Wi-Fi 8 Release Date 2028

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According to the plan of IEEE (Institute of Electrical and Electronics Engineers) and the general expectations of the industry, Wi-Fi 8 (codenamed IEEE 802.11bn UHR, i.e. ultra-high frequency) is expected to officially release the final specification around September 2028.

Wi-Fi 8

However, it is worth noting that the research and development and standard-setting process of technology may be affected by many factors, so the specific release date may be adjusted.

In addition, with the release of the standard, related products and services will also be gradually introduced to the market, and it is expected that the first batch of

devices that meet the Wi-Fi 8 standard will be expected to meet the public in early 2028.

Wi-Fi 8 Detailed Introduction

1. Technical Background and Inheritance

As the eighth version of the 802.11 series of standards, Wi-Fi 8 is an optimization and improvement based on the many technical advantages of the Wi-Fi 7 standard. These technical advantages include 23Gbps bandwidth, 4096QAM modulation, and frequency bands covering 2.4GHz, 5GHz, and 6GHz. Wi-Fi 8 not only inherits these technical features, but also introduces a series of innovative technologies to further improve actual transmission performance and connection reliability.

2. Main Technical Features and Innovations

(1) **Coordinated Spatial Reuse (Co-SR)**: This technology can enhance communication between access points by dynamically adjusting and coordinating the power level of access points to adapt to the distance difference between the device and other access points, thereby ensuring appropriate signal strength. According to preliminary tests, this function can significantly improve the overall system throughput by 15% to 25%.

(2) **Coordinated Beamforming (Co-BF)**: This technology coordinates the signal direction between multiple access points to intelligently avoid sending signals to unnecessary areas and devices, reduce interference and focus signal resources on active devices. In tests, this technology significantly improved the device throughput in mesh networks, especially in public spaces and home environments, with an increase of 20% to 50%.

(3) **Dynamic Subchannel Operation (DSO)**: This feature allows the network to flexibly allocate subchannels based on device needs and capabilities, thereby improving network efficiency and significantly increasing throughput. For advanced devices, this feature can even achieve up to 80% throughput improvement. At the same time, it also helps avoid network bottlenecks and ensure smooth data transmission.

(4) **Enhanced Modulation Coding Scheme (MCS)**: Wi-Fi 8 introduces fine-grained data rate control and achieves smoother connection quality transitions by adding additional levels in the modulation coding scheme (MCS) lookup table. This helps reduce sudden drops in data rate, further improves overall transmission stability, and improves bandwidth utilization based on actual conditions.

(5) **Multi-AP Coordination**: This technology aims to optimize the collaboration between multiple access points to improve overall network performance and coverage.

(6) **Distributed OFDMA Scheduling/Non-Preemptive Channel Access (DOS/NPCA)**: This technology helps to make more efficient use of spectrum resources and improve network efficiency and throughput.

(7) **Dynamic Resource Unit (dRU)**: By dynamically allocating resource units, Wi-Fi 8 can more flexibly adapt to the needs of different devices and network conditions.

Wi-Fi 8 Routers

3. Application Scenarios and Advantages

The ultra-high reliability (UHR) feature of Wi-Fi 8 makes it particularly suitable for application scenarios with strict requirements on low latency and high stability, such as augmented reality/virtual reality (AR/VR), industrial automation, remote medical surgery, etc. These applications will become increasingly important in the near future and rely heavily on the low latency and high reliability connections provided by Wi-Fi 8.

(1) **AR/VR/XR and other immersive experiences**: Wi-Fi 8 will bring users a smoother and more realistic immersive experience, reducing latency and freezing.

(2) **Industrial Automation and Robotics**: With the development of Industrialization 4.0, Wi-Fi 8's high-performance wireless connectivity will promote the further development of industrial automation and robotics.

(3) **Remote Medical Surgery**: Wi-Fi 8's low latency and high reliability will provide strong support for remote medical surgery and improve the success rate and safety of surgery.

4. Challenges and Research Directions

Although Wi-Fi 8 brings many technical advantages and application prospects, its research and development also faces multiple challenges. How to provide high reliability and low latency services in unlicensed frequency bands, and how to coordinate multiple access points to improve overall network performance are the current research focuses. To meet these challenges, researchers are exploring new technologies such as multi-access point coordination, and continuously optimizing and improving the technical standards of Wi-Fi 8.

