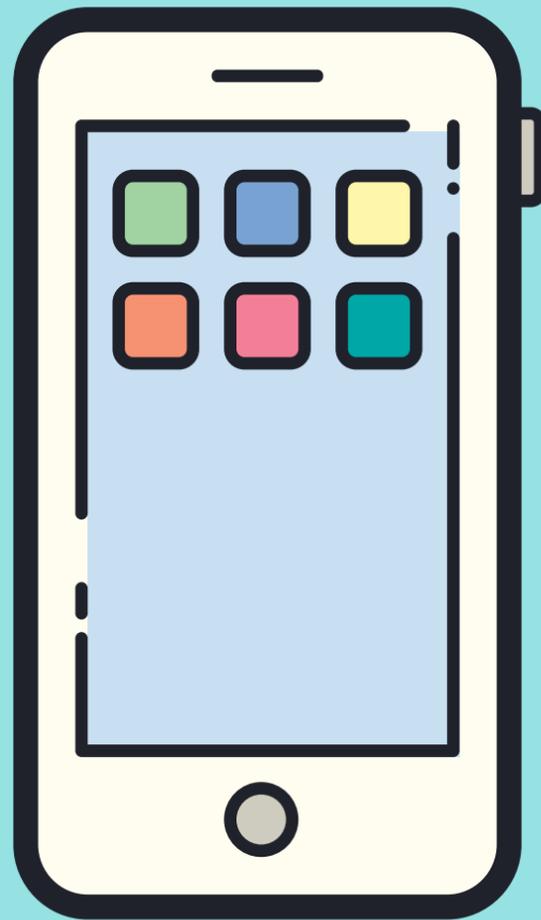


# TECH TRENDS: WHAT IS 5G?



You've heard of it over and over on television and radio. But what does 5G really mean to you? We are going to try to discuss the definition of 5G, show the differences between 5G and 4G, and what all of this means for you.

## 1 DEFINITION OF 5G

The newest generation of mobile technology is selectively available around the world. 5G promises faster data rates, energy saving, enhances existing networks, and brings new uses like virtual reality, augmented reality, and telemedicine. 5G is being designed with flexibility in mind, to support future services and applications that may not even exist today.

5G uses a low, middle, and high band system. Low-Band 5G are the oldest cellular and TV frequencies and run on frequencies below 2GHz (gigahertz). It's hard to differentiate this system from current 4G networks as it's not as fast as other 5G band speeds.

Mid-Band 5G runs in the 2-10GHz range. That covers most current cellular and Wi-Fi frequencies, as well as frequencies slightly above those. These networks have decent range from their towers, often about half a mile, these are the workhorse networks carrying most 5G traffic.

High-Band 5G, also known as millimeter-wave, is the new stuff. High-band 5G can range from 20-100GHz and haven't been used for consumer applications as of now. There are very few areas that have access to High-Band 5G right now. This frequency is being seen as compatible with future technology that hasn't been invented yet!

## 2 1, 2, 3, 4, 5G!

To start, 5G stands for the fifth generation of mobile communication technology. 1G introduced us to wireless calling for voice chat only. 2G brought us text messaging, multimedia messaging, and call and text encryption. 3G allowed full-feature mobile internet access and video calling as well as faster data transmission speeds. 4G brought faster data downloads and uploads which increased support to allow mobile devices to stream video, play games, use high function apps, and video conferencing.

## 3 DOES THIS MEAN I HAVE TO GET A NEW PHONE?

With the introduction of 5G, most mobile providers are phasing out 3G service and compatible devices. 4G devices are going to continue to work and are expected to still be the leading generation as 5G is still in its early stages. The first 4G phones in the US appeared in 2010, but the 4G applications that changed our world didn't appear until later. Snapchat came in 2012, and Uber became widespread in 2013. Video calls over 4G networks also became big in the US around 2013. The roll out of a new generation of mobile technology is not instant and takes years, so you don't have to throw away your current phone in fears that it won't work.

If you are ready to start using what is available of the 5G network in your area, you will need a new compatible device, such as cell phone, tablet, smart watches and more. Be sure to check with your mobile provider about 5G network in your area, before you purchase a new device.

## 4 IS 5G SAFE?

Yes. Low-band and mid-band 5G are based on radio frequencies that have been used for decades. Low-band 5G uses UHF TV bands, which have been in use since 1952. Sprint's mid-band has been in use at least since 2007; parts of it were first used in 1963.

The greatest 5G worries in the US tend to be around high-band, or millimeter-wave, 5G. This is the short-range type that requires a lot of small cell sites, so the infrastructure is more visible than it was before. The ironic thing about worrying that millimeter-wave will fry your cells isn't that it's too strong, but that it's too weak—it's blocked by leaves, walls, glass, cars, clothing, and skin.

Power levels are extremely important. Bluetooth and microwave ovens run on the same frequency. Because millimeter-wave signals are technically called microwave, some people are convinced they are literal microwave ovens that will fry us. But a firefly isn't a blowtorch—and the 5G systems are more on the firefly end of things.