

P802.11ba

Submitter Email: adrian.p.stephens@ieee.org

Type of Project: Amendment to IEEE Standard 802.11-2012

PAR Request Date: 19-Sep-2016

PAR Approval Date: 07-Dec-2016

PAR Expiration Date: 31-Dec-2020

Status: PAR for an Amendment to an existing IEEE Standard

Root Project: 802.11-2012

1.1 Project Number: P802.11ba

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: Wake-up radio operation

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

Contact Information for Working Group Chair

Name: Adrian Stephens

Email Address: adrian.p.stephens@ieee.org

Phone: +44 1954 204610

Contact Information for Working Group Vice-Chair

Name: Jon Rosdahl

Email Address: jrosdahl@ieee.org

Phone: 801-492-4023

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

Phone: 8572050050

Contact Information for Standards Representative

Name: James Gilb

Email Address: gilb@ieee.org

Phone: 858-229-4822

4.1 Type of Ballot: Individual

4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 11/2019

4.3 Projected Completion Date for Submittal to RevCom

Note: Usual minimum time between initial sponsor ballot and submission to Revcom is 6 months.: 05/2020

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 a physical (PHY) layer specification and defines modifications to the medium access control (MAC) layer specification that enables operation of a wake-up radio (WUR). The wake-up frames carry only control information. The reception of the wake-up frame by the WUR can trigger a transition of the primary connectivity radio out of sleep. The WUR is a companion radio to the primary connectivity radio and meets the same range requirement as the primary connectivity radio. The WUR devices coexist with legacy IEEE 802.11 devices in the same band. The WUR has an expected active receiver power consumption of less than one milliwatt.

5.3 Is the completion of this standard dependent upon the completion of another standard: No

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: Low power devices manifest themselves in a number of applications and Internet-of-Things (IOT) usage cases. These use cases include healthcare, smart home, industrial sensors, wearables, etc. Devices used in these applications are usually powered by a battery. Prolonging the battery lifetime while in some use cases also maintaining low latency becomes an imperative requirement. A typical OFDM active receiver consumes tens to hundreds of milliwatts. To further reduce power consumption, devices use power save modes. Devices based on the IEEE 802.11 power save modes periodically wake up from a sleep state to receive information from an access point (AP) and to know whether there are data to receive from the AP. The longer the devices stay in the sleep state, the lower power the devices consume but at the expense of increased latency of data reception. Power efficient mechanisms need to be used with battery-operated devices while maintaining low latency where it is required.

5.6 Stakeholders for the Standard: Manufacturers and users of semiconductors, personal computers, enterprise networking devices, consumer electronic devices, home networking equipment, producers of industrial sensors, 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: