Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Table of Contents of Task Group Working Document**
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Edited by: Mike Hart & Jung Je Son,
Relay TG Editors

Re:	
Abstract	Initial TOC proposal for the Task Group working document.
Purpose	For discussion at meeting #45.
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Table of Contents of Task Group Working Document
Mike Hart & JungJe Son
Relay TG Editors

Introduction

This document is provided in response to the authorization of the TG editors through a motion passed by the Relay TG at session #44 to draft an initial Table of Contents of the Task Group working document.

As this is an editorial task, the number of sections taken from the existing standards documents (IEEE Std. 802.16-2004, IEEE Std. 802.16e-2005, IEEE Std. 802.16-2004/Cor1-2005) is kept to those that can be considered as obvious. These are sections that already exist where at a minimum clarification would be required to explain the impact of the introduction of a relaying mechanism and/or a relaying entity (i.e. relay station) on the existing features.

Comments on this contribution propose new subclauses whenever a relaying revision/insertion is anticipated. *However, it is understood that during the course of standards development, some of these new sections may be deemed unnecessary, in which case they will be deleted. Similarly, new sections may be added if deemed necessary. Editorial remarks are shown in **bold italic**. Note that editorial remarks are meant to be informative only.*

Table of Contents

1. Overview
1.1 Scope
1.2 Purpose
1.3 Frequency bands
1.3.4 Air interface nomenclature and PHY compliance
> *Insert discussion of relaying air interface.*

1.4 Reference model
> *Insert the following new subclause into 1.4.*

1.4.2 Relaying reference model
> *This subclause should include a figure to illustrate the relaying reference model. It should define the relaying network elements including the MR-BS, RS, and MS, and define the network interfaces between them.*

2. References
> *Insert new references.*

3. Definitions
> *Insert new definitions for relaying at the end of this section.*

4. Abbreviations and acronyms
> *Insert new abbreviations for relaying.*

6. MAC common part sublayer

6.1 PMP
>*Insert the following subclause at the end of 6.1:*

6.1.1 Relaying extension
>*This section provides an overview of the relaying MAC, including MR-BS to RS connections, RS to RS connections, and MR-BS/RS to SS connections.*

6.3 Data/Control plane

6.3.1 Addressing and connections
>*Insert the following new subclause at the end of 6.3.1:*

6.3.1.3 Addressing and connections for relay support
>*This section contains two separate subclauses; one that defines the addressing scheme for relaying and another that defines the connection identification numbering required for relay support.*

6.3.2 MAC PDU formats

6.3.2.1 MAC header formats
>*Insert subclauses (i.e. a new subclause for each new header format) at the end of 6.3.2.1 to define MAC header formats for PDUs on relay links.*

6.3.2.2 MAC subheaders and special payloads
>*Insert subclauses (i.e. a new subclause for each new subheader and special payload) into 6.3.2.2 to define MAC subheaders and special payloads for PDUs on relay links.*

6.3.2.3 MAC management messages
>*Insert subclauses (i.e. a new subclause for each new management message) at the end of 6.3.2.3 to define MAC management messages on relay links.*

6.3.3 Construction and transmission of MAC PDUs
>*Insert text that defines MAC PDUs within relaying mode.*

6.3.4 ARQ mechanism

6.3.4.6 ARQ operation
>*Insert a new subclause at the end of 6.3.4.6 to define ARQ mechanisms in relay mode.*

6.3.4.6.4 ARQ modifications for relaying
>*This section defines ARQ in the context of relaying. It addresses ARQ performed between the MR-BS and MS or per hop.*

6.3.5 Scheduling services
>*Insert text to provide updates for relaying support.*

6.3.6 Bandwidth allocation and request mechanisms

6.3.6.7 Relaying support for scheduling
>*This section defines relay mode modifications to the bandwidth allocation mechanisms and signaling.*

6.3.6.7.1 Distributed scheduling
>*This subclause defines the distributed scheduling mechanisms for relay mode.*

6.3.6.7.2 Centralized scheduling
>*This subclause defines the distributed scheduling mechanisms for relay mode.*

6.3.7 MAC support of PHY
>*Insert a new subclause at the end of 6.3.7 to define MAC support of PHY in relay mode.*

6.3.7.7 Optional MAC support of the PHY for relaying
>*This section defines MAC constructs to support the PHY in relay mode. In particular, constructs for relay links should be included here.*

6.3.8 Contention resolution

6.3.9 Network entry and initialization
>*Insert a new subclause at the end of 6.3.9 to define network entry and initialization in relay mode.*

6.3.9.16 Support for network entry and initialization in relay mode

This section contains one subclause outlining the MS network entry and initialization process in relay mode and another subclause outlining the RS network entry and initialization process.

