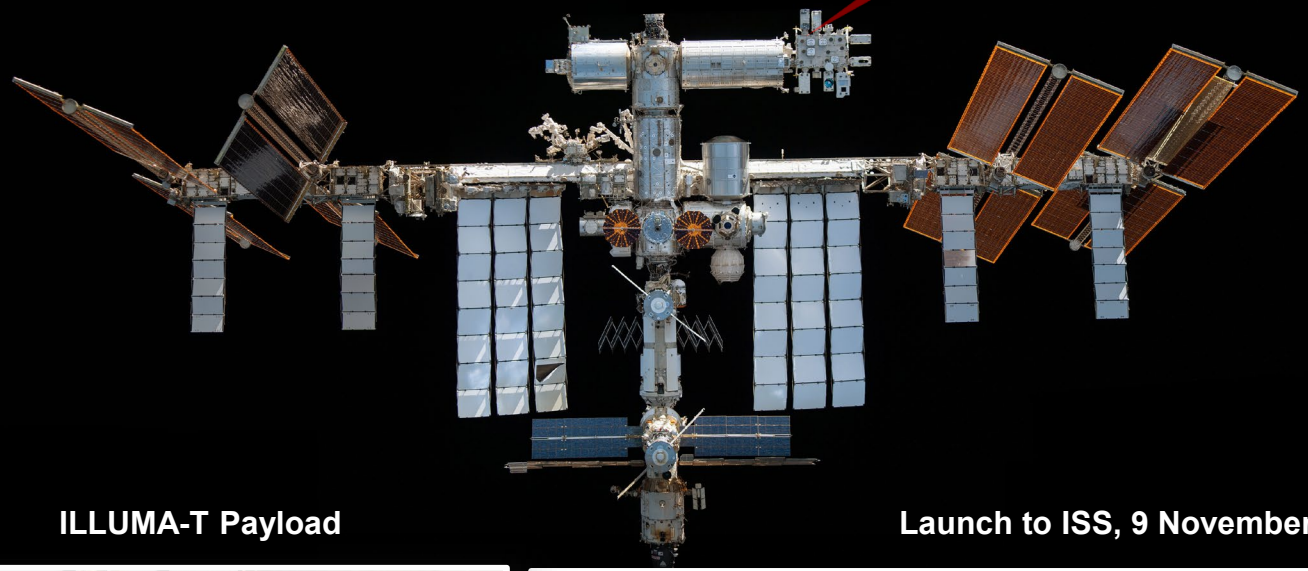


DSOC (launched 13 Oct 2023)
132 Mbps downlink from 0.25 AU
200 kbps downlink from >2 AU



TBIRD (launched 25 May 2022)
200 Gbps direct to earth from 3U LEO cubesat

ILLUMA-T



ILLUMA-T Payload

NASA's First Optical Relay User

- ILLUMA-T terminal on ISS communicates via NASA LCRD relay to ground
- 10-cm gimbaled aperture; 3W transmitter
- 1 Gbps link from ISS to ground
- 155 Mbps link from ground to ISS
- First demonstration of new flexible optical module design– also installed on NASA's Orion spacecraft for Artemis II
- Successful operations aboard International Space Station, December 2023 – June 2024

Launch to ISS, 9 November 2023

Mission Complete, June 2024

ILLUMA-T: Integrated Low Earth Orbit LCRD User Modem and Amplifier;
LCRD: Laser Communication Relay Demonstration
ISS: International Space Station