Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	Inconsistent Definition of Downlink Preamble
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Re:	Response to the call for contributions to IEEE Standard 802.16-2004, IEEE 802.16maint-04/01, 2004-08-04. Header error fix to IEEE 802.16maint-04/30.
Abstract	In downlink ,preamble number per segment described in section 8.4.6.1.1 is different from Table 307 in IEEE 802.16D5
Purpose	To incorporate the text modification proposed in this contribution into IEEE 802.16REVd standard.
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Inconsistent Definition of Downlink Preamble

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1. Introduction

In the current 802.16D5 standard draft, preamble number of a segment in ***section 8.4.6.1.1*** is not consistent with Table 307 in ***section 8.4.6.1.1***.

In ***section 8.4.6.1.1***, it is said:

"The preamble carrier-sets are defined using the following formula:

$$PreambleCarrierSet_n = n + 3 \cdot k \qquad (105)$$

where:

PreambleCarrierSet$_n$ specifies all subcarriers allocated to the specific preamble

n is the number of the preamble carrier-set indexed 0...2

k is a running index 0...576

Each segment uses 2 types of preamble out of the 6 sets in the following manner:

Each segment uses a preamble composed of a carrier-set out of the 3 available carrier-sets in the following manner (in case of segment 1 the DC carrier will not be modulated at all and the appropriate PN will be discarded, therefore DC carrier shall always be zeroed, for segment 2 the last carrier shall not be modulated).

- Segment 0 uses preamble carrier-set 0
- Segment 1 uses preamble carrier-set 1
- Segment 2 uses preamble carrier-set 2**"**

That is :

in segment 0,there are 577 preamble subcarriers

in segment 0,there are 576 preamble subcarriers (include DC carrier)

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But in Table 307, preamble modulation series number per segment is 568.

This is not consistent with the definition given in ***section 8.4.6.1.1.***

Moreover, in ***section 8.4.6.1.1,*** in fact, for segment 1 the last carrier is 1729 and it also shall not be modulated. Therefore, it should be **"** for segment 1 and segment 2, the last carrier shall not be modulated**".**

2. The Solution

It is necessary to have a new table of "Preamble modulation series per segment" with 577 binary values. Otherwise, ***section 8.4.6.1.1*** will have to be modified as "k is a running index 0...568".Thus, maybe we need to delete ***section* 8.4.6.1.2.3** or modify the usable subcarrier numbers in ***section* 8.4.6.1.2.3** of Additional optional Symbol Structure for FUSC, it is too complex to modify ***section 8.4.6.1.1***. So the advisable solution is to give a new table 307.

3. Proposed Text

If we create a new table of **"**Preamble modulation series per segment**"** with 577 binary values, ***section 8.4.6.1.1*** may be modified as:

"The preamble carrier-sets are defined using the following formula:

$$PreambleCarrierSet_n = n + 3 \cdot k \qquad (105)$$

where:

PreambleCarrierSet$_n$ specifies all subcarriers allocated to the specific preamble

n is the number of the preamble carrier-set indexed 0...2

k is a running index 0...576

Each segment uses 2 types of preamble out of the 6 sets in the following manner:

Each segment uses a preamble composed of a carrier-set out of the 3 available carrier-sets in the following manner (in case of segment 1 the DC carrier will not be modulated at all and the appropriate PN will be discarded, therefore DC carrier shall always be zeroed, for segment **1 and** 2 **,**the last carrier shall not be modulated).

- Segment 0 uses preamble carrier-set 0

- Segment 1 uses preamble carrier-set 1
- Segment 2 uses preamble carrier-set 2”