IEEE P802.11
Wireless LANs

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| LB225 11ax D1.0 Comment Resolution 10.13 |
| Date: 2017-03-07 |
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Abstract

This submission proposes resolutions for multiple comments related to TGax D1.0 with the following CIDs :

* 3241, 3350, 3454, 3762, 3848, 4284, 4753, 5050, 5404, 5571, 6967, 6968, 6969, 6970, 6971, 6972, 6973

Revisions:

* Rev 0: Initial version of the document.

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.***

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| **CID** | **PP** | **LL** | **Comment** | **Proposed Change** | **Resolution** |
| 3241 | 128 | 42 | HE Capabilities Element clause number incorrect | Change clause number to "9.4.2.218" | **Revised.**Agree in principal. TGax editor makes changes as shown in the as specified in 11-16/xxxxr0. |
| 3350 | 128 | 42 | HE Capabilities Element clause number incorrect | Change clause number to "9.4.2.218" | **Revised.**Agree in principal. TGax editor makes changes as shown in the as specified in 11-16/xxxxr0. |
| 3454 | 128 | 42 | HE Capabilities Element clause number incorrect | Change clause number to "9.4.2.218" | **Revised.**Agree in principal. TGax editor makes changes as shown in the as specified in 11-16/xxxxr0. |
| 3762 | 128 | 42 | HE Capabilities Element clause number incorrect | Change clause number to "9.4.2.218" | **Revised.**Agree in principal. TGax editor makes changes as shown in the as specified in 11-16/xxxxr0. |
| 3848 | 128 | 42 | HE Capabilities Element clause number incorrect | Change clause number to "9.4.2.218" | **Revised.**Agree in principal. TGax editor makes changes as shown in the as specified in 11-16/xxxxr0. |
| 4284 | 128 | 42 | HE Capabilities Element clause number incorrect | Change clause number to "9.4.2.218" | **Revised.**Agree in principal. TGax editor makes changes as shown in the as specified in 11-16/xxxxr0. |
| 4753 | 128 | 36 | The maximum length of the A-MPDU per-EOF that an HE STA can receive is actually signaled by a combination of the values of the MALE (Maximum A-MPDU Length Exponent) fields in the HT, VHT, and HE Capabilities element. As such this statement is not correct. Fix the inconsistency inline with the definition of these fields in the HE Capabilities, and VHT, HT Caps (similarly in P129L5). Also the term "padding in this sentence is ambiguous. At first read i thought that this applies to padding, but actually refers to the A-MPDU max length, or does it? Remove "padding" or somehow clarify that it relates to the A-MPDU length, e.g., adding a reference to 9.7.1 (A-MPDU format). Also in the VHT case. | As in comment. | **Revised.**Agree in principal about Length comment. But disagree with the commenter about the padding part. “padding before EOF” is well defined in 11ac. There is no issue. TGax editor makes changes as shown in the as specified in 11-16/xxxxr0. |
| ~~4754~~ | ~~107~~ | ~~1~~ | ~~The MPDU length for HE follows the same rules as the one for VHT. Replace "VHT PPDU" with "VHT or HE PPDU" in this equation.~~ | ~~As in comment.~~ |  |
| 5050 | 128 | 13 | In IEEE 802.11-2016 publication, 10.13.3, page 1368, it's stated that QoS Null frame transmitted by DMG STA are not subject to this spacing, i.e., no MPDU delimiters with zero length need to be inserted after the MPDU immediately preceding the QoS Null frame in an A-MPDU. 11ax allows certain control and management frames to be aggregated with DATA frames. BAR/ACK/BA/MBA/Action/Trigger frame in A-MPDU doesn't need to comply the minimum MPDU spacing time following this QoS-Null example. | Shuold be ammended to 10.13 | **Rejected****Discussion: The A-MPDU in HT PPDU and VHT PPDU includes bunch of control, management frames which are under minimum MPDU spacing time restriction. We believe QoS Null should also under such restriction.** |
| 5404 | 129 | 8 | A multi-TID A-MPDU may contain multiple A-MPDU subframes with the EOF subfield set to 1 and the MPDU Length subfield set to nonzero value. However, in the baseline spec, the EOF field can be set to 1 if the A-MPDU subframe's MPDU Length field is nonzero and the subframe is the only subframe that has a nonzero MPDU Length field. Therefore, the setting rule of the EOF field should be changed for an HE STA. | If an A-MPDU subframe's MPDU Length field is nonzero, the subframe is the only subframe that has a nonzero MPDU Length field and the TID value of the MPDU is not the same with TID values of other MPDUs in the A-MPDU, the EOF field may be set to 1. | **Revised.**Agree in principal. TGax editor makes changes as shown in the as specified in 11-16/xxxxr0. |
