

Wi-Fi 6E expands Wi-Fi® into 6 GHz



Spectrum allocation extends Wi-Fi® capability

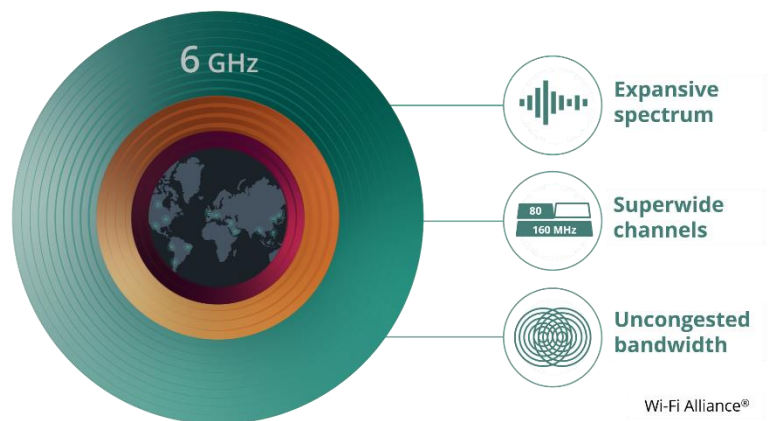
Countries and regulatory bodies—including Brazil, Chile, the European Union, Japan, Mexico, South Korea, Taiwan, United Arab Emirates, the U.K., and the U.S.—are [delivering](#) 6 GHz unlicensed spectrum to their citizens. These announcements herald a milestone in the Wi-Fi era. Unlicensed spectrum, where Wi-Fi operates, is one of society's most valuable resources. Wi-Fi industry innovation, promotion, and good stewardship of unlicensed spectrum has delivered significant benefits to users, and driven immense [economic value worldwide](#) – generating more than \$3 trillion USD to the global economy in 2021. Availability of 6 GHz unlocks more value from Wi-Fi and brings even greater economic contributions.

Wi-Fi is foundational to consumer and enterprise networks, as well as the Internet of Things (IoT). It is recognized as an essential part of delivering 5G cellular service, an important tool that brings connectivity to underserved areas, and a strong contributor to global economies.

While demands on Wi-Fi networks have grown steadily for the past 20 years, the amount of [available unlicensed spectrum](#) has remained static—until now. The addition of the 6 GHz band for Wi-Fi use creates new opportunities for tremendous innovation and the continued success and economic growth enabled by Wi-Fi.

Wi-Fi 6E brings Wi-Fi to 6 GHz

Wi-Fi 6E is the industry name that identifies Wi-Fi devices that operate in 6 GHz. Wi-Fi 6E offers the features and capabilities of Wi-Fi 6—including higher performance, lower latency, and faster data rates—extended into the 6 GHz band. The additional spectrum capacity used by Wi-Fi 6E devices enables more Wi-Fi innovation and delivers valuable contributions to consumers, businesses, and economies.¹ Wi-Fi Alliance® members are preparing devices to enter the market where the 6 GHz spectrum is available, and are expected to ship over 473 million devices in 2023.²



6 GHz brings additional spectrum capacity through contiguous spectrum blocks, which accommodate 14 additional 80 MHz channels or seven additional 160 MHz wide channels. Wi-Fi 6E utilizes the less congested 6 GHz band to enable high-bandwidth applications that require faster data throughput, as well as lower latency connectivity that is specifically well suited for next generation uses, such as unified communications, cloud computing, augmented and virtual reality, and telepresence.

