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Re:	This contribution is in the response of Call for Contributions on Requirements for P802.16m Advanced Air Interface on Jan. 30 th , 2007.
Abstract	This document proposes a set of deployment-related requirements for the consideration of 802.16m TG, based on the initial Draft Requirements document IEEE 802.16m-07/002.
Purpose	To propose text to set deployment-related requirements for P802.16m.
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IEEE 802.16m Deployment-related Requirements

Introduction

This document proposes a set of deployment-related requirements for the consideration of 802.16m TG, in the response of Call for Contributions on Requirements for P802.16m Advanced Air Interface on Jan. 30th, 2007. The document addresses the section 8 of the initial Draft Requirements document IEEE 802.16m-07/002.

The following is proposed modification to the baseline text.

8.0 Deployment-related requirements

8.1 Legacy Support

[Backward compatibility is required in all existing spectrum bands where 16e systems might be deployed.]

The 802.16m shall be specified for operation on at least all existing bands where 16e systems are deployed.

8.2 Spectrum Requirements

8.2.1 General

[Frequency is expected to be decided in WRC07]

[Support the frequency bands within the current 802.16d/e/j framework that do not interfere with the other technologies that are part of IMT.]

~~[Scalable bandwidth including 5, 7, 8.75, 10, 20 MHz]~~

~~[Support for existing bandwidths in both paired and unpaired spectrum.]~~

~~[Legacy OFDMA bandwidths described 802.16e reference system should be supported.]~~ In addition the 802.16m shall support channel bandwidth scalability from 1.25 MHz to 100 MHz.

~~[Larger bandwidths beyond those in the 802.16e reference system should be considered as a 16m specific enhancement.]~~

~~[Performance in all bandwidths should be optimized for both TDD and FDD]~~

The IEEE 802.16m specification shall allow deployment on any bands specified for IMT-2000 and those to be identified for IMT-A

Capability to share the spectrum with existing primary services in the candidate bands

The IEEE 802.16m shall be possible to operate standalone, i.e. there is no need for any other carrier to be available.

Support frequency sharing between homogeneous 802.16m networks of different operators.

Support frequency sharing with other communication systems, at least other IMT-Advanced networks.

8.2.2 Duplexing

The potential outcome of WRC 2007 may affect the duplexing schemes, which may be applied in the following

way:

- Traffic symmetry / or asymmetry: TDD enables asymmetric allocation of degrees of freedom between uplink and downlink.
- Need for link reciprocity to support channel estimation at the transmitter: TDD or hybrid schemes such as band switching support channel reciprocity. However, there the difference in the transmitter/receiver RF chain may limit the link reciprocity and should be carefully considered.
- TDD is typically used for local / metropolitan area while FDD is typically for wide area coverage, although there may be merits in some circumstances in reversing these arrangements. Hybrid schemes, such as hybrid division duplexing can be considered for flexible coverage of both scenarios.
- Synchronization and link continuity requirements.
- Distributed control e.g. terminal to terminal.

Efficient and flexible duplexing, beyond the traditional paradigm of pure FDD or TDD, allow for alternative options such as hybrid schemes that combine the advantages of both FDD and TDD and enable flexible use of their features.

8.3 System Architecture

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

[IEEE 802.16m system shall support different cell sizes which are expected for cellular layer systems.]

[Cell radius and coverage requirements:

16m 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

The Physical and MAC layer design of the 802.16m must allow for the deployment of relays including multi-hop relay. Communication between different relay nodes in the same tier (in a tree-like topology) shall not be precluded.

8.4 System Migration

[802.16m and 802.16e reference system shall be deployable on the same RF carriers: performance should be appropriate for the mix of 16e and 16m terminals attached to a RF carrier; and the 802.16m enhancements shall be transparent to 16e terminals and BS.]

8.5 Synchronization

Synchronization between different BSs shall be required, at least for TDD mode.