

AT&T-backed satellite can pick up regular phone signals from space

A groundbreaking phone call between Texas and Japan has occurred that could eventually help set the stage for a globally accessible space-based cellular network. AST SpaceMobile – a Texas-based satellite manufacturer – announced on Tuesday that it had successfully routed an audio call between two standard smartphones directly through its BlueWalker 3 (BW3) satellite in low Earth orbit, a breakthrough that could improve global cellular connectivity in remote regions without access to cell towers.

AST SpaceMobile claims this is “the first time anyone has ever achieved a direct voice connection from space to everyday cellular devices.” The phone call was made from an unmodified Samsung Galaxy S22 in Midland, Texas, using mobile spectrum from AT&T and connected to an iPhone used by Japanese tech giant Rakuten. Engineers from AT&T, Rakuten, and UK-based telecommunications company Vodafone assisted with the test.

The BW3 satellite is powerful enough to pick up cellphone signals from over 1,000 miles away

Ordinarily, an everyday smartphone shouldn’t be able to communicate directly with satellites in space as they operate using different spectrums, instead requiring phones to connect to nearby cell towers. AST SpaceMobile got around this a few ways, such as purposefully designing its network architecture to mirror the 3GPP (3rd Generation Partnership Project) standard used by terrestrial cellular networks – that and the BW3 satellite is an absolute beast: at 693 square feet (just

over 64 square meters), it's the largest commercial communications array ever deployed to low Earth orbit, capable of picking up cellphone signals from over 1,000 miles away thanks to its 100,000 individual antenna elements.

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SpaceMobile

The technical efforts at play here meant that the phones connected to BW3 didn't need any hardware or software changes – no fancy apps required, just the standard Samsung dialer. The companies involved didn't disclose details regarding the performance, but an AT&T spokesperson confirmed to *The Verge* that the initial test call was made over 2G and that the next testing phases will include LTE, 4G, and 5G.

The main goal of direct cell-to-satellite communication is to improve global cellular access in remote regions that lack infrastructure like cell towers. This also includes rural areas around the US that struggle to achieve even a 3G wireless connection, let alone 5G. AST SpaceMobile has agreements in place with mobile carrier networks besides AT&T, Rakuten, and Vodafone, such as Bell Canada, Telefónica, and Orange, which, combined, have approximately 2 billion subscribers. We currently don't have any information regarding how these carriers might include direct satellite connectivity within their existing services or when such a utility could arrive for general consumers.

Other carriers have made similar partnerships to expand rural broadband access using satellites. Back in 2021, Verizon announced it was working with Amazon to add "cellular backhaul solutions" to the e-commerce giant's Project Kuiper system, which is expected to start deployment in 2024. Elsewhere, smartphone services have developed message-based satellite routing solutions like Apple's Emergency SOS feature for the

iPhone 14.

<https://www.theverge.com/2023/4/26/23699366/att-ast-spacemobile-satellite-cellular-connection-phone-call-space>