5. Standardization progress and industrial ecology

At present, IEEE is developing relevant standards for Wi-Fi 8, and has received active participation and support from top companies in the industry. MediaTek, Qualcomm, Intel, NXP, Huawei and Interdigital are all leading members or important members of the IEEE 8011bn working group. These companies are actively promoting the technical research and development and standard formulation of Wi-Fi 8, and are committed to building a more complete industrial ecology.

With the gradual advancement and improvement of the Wi-Fi 8 standard, related products and services will also be gradually introduced to the market. It is expected that in the next few years, Wi-Fi 8 will become a new standard for wireless connection and bring users a more efficient, stable and reliable wireless network experience.

Summary and Outlook

As the next generation of wireless network technology, Wi-Fi 8 has made many optimizations and improvements based on the technical advantages of Wi-Fi 7.

By introducing innovative technologies such as coordinated spatial reuse, coordinated beamforming, and dynamic sub-channel operation, Wi-Fi 8 will further improve actual transmission performance and connection reliability.

These technical advantages make Wi-Fi 8 particularly suitable for application scenarios with strict requirements for low latency and high stability, such as AR/VR, industrial automation, and remote medical surgery.

However, the research and development of Wi-Fi 8 also faces multiple challenges and difficulties. In order to meet these challenges, researchers are constantly exploring new technologies and methods, and actively promoting the technical research and development and standard setting of Wi-Fi 8.

With the progress of standardization and the maturity of technology, Wi-Fi 8 is expected to become the new standard for wireless connection in the next few years, and bring users a more efficient, stable and reliable wireless network experience.

In addition, with the continuous development of technologies such as 5G, Internet of Things, and artificial intelligence, Wi-Fi 8 will also integrate and promote each other with these technologies, and jointly promote the continuous progress and innovative development of wireless network technology.

Therefore, we have reason to believe that in the future wireless network field, Wi-Fi 8 will play a more important role and bring users a more colorful wireless network experience.

About IoT Cloud Platform

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Wi-Fi 8 Release Date and FAQs

When is the release date of Wi-Fi 8?

According to the IEEE plan, Wi-Fi 8 is expected to be officially released in September 2028.

What improvements does Wi-Fi 8 have compared to previous generations of Wi-Fi?

As the eighth version in the 802.11 series of standards, Wi-Fi 8, codenamed IEEE 802.11bn UHR (Ultra-High Frequency), is expected to bring higher transmission speeds, lower latency, and stronger network stability. Specific improvements need to wait for more official details.

What devices does Wi-Fi 8 support?

Wi-Fi 8 will support a variety of devices, including smartphones, tablets, laptops, smart home devices, etc. However, which specific devices will support Wi-Fi 8 still needs to wait for manufacturers to release relevant information.

How can I make sure my device is compatible with Wi-Fi 8?

To ensure that the device is compatible with Wi-Fi 8, users need to pay attention to updates and announcements from device manufacturers. Generally speaking, newly released devices or updated devices will be more likely to support the new Wi-Fi standard. In addition, users can also consider purchasing routers and other network devices that support Wi-Fi 8.

What is the coverage of Wi-Fi 8?

The coverage of Wi-Fi 8 will depend on a variety of factors, including the power of the router, environmental factors (such as obstructions such as walls and furniture), and the receiving ability of the device. Generally speaking, as technology advances, the coverage of Wi-Fi 8 may be wider or more stable than previous generations of Wi-Fi. However, the specific coverage still needs to wait for actual testing and user feedback.

Will Wi-Fi 8 affect my network security?

Wi-Fi 8 itself does not directly affect network security, but when using the new Wi-Fi standard, users should ensure that their network security measures are updated and strengthened. For example, use strong passwords, update device firmware regularly, avoid connecting to unknown or unencrypted networks, etc. In addition, users can also consider using professional network security software to protect their devices and data.

What do I need to prepare for Wi-Fi 8?

To welcome the arrival of Wi-Fi 8, users can consider the following preparations:
Understand the new standard: Pay attention to the latest developments and official information of Wi-Fi 8 to understand the features and advantages of the new

standard.

Update devices: Consider purchasing or updating devices that support Wi-Fi 8, such as smartphones, tablets, laptops, etc.

Upgrade network: Consider upgrading network devices in your home or office, such as routers and switches, to ensure that they can support Wi-Fi 8.

Strengthen network security: Update network security measures to ensure that devices remain secure when connecting to new networks.