Rocket Lab successfully launches small experimental satellite for DARPA

Small satellite launcher Rocket Lab successfully pulled off its first flight of the year out of New Zealand this evening, sending an experimental communications satellite into orbit for DARPA. It marks the third commercial flight of Rocket Lab's small Electron rocket, and the fifth flight overall for the fledgling company, which just began launching rockets in 2017.

Dubbed the R3D2 mission, the flight sent up a small, 330-pound satellite into orbit, designed to test out a new kind of radio antenna. Made out of a type of material known as Kapton, the antenna is as thin as tissue paper, but able to grow in size while in space. The antenna launched on the rocket folded up inside a canister, and now that it's in orbit, the antenna will unfurl and expand out into its full shape that's more than seven feet wide. The design should provide more area to reflect radio waves.

This technology, if successful, could become a useful option for small satellite operators that want to include larger, more powerful radio communications on their tiny vehicles. Additionally, this particular flight came together in a very short time frame, according to Rocket Lab. With this launch, DARPA wanted to demonstrate a relatively short timeline for building a spacecraft and getting into orbit. Rocket Lab says it contracted this launch with DARPA mid-last year, and that it only took a few days to get the spacecraft integrated on the rocket before launch – a process that usually takes

months. “It’s really demonstrating true responsive access to space, which is something that’s been long required,” Peter Beck, CEO of Rocket Lab, tells *The Verge*.

[embedded content]

Performing launches as quickly as possible is one of Rocket Lab’s ultimate goals, as it attempts to capitalize on the small satellite revolution — the trend of spacecraft being built smaller and smaller. The company’s main vehicle, the Electron, is just under 55-feet high, about the size of a five-story house. And it’s capable of putting payloads weighing between 330 and 500 pounds into low Earth orbit. That’s relatively low compared to larger vehicles like the Falcon 9 or Atlas V which are capable of putting tens of thousands of pounds into the same orbit. But ultimately Rocket Lab’s customers are all small satellite operators.

Now that this flight is complete, Rocket Lab is targeting another launch for April and will announce which mission it is soon. A goal of the company is to get 12 flights off the ground this year, says Beck. “We’re slightly delayed for the start of this year from the [DARPA] payload, but that’s just the reality of the launch industry,” he says. But eventually, the company has even loftier long-term ambitions and hopes to be capable of launching one Electron every three days when the company comes into its stride.

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