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| Project | **IEEE 802.16 Broadband Wireless Access Working Group <**<http://ieee802.org/16>**>** |
| Title | **Modification of dedicated channel structure for talk-around direct communication**  |
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| Re: | IEEE 802.16 Working Group Letter Ballot Recirc #38a (IEEE P802.16.1a/D2) |
| Abstract | This contribution proposes change to dedicated channel structure of talk-around direct communication in IEEE P802.16.1a/D2 |
| Purpose | To be discussed and adopted by TGn |
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**Modification of dedicated channel structure for talk-around direct communication**

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ETRI

# Introduction

This contribution proposes change to dedicated channel structure of talk-around direct communication in IEEE P802.16.1a/D2. 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 localized resource allocation method to avoid this problem for dedicated channel of talk-around direct communication.



Figure 2

 

Figure 3

# References

[1] IEEE P802.16.1a/D2, WirelessMAN-Advanced Air Interface for Broadband Access Systems – Draft Amendment: Higher Reliability Networks, Apr. 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/D2]*

**6.12.2.3.2.1.2 Frame structure for CDMZ**

…

A dedicated channel is a physical channel to send direct communication packets for two HR-MSs or a group of HR-MSs. An HR-MS sends a packet on one or more than one dedicated subchannels and the other HR-MSs receives the packet on it. If two HR-MSs and a group of HR-MSs are involved, the transmissions are unicast and multicast, respectively. The resources for dedicated channel is divided into small size sub-blocks (mRB: mini-Resource Block), as shown in Figure 246. One mRB is composed of 6 subcarriers-by-6 OFDM symbols, and there are 12 mRBs for each subframe (4PRU/ 1/3 PRU = 12). In the Figure 246, mRB*i-j* denotes *j*-th mRB in the *i*-th subframe. A dedicated subchannel is composed of a collection of 12 mRBs that are contiguous across the localized resource allocation~~distributed across the entire frequency region in the slot~~.

…

**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\_fame 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 Nded-subframe,1 in slot 1, and from subframe Nded-subchannel,1+1 to subframe Nded-subchannel,1 + Nded8~~

~~subchannel,2 in slot 2, in time first manner.~~

* ~~Step 2: For each subframe mRBs are 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.~~

For each slot 12 successive mRBs are assigned from subframe 1 to subframe Nded-subframe,1 in slot 1, and from subframe Nded-subchannel,1+1 to subframe Nded-subchannel,1 + Nded8 subchannel,2 in slot 2, in time first manner.

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

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**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---------------------------------------------------]