

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >
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Re:	Call for initial input regarding P802.16m project, 12/26/06
Abstract	This document combines the various input submitted to TGM including contributions IEEE 802.16m-07/001r1, IEEE 802.16m-07/003, IEEE 802.16m-07/004r1, IEEE 802.16m-07/005, IEEE 802.16m-07/007 and IEEE 802.16m-07/008. Based on these contributions, an overall outline has been defined and respective requirements have been incorporated as bracketed text. Where there was consensus, harmonized text was drafted for approval to replace the bracket text. In other cases, the requirements were in clear conflict and the bracketed text was left in. Given the time constraints, not all topics were addressed and therefore some remaining bracketed text may still be harmonized by the working group.
Purpose	Discussed and Agreed by TGM as Initial draft to be used as a reference for Call for Contributions
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publication will be approved for publication. Please notify the Chair <<mailto:chair@wirelessman.org>> as early as possible, in written or electronic form, if patented technology (or technology under patent application) might be incorporated into a draft standard being developed within the IEEE 802.16 Working Group. The Chair will disclose this notification via the IEEE 802.16 web site <<http://ieee802.org/16/ipr/patents/notices>>.

Contents

1.0	Overview.....	4
2.0	References.....	4
3.0	Definitions.....	4
4.0	Abbreviations and Acronyms	4
5.0	General Requirements.....	4
5.1	Legacy Support.....	4
5.2	Complexity.....	5
5.3	Services.....	5
6.0	Functional Requirements	5
6.1	Peak Data Rate.....	5
6.2	Latency.....	5
6.3	QoS	5
6.4	Radio Resource Management	6
6.5	Security	6
7.0	Performance requirements	6
7.1	User throughput	6
7.2	Spectrum efficiency	6
7.3	Mobility.....	6
7.4	Coverage	7
7.5	Enhanced Multicast-Broadcast	7
8.0	Deployment-related requirements.....	7
8.1	Legacy Support.....	7
8.2	Spectrum Requirements	7
8.3	System Architecture.....	7
8.4	System Migration.....	8
9.0	Usage Models.....	8

1.0 Overview

IEEE 802.16m provides an advanced air interface to meet the requirements of next generation mobile networks. This standard is intended for incorporation into the IMT-Advanced standardization activity being conducted by International Telecommunications Union – Radio Communications Sector (ITU-R). The amendment is based on the WirelessMAN-OFDMA specification and provides continuing support for legacy subscriber stations.

The purpose of this standard is to update the WirelessMAN-OFDMA air interface in accordance with the requirements defined for the internationally agreed radio interface standards for next generation mobile networks such as IMT-Advanced.

This document captures the high-level requirements for IEEE 802.16m as envisioned by the working group.

2.0 References

- [1] WiMAX Forum™ Mobile System Profile, Release 1.0 Approved Specification (Revision 1.2.2: 2006-11-17) (see <http://www.wimaxforum.org/technology/documents>).
- [2] IEEE Std 802.16-2004: IEEE Standard for Local and metropolitan area networks Part 16: Air Interface for Fixed Broadband Wireless Access Systems, June 2004
- [3] IEEE Std 802.16e-2005: IEEE Standard for Local and metropolitan area networks Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems Amendment for Physical and Medium Access Control Layers for Combined Fixed and Mobile Operation in Licensed Bands, December 2005.
- [4] Recommendation ITU-R M.1645: Framework and overall objectives of the future development of IMT-2000 and systems beyond IMT-2000, January 2003

3.0 Definitions

[Editorial additions]

4.0 Abbreviations and Acronyms

[Editorial additions]

[CALEA Communications Assistance for Law Enforcement Act of 1994]

5.0 General Requirements

5.1 Legacy Support

IEEE 802.16m is based on the IEEE Standard 802.16 WirelessMAN-OFDMA specification.

The amendment provides continuing support for legacy subscriber stations. This continuing support shall be limited to only a “harmonized sub-set” of IEEE 802.16e OFDMA features. This harmonized sub-set is captured by the WiMAX Forum™ definition of OFDMA mobile system profiles [1]. These

WiMAX mobile system profile is defined, for purposes of this document as the 802.16e reference system.

A legacy 16e terminal, compliant with the 802.16e reference system, shall be able to operate with a new 16m BS with no degradation of performance.

A new 16m terminal shall be able to operate with a 16e BS, compliant with the 802.16e reference system, at a level of performance that is no worse than the 16e terminal.

5.2 Complexity

PHY/MAC should enable a variety of hardware platforms with different performance/complexity requirements.

5.3 Services

IEEE 802.16m architecture shall be flexible in order to support required services from ITU-R.

IMT-Advanced QoS requirements shall be supported including end-to-end latency, throughput, and error performance.

IEEE 802.16m system shall provide powerful and efficient security mechanism to protect the network, system, and user.

6.0 Functional Requirements

6.1 Peak Data Rate

State of the art modulation, coding, scheduling and multiplexing should be employed to achieve higher spectral efficiency at a reasonable complexity

Additional transmit and receive antennas may be considered but should not be required of subscriber devices. Size and power considerations continue to dictate that no more than two transmit and receive antennas be required of hand-held devices.

[The 802.16 m TG should include enhancements to the 802.16 MIMO and AAS modes within the scope of the project for the explicit purpose of increasing the capacity, aggregate link rates and spectral efficiency]

[Peak useful data rates up to 100 Mbit/sec for mobiles users]

[Peak useful data rates up to 1 Gb/s for stationary users]

[Interference Management/Avoidance]

6.2 Latency

Latency should be further reduced as compared to the IEEE 802.16e reference system for all aspects of the system including the air link, state transition delay, access delay, and handover.

6.3 QoS

Relative to IMT-2000 systems, the 16m amendment shall

- have a greater ability to simultaneously support a wide range of multimedia services,

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