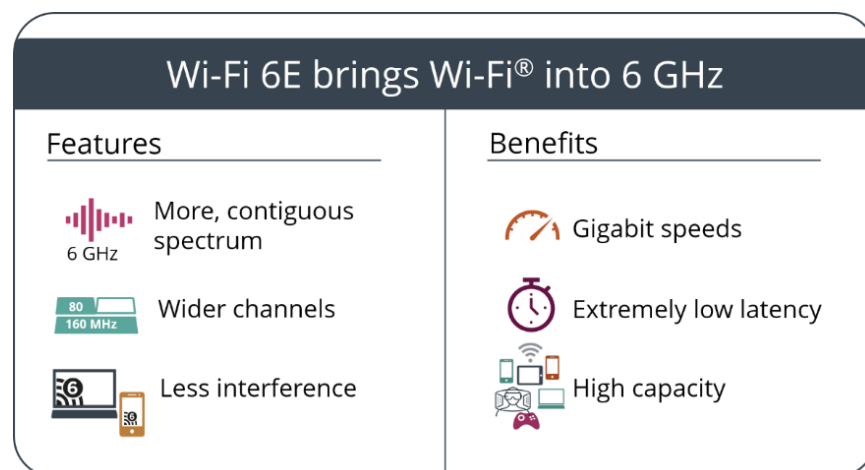
¹A study by WifiForward estimates Wi-Fi use in the 6 GHz band could add more than \$154 billion USD to the U.S. economy by 2025

²IDC, January 2023

Wi-Fi CERTIFIED 6™ introduces Wi-Fi 6E for optimal performance

The [Wi-Fi CERTIFIED 6™](#) certification program from Wi-Fi Alliance has added a certification option for Wi-Fi 6E devices, which extends Wi-Fi into 6 GHz. Devices certified for Wi-Fi 6E provide the advanced features of Wi-Fi CERTIFIED 6 and [Wi-Fi CERTIFIED WPA3™](#) security, offering substantial gains in overall Wi-Fi network performance in challenging environments that are characterized by many connected devices such as stadiums, airports, and industrial parks. As 6 GHz becomes available in many markets around the globe, Wi-Fi Alliance certification enables worldwide interoperability of Wi-Fi 6E devices. Wi-Fi 6E delivers these advanced capabilities of Wi-Fi CERTIFIED 6:

- **Multi-user multiple input multiple output (MU-MIMO):** allows more data to be transferred at once and enables an access point to transmit data to a larger number of devices concurrently
- **160 MHz channels:** increases bandwidth to deliver greater performance with low latency
- **Target wake time (TWT):** significantly improves battery life in Wi-Fi devices, such as Internet of Things (IoT) devices
- **1024 quadrature amplitude modulation mode (1024-QAM):** increases throughput in Wi-Fi devices by encoding more data in the same amount of spectrum
- **Transmit beamforming:** enables higher data rates at a given range resulting in greater network capacity
- **Orthogonal frequency division multiple access (OFDMA):** effectively shares channels to increase network efficiency and lower latency for both uplink and downlink traffic in high demand environments



Wi-Fi 6E now supports AFC testing

The U.S. Federal Communications Commission (FCC) requires that unlicensed devices in standard power in the 6 GHz spectrum band are controlled by an Automated Frequency Coordination (AFC) system to protect incumbent operations. Wi-Fi Alliance now includes Wi-Fi CERTIFIED 6 testing protocols to support the regulatory authorization process of 6 GHz standard power devices pursuant to recently published FCC guidance. The release of this new testing allows product vendors and service providers to verify that 6 GHz standard power devices meet the technical requirements of the FCC rules pertaining to operations under the control of the AFC system.

With the new standard power device testing capability, members can leverage nine Wi-Fi Alliance accredited Authorized Test Laboratories (ATL) – that are also FCC-recognized accredited test labs – to efficiently complete

regulatory testing of their 6 GHz standard power devices and ensure their devices meet high Wi-Fi CERTIFIED™ standards.

Wi-Fi CERTIFIED™: Technology to trust

Since 2000, Wi-Fi Alliance has been driving the adoption and evolution of Wi-Fi through the Wi-Fi CERTIFIED program. The Wi-Fi CERTIFIED logo designates products with proven interoperability, backward compatibility, and the highest industry-standard security protections in place. Wi-Fi CERTIFIED devices can communicate with previous and future generations of Wi-Fi technologies, enabling a seamless, interoperable experience with a multitude of other Wi-Fi devices for years to come.



Learn more: www.wi-fi.org/discover-wi-fi/wi-fi-certified-6