IEEE P802.11
Wireless LANs

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| 802.11 SENS SG Proposed PAR |
| Date: 2020-03-02 |
| Author(s): |
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Abstract

This submission includes the IEEE 802.11 WLAN Sensing (SENS) Study Group proposed PAR.

**P802.11**

**Submitter Email:**

**Type of Project:** Amendment to IEEE Standard 802.11-2016

**PAR Request Date:**

**PAR Approval Date:**

**PAR Expiration Date:**

**Status:** Unapproved PAR, PAR for an amendment to an existing IEEE Standard

**1.1 Project Number:** P802.11bf

**1.2 Type of Document:** Standard

**1.3 Life Cycle:** Full Use

**2.1 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 Wireless Local Area Network (WLAN) Sensing

**3.1 Working Group:** Wireless LAN Working Group (C/LM/WG802.11)

**Contact Information for Working Group Chair**

**Name:** Dorothy Stanley

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**3.2 Sponsoring Society and Committee:** IEEE Computer Society/LAN/MAN Standards Committee (C/LM)

**Contact Information for Sponsor Chair**

**Name:** Paul Nikolich

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**Contact Information for Standards Representative**

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**4.1 Type of Ballot:** Individual

**4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot:** September 2023

**4.3 Projected Completion Date for Submittal to RevCom**

**Note: Usual minimum time between initial sponsor ballot and submission to Revcom is 6 months.:** September 2024

**5.1 Approximate number of people expected to be actively involved in the development of this project:** 60

**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 modifications to the IEEE 802.11 medium access control layer (MAC) and to the Directional Multi Gigabit (DMG) and Next Generation 60 GHz (NG60) PHYs to enhance Wireless Local Area Network (WLAN) sensing (SENS) operation in license-exempt frequency bands between 1 GHz and 7.125 GHz and above 45 GHz. This amendment enables:

* STAs to perform one or more of the following: to exchange WLAN sensing capabilities, to request and setup transmissions that allow for WLAN sensing measurements to be performed, to indicate that a transmission can be used for WLAN sensing, and to exchange WLAN sensing feedback and information,
* WLAN sensing operation that relies on transmissions that are requested, unsolicited, or both, and
* An interface for applications above the MAC to request and obtain WLAN sensing information.

This amendment defines modifications to the PHY service interface of the High Throughput (HT), Very High Throughput (VHT), High Efficiency WLAN (HEW) and Extremely High Throughput (EHT) PHYs.

This amendment provides backward compatibility and coexistence with legacy IEEE 802.11 devices operating in the same band.

**5.3 Is the completion of this standard dependent upon the completion of another standard:** Yes

**If yes please explain:** The IEEE P802.11ax, IEEE P802.11ay, IEEE P802.11az and IEEE P802.11be amendments and the IEEE P802.11md revision standard are currently under development.

**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:**

Technology enhancements to address the unique characteristics of WLAN sensing are needed to enable improved WLAN sensing capabilities, spur further innovation, and provide a technology development roadmap to the industry. WLAN sensing is the use of 802.11 technology to enable applications including presence and proximity detection, gesture recognition, wellness monitoring, localization, and smart home in residential, enterprise, indoor and outdoor scenarios.

**5.6 Stakeholders for the Standard:** Manufacturers and users of semiconductors, personal computers, enterprise networking devices, consumer electronic devices, home networking equipment, mobile devices, wireless sensing equipment (including for behavior recognition, vehicular, smart home, and security applications), and test and measurement equipment providers.

**Intellectual Property**

**6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?:** No

**6.1.b. Is the Sponsor 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 Joint Development**

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

**8.1 Additional Explanatory Notes:**

5.2.b: The capabilities introduced in this amendment will be evaluated in a set of deployment scenarios, including residential, enterprise, indoor, and outdoor, which are applicable to the main expected applications.

5.3:

* IEEE Std 802.11-2016, Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications
* IEEE P802.11-REVmd/D3.1, Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications
* IEEE P802.11ax/D6.0, Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications - Amendment 1: Enhancements for High Efficiency WLAN
* IEEE P802.11ay/D5.0, Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications - Amendment 2: Enhanced throughput for operation in license-exempt bands above 45 GHz
* IEEE P802.11az/D2.0, Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications - Amendment 3: Enhancements for positioning