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| Project | **IEEE 802.16 Broadband Wireless Access Working Group <**<http://ieee802.org/16>**>** |
| Title | ***Cleanup on network access entry based on group delegate for a large number of M2M devices, Revision 1***  |
| Date Submitted | **2012-01-13.** |
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| Re: | Call for contributions for 802.16 WG Letter Ballot (#36)(IEEE 802.16.1b) |
| Abstract | This contribution proposes to cleanup network access entry based on group delegate. |
| Purpose | To be discussed and adopted for P802.16.1b amendment working document. |
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***Cleanup on network access entry based on group delegate for a large number of M2M devices, Revision 1***

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1. **Introduction**

This contribution cleans up 6.2.18.7.4.2 section on ranging code and ranging channel for M2M group related on network access entry based on group delegate.

1. **The Proposed Text in AWD**

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------------------------------- Text Proposal1 Start ---------------------------------------------------

**[*Remedy1: Add proposed text from line# 58 Page 48 in IEEE P802.16.1b/D1with the followings:*]**

6.2.18.7.4.2 Ranging channel and ranging code for M2M Group

When a M2M group is expected to report their data or is paged, group delegates of the group send a ranging code based on multicast group ID (MGID) from the above ranging code set to BS.

Calculation equation on dedicated ranging code is as follows:

~~r~~~~dedicated ranging code~~~~=mod(floor (MGID/M), N~~~~ranging opportunity~~~~)~~

rdedicated ranging code=mod(floor (MGID/M), NM2Mgroup) (184b)

~~The M2M individual additional RP codes shall be used for initial network entry and association of M2M individual device.~~ The Zadoff-Chu sequences with cyclic shifts are used for the RP codes. The pth RP code xp(k) is defined and generated in equation (280) (see subclause 16.3.8.2.4.1). Ncont is the total number of initial (0~NIN-1) and handover RP codes (NIN~NIN+NHO-1) per sector for normal contention-based approach. Ndedi is the total number of dedicated handover RP code. When dedicated handover RP code set isn’t allocated, the available additional RP codes set can be used for M2M group. NM2M group is the total number of the available additional RP codes set for M2M group (Ncont + Ndedi ~ Ncont+ Ndedi+NM2M group -1) where maximum possible NM2M group per sector is 32.

 For certain M2M group, 4 cases for this:

mod (MGID,M)-mod(C,M)=0 (184c)$$M=\left⌊MGID\_{total}×α\_{multiplexing factor of dedicated ranging code}/(N\_{M2M group}×N\_{ranging opportunity})\right⌋$$

$M=\left⌊MGID\_{total}×α\_{multiplexing factor of dedicated ranging code}/N\_{M2M group}\right⌋$(184d)

M is required resource of time domain (ranging channel). αmultiplexing factor of dedicated ranging code can be carriered in S-SHF SP~~1~~3. ~~N~~ ~~ranging opportunity~~ ~~is related on configuration of ranging opportunity.~~ C is related on superframe number with ranging opportunity. MGIDtotal is the total number of MGID.

1. Configuration of ranging opportunity==0, C=4\*superframe number+i; i is expressed as frame n umber (0,1,2,3);
2. Configuration of ranging opportunity==1, C=superframe number;
3. Configuration of ranging opportunity==2, C=superframe number/2; mod(superframe number,2)==0; Configuration of ranging opportunity==3, C=superframe number/4; mod(superframe number,4)==0.
4. ------------------------------- Text Proposal1 End ---------------------------------------------------

------------------------------- Text Proposal2 Start ---------------------------------------------------

**[*Remedy2: Add proposed text from line# 11 Page 62 in IEEE P802.16.1b/D1with the followings:*]**

 **6.3.8.2.4 Ranging channel**

 **6.3.8.2.4.1 Ranging channel for non-synchronized AMSs Ranging preamble codes**

 **Table 266—RP code partition information table, *NIN , NHO and NM2M group*, for the NS-RCH**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Partition Index | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Number of the initial RP codes,NIN | 8 | 8 | 8 | 8 | 16 | 16 | 16 | 16 | 24 | 24 | 24 | 24 | 32 | 32 | 32 | 32 |
| Number of the handover RPcodes, NHO | 8 | 16 | 24 | 32 | 8 | 16 | 24 | 32 | 8 | 16 | 24 | 32 | 8 | 16 | 24 | 32 |
| Number of the M2M Group codes,NM2M Group | 8 | 8 | 8 | 8 | 16 | 16 | 16 | 16 | 24 | 24 | 24 | 24 | 32 | 32 | 32 | 32 |

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