IEEE P802.11  
Wireless LANs

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| 802.11 WUR SG Proposed PAR | | | | |
| Date: 2015-07-25 | | | | |
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Abstract

This submission includes the IEEE 802.11 Wake-up Radio (WUR) Study Group PAR.

# PAR

**P802.11**

**Submitter Email:** minyoung.park@intel.com  
**Type of Project:** Amendment to IEEE Standard 802.11  
**PAR Request Date:** November 2016   
**PAR Approval Date:** November 2016 **PAR Expiration Date:** November 2020 **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: Low-power wake-up receiver operation

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

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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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**4.1 Type of Ballot:** Individual  
**4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot:**November 2019   
**4.3 Projected Completion Date for Submittal to RevCom:**July 2020

**5.1 Approximate number of people expected to be actively involved in the development of this project:** 40.

**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 both the IEEE 802.11 physical layers (PHY) and medium access control layer (MAC) that enables a mode of operation capable of transmitting and receiving a wake-up packet that wakes up an 802.11 radio for reception of a user data packet, supporting at least X (e.g. 50) times improvement in the average power consumption with less than Y (e.g. 100) milliseconds in the latency of a user data packet reception with respect to the existing IEEE 802.11 power save modes.

This amendment defines operations for license-exempt bands below 6 GHz. These modifications shall enable coexistence with other 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 enable low power consumption and low latency for user data reception for fixed, portable, and mobile stations.

**5.5 Need for the Project:** Devices based on the power save modes of the IEEE 802.11 standard periodically wake up from a sleep state to receive information from an access point (AP) to know whether there are data to receive from the AP. The longer the devices stay in the sleep state, the lower the devices consume power but at the expense of increased latency of data reception. As Internet-of-Things (IOT) and wearable market grow, the IEEE 802.11 devices are required to support applications that require low power consumption with low latency for better user experience. Therefore, there is a need to substantially enhance power consumption of IEEE 802.11 devices while maintaining low latency.

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

**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):**