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Generations of 802.11: max vs reality

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From 2 Mb in 1997 to 23 Gb today... all from marketing announcements. Yet we can only achieve less than 1.4 Gb with perfect conditions in the real world. Every generation of 802.11 turned the same four knobs, and two of them do most of the inflating.

Wi-Fi got faster the same way every time: wider channels, denser QAM, more spatial streams, more spectrum. Multiply those four and you get the marketing rate. Swipe through all 9 generations, 802.11 to Wi-Fi 7, with the rate, width, modulation, and stream count on each page.

Each graphic also carries a second number, the rate real devices can connect at. Most of the headline growth comes from wider channels and more spatial streams, and yet our industry does not ship either at those levels. If you can't buy it, why market these inflated numbers?

Phones and laptops run 2 spatial streams. Most enterprise customers still use 80 MHz at the widest and usually 40 MHz or less. At 2 streams and 80 MHz, Wi-Fi 5 tops out at 867 Mb/s, Wi-Fi 6 at 1.2 Gb/s, and Wi-Fi 7 at 1.44 Gb/s

Save this PDF. Use it the next time someone quotes a generations speed and you want to check it.

When a customer asks what speed their new Wi-Fi 7 gear will reach, which number do you give them?

By Keith Parsons, CWNE #3, Wireless LAN Professionals. Free to read and share. Facts