

IEEE 802.11ax: An Overview of High-Efficiency Wi-Fi (Wi-Fi 6) Medium Access Control Layer

Online

In this course, learners will gain an overview of the features and optimizations introduced by IEEE 802.11ax to the Medium Access Control Layer (MAC), which lead to efficiency improvements.

IEEE Std 802.11ax is the latest step in a journey of continuous innovation in the wireless local area networks (LAN) standards and is the underlying technology of the latest Wi-Fi 6 products. Unlike previous amendments (e.g., IEEE Std 802.11ac, IEEE Std 802.11n) which were focused mainly on increasing the peak throughput, 802.11ax focuses on achieving Higher Efficiency (HE) and improving metrics that reflect user experience, such as average throughput per station. This was achieved by better physical layer efficiency and spectrum utilization, flexible multi-access and scheduled transmission schemes, increasing the spatial reuse, and improving interference management between neighboring networks, particularly in dense environments.

What you will learn:

- Explain how uplink (UL) and downlink (DL) multi-user (MU) operations work, and the different components that enable multi-user frame exchanges
- Review newly defined feedback mechanisms that support MU and improve its performance
- Summarize frame aggregation options available for 802.11ax
- Describe how dynamic fragmentation works
- Consider power saving protocols introduced in 802.11ax
- Summarize enhancements for operation in the 6 GHz band

This course is part of the following course program:

IEEE 802.11ax: An Overview of High-Efficiency Wi-Fi (Wi-Fi 6) (<https://iln.ieee.org/Public/Contentdetails.aspx?id=717B586C845A431B837C8ECAEBBE61CC>)



Courses included in this program:

- IEEE 802.11ax: An Overview of High-Efficiency Wi-Fi (Wi-Fi 6) Physical Layer
(<https://iln.ieee.org/Public/contentdetails.aspx?id=0D2076B372AC491B849C0586BB03DED1>)

Who should attend: All levels of technical engineers, Wireless Engineers, Systems Engineers, Technical Managers/C-Level Executives, Network Engineers, Software Engineers, Research Engineers, Lead Developers, Computer Systems Researchers, Application Architects, Product Development Engineers, Product Developers, Product Managers

Instructors**Dr. Bin Tian**

Bin Tian is a Senior Director of Technology in Wireless R&D at Qualcomm, Inc. He currently leads the Wi-Fi physical layer system team, which is responsible for R&D, prototyping and standardization of Wi-Fi technology and solutions. Since 2012, he has contributed significantly to different generations of IEEE 802.11 standards including 802.11ah (Sub-1GHz), 802.11ax (Wi-Fi 6), 802.11ba (wake-up radio), 802.11be (WiFi7), and more. Before 2012, he led and contributed to many R&D projects in Qualcomm on terrestrial and satellite communication systems. He holds around 300 granted or pending US patents. **Bin Tian** received the Ph.D. degree in Electrical Engineering for Colorado State University and holds M.Sc. and B.Sc. degrees in EE from Tsinghua University, China.



Dr. Alfred Asterjadhi

Alfred Asterjadhi is a Systems Engineer in Wireless R&D at Qualcomm, Inc. His focus is on the design, standardization, and performance evaluation of MAC protocols in wireless systems with a special emphasis on increasing efficiency, scalability and reducing power consumption in wireless networks. He is the Chair of IEEE 802.11be and has served as the Vice Chair of IEEE 802.11ax, and Vice Chair and Technical Editor of IEEE 802.11ah. He has made significant technical contributions to these amendments in both standardization and certification of Wi-Fi interoperability. He has authored and coauthored multiple conference and journal papers in wireless communications, a book in underwater acoustic networking, and is the holder of several patents in wireless communications. Alfred Asterjadhi received the Ph.D. degree in Information Engineering, the B.Sc. and the M.Sc. degrees in Telecommunications Engineering from the University of Padova, Italy.

