IEEE P802.11  
Wireless LANs

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| IEEE 802.11 WLAN sensing SG Proposed PAR | | | | |
| Date: 2019-11-18 | | | | |
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Abstract

This submission includes the IEEE 802.11 WLAN sensing (SENS) Study Group (SG) Project Authorization Request (PAR).

# PAR

**P802.11**

**Submitter Email:** Tony.hanxiao@huawei.com  
**Type of Project:** Amendment to IEEE Standard 802.11  
**PAR Request Date:** TBD  
**PAR Approval Date:** TBD **PAR Expiration Date:** TBD **Status:** Unapproved PAR, PAR for an amendment to an existing IEEE Standard

**1.1 Project Number:** P802.11b?  
**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: Enhancement for sensing

**3.1 Working Group:** Wireless LAN Working Group (C/LM/WG802.11)   
**Contact Information for Working Group Chair**

**Name: Dorothy Stanley**  
**Email Address:** dstanley1389@gmail.com   
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**Contact Information for Working Group Vice-Chair Name:** Jon Rosdahl  
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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  
**Email Address:** p.nikolich@ieee.org   
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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:**XX, 202X  
**4.3 Projected Completion Date for Submittal to RevCom:**XX, 202X

**5.1 Approximate number of people expected to be actively involved in the development of this project:** 100

**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 Medium Access Control Layer (MAC) that enable the use, by a WLAN sensing capable station(s) (STA(s)), of received Wireless Local Area Network (WLAN) signals to detect feature(s) (e.g., motion, presence or proximity, gesture, people counting, geometry, velocity, etc) of an target(s) in a given environment (e.g., room, house, car, enterprise, etc).

This amendment defines operations in frequency bands between 1 GHz and 7.250 GHz, and in frequency bands between 57 GHz and 71 GHz. The new amendment shall enable 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:** No.

**5.4 Purpose:**

The purpose of this amendment is to provide sensing capability for fixed, portable, and moving stations within a local area.

**5.5 Need for the Project:**

WLAN sensing is a new technology which enables motion detection, gesture recognition as well as biometric measurement by using WLAN signals. This technology has many use case and applications such as in smart city/home, home security, health care, building automation, among many others. WLAN sensing creates a bridge for Wi-Fi service providers to enter these markets and provide many new opportunities.

As mentioned, WLAN sensing technology and its applications are relatively new and currently there are no standards that are specific to this technology. This amendment defines standardized modifications to both the IEEE Std. 802.11 physical layers (PHY) and Medium Access Control Layer (MAC) that not only enhanced the sensing capability and performance of the technology but also lead to the ease of deployment. While there are applications that can easily operate using existing standards, there could also be opportunities for new capabilities to be incoperated into the WLAN standards. Thus, standards support would allow for more efficient handling of existing use cases and applications and also enable new use cases that were previously not possible.

**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.

**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 (Item Number and Explanation)**

**References:**