Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Clarification to Randomizer operation in OFDM mode**
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Re:	Supporting document for call for contribution for corrigendum document
Abstract	In P802.16 REVd/D5 [1] Section 8.3.3.1, the Randomizer operation and re-initialization is ambiguous during transition to burst #1. In particular, since the randomizer is not re-initialized for 1st burst following the FCH, it is not clear if the randomizer state needs to be advanced by 8 (number of bits in the zero tail byte) or not. This contribution provides the clarification needed to resolve the ambiguity.
Purpose	Adoption in P802.16-2004/Cor 1
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1. Introduction

In P802.16 REVd/D5 [1] Section 8.3.3.1, the Randomizer operation and re-initialization is ambiguous during transition to burst #1. In particular, since the randomizer is not re-initialized for 1st burst following the FCH, it is not clear if the randomizer state needs to be advanced by 8 (number of bits in the zero tail byte) or not. This contribution provides the clarification needed to resolve the ambiguity.

2. Proposed Solution

The proposal is to require freezing the randomizer seed at the end of data portion of the FCH (excluding zero tail byte and/or padding) and to use the state when apply the randomizer to Burst 1.

3. Proposed Changes

Proposed Text Change:

Modify the text in Section 8.3.3.1, page 431, line 25 according to the following:

On the downlink, the randomizer shall be re-initialized at the start of each frame with the sequence: 1 0 0 1 0 1 0 1 0 0 0 0 0 0 0 0. The randomizer shall not be reset at the start of burst #1. Randomizer shall resume scrambling the data at the beginning of burst #1 using the state it was in at the end of data portion of FCH excluding the zero tail byte. At the start of subsequent bursts the randomizer shall be initialized with the vector shown in Figure 198. The frame number used for initialization refers to the frame in which the downlink burst is transmitted.

4. References:

[1] IEEE P802.16-REVd/D5-2004 Standard for Local and metropolitan area networks Part 16: Air Interface for Fixed Broadband Wireless Access Systems

[2] IEEE P802.16-REVe/D5-2004 Standard for Local and metropolitan area networks Part 16: Air Interface for Fixed Amendment for Physical and Medium Access Control Layers for Combined Fixed and Mobile Operation in Licensed Bands