

Project	IEEE 802.16 Broadband Wireless Access Working Group < http://ieee802.org/16 >	
Title	WirelessMAN-OFDMA RS system profiles	
Date Submitted	2007-07-05	
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Re:	Call for Technical Comments Regarding IEEE Project (IEEE 802.16j-07/019).	
Abstract	This contribution describes the PHY, MAC and RF OFDMA RS SYS profiles	
Purpose	To incorporate the proposed change into the P802.16j Baseline Document (IEEE 802.16j-06/026r4)	
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WirelessMAN-OFDMA RS system profiles
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Introduction

This contribution clarifies the status of the RS mandatory and optional features.

Statement of the Problem

802.16j standard draft introduced new features aimed to optimize the performance of the WIMAX OFDMA networks. Considering the amount of all the new PHY and MAC features introduced, it is considered important to summarize and prioritize these features.

Proposed Remedy

Define the related RS SYS profiles

Proposed Text Change

[Insert new subclause 12.4.2.2:]

12.4.2.2 Supplementary MR MAC profile(s)

These profiles specify supplementary sets of capability requirements to those specified in 12.4.2.1 for the MR-BS and RS when a PMP system is operating in the optional multihop relay mode.

12.4.2.2.1 OFDMA_MR_profM1

Table xxx.2 lists the feature supplementary capability requirements for the OFDMA_MR_profM1 profile.

Table xxx.2. (Mandatory and) Optional feature requirements OFDMA_MR_profM1

<u>Feature</u>	<u>Minimal Requirement</u>	<u>Conditions/Notes</u>
<u>R-MAC header</u>	<u>No</u>	
<u>Tunnel support</u>	<u>No</u>	
<u>BW Request/Allocation:</u>	<u>Yes</u>	

<u>Centralized</u>	<u>Yes</u>	
<u>Distributed</u>	<u>No</u>	
<u>Dedicated Channel</u>	<u>No</u>	
<u>MS network entry support</u>	<u>Yes</u>	<u>Note#1</u>
<u>RS Network entry</u>	<u>Yes</u>	
<u>Path Selection</u>	<u>No</u>	
<u>Parameter Configuration</u>	<u>No</u>	
<u>RS grouping</u>	<u>No</u>	
<u>Security Features</u>		<u>Note#2</u>
<u>Centralized security model</u>	<u>Yes</u>	
<u>Distributed security model</u>	<u>No</u>	
<u>Security Zone Key</u>	<u>No</u>	
<u>HARQ support for relay</u>	<u>No</u>	<u>Note#1</u>
<u>Mobility support for relay</u>	<u>No</u>	<u>Note#1</u>
<u>MS sleep mode</u>	<u>No</u>	
<u>MS idle mode</u>	<u>No</u>	
<u>MS handover</u>	<u>No</u>	
<u>Mobile RS handover</u>	<u>No</u>	
<u>MBS</u>	<u>No</u>	
<u>Topology/Path management</u>	<u>Yes</u>	
<u>Topology discovery</u>	<u>Yes</u>	
<u>Embedded Path Management</u>	<u>No</u>	
<u>Explicit Path Management</u>	<u>No</u>	
<u>RS Neighbour Discovery</u>	<u>No</u>	
<u>Interference Measurement</u>	<u>No</u>	
<u>Location Report</u>	<u>No</u>	

Note#1: Those features depend on BW allocation method (centralized/distributed) and RS type (Transparent or Non-Transparent) in PHY profile

Note#2: RS shares MS security context in distributed security model, while RS does not in centralized security model.

12.4.2.2.1 OFDMA MR_profM2

Table xxx.3 lists the feature supplementary capability requirements for the OFDMA MR_profM2 profile.

Table xxx.3. (Mandatory and) Optional feature requirements OFDMA MR_profM2

<u>Feature</u>	<u>Minimal Requirement</u>	<u>Conditions/Notes</u>
<u>R-MAC header</u>	<u>No</u>	
<u>Tunnel support</u>	<u>No</u>	
<u>BW Request/Allocation:</u>	<u>Yes</u>	
<u>Centralized</u>	<u>No</u>	
<u>Distributed</u>	<u>Yes</u>	
<u>Dedicated Channel</u>	<u>No</u>	

MS network entry support	Yes	Note#1
RS Network entry	Yes	
Path Selection	No	
Parameter Configuration	No	
RS grouping	No	
Security Features		Note#2
Centralized security model	Yes	
Distributed security model	No	
Security Zone Key	No	
HARQ support for relay	No	Note#1
Mobility support for relay	No	Note#1
MS sleep mode	No	
MS idle mode	No	
MS handover	No	
Mobile RS handover	No	
MBS	No	
Topology/Path management	Yes	
Topology discovery	Yes	
Embedded Path Management	No	
Explicit Path Management	No	
RS Neighbour Discovery	No	
Interference Measurement	No	
Location Report	No	

