

# LASER COMMUNICATIONS



More Data.  
More Science.  
More Discovery.

SMALLER  
SIZE AND  
WEIGHT

HIGHER DATA RATES

INCREASED  
SECURITY

SMALLER  
POWER NEEDS

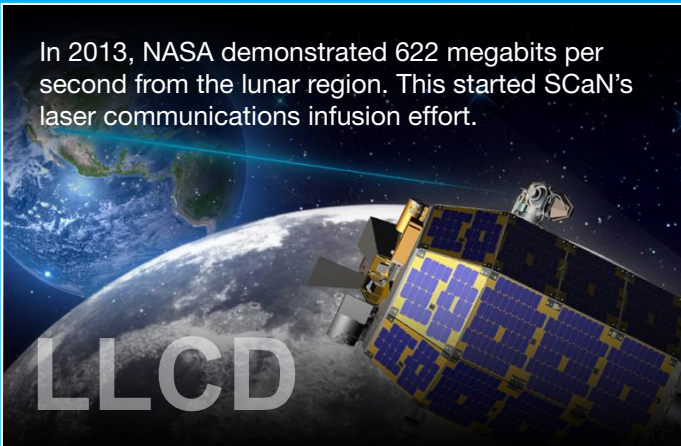
## ***MORE DATA***

IN A SINGLE TRANSMISSION THAN COMPARABLE  
RADIO FREQUENCY SYSTEMS.



NASA's Space Communications and Navigation (SCaN) program office is integrating laser communications into multiple missions.

In 2013, NASA demonstrated 622 megabits per second from the lunar region. This started SCaN's laser communications infusion effort.



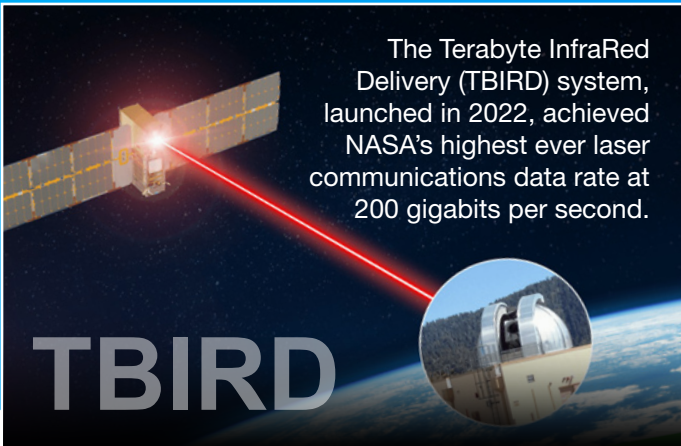
LLCD

In 2021, NASA launched the Laser Communications Relay Demonstration (LCRD) to showcase the benefits of a laser communications relay satellite and conduct a variety of experiments.



LCRD

The Terabyte InfraRed Delivery (TBIRD) system, launched in 2022, achieved NASA's highest ever laser communications data rate at 200 gigabits per second.



TBIRD

On the Psyche mission, NASA will test laser communications against extreme distances and challenging pointing constraints.



DSOC

LCRD's first user will be installed on the International Space Station and complete a laser system from low-Earth orbit to geosynchronous orbit to Earth.



ILLUMA-T

A laser communications terminal called O2O will fly aboard Artemis II, demonstrating lasers on a crewed lunar mission.



O2O

National Aeronautics and Space Administration

**Goddard Space Flight Center**  
8800 Greenbelt Road  
Greenbelt, MD 20771  
[www.nasa.gov/goddard](http://www.nasa.gov/goddard)

[www.nasa.gov](http://www.nasa.gov)

LG-2022-12-922-GSFC

Want to learn more about optical communications?

 [nasa.gov/lasercomms](http://nasa.gov/lasercomms)

 [twitter.com/NASALaserComm](https://twitter.com/NASALaserComm)