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STANDARDS

IEEE 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 4: Enhancements for Wireless LAN Sensing

IEEE Computer Society

Developed by the
LAN/MAN Standards Committee

IEEE Std 802.11bf™-2025
(Amendment to IEEE Std 802.11™-2024
as amended by IEEE Std 802.11bh™-2024,
IEEE Std 802.11be™-2024, and
IEEE Std 802.11bk™-2025)

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IEEE Std 802.11bf™-2025
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Approved 28 May 2025

IEEE SA Standards Board

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Abstract: This amendment defines modifications to the IEEE 802.11 medium access control (MAC); the physical layer (PHY) service interface of High Efficiency (HE) and Extremely High Throughput (EHT) PHYs; and to the Directional Multi Gigabit (DMG) and enhanced DMG (EDMG) PHYs to enhance Wireless Local Area Network (LAN) sensing operation in license-exempt frequency bands between 1 GHz and 7.125 GHz and above 45 GHz.

Keywords: amendment, IEEE 802.11, IEEE 802.11bf, MAC, medium access control, PHY, physical layer, Wireless LAN sensing, wireless local area network, WLAN

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Introduction

This introduction is not part of IEEE Std 802.11bf-2025, IEEE 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 4: Enhancements for Wireless LAN Sensing.

This amendment defines modifications to the IEEE 802.11 medium access control (MAC); the physical layer (PHY) service interface of High Efficiency (HE) and Extremely High Throughput (EHT) PHYs; and to the Directional Multi Gigabit (DMG) and enhanced DMG (EDMG) PHYs to enhance Wireless Local Area Network (LAN) sensing operation in license-exempt frequency bands between 1 GHz and 7.125 GHz and above 45 GHz.

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IEEE 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 4: Enhancements for Wireless LAN Sensing

NOTE—The editing instructions contained in this amendment define how to merge the material contained herein into the existing base standard and its amendments to form the comprehensive standard.

The editing instructions are shown in ***bold italic***. Four editing instructions are used: change, delete, insert, and replace. ***Change*** is used to make corrections in existing text or tables. The editing instruction specifies the location of the change and describes what is being changed by using ~~strikethrough~~ (to remove old material) and underscore (to add new material). ***Delete*** removes existing material. ***Insert*** adds new material without disturbing the existing material. Insertions may require renumbering. If so, renumbering instructions are given in the editing instruction. ***Replace*** is used to make changes in figures or equations by removing the existing figure or equation and replacing it with a new one. Editorial instructions, change markings and this NOTE will not be carried over into future editions of the base standard because the changes will be incorporated into the base standard.

3. Definitions, acronyms, and abbreviations

3.2 Definitions specific to IEEE Std 802.11

Insert the following definitions (maintaining alphabetical order):

directional multi-gigabit (DMG) sensing: [DMG sensing] The use of physical layer (PHY) and medium access control (MAC) features of DMG stations (STAs) to obtain measurements that might be useful to estimate features such as range, velocity, and motion of objects in an area of interest.

directional multi-gigabit (DMG) sensing procedure: [DMG sensing procedure] A procedure that allows a DMG station (STA) to perform DMG sensing.

sensing: The use of physical layer (PHY) and medium access control (MAC) features of high-efficiency (HE) stations (STAs) or extremely high throughput (EHT) STAs to obtain measurements that might be useful to estimate features such as range, velocity, and motion of objects in an area of interest.

sensing by proxy (SBP) initiator: [SBP initiator] A non-access point (non-AP) high-efficiency (HE) station (STA) or non-AP extremely high throughput (EHT) STA that transmits an SBP Request frame, or a

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