P802.16t

Submitter Email: tim.godfrey@ieee.org
Type of Project: Amendment to IEEE Standard 802.16-2017
PAR Request Date: 06-Oct-2019
PAR Approval Date:
PAR Expiration Date:
Status: Unapproved PAR, PAR for an Amendment to an existing IEEE Standard

1.1 Project Number: P802.16t
1.2 Type of Document: Standard
1.3 Life Cycle: Full Use

2.1 Title: Standard for Air Interface for Broadband Wireless Access Systems
Fixed and Mobile Wireless Access in Channel Bandwidth up to 100 kHz

3.1 Working Group: Broadband Wireless Access Working Group (C/LM/WG802.16)
Contact Information for Working Group Chair
  Name: Roger Marks
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Contact Information for Working Group Vice-Chair
  Name: Harry Bims
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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: 11/2021
4.3 Projected Completion Date for Submittal to RevCom
Note: Usual minimum time between initial sponsor ballot and submission to Revcom is 6 months.: 05/2022

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, WirelessMANOFDM, and WirelessMAN-OFDMA PHY specifications, each suited to a particular operational environment.

5.2.b. Scope of the project: This project specifies WirelessMAN Time Division Duplexing (TDD) operation in licensed spectrum with channel bandwidths greater than or equal to 5 kHz and less than 1.25 MHz. The amendment is frequency agnostic but focuses on spectrum less than 2 GHz. The project introduces amendments to the IEEE Std 802.16 as required to support narrower channel widths and other functionality as needed to support operation in adjacent and non-adjacent Private Land Mobile Radio (PLMR) channels. The range and data rate supported by the narrower channels are commensurate with those of the base standard, as scaled by the reduced channel bandwidth. The project adds a modified air interface protocol at the PHY and MAC layers.

5.3 Is the completion of this standard dependent upon the completion of another standard: No
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: This project specifies WirelessMAN Time Division Duplexing (TDD) operation in licensed spectrum with channel bandwidths greater than or equal to 5 kHz and less than 1.25 MHz. The amendment is frequency agnostic but focuses on spectrum less than 2 GHz. The project introduces amendments to the IEEE Std 802.16 as required to support narrower channel widths and other functionality as needed to support operation in adjacent and non-adjacent Private Land Mobile Radio (PLMR) channels. The range and data rate supported by the narrower channels are commensurate with those of the base standard, as scaled by the reduced channel bandwidth. The project adds a modified air interface protocol at the PHY and MAC layers.

5.6 Stakeholders for the Standard: Stakeholders include users and customers in multiple markets, including electric, water, 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, equipment and chipset 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

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7.1 Are there other standards or projects with a similar scope?: Yes
If Yes please explain: Narrowband Internet of Things (IoT) is a standard of LTE included in 3GPP Release 13. NB-IoT is designed to operate in 180 KHz wide blocks of spectrum. As such, NB-IoT cannot operate when the continuous spectrum is less 180 KHz, e.g., a single PLMR channel, in multiple adjacent PLMR channels of less than 180 KHz or in non-adjacent PLMR channels. NB-IoT is limited to a standard list of frequencies and is not designed to meet FCC requirements that are applicable for PLMR frequencies. A NB-IoT sector is limited to the throughput associated with a 180 KHz channel and Quadrature Phase Shift Keying (QPSK) modulation which does not allow for high throughput applications. In NB-IoT, the remotes receive the entire sector channel and therefore are subject to in-band interference in a non-adjacent channel scenario. NB-IoT does not support vacating a PLMR channel upon detection of voice activity within the channel.

and answer the following
   Sponsor Organization: 3GPP
   Project/Standard Number: Release 13
   Project/Standard Date: 06-Jan-2016
   Project/Standard Title: LTE Advanced Pro
7.2 Joint Development
   Is it the intent to develop this document jointly with another organization?: No

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8.1 Additional Explanatory Notes: 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. The term "spectrum harvesting" refers to using non-adjacent channels combined to act as a single, larger channel.
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.