

P802.16s

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Type of Project: Amendment to IEEE Standard 802.16-2012

PAR Request Date: 29-Mar-2016

PAR Approval Date: 30-Jun-2016

PAR Expiration Date: 31-Dec-2020

Status: PAR for an Amendment to an existing IEEE Standard

Root Project: 802.16-2012

1.1 Project Number: P802.16s

1.2 Type of Document: Standard

1.3 Life Cycle: Full Use

2.1 Title: Standard for Air Interface for Broadband Wireless Access Systems Amendment: Fixed and Mobile Wireless Access in Channel Bandwidth up to 1.25 MHz

3.1 Working Group: Broadband Wireless Access Working Group (C/LM/WG802.16)

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)

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3.3 Joint Sponsor: IEEE Microwave Theory and Techniques Society/Standards Coordinating Committee (MTT/SCC)

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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: 03/2017

4.3 Projected Completion Date for Submittal to RevCom

Note: Usual minimum time between initial sponsor ballot and submission to Revcom is 6 months.: 10/2017

5.1 Approximate number of people expected to be actively involved in the development of this project: 15

5.2.a. Scope of the complete standard: This standard specifies the air interface, including the medium access control layer (MAC) and physical layer (PHY), of combined fixed and mobile point-to-multipoint broadband wireless access (BWA) systems providing multiple services. The MAC is structured to support the WirelessMAN-SC, WirelessMAN-OFDM, and WirelessMAN-OFDMA PHY specifications, each suited to a particular operational environment.

5.2.b. Scope of the project: This project specifies WirelessMAN-OFDMA TDD operation in exclusively-licensed spectrum with channel bandwidth from 100 kHz up to 1.25 MHz, including 1 MHz explicitly. The amendment will target operation in the 700 MHz band but will also support operation in other VHF/UHF bands. The project amends Clause 12 of IEEE Std 802.16, adding a new system profile and amending other clauses as required to support the narrower channel widths. The range and data rate supported by the added profile are commensurate with those of the base standard, as scaled by the reduced channel bandwidth.

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

If yes please explain: IEEE Std 802.16-201x

5.4 Purpose: This document will not include a purpose clause.

Changes in purpose: This standard enables rapid worldwide deployment of innovative, cost-effective, and interoperable multivendor broadband wireless access products, facilitates competition in broadband access by providing alternatives to wireline broadband access, encourages consistent worldwide spectrum allocation, and accelerates the commercialization of broadband wireless access systems.

5.5 Need for the Project: Mission critical entities have a strong preference for private, licensed networks in VHF/UHF frequencies for their data communications needs. VHF/UHF licensed channels narrower than 1.25 MHz are readily available in the secondary markets at a lower cost than commercial wideband channels. Example operating frequencies include 217 MHz, 700 MHz, 900 MHz, and 1.4 GHz. The base standard, and thus this amendment, is not limited to specific operating frequencies. Furthermore, VHF/UHF channels have superior propagation characteristics requiring less infrastructure and are capable of meeting capacity needs of private networks. The amendment facilitates the development of innovative, cost-effective, and interoperable multivendor products for private licensed wireless access systems for mission critical networks. Applications include smart grids supporting generation, transmission, and distribution; field area networks; electric and gas utilities; smart fields and smart pipes for oil, gas and hazardous materials transport; intelligent transportation for rail and highway systems; and federal, state and local uses for homeland security and environmental and seismic monitoring.

5.6 Stakeholders for the Standard: Stakeholders include users and customers in multiple markets, including electric and natural gas utilities, oil and gas companies, transportation including commercial and public rail, and public sector entities including federal state and local governments. Stakeholders also include spectrum license holders and equipment manufacturers with an interest in standardized products to achieve economies of scale.

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?: Yes

If Yes please explain: Narrowband IoT LTE is a proposed standard of LTE to be included in 3GPP Release 13. Its targets are very low data rate, very low power consumption and low cost. It is proposed to use 180 kHz channel bandwidth, with OFDMA downlink and FDMA or GMSK uplink, and to support a massive number of low-power, low-throughput devices. In comparison, IEEE 802.16s is proposed for higher-power, high reliability, secure, and critical communications requiring higher data rates. The objectives are very different. In addition, LTE infrastructure carries a cost and complexity overhead based on its primary application in commercial cellular networks.

and answer the following

Sponsor Organization: 3GPP

Project/Standard Number: Unknown

Project/Standard Date:

Project/Standard Title: Narrowband IoT LTE

7.2 Joint Development

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

8.1 Additional Explanatory Notes: 3.3 In accordance with §5.1.2.2 of the IEEE-SA Standards Board Operations Manual, the co-sponsor of the base standard has provided a statement of concurrence <<https://mentor.ieee.org/802.16/dcn/16/16-16-0014-00.pdf>> with the PAR.

5.2.a In the names of the WirelessMAN PHY alternatives, OFDM is used to signify Orthogonal Frequency-Division Multiplexing, OFDMA is used to signify Orthogonal Frequency-Division Multiple Access, and SC is used to signify Single Carrier.

5.2.b TDD is an abbreviation for Time Division Duplex.

5.4 The term "private wireless access" is used to describe wireless access systems in which the spectrum, infrastructure, and terminal devices are all privately owned by a business or entity for purposes other than offering the wireless access as a commercial product

7.1 Other standards and projects, including the one in 7.1, and others, such as IEEE 802.20, exhibit surface similarities to this focused amendment project, but are technically quite different.

7.1 The following abbreviations are used - 3GPP: 3rd Generation Partnership Project; LTE: Long Term Evolution; FDMA: Frequency Division Multiple Access; GMSK: Gaussian Minimum Shift Keying; OFDMA: Orthogonal Frequency-Division Multiple Access; IoT: Internet of Things.

7.2 The co-sponsorship specified under "3.3 Joint Sponsor" is not a Joint Development activity. Instead, it reflects the ongoing co-sponsorship of IEEE Std 802.16 per the IEEE-SA Standards Board Operations Manual, 5.1.2.2 ("Co-sponsored projects").