



What is 4G Wireless Service?

When purchasing a wireless device, consumers are often confused about the meaning of 4G service and the speed of their wireless phone service. We've created this field guide to simplify this very technical issue:

The “G” stands for “generation,” so 4G means the “fourth generation” of wireless technology. To help better understand what this all means for consumers, Fred Campbell, President and CEO of Wireless Communications Association International, provided the following background information and summary of wireless technology, starting with the history of the “G”:

1st generation: The first generation of wireless technology in the United States used analog technology. This technology was designed primarily to make plain old phone calls and is no longer offered.

2nd generation: The second generation of wireless technologies is all digital and still in use today. There are actually two different 2G technology standards widely deployed in the U.S.: Global System for Mobile Communications (“GSM”) (used by AT&T Wireless, T-Mobile, and in most countries worldwide) and cdmaOne (often referred to as “CDMA”) (used by Sprint Nextel & Verizon Wireless).

Using 2G technologies, you can make plain old phone calls, text message, or email at dial-up modem speeds (maximum 64 kbps).

3rd generation: The third generation of wireless technologies is an evolution of existing 2G standards: GSM has evolved into 3G standards known as Universal Mobile Telecommunications System (“UMTS”) and cdmaOne has evolved into 3G standards known as CDMA2000.

With the first and second generations of wireless technology, the distinction was primarily technological, i.e., the move from analog to digital technology. 3G wireless technologies, however, have been defined primarily in terms of capabilities.

Using 3G technologies, you can make plain old phone calls, send text messages, browse the web, and stream video clips at typical download speeds typically ranging from 1-7 mbps (much faster than dial-up modem speeds).

4th generation: That brings us to 4G, the ‘fourth generation’ of wireless technology. There has been some debate about whether the definition of 4G should be based on capabilities (how fast is it?) or the underlying technology involved. Two new wireless standards – WiMAX and LTE – are marketed as ‘fourth generation’ because they use a revolutionary new technology that is incompatible with 3G standards. Although its underlying technology is merely an evolution of existing 3G standards, the most advanced 3G standard (HSPA+) is also marketed as ‘4G’ because it offers capabilities (i.e., speeds) similar to early versions of WiMAX and LTE. To make matters more interesting, the internationally accepted definition of 4G technologies is based on capabilities that none of these wireless technology standards meets today. *Confused?* Here’s the bottom line: Only the most advanced versions of WiMAX and LTE have been accepted into the international process for designation as 4G technologies, which should be completed soon. That means WiMAX and LTE are the only technologies expected to meet the internationally accepted definition of “true” 4G technologies.

Using today’s 4G technologies you can do virtually everything you can do on a typical wired connection at home (i.e., your cable modem or DSL connection) at download speeds typically ranging from 3-10 mbps. This speed range is based on current 4G network deployments in the U.S. and should increase when more recent versions of the LTE technology standard are deployed.

Although wireless providers provide consumers with service on these different platforms simultaneously, different generations of wireless technology platforms (i.e., 2G, 3G and 4G) each must be operated on independent portions of the radio spectrum (i.e., the airwaves). The availability of multiple platforms promotes innovation while ensuring that consumers can continue to use phones and services designed for earlier generations of wireless technology.