IEEE P802.11
Wireless LANs

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| Proposed Draft Text: EHT PHY DATA scrambler and descrambler |
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Abstract

This submission shows

* EHT PHY DATA scrambler and descrambler

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Resolve Lin Yang’s comments

**34.3.12.3 SERVICE Field**

The SERVICE field of EHT PPDU is shown in Table 34-xx (SERVICE field).

Table 34-xx SERVICE field

|  |  |  |
| --- | --- | --- |
| **Bits** | **Field** | **Description** |
| B0-B10 | Scrambler Initialization | Set to 0 |
| B11-B15 | Reserved | Set to 0 |

**34.3.12.4 EHT PHY DATA scrambler and descrambler**

The DATA field, composed of SERVICE, PSDU, tail (if BCC is used), and pad parts, shall be scrambled with a length-2047 PPDU-synchronous scrambler. The octets of the PSDU are placed in the transmit serial bit stream, bit 0 first and bit 7 last. The PPDU synchronous scrambler uses the generator polynomial S(x) as follows and is illustrated in Figure 34-x (Data scrambler):

$S\left(x\right)=x^{11}+x^{9}+1$ (34-x)



Figure 34-x. Data scrambler

NOTE—The 2047-bit sequence generated repeatedly by the scrambler is (leftmost used first) 0000000001100000001111000001100110001111111101100000010111000010010110010110011110011111001111000111100110110011111011111000101000110100010111001010010111000110010110111110011010001111100101100011100111011011110101101001000110011010111111100010000011010100011100001011011001001101111011110100101001001100011011111011101000101010010100000110001000111101010110010000011110100011001001011111011001000101111010100100100001101101001110110011101011111010001000100101010101100000000111000000110110000111011100110101011111000001000110001010111101000010010010010110110110011011011111101101000010110010010011110110111001011010111001100010111111010010000100110100101111001100100111111101110000010101100010000111010100110100001111001001100111011111110101000001000010001010010101000110000010111100010010011010110111100011010011011100111101011110010001001110101011101000001010010001000110101010111000000010110000010011100010111011010010101100110000111111100110000011111100011000011011110011101001111010011100100111011101110101010101000000000010000000010100000010001000010101010010000000110100000111001000110111010111010100010100001010001001000101011010100001100001001111001011100111001011110111001001010111011000010101110010000101110100100101001101100011110111011001010101111000000100110000101111100100100011101101011010110001100011101111011010100101100001100111001111110111100001010011001000111111010110000100011100101011011100001101011001110001111101101100010110111010011010100111100001110011001101111111110100000001001000001011010001001100101011111100001000011001010011111000111000110110110111011011010101101100000110111000111010110110100011011001011101111001010100111000001110110001101011101110001010101101000000110010000111110100110001001111101011100010001011010101001100000011111000011000110011110111111001010000111000100110110101111011000100101110101100101000111100010110011010011111100111000011110110011001011111111001000000111010000110100100111001101110111110101010001000000101010000100000100101000101100010100111010001110100101101001100110011111111111, when the all 1s initial state is used.

The same scrambler is used to scramble transmit data and to descramble receive data. When transmitting, the initial state of the scrambler shall be set to a pseudorandom nonzero state. During reception by an EHT STA, the initial state can be estimated from the 11 LSB of the service field.

When the MU-RTS is transmitted using an EHT PPDU, the 7 LSB bits of the SERVICE field shoud not be all zeros.