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| Project | IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16> | |
| Title | Comments on the TOC 802.16j-06/017r1 | |
| Submit Date | 2006-09-28 | |
| Source(s) | Kerstin Johnsson, Hyunjeong Lee, Jerry Sydir, Wendy Wong Intel Corporation 2200 Mission College Blvd, Santa Clara, CA 95054, USA | kerstin.johnsson@intel.com |
| | I-Kang Fu, Wern-Ho Sheen, Ching-Tarng Hsieh, Fang-Ching Ren, Tzu-Ming Lin, Chie-Ming Cho, Jen-Shun Yang National Chiao Tung University / ITRI 1001 Ta Hsueh Road, Hsinchu, Taiwan 300, ROC | IKFu@itri.org.tw |
| | Yong Sun, Dharma Basgeet, Khurram Rizvi Toshiba Research Europe Limited 32 Queen Square, Bristol BS1 4ND, England | sun@toshiba-trel.com |
| | Toshiyuki Kuze, Jeffrey Tao, Koon Hoo Teo, Jinyun Zhang Mitsubishi Electric Corp and MERL 5-1-1 Ofuna Kamakura, Kanagawa 2478501, Japan 201 Broadway, Cambridge, MA 02139, USA | teo@merl.com |
| | Yanling lu, Shulan Feng Hisilicon Technologies Nan Tian Bldg., No.10, Xinxi Rd. Hai-Dian District, Beijing, China | luyanling@hisilicon.com |
| | David Chen, Asa Masahito, Arpanda Pandey, Ariel Sharon, Shyamal Ramachandran Motorola 1064 Greenwood Blvd, Suite 400 Lake Mary, FL 32746, USA | shyamal.ramachandran@motorola.com |
| | Aik Chindapol, Yishen Sun, Teck Hu Siemens 755 College Road East Princeton, NJ 08540, USA | aik.chindapol@siemens.com |
| | Byoung-Jo "J" Kim AT&T Labs, Research 200 Laurel Ave Middletown, NJ 07748, USA | macsbug@research.att.com |
| | Aimin Zhang Huawei No. 98, Lane 91, Ershan Road, Pudong, Shanghai, P.R.China | zam@huawei.com |
| | Hyoung Kyu Lim, Jaeweon Cho, Changyoong Oh, Panyuh Joo Samsung Electronics Co., Ltd. 416 Maetan-dong, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-742, Korea | hk03.lim@samsung.com |
| | Guoqiang Wang, Wen Tong, Peiying Zhu, Hang Zhang, David Steer, Derek Yu, Mark Naden, Dean Kitchener, | wentong@nortel.com |

Gamini Senarath
Nortel
3500 Carling Avenue
Ottawa, On, K2H 8E9 Canada

Yousuf Saifullah, Shashikant Maheshwari, Peter Wang
Nokia Inc.
6000 Connection Dr.
Irving, TX 75039, USA

yousuf.saifullah@nokia.com

Kanchei (Ken) Loa, Yung-Ting Lee, Frank C.D. Tsai, Youn
Tai Lee, Heng-Iang Hsu, Yi-Hsueh Tsai, Hsien-Tsung Hsu,
Hua-Chiang Yin
Institute for Information Industry
8F, No. 218, Sec. 2, Dunhua S. Rd.,
Taipei City 106, Taiwan, ROC.

loa@nmi.iii.org.tw

Jun Bae
SOLiD Technologies
10th Fl., IT Venture Tower East Wing,
78 Garak-Dong, Dongpa-Gu, Seoul,
138-803 Korea

jbahn@st.co.kr

Djalal-Eddine Meddour
FT/RD/CORE/M2I Lab
2, avenue Pierre Marzin
22307 Lannion Cedex, France

djalal.meddour@orange-ft.com

Peng-Yong Kong, Haiguang Wang, Yu Ge, Chen-Khong
Tham
Institute for Infocomm Research
21 Heng Mui Keng Terrace
119613 Singapore

kongpy@i2r.a-star.edu.sg

D. J. Shyy
MITRE
7515 Colshire Drive
McLean, VA 22102, USA

djshyy@mitre.org

Arnaud Tonnerre
THALES Communications
146 Boulevard de Valmy
Colombes, France

arnaud.tonnerre@fr.thalesgroup.com

Re: This is a comment contribution on 802.16j-06/017

Abstract Updated ToC of task group working document

Purpose For discussion during session #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.

