IEEE P802.22  
Wireless RANs

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| TGb LB2 Comment Resolution for Section 3 and 4 | | | | |
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Abstract

Tables related to data rate are updated

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| --- | --- | --- | --- |
| **ID** | **Commenter Name** | **Comment** | **Suggested Remedy** |
| 53 | Sunghyun Hwang | There is no data rate and spectral efficiency for MIMO and multiple channel operation. | Add the data rate and spectral efficiency for MIMO and multiple channel operation. |
| 79 | Masayuki Oodo | In Table 198, on the row of "Data rate", the maximumm data rate is 31.78 Mbit/s. In Table GQ1, on the other hand, on the column of 1/16CP of 6MHz BW, the maximum data rate is 32.12 Mbit/s. The maximum data rate should be the same value. This may affect the data rate in PHY Mode2. | How to calculate the maximum data rate (for 4D- 192TCM) should be made clear and the maximum data rate in Table 198 and in Table GQ1 should be the same. |

**Table HE1 — System parameters**

|  |  |  |
| --- | --- | --- |
| **Parameters** | **Specifications** | **Remark** |
| Frequency Range | 54~862 MHz |  |
| Channel bandwidth | 6, 7, or 8 MHz | According to regulatory domain (see Annex A). |
| Data rate (Channel BW=6MHz and CP=1/16) | 3.61 to 18.05 up to 25.27 Mbit/s (optional) for SISO and single channel operation case  57.77 to 288.85 up to 404.39 Mbit/s for 4-stream MIMO and 4-channel aggregation operation case | See Table HU1 |
| Spectral Efficiency　(Channel BW=6MHz and CP=1/16) | 0.60 to 3.01 up to 4.21 bit/(s・Hz) for SISO and signle channel operation case  2.41 to 12.05 up to 16.85 bit/(s・Hz) for 4-stream MIMO and 4-channel aggregation operation case | See Table HU1 |
| Payload modulation | QPSK, 16-QAM, 64-QAM, 256-QAM (optional), MD-TCM (optional) | BPSK used for preambles, pilots and CDMA codes. |
| Transmit EIRP | 4W maximum for CPEs. 4W maximum for BS’s in the USA regulatory domain. | Maximum EIRP for BS’s may vary in other regulatory domains. |
| Multiple Access | OFDMA |  |
| FFT Size (NFFT) | 1024 |  |
| Cyclic Prefix Modes | 1/4, 1/8, 1/16, 1/32 |  |
| Duplex | TDD |  |

**Table 198 — System parameters**

|  |  |  |
| --- | --- | --- |
| **Parameters** | **Specifications** | **Remark** |
| Frequency Range | 54~862 MHz |  |
| Channel bandwidth | 6, 7, or 8 MHz | According to regulatory domain (see Annex A). |
| Data rate (Channel BW=6MHz and CP=1/16) | 4.54 to 22.69 up to 31.78 Mbit/s (optional) for SISO and single channel operation case  72.59 to 362.96 up to 513.91 Mbit/s for 4-stream MIMO and 4-channel aggregation operation case | See Table HB1 |
| Spectral Efficiency　(Channel BW=6MHz and CP=1/16) | 0.76 to 3.78 up to 5.3 bit/(s・Hz) for SISO and signle channel operation case  3.04 to 15.12 up to 21.2 bit/(s・Hz) for 4-stream MIMO and 4-channel aggregation operation case | See Table HB1 |

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| --- | --- | --- | --- |
| **ID** | **Commenter Name** | **Comment** | **Suggested Remedy** |
| 38 | Shigenobu Sasaki | Consider to add the optional PHY mode as in subclause 9.2 in this table. | Consider to add the optional PHY mode as in subclause 9.2 in this table. |

**Table HU1— PHY Modes and their related modulations, coding rates**

**and data rates for TCP = TFFT/16**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **PHY**  **Mode** | **Modu-lation** | **Coding rate** | **Data rate**  **(Mb/s)** | **Spectral Efficiency3**  **(for 6 MHz bandwidth)** |
| 11 | BPSK | Uncoded | 4 | 4 |
| 22 | QPSK | 1/2,Repeti-tion:4 | 4 | 4 |
| 3 | QPSK | 1/2 | 3.61 | 0.60 |
| 4 | QPSK | 2/3 | 4.81 | 0.80 |
| 5 | QPSK | 3/4 | 5.42 | 0.90 |
| 6 | QPSK | 5/6 | 6.02 | 1.00 |
| 7 | 16-QAM | 1/2 | 7.22 | 1.20 |
| 8 | 16-QAM | 2/3 | 9.63 | 1.60 |
| 9 | 16-QAM | 3/4 | 10.83 | 1.81 |
| 10 | 16-QAM | 5/6 | 12.04 | 2.01 |
| 11 | 64-QAM | 1/2 | 10.83 | 1.81 |
| 12 | 64-QAM | 2/3 | 14.44 | 2.41 |
| 13 | 64-QAM | 3/4 | 16.25 | 2.71 |
| 14 | 64-QAM | 5/6 | 18.05 | 3.01 |
| 15 | 256-QAM | 1/2 | 14.44 | 2.41 |
| 16 | 256-QAM | 2/3 | 19.26 | 3.21 |
| 17 | 256-QAM | 3/4 | 21.66 | 3.61 |
| 18 | 256-QAM | 5/6 | 24.07 | 4.01 |
| 19 | 256-QAM | 7/8 | 25.27 | 4.21 |
| 20 | 4D-TCM 48QAM | 10/11 | 18.05 | 3.01 |
| 21 | 4D-TCM 192QAM | 14/15 | 25.27 | 4.21 |