

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >
Title	Recommended IEEE 802.16m Requirements Text for Section 8.0
Date Submitted	2007-02-23
Source(s)	<p>Mark Cudak mark.cudak@motorola.com Kevin Baum Marc De Courville Scott Migaldi Motorola – CTO Office Ken Stewart Floyd Simpson Jeff Zhuang Motorola – Mobile Devices Amitava Ghosh Stavros Tzavidas Fan Wang Hua Xu Motorola – Networks & Enterprise</p>
Re:	Response to call for contributions on requirements for P802.16m – Advanced Air Interface
Abstract	This document proposes text for Section 8.0
Purpose	For consideration of 802.16 TGm Requirements drafting group
Notice	This document has been prepared to assist IEEE 802.16. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.
Release	The contributor grants a free, irrevocable license to the IEEE to incorporate material contained in this contribution, and any modifications thereof, in the creation of an IEEE Standards publication; to copyright in the IEEE's name any IEEE Standards publication even though it may include portions of this contribution; and at the IEEE's sole discretion to permit others to reproduce in whole or in part the resulting IEEE Standards publication. The contributor also acknowledges and accepts that this contribution may be made public by IEEE 802.16.
Patent Policy and Procedures	The contributor is familiar with the IEEE 802.16 Patent Policy and Procedures < http://ieee802.org/16/ipr/patents/policy.html >, including the statement "IEEE standards may include the known use of patent(s), including patent applications, provided the IEEE receives assurance from the patent holder or applicant with respect to patents essential for compliance with both mandatory and optional portions of the standard." Early disclosure to the Working Group of patent information that might be relevant to the standard is essential to reduce the possibility for delays in the development process and increase the likelihood that the draft 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

8.0 Deployment-related requirements.....	3
8.1 Spectrum Requirements.....	3
8.2 System Architecture.....	3
8.3 System Migration.....	3

8.0 Deployment-related requirements

8.1 Spectrum Requirements

Base stations and terminals supporting the 802.16m amendment shall conform to the following requirements:

1. be optimised to support contiguous spectrum allocations
2. be suitable for deployment both in spectrum already identified for IMT radio access technologies (RATs), and for any additional spectrum identified for IMT RATs by ITU (e.g. at WRC 2007)
3. support both unpaired and paired frequency allocations, with fixed duplexing frequency separations when operation in full duplex modes
4. when operating in band, bandwidth and duplexing mode combinations specified by the reference 802.16e system, shall be optimised for radio frequency coexistence with that system
5. be designed to coexist with other IMT radio access technologies likely to be deployed, or already deployed, in spectrum accessible to 802.16m devices

8.2 System Architecture

Modern standards are global in scope and aim at serving a variety of market environments, each with its own set of individual requirements, characteristics and limitations. The requirements imposed by different markets, often result in a variety of deployment situations, such as:

- Small-scale to large-scale (sparse to dense radio coverage and capacity)
- Urban, suburban and rural deployments
- Hierarchical, flat, or mesh network topologies, and their variants
- Co-existence of fixed, nomadic, portable and mobile usage models

In order to allow the greatest flexibility to accommodate such a broad range of deployments, specific requirements on the network architecture imposed by PHY/MAC shall be minimized.

The IEEE 802.16m amendment shall support native multi-hop topologies.

IEEE 802.16m system shall support different cell sizes which are expected for cellular layer system. IEEE 802.16m amendment must support legacy cell sizes allowing for co-location of 16m deployments. In addition, larger cell sizes will also be considered. 30 km cells should be supported with limited degradation. 100 km cells should not be precluded from the standard. Support for these larger cell sizes should **not** compromise the performance of smaller cells

8.3 System Migration

The IEEE 802.16m amendment shall provide for a smooth migration from legacy IEEE 802.16e systems to IEEE 802.16m deployments. To achieve this goal, the following requirements are applicable:

IEEE 802.16m and IEEE 802.16e mobiles shall be able to coexist on the same RF carrier.

All IEEE 802.16m enhancements shall be transparent to a legacy IEEE 802.16e terminal.

IEEE 802.16m cell sites shall be able to operate in a 16m mode while adjacent to legacy IEEE 802.16e cell sites.

IEEE 802.16m cell sites shall not cause significant degradation to the performance of the adjacent IEEE 802.16e cell.

Handoff between legacy IEEE 802.16e cell sites and IEEE 802.16m cell sites shall be supported and efficient. The efficiency should be equivalent to legacy IEEE 802.16e handoffs.

IEEE 802.16m amendment shall allow the handoff from an IEEE 802.16e operating mode on a legacy BS directly into an IEEE 802.16m operating mode on IEEE 802.16m BS.

The above requirements provide for a smooth cell-site by cell-site migration strategy.