[Note#1: Those features depend on BW allocation method \(centralized/distributed\) and RS type \(Transparent or Non-Transparent\) in PHY profile](#)

[Note#2: RS shares MS security context in distributed security model, while RS does not in centralized security model.](#)

[12.4.2.2.3 OFDMA MR_profM3](#)

[Table xxx.4 lists the feature supplementary capability requirements for the OFDMA_MR_profM1 profile.](#)

[Table xxx.4. \(Mandatory and\) Optional feature requirements OFDMA_MR_profM3](#)

Feature	Minimal Requirement	Conditions/Notes
R-MAC header	No	
Tunnel support	No	
BW Request/Allocation:	Yes	
Centralized	No	RS does not share MS security context.
Distributed	Yes	RS shares MS security context.
Dedicated Channel	No	
MS network entry support	Yes	Note#1
RS Network entry	Yes	
Path Selection	No	
Parameter Configuration	No	

<u>RS grouping</u>	<u>No</u>	
<u>Security Features</u>		<u>Note#2</u>
<u>Centralized security model</u>	<u>No</u>	<u>Distributed Security is only applicable to distributed BW request/allocation method.</u>
<u>Distributed security model</u>	<u>Yes</u>	
<u>Security Zone Key</u>	<u>No</u>	
<u>HARQ support for relay</u>	<u>No</u>	<u>Note#1</u>
<u>Mobility support for relay</u>	<u>No</u>	<u>Note#1</u>
<u>MS sleep mode</u>	<u>No</u>	
<u>MS idle mode</u>	<u>No</u>	
<u>MS handover</u>	<u>No</u>	
<u>Mobile RS handover</u>	<u>No</u>	
<u>MBS</u>	<u>No</u>	
<u>Topology/Path management</u>	<u>Yes</u>	
<u>Topology discovery</u>	<u>Yes</u>	
<u>Embedded Path Management</u>	<u>No</u>	
<u>Explicit Path Management</u>	<u>No</u>	
<u>RS Neighbour Discovery</u>	<u>No</u>	
<u>Interference Measurement</u>	<u>No</u>	
<u>Location Report</u>	<u>No</u>	

Note#1: Those features depend on BW allocation method (centralized/distributed) and RS type (Transparent or Non-Transparent) in PHY profile

Note#2: RS shares MS security context in distributed security model, while RS does not in centralized security model.

12.4.3.1.2 FDD-Specific PHY Profiles Features

[Add the 3rd paragraph:]

The FDD mode of operation is not mandatory for the Relay Stations.

[Add a new subclause 12.4.3.11]

12.4.3.1.5 Minimum performance requirements

Add the following paragraph after Table 418

Table 418a lists the minimum PHY performance requirements needed for all RS profiles (when used).

Insert Table 418a

Table 418a Minimal RS PHY requirements for all RS PHY profiles (when used)

<u>Feature</u>	<u>Minimal Requirement</u>	<u>Conditions/Notes</u>
<u>Frame Structure</u>		
<u>Non-transparent Multi-frame</u>	<u>Yes</u>	<u>Recommended for frame code duration {4, 6, 8}</u>
<u>Non-transparent Partitioned frame structure</u>	<u>Yes</u>	<u>Recommended for frame code durations (6, 8)</u>

<u>Transparent Frame Structure</u>	<u>No</u>	<u>Optional mode</u>
<u>Relay Ambles</u>		
<u>SYNC Amble max repetition rate duration</u>	<u>40 ms</u>	
<u>SYNC amble repetition rate</u>	<u>N</u>	<u>Configurable</u>
<u>Network synchronized frame number</u>	<u>Yes</u>	
<u>SYNC amble sequence A</u>	<u>Yes</u>	
<u>SYNC amble sequence B</u>	<u>Yes</u>	<u>Recommended only for number of hops >2</u>
<u>SCAN amble repetition rate L</u>	<u>L>=N</u>	<u>Configurable</u>
<u>Relay amble subcarrier modulation</u>	<u>Yes</u> (#8.4.9.4.3.1.1)	<u>Different modulations applied for 512, 1k, 2k and 128FFT</u>
<u>Relay amble PN sequence</u>	<u>Yes</u> <u>#8.4.6.1.1.3</u>	<u>The relay PN sequences for 128 and 512 are different than 1k and 2 k FFT</u>
<u>Gaps</u>		
<u>RSRTG</u>	<u>>=50 μs</u>	<u>If existent</u>
<u>RSTTG</u>	<u>>= 1 symbol</u>	<u>If existent</u>
<u>Network Synchronization</u>		
<u>Network Synchronization</u>	<u>Yes</u>	<u>Sub-ordinated RS is synchronized on the starting symbol of the DL and UL sub-frames</u>