|  |  |
| --- | --- |
| Project | **IEEE 802.16 Broadband Wireless Access Working Group <**<http://ieee802.org/16>**>** |
| Title | **Clarification on proactive operation of multimode HR-MS over IEEE 802.16.1a**  |
| Date Submitted | **2012-07-09** |
| Source(s) | Seokjoo ShinChosun UniversityWon-Ik Kim, Eunkyung Kim, Miyoung Yun, Seokki Kim, Sungkyung Kim, Hyun Lee, Chulsik Yoon, Sungcheol ChangETRI  | E-mail: sjshin@chosun.ac.krwoniks@etri.re.krscchang@etri.re.kr |
| Re: | “IEEE 802.16-12-400-00-Gdoc,” in response to Letter Ballot Recirc #38b on P802.16.1a/D3 |
| Abstract | This provides AWD text proposals for clarification on proactive operation of multimode HR-MS 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>>. |

**Clarification on proactive operation of multimode HR-MS over IEEE 802.16.1a**

Seokjoo Shin

Chosun University

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

ETRI

# Introduction

In Section 6.12.1.3.1 Proactive Operation, the procedures and messages for HR-MS to change a role of BS in proactive manner are elaborated. However, there are unnecessary procedures and undefined message field.

In this contribution, we modified or removed those sentences in order to make the text clearer. Specifically, role change from HR-MS to HR-BS is governed by the superordinate HR-BS in proactive operation. The current standard defines that the target HR-MS starts its BS mode in either action time expiration or given trigger condition. Role change based on action time is reasonable because the superordinate HR-BS should be aware of the exact time of HR-MS’s role change.

On the other hand, the trigger condition is not necessary in this proactive operation. Basically, the trigger conditions shown in the current standard are not fit to this proactive operation. Without any suggestion of new trigger condition for proactive operation, we suggest the removal of it from the text. In addition, reactive operation may implicitly cover the trigger based operation.

# References

[1] IEEE P802.16nTM/D3, Air Interface for Broadband Wireless Access Systems - Draft Amendment: Higher Reliability Networks, June 2012.

[2] IEEE P802.16.1aTM/D3, WirelessMAN-Advanced Air Interface for Broadband Access Systems - Draft Amendment: Higher Reliability Networks, June 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,” June 2012.

[4] IEEE P802.16.1TM/D6, IEEE Draft for WirelessMAN-Advanced Air Interface for Broadband Wireless Access Systems, June 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: Modify the sentences in Section 6.12.1.3.1 in IEEE P802.16.1a/D3.]***

***[Page# 117, Line# 22]***

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

**…**

**6.12.1.3.1 Proactive Operation**

**…**

After receiving the AAI-MM-BS-RSP message, the superordinate HR-BS shall transmit AAI-MM-BS-CMD message to the target HR-MS to inform the ~~action~~ time ~~or trigger conditions~~ for starting as HR-BS mode. If the action time for mode change are included in the AAI-MM-BS-CMD message, the target HR-MS starts the HR-BS mode operation upon expiring the action time. At the same time, the superordinate HR-BS may stop the HR-BS role in order to avoid potential interference ~~from the target HR-MS~~ to the HR-MS acting as HR-BS. ~~If the trigger type is 0b1, trigger conditions for mode change shall be included in the AAI-MM-BS-CMD message and the mode change to HR-BS role starts after trigger event. One possible use is to prepare against an unforeseeable SPOF event, e.g., a HR-BS failure. The trigger shall be canceled if the target HR-MS performs a handover to other infrastructure stations.~~

If handover of subordinate MSs connected to the superordinate HR-BS is necessary, the superordinate HR-BS may transmit AAI-L2-XFER message which contains MS context information before sending AAI-MM-BS-CMD message to the target HR-MS.

***[Remedy2: Change the table 106h in Section 6.2.3.65.8 in IEEE P802.16.1a/D3.]***

***[Page# 64, Line# 3]***

**6.2.3.65.8 AAI-MM-BS-CMD**

To inform the time for starting HR-BS role, the AAI-MM-BS-CMD message shall be sent from superordinate HR-BS to the multimode HR-MS. ~~The trigger condition indicates when a HR-MS shall initiate a mode change to BS. See Table 118.~~

**Table 106h – AAI-MM-BS-CMD message field description**

|  |  |  |  |
| --- | --- | --- | --- |
| **~~Field~~** | **~~Size~~****~~(bits)~~** | **~~Value/Description~~** | **~~Condition~~** |
| ~~Trigger type~~  | ~~1~~ | ~~0b0: Start HR-BS mode after expiring action time~~~~0b1: Start HR-BS mode upon reaching trigger conditions~~  |  |
| ~~If (Trigger type == 0b0)~~  |  |  |  |
| ~~Action time~~ | ~~4~~ | ~~This is the wait time in units of 100 ms before the HR-MS starts to perform HR-BS mode. The multimode HR-MS shall start HR-BS mode at the action time expires.~~  |  |
| ~~} else {~~ |  |  |  |
| ~~Trigger condition~~ | ~~variable~~ | ~~Triggers defined in Table 118.~~ |  |
| ~~}~~ |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Field** | **Size****(bits)** | **Value/Description** | **Condition** |
| Action code | 1 | 0b0: Start HR-BS mode operation at Action time0b1: Start HR-BS mode operation immediately |  |
| If (Action code == 0b0) { |  |  |  |
| Action time | 4 | This is the wait time in units of 100 ms before the HR-MS starts to perform HR-BS mode operation. |  |
| }  |  |  |  |