

Qualcomm says it has developed antenna technologies to power super fast 5G smartphones

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Qualcomm said recently it has developed breakthrough antenna technology that will help power uber-fast speeds in next-generation 5G smartphones.

The San Diego company highlighted several antenna modules that are being tested by smartphone makers today. They could show up in mobile devices next year.

Some harness [millimeter wave](#) radio frequencies to deliver fiber-optic like speeds. That potentially solves a stubborn technical puzzle surrounding 5G: How to make antennas that are small enough for use in smartphones but also capable enough to receive finicky millimeter wave radio signals that are susceptible to interference.

Some industry experts have questioned whether it was technically feasible to miniaturize antenna technologies so smartphones could tap millimeter wave frequencies—or at least doubted it was possible by the time the first 5G wireless networks begin rolling out in 2019.

But Qualcomm claims to have done it with antenna modules about the size of a fingernail.

"Now these type of modem-to-antenna solutions ... make mobile 5G networks and devices, especially smartphones, ready for large scale

commercialization," said Qualcomm President Cristiano Amon. "With 5G, consumers can expect gigabit-class Internet speeds with unprecedented responsiveness in the palm of their hands, which stand to revolutionize the mobile experience."

Qualcomm is betting that the transition to fifth generation 5G networks will re-ignite growth in the [smartphone](#) market, which has seen sales slow as consumers hang onto their fourth generation 4G LTE devices longer.

The San Diego cellular technology giant typically thrives in the early stages of transitions to next generation of wireless technologies.

Coming 5G networks are expected to connect a plethora of devices—ranging from cars to health care gadgets—with imperceptible transmission delays and at low cost.

These networks also promise to deliver internet speeds on par with today's fiber optic lines—powering new services such as streaming ultra-high definition video and virtual reality.

The wireless industry is counting on millimeter wave spectrum to provide a good portion of the capacity required for 5G. Millimeter wave frequencies, however, don't travel very far before degrading. They're prone to bouncing off buildings or other obstacles—such as a person's hand holding a phone. They work best when there is unobstructed line of sight between the transmitter and antenna.

That's why some were skeptical about using 5G millimeter wave in smartphones, said Sherif Hanna, a Qualcomm spokesperson. Conventional wisdom was that this spectrum would be deployed for fixed wireless broadband—delivering fast last-mile bandwidth to stationary homes and businesses, not mobile devices.

But Qualcomm has used beam forming and other techniques that it believes will allow smartphones to tap millimeter wave spectrum—delivering the full promise of 5G to mobile users.

Qualcomm's [antenna](#) modules are paired with its 5G cellular modem, which was announced last October. Versions are available for millimeter wave frequencies as well as sub-6 gigahertz spectrum bands that are also earmarked for 5G.

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