IEEE P802.11
Wireless LANs

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| 30.5.6 Encoding of EDMG-Header-B |
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| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Artyom Lomayev | Intel | Turgeneva 30, Nizhny Novgorod 603024, Russia | +7 (831) 2969444 | artyom.lomayev@intel.com |
| Alexander Maltsev | Intel  |  |  | alexander.maltsev@intel.com |
| Miki Genossar | Intel |  |  | miki.genossar@intel.com |
| Claudio da Silva | Intel |  |  | claudio.da.silva@intel.com |
| Carlos Cordeiro | Intel  |  |  | carlos.cordeiro@intel.com |

Abstract

This document proposes changes to the scrambling procedure in the EDMG-Header-B encoding for SC and OFDM modes (subclauses 30.5.6 and 30.6.5), [1].

*Editor: it is proposed to replace the section 30.5.6 in the D0.5 with one defined in this document*

**30.5.6 Encoding of EDMG-Header-B**

The EDMG-Header-B for *iuser*-th user shall be encoded as follows:

* The input 64 bits of the EDMG-Header-B  are scrambled with PN sequence as described in 20.3.9, starting from the eighth bit to create  sequence. The scrambler seed value is initialized by the first seven bits of EDMG-Header-B.
* The LDPC codeword of length 672 bits is created by concatenating the 440 zeros to the scrambled header bits  and then computing 168 parity bits  using LDPC matrix with *R* = ¾ and *LCW* = 672 defined in 20.3.8.4. The LDPC codeword is defined as follows: .
* The zero padded bits are discarded and the output codeword is defined as , where:
* 
* 
* For a PPDU transmitted over a *NCB* × 2.16 GHz channel, where 1 ≤ *NCB* ≤ 4, the data block is defined as a repetition of codeword  by *NCB* times:
*  for *NCB* = 1
*  for *NCB* = 2
*  for *NCB* = 3
*  for *NCB* = 4
* For a PPDU transmitted using *NSTS* (*NSTS* = 1, 2) space-time streams, the data block  is repeated *NSTS* times. Then the *NSTS* data blocks are scrambled continuously with PN sequence as defined in 30.5.8.3.2 without seed reset. The initial seed value is equal to all ones . The scrambling starts at the 225-th bit and ends at the (*NSTS* × 448 × *NCB*)-th bit. The first scrambled  block is mapped to the first space-time stream and the second scrambled  block to the second space-time stream.

The SC data blocks shall be modulated using π/2-BPSK modulation as defined in 20.6.3.2.4. Each SC data block is prepended with a guard interval as defined in 30.5.8.2.4.

*Editor: it is proposed to replace the section 30.6.5 in the D0.5 with one defined in this document*

**30.6.5 Encoding of EDMG-Header-B**

The EDMG-Header-B for *iuser*-th user shall be encoded as follows:

* The input 64 bits of the EDMG-Header-B  are scrambled with PN sequence as described in 20.3.9, starting from the eighth bit to create  sequence. The scrambler seed value is initialized by the first seven bits of EDMG-Header-B.
* The LDPC codeword of length 672 bits is created by concatenating the 440 zeros to the scrambled header bits  and then computing 168 parity bits  using LDPC matrix with *R* = ¾ and *LCW* = 672 defined in 20.3.8.4. The LDPC codeword is defined as follows: .
* The zero padded bits are discarded and the output codeword is defined as , where:
* 
* 
* 
* For a PPDU transmitted over a *NCB* × 2.16 GHz channel, where 1 ≤ *NCB* ≤ 4, the data block is defined as a repetition of codewrod  bits as follows:
*  for *NCB* = 1
*  for *NCB* = 2
*  for *NCB* = 3
*  for *NCB* = 4
* For a PPDU transmitted using *NSTS* (*NSTS* = 1, 2) space-time streams, the data block  is repeated *NSTS* times. Then the *NSTS* data blocks are scrambled continuously with PN sequence as defined in 30.5.8.3.2 without seed reset. The initial seed value is equal to all ones . The scrambling starts at the 225-th bit and ends at the (*NSTS* × 2 × *NSD*)-th bit. The first scrambled  block is mapped to the first space-time stream and the second scrambled  block to the second space-time stream.

The  notation defines an array of vector  elements, starting from the first bit (inclusive) and ending at the *m*-th bit (inclusive).

The data blocks shall be modulated using QPSK modulation with Static Tone Pairing (STP). The EDMG-Header-B shall use an OFDM modulation as defined for the data part of PPDU in 30.6.7.2.

**SP:**

Do you agree to define the modification of the EDMG-Header-B encoding procedure as defined in (11-17-1581-00-00ay Encoding of EDMG-Header-B)?

**References:**

1. Draft P802.11ay\_D0.5
2. IEEE802.11-2016