

P802.11be

This PAR is valid until 31-Dec-2023.

PAR Extension Request Date:
PAR Extension Approval Date:
Number of Previous Extensions Requested: 0

- 1. Number of years that the extension is being requested:** 2
 - 2. Why an Extension is Required (include actions to complete):** An extension is required to complete Working Group and SA balloting. The P802.11be draft is a major MAC/PHY amendment to the 802.11 standard. The draft has passed initial Working Group Letter Ballot and comment resolution (current ballot has 3300 comments) is ongoing.
 - 3.1. What date did you begin writing the first draft:** 07 Jul 2020
 - 3.2. How many people are actively working on the project:** 200
 - 3.3. How many times a year does the working group meet?**
In person: 6
Via teleconference: 80
 - 3.4. How many times a year is a draft circulated to the working group:** 8
 - 3.5. What percentage of the Draft is stable:** 80%
 - 3.6. How many significant work revisions has the Draft been through:** 15
 - 4. When will/did initial Standards Association Balloting begin:** Dec 2023
- When do you expect to submit the proposed standard to RevCom:** Dec 2024
Has this document already been adopted by another source? (if so please identify) No
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For an extension request, the information on the original PAR below is not open to modification.

Type of Project: Amendment to IEEE Standard 802.11-2020
Project Request Type: Initiation / Amendment
PAR Request Date: 18 Jan 2019
PAR Approval Date: 21 Mar 2019
PAR Expiration Date: 31 Dec 2023
PAR Status: Active
Root Project: 802.11-2020

1.1 Project Number: P802.11be
1.2 Type of Document: Standard
1.3 Life Cycle: Full Use

2.1 Project Title: Standard for Information technology--Telecommunications and information exchange between systems Local and metropolitan area networks--Specific requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications
Amendment: Enhancements for Extremely High Throughput (EHT)

- 3.1 Working Group:** Wireless LAN Working Group(C/LAN/MAN/802.11 WG)
 - 3.1.1 Contact Information for Working Group Chair:**
Name: Dorothy Stanley
Email Address: dstanley1389@gmail.com
 - 3.1.2 Contact Information for Working Group Vice Chair:**
Name: Jon Rosdahl
Email Address: jrosdahl@ieee.org
- 3.2 Society and Committee:** IEEE Computer Society/LAN/MAN Standards Committee(C/LAN/MAN)
 - 3.2.1 Contact Information for Standards Committee Chair:**
Name: Paul Nikolich
Email Address: p.nikolich@ieee.org
 - 3.2.2 Contact Information for Standards Committee Vice Chair:**
Name: James Gilb
Email Address: gilb@ieee.org
 - 3.2.3 Contact Information for Standards Representative:**
Name: James Gilb

4.1 Type of Ballot: Individual

4.2 Expected Date of submission of draft to the IEEE SA for Initial Standards Committee Ballot: Jul 2022

4.3 Projected Completion Date for Submittal to RevCom: Feb 2023

5.1 Approximate number of people expected to be actively involved in the development of this project: 200

5.2.a Scope of the complete standard:The scope of this standard is to define one medium access control (MAC) and several physical layer (PHY) specifications for wireless connectivity for fixed, portable, and moving stations (STAs) within a local area.

5.2.b Scope of the project: This amendment defines standardized modifications to both the IEEE Std 802.11 physical layers (PHY) and the Medium Access Control Layer (MAC) that enable at least one mode of operation capable of supporting a maximum throughput of at least 30 Gbps, as measured at the MAC data service access point (SAP), with carrier frequency operation between 1 and 7.250 GHz while ensuring backward compatibility and coexistence with legacy IEEE Std 802.11 compliant devices operating in the 2.4 GHz, 5 GHz, and 6 GHz bands. This amendment defines at least one mode of operation capable of improved worst case latency and jitter.

5.3 Is the completion of this standard contingent upon the completion of another standard? Yes

Explanation: P802.11ax

5.4 Purpose: The purpose of this standard is to provide wireless connectivity for fixed, portable, and moving stations within a local area. This standard also offers regulatory bodies a means of standardizing access to one or more frequency bands for the purpose of local area communication.

5.5 Need for the Project: Wireless LAN (WLAN) continues its growth and is more and more important for providing wireless data services in many environments such as home, enterprise and hotspots.

In particular video traffic will continue to be the dominant type of traffic in many WLAN deployments. The throughput requirements of these applications are in constant evolution due to the emergence of 4k and 8k video (uncompressed rate of 20 Gbps). New high-throughput, low latency applications will proliferate such as virtual reality or augmented reality, gaming, remote office and cloud computing (e.g., latency lower than 5 ms for realtime gaming).

With the high throughput and stringent real-time delay requirements of these applications, users expect enhanced throughput, enhanced reliability, reduced latency and jitter, and improved power efficiency in supporting their applications over WLAN.

Users expect improved integration with Time Sensitive Networks (TSN) to support applications over heterogeneous Ethernet and Wireless LANs. This amendment aims to build on the current and emerging WLAN technologies by providing further improvement of aggregate throughput and latency to ensure competitiveness of IEEE Std 802.11 in coming years.

5.6 Stakeholders for the Standard: Manufacturers and users of semiconductors, personal computers, enterprise networking devices, consumer electronic devices, home networking equipment, mobile devices, and cellular operators.

6.1 Intellectual Property

6.1.1 Is the Standards Committee aware of any copyright permissions needed for this project?

No

6.1.2 Is the Standards Committee aware of possible registration activity related to this project?

No

7.1 Are there other standards or projects with a similar scope? No

7.2 Is it the intent to develop this document jointly with another organization? No

8.1 Additional Explanatory Notes: Item 5.2b:

The focus of this amendment is on WLAN indoor and outdoor operation with stationary and pedestrian speeds in the 2.4, 5 and 6 GHz frequency bands.

The main candidate features that have been discussed are:

- 320 MHz bandwidth and more efficient utilization of non-contiguous spectrum,
- Multi-band/multi-channel aggregation and operation,
- 16 spatial streams and Multiple Input Multiple Output (MIMO) protocols enhancements,
- Multi-Access Point (AP) Coordination (e.g. coordinated and joint transmission),
- Enhanced link adaptation and retransmission protocol (e.g. Hybrid Automatic Repeat Request (HARQ)),
- If needed, adaptation to regulatory rules specific to 6 GHz spectrum.

Item 5.3:

P802.11ax amendment: Standard for Information technology--Telecommunications and information exchange between systems Local and metropolitan area networks--Specific requirements Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications-- Amendment: Enhancements for High Efficiency Wireless LAN