IEEE P802.22  
Wireless RANs

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| Proposed Resolution to CID 35 | | | | |
| Date: 2014-09-18 | | | | |
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Abstract

This document presents a proposed resolution to Comment ID 35 on the coded 256QAM and multidimentional trellis coded modulation (MD-TCM) in LB commetns for IEEE Draft Std. 802.22b D2.0. The content of this document is potentially included into the updated version of the IEEE 802.22b draft standard.

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1. Introduction

This contribution provides the proposed resolution for the following comments in LB2 for the IEEE Draft Std. 802.22b D2.0 [1]. Additional changes are also proposed associated with this comment resolution.

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **Commenter Name** | **Comment** | **Suggested Remedy** |
| 35 | Shigenobu Sasaki | Table 228: Fill all the TBDs in the table. | Fill all the TBDs in the table. |

1. Proposed resolution

*[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 | 21.5 | 25.7 |
| 256-QAM, rate: 2/3 | 25.0 | 30.0 |
| 256-QAM, rate: 3/4 | 27.2 | 32.6 |
| 256-QAM, rate: 5/6 | 29.0 | 36.1 |
| 256-QAM, rate: 7/8 | 31.2 | 39.8 |
| 4D-TCM 48QAM | 19.4 | 26.8 |
| 4D-TCM 192 QAM | 27.5 | 32.5 |

*[End of proposed change]*

1. Additional Proposed Changes

The following text changes are proposed associated with the changes in the previous section:

*[Start of proposed changes.]*

***Change the text in the IEEE 802.22-2011[2] as indicated.***

**(Page 356, below Equation (13))**

This resulting value Pnew is updated based on the value Prange transmitted regularly to the CPE by the BS through the RNG-CMD MAC message (see 7.7.6) to keep the TPC of the RF link up-to-date. The CPE shall be calibrated by the manufacturer so that the actual EIRP density per subcarrier transmitted by the CPE corresponds to the level indicated by the Prange variable resulting from the RNG-CMD message (within 0.5 dB). The default normalized CNR values per modulation for the binary convolutional code (BCC) and multidimensional trellis coded modulation (MD-TCM), except for the CDMA code, are given in Table228. These values may be overridden by the BS by using a dedicated UCD message (see Table33). The second column is the default value and third column is informative and indicative of the modulation performance in a multipath channel.

*[End of proposed change]*

**References:**

1. IEEE Draft Std. 802.22b D2.0, 2014
2. IEEE Std. 802.22-2011, July 2011

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)