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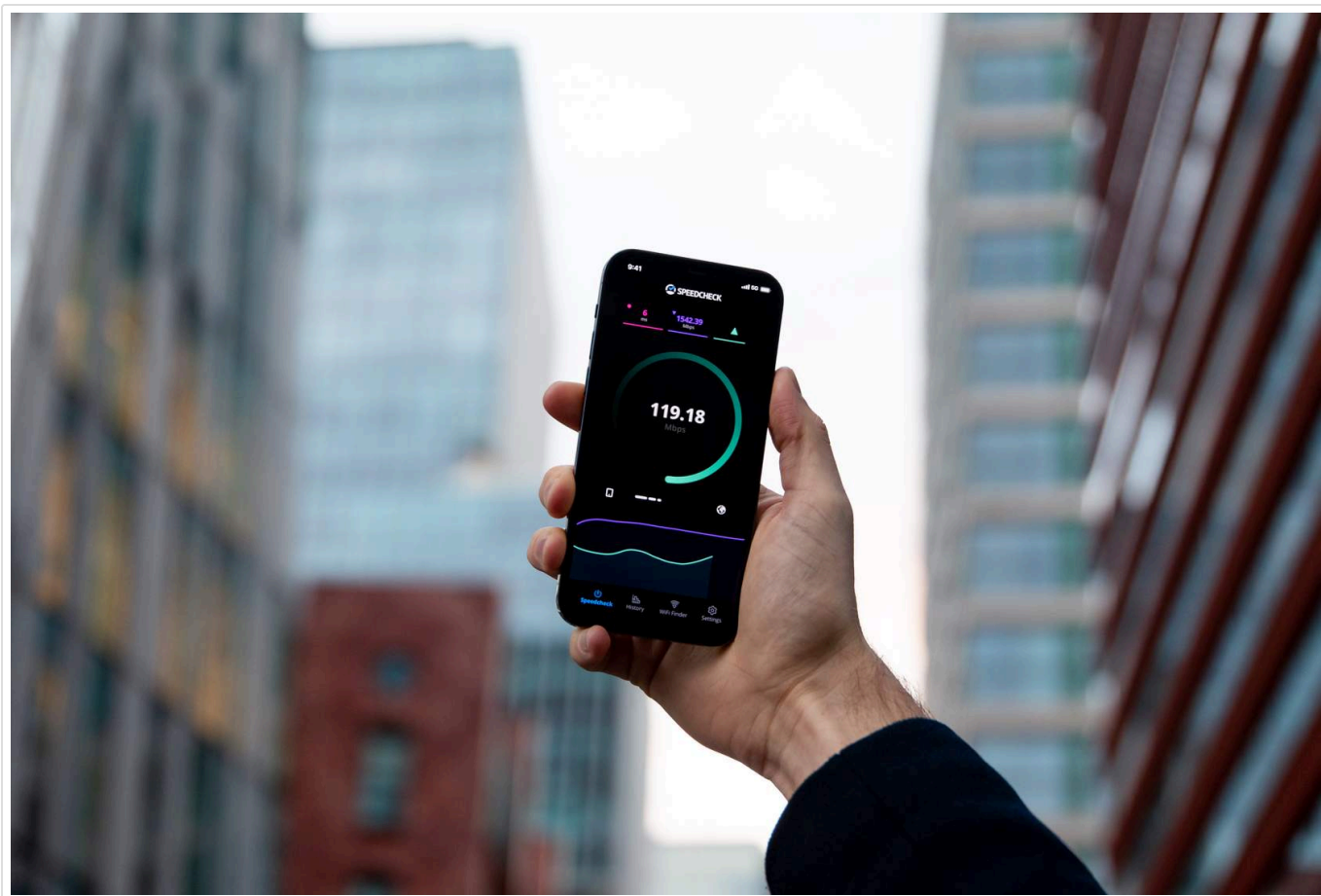
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