IEEE P802.11
Wireless LANs

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| Resolution to Comments : CID 3, 17, 524 |
| Date: 2017-09-11 |
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Abstract

This document presents suggested resolutions related to CID 3, 17, 514 for P802.11ay\_D0.3.

***Modify the following definition into 10.3.1 as highlighted in red texts:***

* STA authentication and association

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| **CID** | **Clause Number(C)** | **Comment** | **Proposed Change** | **Resolution** |
| 3 | 30.3.6 (p. 123) | Section 30.3.6 is missing the matrix for 1344 CR=7/8. | Need new sub-section for LDPC 1344 CR=7/8. | Solved.Rate 7/8 length-1344 LDPC code matrix is included in Sec.30.3.6.7 in D0.5. |
| 17 | 30.3.6 | Rate 7/8 1344 LDPC codeword is missing. | Define missing rate 7/8 1344 LDPC codeword. | Solved.Rate 7/8 length-1344 LDPC code matrix is included in Sec.30.3.6.7 in D0.5. |

**Proposed resolution**: Solved in D0.5.

***Corresponding text described in D0.5***

* + - 1. Rate-7/8 LDPC code matrix for generating 1344 bits codeword

The lifting matrix in Table 40 is applied to the rate-3/4 LDPC code matrix specified in Table 20-8.

Table 40 — Rate-7/8 lifting matrix

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | -1 | -1 | -1 |
| 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | -1 | -1 |
| 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | -1 | 0 | 1 | -1 |
| 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | -1 | 0 | 1 | 0 | 0 | 0 | 0 |

Summing the 1st and 5th, 2nd and 6th , 3rd and 7th, and 4th and 8th rows of the lifted matrix H = 336 rows × 1344 columns, Z=42, generated with the lifting matrixed specified in Table 40 yields the rate 7/8 LDPC code matrix H = 168 rows × 1344 columns, Z=42, shown in Table 41.

Table 41 — Rate-7/8 LDPC code matrix (each nonblank element *i* in the table is the cyclic permutation matrix *Pi* of size Z × Z; blank entries represent the zero matrix of size Z × Z)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 37 | 35 | 31 | 19 | 41 | 18 | 22 | 23 | 40 | 11 | 41 | 21 | 39 | 6 | 20 | 6 | 32 | 28 | 18 | 9 | 12 | 17 | 3 | 29 | 28 |  | 0 |  |  | 13 |  |  |
| 35 | 37 | 19 | 31 | 18 | 41 | 23 | 22 | 11 | 40 | 21 | 41 | 6 | 39 | 6 | 20 | 28 | 32 | 9 | 18 | 17 | 12 | 29 | 3 |  | 28 |  | 0 | 13 |  |  |  |
| 25 | 29 | 30 | 22 | 0 | 4 | 34 | 8 | 31 | 33 | 3 | 22 | 14 | 17 | 15 | 4 | 4 | 27 |  | 28 | 14 | 20 | 27 | 18 | 13 | 24 | 13 | 23 | 22 |  | 24 |  |
| 29 | 25 | 22 | 30 | 4 | 0 | 8 | 34 | 33 | 31 | 22 | 3 | 17 | 14 | 4 | 15 | 27 | 4 | 28 |  | 20 | 14 | 18 | 27 | 24 | 13 | 23 | 13 |  | 22 |  | 24 |

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| **CID** | **Clause Number(C)** | **Comment** | **Proposed Change** | **Resolution** |
| 524 | 30.3.6.1 | Both tables defining the lifting should hold P\_i instead of i. | Please change table entries i to P\_i. | Revised as in comment |

**Proposed resolution**: Revised

***Discussion:***

In Sec. 30.3.6 of P802.11 D0.3, LDPC code matricies for generating 1344 bits codeword for differen code rates are specified. These LDPC code matricies are obtained by lifting the submatrices defined in the corresponding 802.11ad LDPC code matrices (Sec. 20.3.8). In Sec. 30.3.6.1 of P802.11 D0.3, the entries ‘0’, ‘1’ and ‘-1’ in a lifting matrix are defined in order to create the lifted 2Z x 2Z matrix by lifting the corresponding Z x Z cyclic matrix Pi.

***Proposed text changes***

* + - 1. General

The EDMG PHY shall support the LDPC parity matrices specified in 20.3.8 and may support the additional matrices described in this subclause.

The EDMG PHY defines an additional rate-7/8 LDPC code matrix for a codeword of size equal to 672 bits, which is the same codeword size used in the DMG PHY. The definition of this LDPC code matrix follows the approach specified in 20.3.8.

In addition, the EDMG PHY also defines an LDPC codeword of size equal to 1344 bits through the use of lifting matrices. A lifting matrix acts on the code matrix to generate a larger matrix as follows:

* A ‘0’ in the lifting matrix acts on the Z×Z cyclic-permutation matrix *Pi* in the code matrix (at the same location) to create the 2Z×2Z matrix:

|  |  |
| --- | --- |
|  |  |
|  |  |

|  |  |
| --- | --- |
| *Pi*  | -1 |
| -1 | *Pi*  |

* A ‘1’ in the lifting matrix acts on the Z×Z cyclic-permutation matrix *Pi* in the code matrix (at the same location) to create the 2Z×2Z matrix:

|  |  |
| --- | --- |
|  |  |
|  |  |

|  |  |
| --- | --- |
| -1 | *Pi*  |
| *Pi*  | -1 |

* A ‘-1’ in the lifting matrix acts on the Z×Z zero matrix in the code matrix to create the 2Z×2Z zero matrix.

|  |  |
| --- | --- |
| 0 | 0 |
| 0 | 0 |

NOTE—The cyclic-permutation matrix *Pi* is defined in 20.3.8.

**SP**

Do you agree to adopt the comment resolutions to CID 3, 17, 524 as proposed in IEEE 802.11-17/1441r0?