|  |  |  |
| --- | --- | --- |
| Project | **IEEE 802.16 Broadband Wireless Access Working Group <**<http://ieee802.org/16>**>** | |
| Title | **Modification of dedicated channel structure for talk-around direct communication** | |
| Date Submitted | **2012-07-09** | |
| Source(s) | Seokki Kim, Sungcheol Channg, Miyoung Yun, Won-Ik Kim, Hyun Lee, Eunkyung Kim, Sungkyung Kim, Chulsik Yoon  ETRI  Young-Ho Jung, ChangMok Lee, Jihoon Choi  Korea Aerospace University | Voice: +82-42-860-0626 E-mail: [kimsk0729@etri.re.kr](mailto:kimsk0729@etri.re.kr)  E-mail: [yhjung@kau.ac.kr](mailto:yhjung@kau.ac.kr) |
| Re: | IEEE 802.16 Working Group Letter Ballot Recirc #38b (IEEE P802.16.1a/D3) | |
| Abstract | This contribution proposes change to dedicated channel structure for talk-around direct communication | |
| Purpose | To be discussed and adopted by TGn | |
| 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>>. | |

**Modification of dedicated channel structure for talk-around direct communication**

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

ETRI

*Young-Ho Jung, ChangMok Lee, Jihoon Choi*

*Korea Aerospace University*

# Introduction

This contribution proposes change to dedicated channel structure of talk-around direct communication in IEEE P802.16.1a/D3. In talk-around direct communication, dedicated channel is permuted for frequency diversity gain as Figure 1.

 

Figure 1

But there are some problems in current permuted dedicated channel structure. In some case, HR-MSs may have different timing/frequency offset because HR-MSs is synchronized by using distributed synchronization method. Also, there may exist very large power level difference between their own dedicated channel and adjacent dedicated channel according to the position of HR-MSs as Figure 2. As we can see in the Figure 2, HR-MS(a1) can’t communicate with HR-MS(a2) because of adjacent channel interference from HR-MS(b2). HR-MS(b2) affect entire frequency domain as Figure 3. We propose block based permutation in the subframe to avoid this problem for dedicated channel of talk-around direct communication.



Figure 2



Figure 3

# References

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

# Proposed Text

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 following text in each sections in the IEEE P802.16.1a/D3]*

**6.12.2.3.2.1.4 Construction of dedicated subchannels for each TDC frame**

For a TDC frame, if there are Nsubframe\_per\_fame subframes in a 5ms frame, a logical TDC frame is composed of 4Nsubframe\_per\_frame subframes, and resources for Ded-CH are divided into dedicated subchannels. The number of dedicated subchannels in slot 1 and 2 are summarized in the Table 195, and Table 196. ~~A dedicated subchannel is composed of 12 mRBs distributed across the entire four PRUs in the slot.~~

…

mRBs for each dedicated subframe are assigned by the following assignment method:

* Step 1: For each slot 12 successive mRBs are temporally assigned from subframe 1 to subframe ~~N~~~~ded-subframe,1~~ 2Nsubframe\_per\_frame in slot 1, and from subframe ~~N~~~~ded-subchannel,1~~~~+1~~ 2Nsubframe\_per\_frame +1 to subframe 4Nsubframe\_per\_frame ~~N~~~~ded-subchannel,1 +~~ ~~N~~~~ded-subchannel,2~~ in slot 2, in time first manner.
* Step 2: For each subframe, mRBs are cyclic shifted by mod((j-1)Ⅹfloor(12/Nded-subchannel,i),12) blocks, where j is the index of the subframe, and i is the slot number correspond to the subframe.~~permuted by using the permutation sequence generated by using the method in 6.3.4.3.3 with parameters of M=12, and SEED = 343\*subframe index.~~

Figure 248 shows an example of mRB assignment for dedicated subchannels, when Nsubframe\_per\_fame = 3, Nded-subchannel,1 = 4, and ~~Nded-subframe,2~~ Nded-subchannel,2=5.

~~~~



**Figure 248 —An example of mRB assignment for dedicated subchannels when Nsubframe\_per\_fame = 3, Nded-subchannel,1 = 4, and Nded-subchannel,2 = 5**

[-------------------------------------------------End of Text Proposal---------------------------------------------------]