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What frequency is 5G?

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From 1G to 5G, all cellular networks carry information through the electromagnetic spectrum, which includes the radio spectrum. Some frequency bands within the radio spectrum will be used for 5G, including Verizon's 5G Ultra Wideband (UWB) network. The following information can help you learn what frequency 5G uses and how that affects the speed and efficiency of the network.

What is the radio spectrum?

To understand exactly how fast 5G technology is expected to be, it's important to consider it in relation to other cellular network technologies. If you think back to high school physics, you may recall the electromagnetic spectrum. This includes all the different wavelengths/frequencies you may encounter: Gamma Rays, X-Rays, light and visible rays, microwaves, millimeter waves (mmWave), radio waves (including AM and FM radio) and more.

The radio spectrum includes frequencies between 3 kilohertz (kHz) and 300 gigahertz (GHz). Early cellular networks, including 1G, operated at a frequency of 850 MHz and 1900 MHz. Then, 2G and 3G networks operated at additional frequency bands and spectrum around 2100 MHz, and 4G LTE technology operated at additional frequency bands and spectrum around 600 MHz, 700 MHz, 1.7/2.1 GHz, 2.3 GHz and 2.5 GHz. Verizon's 5G UWB network operates at considerably higher radio frequencies than its early mobile counterparts.

5G, the newest generation of cellular network technology, is going to be the fastest of these networks. This new technology will be a huge leap forward in terms of reduced latency as well as speed. This speed will rely heavily on the fact that 5G uses higher radio frequencies. The anticipated peak speed of 5G is 20Gbps, which is 20 times faster than existing 4G networks' top speeds, and that is thanks to the added frequencies and spectrum bands.

What frequency does 5G use?

High-band spectrum is sometimes called millimeter wavelength (mmWave) in the cellular industry, and it enables about 28 GHz of frequency. This is considerably faster than 4G networks, which use about 700 MHz-2500 MHz frequency to transfer information.

To help with the features that 5G promises, including potentially supporting 1 million devices per square kilometer, the FCC has opened up vast amounts of bandwidth in high-band spectrum for 5G. This spectrum is called 5G new radio frequency bands.

Recently deployed, Verizon's 5G UWB network uses [28 and 39 GHz \(/about/news/verizon-qualcomm-and-novatel-wireless-collaborate-expedite-trials-and-commercial-deployment-5g\)](#) mmWave spectrum bands having 40x bandwidth of 4G LTE 700MHz network. This will aid the network in latency, speed and capacity, as a higher number of devices will be able to operate on that high-band frequency spectrum. To give you an idea, 4G latency is around 20-30 milliseconds, which means it takes that amount of time for information to travel between origin and receiver. 5G latency, though, is expected to someday reach below 10 milliseconds. Verizon will also deploy 5G technology on lower frequency bands including 700 MHz-2500 MHz frequency range to cover wide area. This means devices that are further away from the antennae should be able to access the network.

Overall, 5G is expected to improve user experience, power new use cases including industrial automation, Internet of Things (IoT), etc. Smart cities and those responsible for infrastructure management can rely on 5G's capacity to handle all of the devices that require large amounts of data in short periods of time. These devices should be able to work reliably and securely in high-density areas like factories, airports and urban centers.

Be sure to learn more about [what 5G is \(/about/our-company/5g/what-5g\)](#), and how you can access Verizon's 5G Ultra Wideband network from home or a mobile device.

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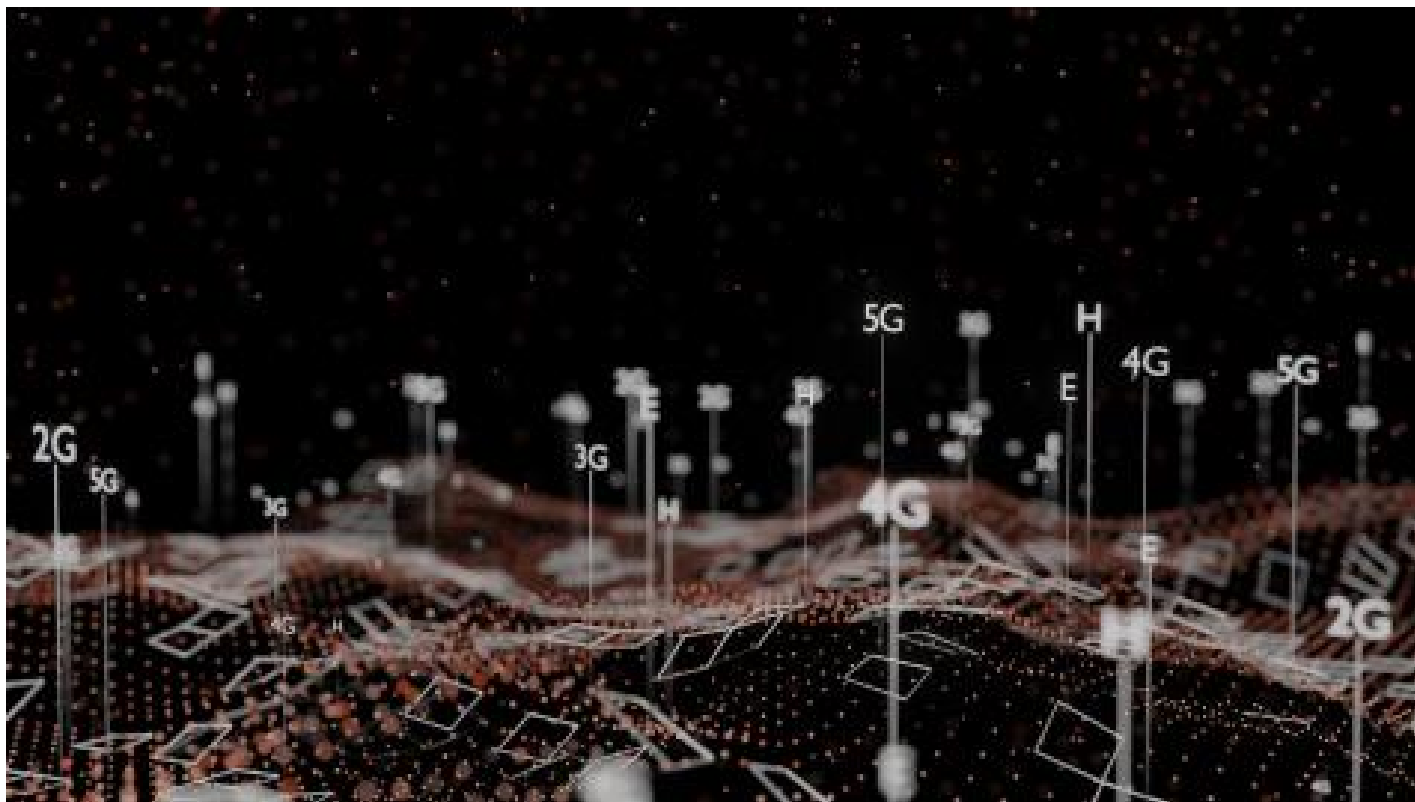


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