

NASA is testing CubeSat-based laser communications

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October 14, 2015



The CubeSat laser system differs from current solutions, in that it's hard-mounted to the satellite, which can be orientated as desired (Credit: NASA/Ames)

NASA has teamed up with The Aerospace Corporation of El Segundo to test a new [CubeSat](#)-mounted laser communication system. While the mission, known as the Optical Communications and Sensor Demonstration (OCSD), has already been successfully placed in orbit, the team is currently working to resolve an issues with its attitude control system.

The biggest difference between the CubeSat-mounted OCSD system and existing space laser solutions, such as the [OPALS system mounted on the International Space Station](#), is that the laser is hard-mounted to the body of the spacecraft. There's no need for gimbals, as the entire spacecraft can instead rotate to the desired orientation. This allows the laser system to be much more compact than existing solutions.

The test will involve pointing the miniature satellite accurately at a target, then transferring data by rates up to 200 Mb/s. Unfortunately, things aren't off to the best start, with the team reporting a problem with the CubeSat's attitude control system, which is essential to the test. The Aerospace Corporation of El Segundo is currently working with NASA to resolve the issue.

A total of six technology demonstration missions are planned that make use of CubeSats. Subsequent tests, scheduled to take place over the common months, will help identify new uses for the satellites, from communications systems to new docking solutions. According to the agency, they could play a big part in future missions.

"Technology demonstration missions like OCSD are driving exploration," says Steve Jurczyk from NASA's Headquarters in Washington. "By improving the communication capability of small spacecraft to support data-intensive science missions, OCSD will advance the potential to become a more viable option for mission planners."

A second test mission is scheduled to launch on February 1, and will demonstrate two CubeSats manoeuvring close to one another using a propulsion system that utilizes water as a propellant.