|  |  |  |
| --- | --- | --- |
| Project | **IEEE 802.16 Broadband Wireless Access Working Group <**<http://ieee802.org/16>**>** | |
| Title | **Clarifications on multimode operation over IEEE 802.16.1a** | |
| Date Submitted | **2012-05-04** | |
| Source(s) | Won-Ik Kim, Eunkyung Kim, Seokki Kim, Sungkyung Kim, Miyoung Yun, Hyun Lee, Chulsik Yoon, Sungcheol Chang  ETRI  Seokjoo Shin  Chosun University | E-mail:  [woniks@etri.re.kr](mailto:woniks@etri.re.kr)  [scchang@etri.re.kr](mailto:scchang@etri.re.kr)  [sjshin@chosun.ac.kr](mailto:sjshin@chosun.ac.kr) |
| Re: | “IEEE 802.16-12-271,” in response to Letter Ballot Recirc #38a on P802.16.1a/D2 | |
| Abstract | This provides AWD text proposals for clarification on multimode operation over IEEE 802.16.1a | |
| Purpose | To discuss and adopt the proposed text in the draft amendment document on GRIDMAN | |
| Notice | *This document does not represent the agreed views of the IEEE 802.16 Working Group or any of its subgroups*. It represents only the views of the participants listed in the “Source(s)” field above. It is offered as a basis for discussion. It is not binding on the contributor(s), who reserve(s) the right to add, amend or withdraw material contained herein. | |
| Copyright Policy | The contributor is familiar with the IEEE-SA Copyright Policy <http://standards.ieee.org/IPR/copyrightpolicy.html>. | |
| Patent Policy | The contributor is familiar with the IEEE-SA Patent Policy and Procedures:  <<http://standards.ieee.org/guides/bylaws/sect6-7.html#6>> and <<http://standards.ieee.org/guides/opman/sect6.html#6.3>>.  Further information is located at <<http://standards.ieee.org/board/pat/pat-material.html>> and <<http://standards.ieee.org/board/pat>>. | |

**Clarifications on multimode operation over IEEE 802.16.1a**

Won-Ik Kim, Eunkyung Kim, Seokki Kim, Sungkyung Kim, Miyoung Yun, Hyun Lee, Chulsik Yoon, Sungcheol Chang

ETRI

Seokjoo Shin

Chosun University

# Introduction

This document provides AWD text proposals for clarification on multimode operation in IEEE p802.16.1a.

Remedy1: The dual-role operation of HR-MS acting as RS is required in STR mode as well as in TTR mode. For this, we have corrected some ambiguous sentences and typos in Section 6.12.1.2.5.

Remedy2: For selecting a target HR-MS among subordinate HR-MSs which are capable of role changing to HR-BS, the superordinate HR-BS may refer to HR-MS' status information such as the measured signal power and/or the battery level. However, it could be done through MAC control messages and/or MAC signaling headers described in IEEE P802.16.1TM/D6. Therefore, it is not necessary to send additional control messages such as MM-STAT-REP.

Remedy3: We have corrected a simple typo in IEEE p802.16.1a/D2.

# References

[1] IEEE P802.16nTM/D2, Air Interface for Broadband Wireless Access Systems - Draft Amendment: Higher Reliability Networks, April 2012.

[2] IEEE P802.16.1aTM/D2, WirelessMAN-Advanced Air Interface for Broadband Access Systems - Draft Amendment: Higher Reliability Networks, April 2012.

[3] EEE P802.16Rev3/D6, IEEE Draft Standard for Local and metropolitan area networks; Part 16: Air Interface for Fixed and Mobile Broadband Wireless Access Systems,” April 2012.

[4] IEEE P802.16.1TM/D6, IEEE Draft for WirelessMAN-Advanced Air Interface for Broadband Wireless Access Systems, April 2012.

# Proposed Text for the 802.16.1a AWD

Note:

The text in **BLACK** color: the existing text in the 802.16.1a AWD

The text in **~~RED~~** color: the removal of existing 802.16.1a AWD

The text in **BLUE** color: the new text added to the 802.16.1a AWD

[-------------------------------------------------Start of Text Proposal---------------------------------------------------]

**[*Remedy1: Adopt the following change in Section 6.12.1.2.5 in IEEE P802.16.1a/D2.*]**

***[page# 109, line# 36]***

**6.12.1.2 Relay function for HR-MS**

**…**

**6.12.1.2.5 Dual-role operation of HR-MS**

An HR-MS acting as RS may maintain MS functionalities in company with RS functionalities. When an HR-MS in ~~TTR relay mode~~ connected state receives AAI-ARS-CONFIG-CMD message with MS functionality maintenance indication that is the value 0b1, it performs dual-role MS/RS operation. At the time instance specified by “Superframe Number Action” in the AAI-ARS-CONFIG-CMD message, the following procedures shall be performed for dual-role operation of the HR-MS acting as RS.

* ~~The dual-role HR-MS starts TTR relay mode and establishes relay link with the superordinate HR-BS.~~
* The HR-MS establishes relay link with the superordinate HR-BS and starts the RS mode.
* The MS mode in the dual-role HR-MS is behaving as a subordinate station of the RS mode. For connecting the MS’s service flow(s), the MS mode shall communicate with the RS mode through internal interfaces in the dual-role HR-MS. The details of MS’s reentry process with the RS through the internal interface ~~is~~ are out of scope of this standard.
* The RS mode in the dual-role HR-MS requests to the superordinate HR-BS for switching the data path of the MS mode by sending the AAI-L2-XFER message, as if the MS’ handover process had been performed.

**[*Remedy2: Adopt the following change in Section 6.12.1.3.1 in IEEE P802.16.1a/D2.*]**

***[page# 110, line# 22]***

**6.12.1.3 Base station function for HR-MS**

**…**

**6.12.1.3.1 Proactive Operation**

A superordinate HR-BS may select a target HR-MS among its subordinate HR-MSs which are capable of role changing to HR-BS, according to the measured signal power at HR-BS and/or subordinate HR-MS' status information such as the battery level. The superordinate HR-BS may transmit AAI-MM-ADV message with trigger condition for which the subordinate HR-MSs capable of role changing to HR-BS shall report its status information. When the trigger condition is met, the subordinate HR-MS capable of role changing to HR-BS may report its status information to the superordinate HR-BS via ~~MM-STAT-REP message and/or~~ AMS Battery Level Report header as described in 6.2.2.1.3.5.

**…**

**[*Remedy3: Correct the typos or errors in multimode operation in IEEE p802.16.1a/D2.*]**

***[page# 51, line# 5]***

**6.2.3.65.1 ~~AAM~~AAI-MM-ADV message**