~~It is the view of the editors that determining whether or not further sections should be added requires some technical decisions to be made. Furthermore, as the editors were specifically instructed to create the ToC based on the existing standard, it is outside of their power to propose new sections at this time.~~

~~Consequently, an extensive list of sections is not provided at this point in time and it is left to the Task Group through comments and contributions in Session #45 to build on this basic list to work towards developing an initial Table of Contents for the Project 802.16j Baseline Task Group Document.~~

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

1.3 Scope

1.4 Purpose

1.5 Frequency Bands

1.5.1 Air interface nomenclature and PHY compliance

Insert discussion of relaying air interface.

1.6 Reference Model

Insert the following new subclause into 1.4.

1.6.18 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.

1 MAC Common Part Sublayer

1.3 PMP

Insert the following subclause at the end of 6.1:

1.3.18 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.

1.4 Data/Control plane

1.4.1 Addressing and connections

Insert the following new subclause at the end of 6.3.1:

1.4.1.3 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.

1.4.2 MAC PDU formats

1.4.2.3 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.

1.4.2.4 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.

1.4.2.5 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.

1.4.3 Construction and transmission of MAC PDUs

Insert text that defines MAC PDUs within RELAYING mode.

1.4.4 ARQ mechanism

1.4.4.3 ARQ operation

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

1.4.4.3.1 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.

1.4.5 Scheduling services

Insert text to provide updates for relaying support.

1.4.1 Bandwidth allocation and request mechanisms

Insert a new subclause at the end of 6.3.6 to define bandwidth allocation and request in relay mode.

1.4.1.3 Relaying support for scheduling

This section defines relay mode modifications to the bandwidth allocation mechanisms and signaling.

1.4.1.3.1 Distributed scheduling

This subclause defines the distributed scheduling mechanisms for relay mode.

1.4.1.3.2 Centralized scheduling

This subclause defines the centralized scheduling mechanisms for relay mode.

1.4.2 MAC support of PHY

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

1.4.2.3 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.

1.4.3 Contention resolution

1.4.4 Network entry and initialization

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

82.3.18.3 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.

1.4.5 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.

1.4.6 Update of channel descriptors

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

1.4.7 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.

1.4.8 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.

1.4.9 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.

1.4.10 DL CINR report operation

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

1.4.10.3 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.

1.4.11 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.

1.4.12 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.

1.4.13 Multicast and broadcast services (MBS)

1.3.18.3 Single-BS access

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

1.3.18.4 Multi-BS access

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

1.4.14 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:

1.4.15 Relay path management and routing

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

1.4.16 Relay station neighborhood discovery

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

2 Security sublayer

Insert text to support security features in relay mode.

3 PHY

8.4 WirelessMAN-OFDMA PHY

6.3.1 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.

3.3.18 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 PHY transmission

*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)*

3.3.19 Space-Time Coding (optional)

3.3.20 Channel coding

3.3.21 Control mechanisms

3.3.22 Channel quality measurements

3.3.23 Transmitter requirements

3.3.24 Receiver requirements

3.3.25 Frequency control requirements

3.3.26 Optional HARQ support

4 Configuration

Insert the following new section at the end of clause 9:

9.3 MR-BS configuration

This section defines configuration procedures for MR-BSSs.

9.4 RS configuration

This section defines configuration procedures, such as frequency assignment, for RSs.

5 Parameters and constants

10.1 Global values

Insert values related to relay mode at the end of the Table 342.

5.3 PKM parameter values

Insert values related to relay mode at the end of the Table 343.

5.4 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:

1.3.5 Relay mode PHY parameters and definitions

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

5.5 Well-known addresses and identifiers

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

6 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.