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●NASA、国際宇宙ステーション (ISS) から地球にレーザーで動画伝送する実験に成功

【GigaOM, 2014/06/09】

国際宇宙ステーション (ISS) に搭載された光通信システム実験装置「Optical Payload for Lasercomm Science (OPALS)」は、レーザーを使って 22MB の HD 動画をカリフォルニアの地上基地に 3.5 秒で伝達する実験に成功した。

NASA によると、現在実際に ISS で使われている通信装置を使うと同じ量のデータを伝送するには 10 秒以上かかるという。

OPALS は、ISS が地球上の軌道を移動しながら、レーザーで受信ターゲットに高精度で照準を定めなければならないが、OPALS のプロジェクト・マネージャー、マイケル・ココロウスキー氏は、これを歩きながらレーザー・ポインタで 20 フィート離れた人の髪 1 本に光を当てるといふ難技になぞらえて説明している。

レーザー通信は、従来の無線通信に比べて 10~1000 倍のデータを伝送可能。先週のテストでは、148 秒の接続時間の中で複数階の動画伝送が行われ、最高 50Mbps を記録した。

OPALS はまだ実験段階だが、将来的には ISS 全体、あるいは他の宇宙船、惑星にインターネットを提供できるようになる可能性もある。

(参考) 本件報道記事

NASA successfully uses laser to transfer video from the space station to Earth
by Signe Brewster

SUMMARY:

A 22 MB video transferred in 3.5 seconds, compared to the more than 10 minutes it takes with traditional equipment.

An experiment on the International Space Station has successfully beamed high definition video back to Earth with a laser—a feat that could someday aid communication with astronauts and spacecraft traveling to distant planets. The Optical Payload for Lasercomm Science completed a 175 megabit video transmission (which works out to a 22 MB video) to a ground station in California in 3.5 seconds. With equipment currently in use aboard the ISS, the same transfer would take more than 10 minutes, according to NASA.

OPALS makes use of a laser that locks onto a target as the ISS orbits over the Earth. During an interview in April, OPALS project manager Michael Kokorowski likened the feat to hitting a human hair with a laser pointer from 20 feet away while walking.

The laser can transfer 10 to 1,000 times more data than traditional radio communication. During last weeks test, the video was transferred multiple times during a 148-second connection. The team achieved a data transmission rate as high as 50 megabits per second. That's more than most people's home broadband speeds in the U.S.

"We—JPL, NASA, humans—are making science instruments that gather just an awfully large amount of data. Just a huge amount. And we can't possibly get it all back with radio communications right now," Kokorowski said in April. "Really, what optical communication will do is make that pipe larger. It has the potential to make every mission just that much more useful because of the return."

The video riffed on the "Hello world" computer program, which is often used to establish that a computer system or language works, with different clips containing the phrase.

For now, OPALS is just in a testing phase. But it is possible someday it could be used to provide internet to the entirety of the ISS, plus other spacecraft and distant planets.

"It's incredible to see this magnificent beam of light arriving from our tiny payload on the space station," OPALS mission manager Matt Abrahamson said in a release. "We look forward to experimenting with OPALS over the coming months in hopes that our findings will lead to optical communications capabilities for future deep space exploration missions."

Source: <http://gigaom.com/2014/06/09/nasa-successfully-uses-laser-to-transfer-video-from-the-space-station-to-earth/>

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