



# $\pi$ IN THE SKY<sup>11</sup>

Beam a video from space to Earth. It's possible with pi!

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## RECEIVER RIDDLE

In December 2023, NASA transmitted the first ultra-high-definition video from deep space using new technology known as Deep Space Optical Communications, or DSOC. DSOC uses an infrared laser to transmit data at a much higher rate than current radio transmitters. The 15-second video, featuring a cat chasing a laser, was beamed to Earth from the Psyche spacecraft at a rate faster than many terrestrial internet connections.

DSOC's transmission had to travel 30,199,000 km to reach Earth. Even traveling at the speed of light, that takes a long time! And all that time, Earth was still moving along its orbit. That meant that the team needed to aim the laser transmission at where Earth would be when the signal arrived. Given this, how many kilometers ahead along Earth's orbit did the team need to aim the laser?

LEARN MORE  
[go.nasa.gov/DSOC](https://go.nasa.gov/DSOC)



TRANSMITTING

