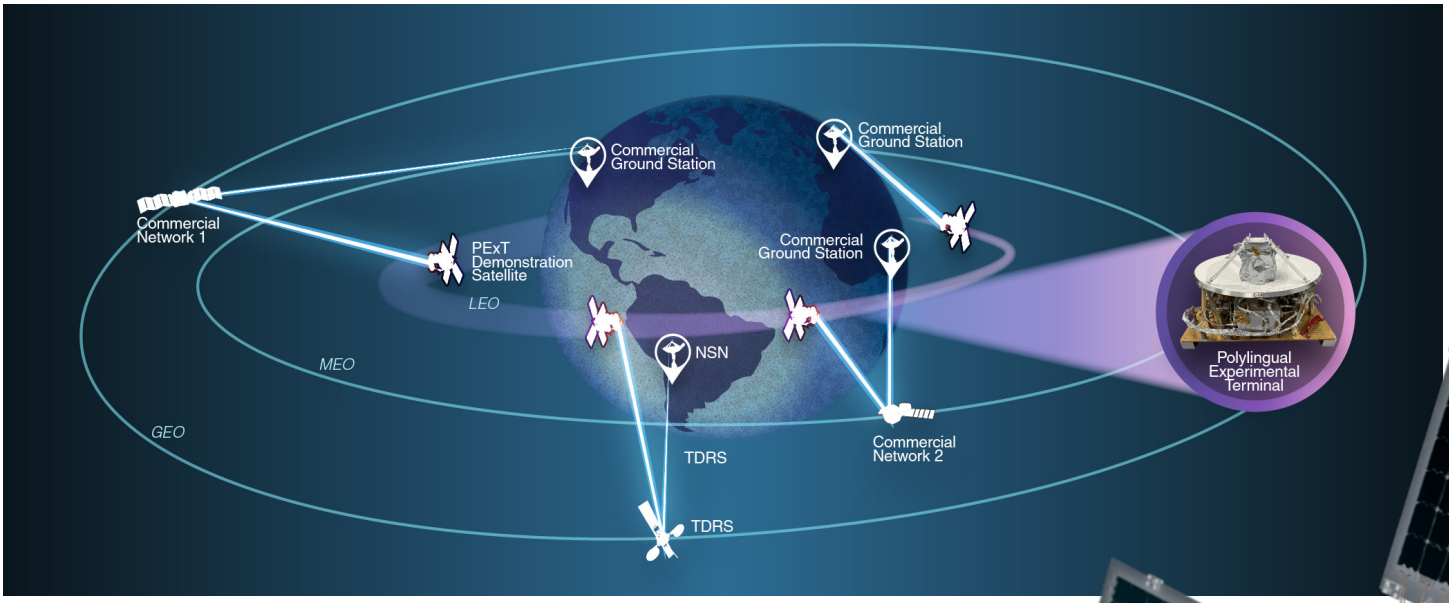
National Aeronautics and Space Administration

PExT

POLYLINGUAL EXPERIMENTAL TERMINAL



PExT will complete space communications relay services while roaming back and forth between NASA's TDRS fleet and two commercial service providers. ***Credit: NASA/Morgan Johnson***

Historically, NASA missions have obtained satellite relay communications services through the agency's fleet of Tracking and Data Relay Satellites (TDRS). Now, as the agency enters a new era of space communications, emerging missions will acquire all near-Earth relay services from commercial providers.

NASA's SCaN (Space Communications and Navigation) Program is demonstrating how cutting-edge technology, like wideband polylingual terminals, can help missions mitigate risk during this transition.

Wideband polylingual terminals use software-defined radios to jump between government and commercial networks, similar to how cell phones roam between providers on Earth. These terminals empower missions to switch seamlessly between networks while accessing an array of new commercial services throughout the mission lifecycle.

NASA has partnered with the Johns Hopkins Applied Physics Laboratory to demonstrate this wideband polylingual technology during a flight demonstration in low Earth orbit, using a first-of-its-kind terminal called PExT (Polylingual Experimental Terminal).

The body-mounted payload, including a 0.6-meter high gain antenna, was successfully integrated on a York Space Systems S-CLASS bus in preparation for launch. The terminal will rideshare on a SpaceX Falcon 9 into low Earth orbit for the duration of the demonstration. PExT will complete various mission scenarios while roaming back and forth between NASA's TDRS fleet and two commercial service providers.

PExT will demonstrate nominal day-in-the-life operations in low Earth orbit, such as data collection and communication passes, secure tracking and telemetry exchanges, orbit adjustments, and timing coordination.

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NASA Headquarters
300 E Street SW
Washington, DC 20546
www.nasa.gov/scan

www.nasa.gov

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To learn more about PExT, contact NASA SCaN at

scan@nasa.gov