IEEE P802.22
Wireless RANs

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| Proposed Resolution for CID 202, 203, 204, and 205 |
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|  |  |  |  |  |
|  |  |  |  |  |

Abstract

This document contains the proposed resolution for CID 202, 203, 204 and 205 in the LB1 for the draft standard of the IEEE 802.22b

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1. Introduction

This contribution provides the proposed resolution for the following comments in LB1 for the IEEE Draft Std. 802.22b D1.0. An additional proposed change is also provided.

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Commenter Name** | **Comment** | **Suggested Remedy** |
| 202 | Shigenobu Sasaki | Table 209: Add the parameters related to MD-TCM, if necessary.  | Add the parameters related to MD-TCM, if necessary.  |
| 203 | Shigenobu Sasaki | Table 211: Add the parameters related to MD-TCM, if necessary.  | Add the parameters related to MD-TCM, if necessary.  |
| 204 | Shigenobu Sasaki | Table 226: Add the parameters related to MD-TCM, if necessary.  | Add the parameters related to MD-TCM, if necessary.  |
| 205 | Shigenobu Sasaki | Table 227: Add the parameters related to MD-TCM, if necessary.  | Add the parameters related to MD-TCM, if necessary.  |

1. Proposed resolution

*[Start of proposed change]*

***Change Table 209 as indicated.***

Table 209 — Concatenation index for different modulations and coding

|  |  |
| --- | --- |
| **Modulation and Rate** | **j** |
| QPSK 1/2 | 12 |
| QPSK 2/3 | 9 |
| QPSK 3/4 | 8 |
| QPSK 5/6 | 7 |
| 16-QAM 1/2 | 6 |
| 16-QAM 2/3 | 4 |
| 16-QAM 3/4 | 4 |
| 16-QAM 5/6 | 3 |
| 64-QAM 1/2 | 4 |
| 64-QAM 2/3 | 3 |
| 64-QAM 3/4 | 2 |
| 64-QAM 5/6 | 2 |
| 256-QAM 1/2 | 3 |
| 256-QAM 2/3 | 2 |
| 256-QAM 3/4 | 2 |
| 256-QAM 5/6 | 1 |
| 256-QAM 7/8 | 1 |
| 4D-TCM 48QAM | 2 |
| 4D-TCM 192QAM | 1 |

*[End of proposed change]*

*[Start of proposed change]*

***Change Table 211 as indicated.***

Table 211 — Useful data payload in bytes for an FEC block

|  |  |  |  |
| --- | --- | --- | --- |
| **QPSK** | **16-QAM** | **64-QAM** | **256-QAM** |
| **R=****1/2** | **R=****2/3** | **R=****3/4** | **R=****5/6** | **R=****1/2** | **R=****2/3** | **R=****3/4** | **R=****5/6** | **R=****1/2** | **R=****2/3** | **R=****3/4** | **R=****5/6** | **R=****1/2** | **R=****2/3** | **R=****3/4** | **R=****5/6** | **R=****7/8** |
| 3 |   |   |   |  |   |   |   |   |   |   |   |  |  |  |  |  |
|  | 4 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | 5 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  | 6 |  |  |  |  |  |  |  |  |  |  |  |  |
|   | 8 |   |   |   | 8 |   |   |   |   |   |   |  |  |  |  |  |
| 9 |   | 9 |   |   |   | 9 |   | 9 |   |   |   |  |  |  |  |  |
|   |   |   | 10 |   |   |   | 10 |   |   |   |   |  |  |  |  |  |
| 12 | 12 |   |   | 12 |   |   |   |   | 12 |   |   | 12 |  |  |  |  |
| 15 |   |   | 15 |   |   |   |   |   |   |   | 15 |  |  |  |  |  |
|   | 16 |   |   |   | 16 |   |   |   |   |   |   |  | 16 |  |  |  |
| 18 |   | 18 |   | 18 |   | 18 |   | 18 |   |   |   |  |  | 18 |  |  |
|   | 20 |   | 20 |   |   |   | 20 |   |   |   |   |  |  |  | 20 |  |
| 21 |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  | 21 |
| 24 | 24 |   |   | 24 | 24 |   |   |   | 24 |   |   | 24 |  |  |  |  |
|   |   |   | 25 |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 27 |   | 27 |   |   |   | 27 |   | 27 |   | 27 |   |  |  |  |  |  |
|   | 28 |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 30 |   |   | 30 | 30 |   |   | 30 |   |   |   | 30 |  |  |  |  |  |
|   | 32 |   |   |   | 32 |   |   |   |   |   |   |  | 32 |  |  |  |
| 33 |   |   |   |   |   |   |   |   |   |   |   |  |  |  |  |  |
|   |   |   | 35 |   |   |   |   |   |   |   |   |  |  |  |  |  |
| 36 | 36 | 36 |   | 36 |   | 36 |   | 36 | 36 |   |   | 36 |  | 36 |  |  |

