IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Draft text in 30.3.6.7 Rate-7/8 LDPC code matrix for generating 1344 bits codeword | | | | |
| Date: 2017-6-15 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Yan Xin | Huawei Technologies | 303 Terry Fox Dr., Kanata, ON, Canada K2K 3J1 | +1 613-979-1792 | yan.xin@huawei.com |
| Min Yan | Huawei Technologies |  |  | yanmin.yan@huawei.com |
| Wei Lin | Huawei Technologies |  |  | lin.linwei@huawei.com |
|  |  |  |  |  |
| Guido Montorsi | Politecnico di Torino | Corso Duca degli Abruzzi 24 – Torino, Italy |  | guido.montorsi@polito.it |
| Sergio Benedetto | Politecnico di Torino | Corso Duca degli Abruzzi 24 – Torino, Italy |  | sergio.benedetto@polito.it |
|  |  |  |  |  |
|  |  |  |  |  |

Abstract

This document proposes specification text for subclause 30.3.6.7 defining the lifting matrix and the code matrix for the rate 7/8 LDPC code with codeword length 1344.

**Discussion:**

(11-17-0069-00-00ay-rate 78 1344-ldpc code for 11ay)

*Editor: It is proposed to add the following text in the current subclause to the draft spec. [1].*

**30.3.6.7 Rate-7/8 LDPC code matrix for generating 1344 bits codeword**

The lifting matrix in Table 30 is applied to the rate-3/4 LDPC code matrix specified in Table 20-8.

**Table 30 — 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& 5th, 2nd&6th, 3rd&7th and 4th&8th rows of the lifted matrix H = 336 rows x 1344 columns, Z=42, generated with the lifting matrixed specified in Table 30 yields the rate 7/8 LDPC code matrix H = 168 rows x 1344 columns, Z=42.

**Table 31 — 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 |

**Reference:**

1. Draft P802.11ay\_D0.35