

Sprint tests Massive MIMO with Samsung in South Korea

By **Monica Allevan** • Jun 20, 2017 09:39am

2.5 GHz

5G

gigabit

South Korea



From left to right: Günther Ottendorfer, Sprint COO-Technology; Ryan Sullivan, Sprint VP Product Engineering; and CH Kim, Samsung SVP Research and Development, standing with the 2.5 GHz 64T64R AAU (Active Antenna Unit) that enables FD-MIMO (or Massive MIMO) technology. Image: Sprint

Like the saying “go big or go home,” Sprint decided to conduct Massive MIMO tests on none other than the busy streets of Suwon, South Korea, and in a twist on the old cliché, it will take those results to its home territory in the U.S. and apply them here.

The testing was done with Samsung, which has a big R&D presence in Suwon, so it made sense to do the tests where they had easy access to the engineering team. The tests represented real-world scenarios outdoors, which is different from an [earlier demonstration](http://newsroom.sprint.com/blogs/sprint-perspectives/mwc17-breaking-new-ground-with-gigabit-lte-massive-mimo-and-hpue.htm) (<http://newsroom.sprint.com/blogs/sprint-perspectives/mwc17-breaking-new-ground-with-gigabit-lte-massive-mimo-and-hpue.htm>) that Sprint did with Nokia at Mobile World Congress 2017 in Barcelona. The Suwon deployment used Samsung radios and antennae on street structures.

Sprint CEO John Saw said the results were pretty impressive. “We were seeing speeds of more than 300 megabits per second, just using one 20 MHz channel,” he told FierceWirelessTech. “We were very encouraged by the results.”

In fact, Sprint [reports](http://www.businesswire.com/news/home/20170620005495/en/Sprint-Samsung-Test-Massive-MIMO-Technology-South) (<http://www.businesswire.com/news/home/20170620005495/en/Sprint-Samsung-Test-Massive-MIMO-Technology-South>) getting peak speeds of 330 Mbps per channel using a 20 MHz channel at 2.5 GHz. Capacity per channel increased about four times.

Massive MIMO is mostly about capacity, but Saw said he was pleasantly surprised to see improvements in coverage, particularly for customers at the cell edge where typically they have the poorest experiences.

Samsung used the Galaxy line of phones for the tests, but Lyle Nyffeler, vice president and general manager of the Samsung Electronics America Networks Division, said the technology works across any of the 2.5 GHz-enabled phones on the market.

They actually did more than a dozen tests. In collaboration with Samsung, Sprint wrote the test cases and requirements, which included a variety of performance scenarios involving multi-user and non-stationary testing, and Samsung provided the Massive MIMO infrastructure as well as test network design, operation, data collection and processing. They said they will use the results in preparation for commercial deployment in the U.S. and other markets and have no reason to believe the results in the U.S. would be any different.

It’s one thing to do tests in a controlled lab environment but another doing them in a real world where things can get messy around the cell edge, including in buildings.

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Massive MIMO is also referred to as FD (full dimension) MIMO, meaning it’s three-dimensional and beams can actually be formed up into the vertical plane as well as the horizontal plane; they were able to demonstrate this in a high-rise building. “You can form the beams up into the upper floors and the higher floors to improve that user experience,” Nyffeler said. “When we saw those results, we were very encouraged.”

RELATED: [Sprint shows off Gigabit Class LTE with Qualcomm, Motorola in New Orleans](http://www.fiercewireless.com/tech/sprint-shows-off-gigabit-class-lte-qualcomm-motorola-new-orleans)
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Massive MIMO is a key element of 5G for providing high capacity in densely populated urban centers and can enable LTE network performance beyond 1 Gbps.

Sprint is rolling out Massive MIMO radios with 128 antenna elements (64 transmit, 64 receive) to increase capacity up to eight times in cities across the U.S., starting in New Orleans. Saw declined to say the next markets will be up next but Sprint promises to make Sprint Gigabit LTE commercially available in major markets across the country over the course of this year.

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18 SEP	Telco Core Strategies Summit Free Virtual Event