*[End of proposed change.]*

*[Start of proposed changes.]*

***Change Table 226 and Table 227 as indicated.***

Table 226 — Number of coded bit per carrier and normalization factor
for different modulation constellations

|  |  |  |
| --- | --- | --- |
| **Modulation Type** | **NCBPC** | **KMOD** |
| QPSK | 2 |  |
| 16-QAM | 4 |  |
| 64-QAM | 6 |  |
| 256-QAM | 8 |   |
| 4D-TCM 48QAM | 5.5 | TBD |
| 4D-TCM 48QAM | 7.5 | TBD |

Table 227 — Number of coded bits per OFDM slot (NCBPS) and corresponding number of
data bits for different modulation constellation and coding rate combinations

|  |  |  |  |
| --- | --- | --- | --- |
| **Constellation type** | **Coding rate** | **NCBPS** | **Corresponding number of data bits** |
| QPSK | 1/2 | 48 | 24 |
| QPSK | 2/3 | 48 | 32 |
| QPSK | 3/4 | 48 | 36 |
| QPSK | 5/6 | 48 | 40 |
| 16-QAM | 1/2 | 96 | 48 |
| 16-QAM | 2/3 | 96 | 64 |
| 16-QAM | 3/4 | 96 | 72 |
| 16-QAM | 5/6 | 96 | 80 |
| 64-QAM | ½ | 144 | 72 |
| 64-QAM | 2/3 | 144 | 96 |
| 64-QAM | 3/4 | 144 | 108 |
| 64-QAM | 5/6 | 144 | 120 |
| 256-QAM | 1/2 | 192 | 96 |
| 256-QAM | 2/3 | 192 | 128 |
| 256-QAM | 3/4 | 192 | 144 |
| 256-QAM | 5/6 | 192 | 160 |
| 256-QAM | 7/8 | 192 | 168 |
| 4D-TCM 48QAM | 10/11 for 4D-symbol | 132 | 120 |
| 4D-TCM 48QAM | 14/15 for 4D-symbol | 180 | 168 |

*[End of proposed changes]*

1. Additional Changes

In addition to the proposed resolutions and changes in the previous section, the following changes in Table 228 is also proposed.

*[Start of proposed changes]*

***Change Table 228 as indicated.***

Table 228 — Normalized CNR per modulation for BER= 2\*10-4

|  |  |
| --- | --- |
| **Modulation - FEC rate** | **Normalized CNR (dB)** |
| **AWGN****(default)** | **Multipath Channel**8F**[[1]](#footnote-1)** *(informative)* |
| CDMA code | 1.2 | 5 |
| QPSK, rate: 1/2 | 4.3 | 8.1 |
| QPSK, rate: 2/3 | 6.1 | 11.6 |
| QPSK, rate: 3/4 | 7.1 | 14.0 |
| QPSK, rate: 5/6 | 8.1 | 17.8 |
| 16-QAM, rate: 1/2 | 10.2 | 14.8 |
| 16-QAM, rate: 2/3 | 12.4 | 20.3 |
| 16-QAM, rate: 3/4 | 13.5 | 24.6 |
| 16-QAM, rate: 5/6 | 14.8 | 28.6 |
| 64-QAM, rate: 1/2 | 15.6 | 20.5 |
| 64-QAM, rate: 2/3 | 18.3 | 26.2 |
| 64-QAM, rate: 3/4 | 19.7 | 31.8 |
| 64-QAM, rate: 5/6 | 20.9 | 40.4 |
| 256-QAM, rate: 1/2 | 19.4 | TBD |
| 256-QAM, rate: 2/3 | 22.6 | TBD |
| 256-QAM, rate: 3/4 | 24.2 | TBD |
| 256-QAM, rate: 5/6 | 26.2 | TBD |
| 256-QAM, rate: 7/8 | 27.5 | TBD |
| 4D-TCM 48QAM | 15.5 | TBD |
| 4D-TCM 192 QAM | 22.5 | TBD |

*[End of proposed change]*

1. References
1. The multipath channel used for the calculations is defined on 6 paths as follows: excess delay: -3, 0, 2, 4, 7 and 11 μsec; relative amplitude: -6, 0, -7, -22, -16 and -20 dB; the phase for each path is random. The delay, amplitude and phase are assumed to be constant over the period of one symbol. [↑](#footnote-ref-1)