6.3.10 Ranging

6.3.10.3 OFDMA based ranging

Insert the following subclause at the end of 6.3.10.3:

6.3.10.3.4 Relaying support for OFDMA based ranging

This section clarifies signaling and protocols to support ranging for RSs and SSs.

6.3.11 Update of channel descriptors

Insert a discussion on updating the channel descriptors for relay links.

6.3.12 Assigning SSs to multicast groups

Insert text describing the behavior of the MR-BS and the RS and the signaling between them when an MS is added to a multicast polling group.

6.3.13 Establishment of multicast and broadcast transport connections

Insert text describing the behavior of the MR-BS and the RS to support multicast and broadcast transport connections.

6.3.14 QoS

Insert text that defines support for QoS in relay mode.

6.3.17 MAC support for HARQ

Insert text that defines support for HARQ in relay mode.

6.3.18 DL CINR report operation

Insert a subclause at the end of 6.3.18 to define DL CINR report operation in relay mode.

6.3.18.3 Relay station DL CINR report operations

This section defines constructs required to support DL CINR report operation in relay mode. In particular, signaling required for distributed and centralized control is defined here.

6.3.19 optional Band AMC operations using 6-bit CQICH encoding

6.3.21 Sleep mode for mobility-supporting MS

Insert text defines constructs required to support MS sleep mode operation in relay mode. In particular, signaling required for distributed and centralized control should be included here.

6.3.22 MAC layer handover procedures

Insert text that defines extensions to MAC signaling required to support MS handover in relay mode. Insert the following subclause at the end of 6.3.22:

6.3.22.4 Mobile relay station handover

This section defines MAC constructs and signaling required for MRS (mobile relay station) handover.

6.3.23 Multicast and broadcast services (MBS)

6.3.23.1 Single-BS access

Insert text that defines extensions to MBS for single-BS access in relay mode.

6.3.23.2 Multi-BS access

Insert text that defines extensions to MBS for single-BS access in relay mode.

6.3.24 MS Idle Mode (optional)

Insert text defines constructs required to support MS idle mode operation in relay mode. In particular, signaling required for distributed and centralized control should be included here. Insert the following subclauses at the end of 6.3:

6.3.25 Relay path management and routing

This section defines the protocols and signaling required for path management and routing in relay mode.

6.3.26 Relay station neighborhood discovery

This section defines the signaling and protocols for RS neighborhood discovery.

7. Security sublayer
   Insert text to support security features in relay mode.
7.1 Architecture
7.2 PKM protocol
7.3 Dynamic SA creation and mapping
7.4 Key usage
7.5 Cryptographic methods
7.6 Certification profile
7.7 Pre-Authentication
7.8 PKMv2

8. PHY
8.4 WirelessMAN-OFDMA PHY layer
8.4.1 Introduction
8.4.4 Frame structure
   Insert the following new subclause to the end of section 8.4.4:
8.4.4.8 Relaying frame structure
   This section defines several possible frame structures for relay mode.

8.4.5 Map message fields and IEs
   Insert subclauses to parts of section 8.4.5 to specify new MAPs and IEs required to implement relay mode.
8.4.7 OFDMA ranging
   Insert a definition of new ranging codes for RSs and the type of ranging the relay links will support (MH inserts 8.4.7.2 and 8.4.7.3)
8.4.8 Space-Time Coding (optional)
8.4.9 Channel coding
8.4.10 Control mechanisms
8.4.11 Channel quality measurements
8.4.12 Transmitter requirements
8.4.13 Receiver requirements
8.4.14 Frequency control requirements
8.4.15 Optional HARQ support

9. Configuration
   Insert the following new section at the end of clause 9:
9.3 MR-BS configuration
   This section defines configuration procedures for MR-BSs.
9.4 RS configuration
   This section defines configuration procedures, such as frequency assignment, for RSs.

10. Parameters and constants
10.1 Global values
   Insert values related to relay mode at the end of the Table 342.
10.2 PKM parameter values
   Insert values related to relay mode at the end of the Table 343.
10.3 PHY-specific values

Update tables in 10.3 that are affected by relay mode. Insert the following new subclause at the end of 10.3:

10.3.5 Relay mode PHY parameters and definitions

This section includes PHY parameters and definitions specific to relay mode.

10.4 Well-known addresses and identifiers

Insert values related to relay mode at the end of the Table 345.

11. TLV Encodings

From 11.1-11.19, new TLV encodings related to relay mode can be added into each legacy message type where appropriate. Insert new subclauses at the end of clause 11 for new message types introduced by relay mode.