IEEE P802.11
Wireless LANs

|  |
| --- |
| Comment Resolution for CIDs 215 and 2486 |
| Date: 2016-05-16 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Daewon Lee | Newracom | 9008 Research Dr. Irvine CA 92618 | +1 (678) 294-2598 | daewon.lee at newracom.com |
| Yujin Noh | Newracom | 9008 Research Dr. Irvine CA 92618 |  | yujin.noh at newracom.com |
| Minho Cheong | Newracom | 9008 Research Dr. Irvine CA 92618 |  | minho.cheong at newracom.com |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Abstract

This is the proposed resolution for CIDs 215 and 2486.

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGax Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGax Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGax Editor: Editing instructions preceded by “TGax Editor” are instructions to the TGax editor to modify existing material in the TGax draft. As a result of adopting the changes, the TGax editor will execute the instructions rather than copy them to the TGax Draft.***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause Number(C)** | **Page(C)** | **Line(C)** | **Comment** | **Proposed Change** | **Resolution** |
| 215 | Alfred Asterjadhi | 9.2.4.7.1 | 33 | 26 | Update Table 9.19 (Table 9-19--Maximum data unit sizes (in octets) anddurations (in microseconds)) for HE | Add a column for HE and specify the values for PPDU size as is captured in the 11ax SFD. | Revised.Agree in principle.*TGax Editor:* Include the additional column as specified in document 11-16-0681-03-00ax comment-resolution-CID-215-2486  |
| 2486 | Yongho Seok | 9.2.4.7.1 | 15 | 26 | Update Table 9-19 (Maximum data unit sizes (in octets) and durations (in microseconds)) for including the HE PPDU. | As per comment | Revised. Agree in principle.*TGax Editor:* Include the additional column as specified in document 11-16-0681-03-00ax comment-resolution-CID-215-2486 |

**Discussion:**

The maximum PSDU for HE PPDU is computed using the following configurations:

* HE SU PPDU
* 8 spatial streams,
* 0.8us GI,
* 1x LTF symbols,
* 160MHz transmission using 2x996 RU
* 1024 QAM with 5/6 code-rate
* LDPC
* 5484us PPDU length
* PE a = 4, TPE = 0us

Based on the above configuration, maximum number of OFDM symbols for HE SU PPDU is 398.

* Max PPDU duration (5484 us) – {L-STF, L-LTF, L-SIG, RL-SIG, HE SIG-A, HE-STF, HE-LTF} duration (68 us) = 5416us
* 5416 us / OFDM symbol duration (0.8us + 12.8us) = 398.2353 OFDM symbols. (This needs to be rounded down).
* 

Using the above parameters we can compute the payload size for physical layer as follows:

* 
* 
* 
* 
* 
*  (to account for Service field addition by the PHY layer)

According to calculations the extra LDPC symbol is not needed, therefore when using the mentioned configuration.

Therefore,

* 
* 

The computed maximum PSDU size is 6,500,631 bytes (~222.63).

The rest of the maximum data unit sizes should be identical to VHT PPDU cases. We propose to added identical maximum data unit size information for HE PPDU, with the exception of maximum PSDU size, which is 6,500,631 bytes.

The changes need to be performed to Table 9-19 in section 9.2.4.7 and the corresponding reference in Table 26-36 in section 26.4.4.

**Proposed Text Changes:**

------------- Begin Text Changes ---------------

**9.2.4.7 Frame Body field**

**9.2.4.7.1 General**

*<omitted>*

**Table 9-19—Maximum data unit sizes (in octets) and durations (in microseconds)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Non-HT non-VHT****non-DMG PPDU****and non-HT****duplicate PPDU** | **HT PPDU** | **VHT PPDU** | **DMG PPDU** | **HE PPDU** |
| MMPDU size | 2304 | 2304 | See NOTE 1 | 2304 | See NOTE 1 |
| MSDU size | 2304 | 2304 | 2304 | 2304 | 2304 |
| A-MSDU size | 3839,4065 (see NOTE 2),7935 (HT STA, see also Table 9-161 (Subfields of the HT CapabilityInformation field)),orN/A (non-HT STA, see also 10.12 (A-MSDUoperation)) | 3839 or 7935 (seealso Table 9-161(Subfields of the HT CapabilityInformation field)) | See NOTE 3 | 7935 | See NOTE 3 |
| MPDU size | See NOTE 4 | See NOTE 5 | 3895 or 7991 or11 454 (see alsoTable 9-248(Subfields of theVHT CapabilitiesInformationfield)) | See NOTE 5 | 3895 or 7991 or11 454 (see alsoTable 9-248(Subfields of theVHT CapabilitiesInformationfield)) |
| PSDU size (seeNOTE 7) | 213–1 (Clause 15(DSSS PHYspecification for the 2.4 GHz banddesignated for ISM applications), see Table 15-5(DSSS PHYcharacteristics))212–1 (others, seeTable 16-6 (HR/DSSS) PHY frequency channel plan), Table 17-21 (OFDM PHY characteristics),Table 18-5 (ERPcharacteristics)) | 216–1(see Table 19-25(HT PHYcharacteristics)) | 4 692 480 (~222.16)(see Table 21-29(VHT PHY characteristics)) | 218–1(see Table 20-33(DMG PHYcharacteristics)) | 6,500,631 (~222.63)(see Table 26-36(HE PHY characteristics)) |
| PPDU duration(see NOTE 7) | See NOTE 6 | 5484 (HT\_MF; see10.26.4 (L\_LENGTH and L\_DATARATE parameter values for HT-mixed format PPDUs))or10 000(HT\_GF; seeTable 19-25(HT PHYcharacteristics)) | 5484(see Table 21-29(VHT PHY characteristics)) | 2000(see Table 20-33(DMG PHY characteristics)) | 5484(see Table 26-36(HE PHY characteristics)) |
| NOTE 1—No direct constraint on the maximum MMPDU size; indirectly constrained by the maximum MPDU size(see 9.3.3.2 (Format of Management frames)).NOTE 2—Indirect constraint from the maximum PSDU size: 212–1 octets minus the minimum QoS Data (Ed)frame overhead (26 octets for the MAC header and 4 octets for the FCS).NOTE 3—No direct constraint on the maximum A-MSDU size; indirectly constrained by the maximum MPDU size.NOTE 4—No direct constraint on the maximum MPDU size; indirectly constrained by the maximum MSDU/MMPDU or (for HT STAs only) A-MSDU size.NOTE 5—No direct constraint on the maximum MPDU size; indirectly constrained by the maximum A-MSDU size.NOTE 6—No direct constraint on the maximum duration, but an L\_LENGTH value above 2332 might not be supported by some receivers (see last NOTE in 10.26.4 (L\_LENGTH and L\_DATARATE parameter values for HTmixed format PPDUs)).NOTE 7—The values for maximum PSDU size and maximum PPDU duration are informative only. References to the normative requirements are provided. |

-------------- End Text Changes ----------------

------------- Begin Text Changes ---------------

**26.4.4 HE PHY**

*<omitted>*

**Table 26-36—HE PHY characteristics**

|  |  |
| --- | --- |
| **Characteristic** | **Value** |
| aTxPHYDelay | Implementation dependent |
| aRxPHYDelay | Implementation dependent |
| aCCAMidTime | 25 μs |
| aPPDUMaxTime | 5.484 ms |
| aPSDUMaxLength | 6,500,631 octets |

-------------- End Text Changes ----------------