| 5571 | 128 | 21 | "When an A-MPDU contains multiple QoS Control fields, bits 4 shall be identical across all MPDUs that contain the QoS Control fields and bits 8-15 of these QoS Control fields shall be identical across all MPDUs with equal value of the TID subfield." This applies to all STAs so we need to check that we have not changed the original rule which is bits 4, 8-15 are the same. The new rule says that 8-15 is only the same for same TID so now can we have different TIDs within the same A-MPDU when the original rule says we can't? Why is this done and is it valid. I would like to see an explanation as htis appears to change a rule. | Delete changes | **Rejected****Discussion: Bits 8 to 15 of QoS Control field includes buffer stauts report of TID indicated by bits 0 to 3. For a STA buffer MPDUs of different TIDs may be different. 11ax allows multi-TID A-MPDU. In multi-TID A-MPDU, bit 8 to 15 of QoS Control field of MPDUs from different TIDs can be different.** |
| 6967 | 128 | 21 | Why complicate the phasing of sentence, leave it in its simple form. The concept of changing base line text to include the HE corner case where a A-MPDU contains multiple TID fields seems to be unnecessary, wouldn't it be easier to simply add a sentence or paragraph to deal with then exception for the HE case? This would yield a different resolution to the one proposed. | Change the sentence to read: "When an A-MPDU contains multiple QoS Control fields, bit 4 of these QoS Control fields shall be identical and bits 8-15 of these QoS Control fields shall be identical for MPDUs with the same the TID subfield value." | **Rejected****Discussion: if the resolution proposed by the commenter is adopted, it is not clear in which scope the statement that bit 4 of QoS Control field is same applies.** |
| 6968 | 128 | 36 | The inserted sentence makes no sense as it is written. The requirement should be based on the HE Capabilities element, which requires: "If the HE STA does not include VHT Capabilities element, the Maximum A-MPDU Length Exponent subfield in HE Capabilities element combined with the Maximum A-MPDU Length Exponent subfield in HT Capabilities element indicate the maximum length of A-MPDU that the STA can Receive where EOF padding is not included in this limit." Therefore correct the requirement. Since the requirement only relates to the HE STA, I think it needs to say so. | Replace the inserted sentence: "A STA indicates in the Maximum A-MPDU Length Exponent field in its HE Capabilities element the maximum length of the AMPDU pre-EOF padding that it can receive in an HE PPDU."With: "For an HE STA the maximum A-MPDU length the STA can receive pre-EOF padding is indicated in the VHT capabilities element, or if the VHT capabilities element is not included then the maximum A-MPDU length the STA can receive pre-EOF padding is indicated by combining the Maximum A-MPDU Length Exponent subfield in HE Capabilities element combined with the Maximum A-MPDU Length Exponent subfield in HT Capabilities element." | **Revised.**Agree in principal with the commenter. TGax editor makes changes as shown in the as specified in 11-16/xxxxr0. |
| 6969 | 128 | 41 | Table 9-249 (Subfields of the VHT Capabilities Information field) may also apply to HE PPDUs | Add: "... and may apply to HE PPDUs" | **Revised.**Agree in principal with the commenter. TGax editor makes changes as shown in the as specified in 11-16/xxxxr0. |
| 6970 | 128 | 39 | Table 9-163 (Subfields of the A-MPDU Parameters field) may also apply to HE PPDUs | Add: "... and may apply to HE PPDUs" | **Revised.**Agree in principal with the commenter. TGax editor makes changes as shown in the as specified in 11-16/xxxxr0. |
| 6971 | 128 | 40 | Table 9-229 (HE Ca[abilities element) may also apply to HE PPDUs | Add: "... and may apply to HE PPDUs" | **Rejected****Discussion: DMG related capabilities can’t be applied to HE PPDUs.** |
| 6972 | 128 | 58 | The length of an A-MPDU pre-EOF padding that an HE STA shall be capable of receiving is indicated by the Maximum A-MPDU Length Exponent subfield in the VHT capabilities element or by combining the information in the Maximum A-MPDU Length Exponent subfields in the HE and HT capabilities elements. Not as stated by the HE capabilities element alone | Correct the requirement so that the capabilities of the HE STA is correctly described, as noted in the comment. | **Revised.**Agree in principal with the commenter. TGax editor makes changes as shown in the as specified in 11-16/xxxxr0. |
| 6973 | 129 | 6 | The length of an A-MPDU pre-EOF padding that an HE STA shall be capable of receiving is indicated by the Maximum A-MPDU Length Exponent subfield in the VHT capabilities element or by combining the information in the Maximum A-MPDU Length Exponent subfields in the HE and HT capabilities elements. Not as stated by the HE capabilities element alone | Correct the requirement so that the capabilities of the HE STA is correctly described, as noted in the comment. | **Revised.**Agree in principal with the commenter. TGax editor makes changes as shown in the as specified in 11-16/xxxxr0. |

**10.13.1 A-MPDU contents**

***TGax editor: add the following text as the last paragraph in 10.13.1(#CID5404):***

If an A-MPDU subframe's MPDU Length field in an HE PPDU is nonzero, the subframe is the only subframe that has a nonzero MPDU Length field and the TID value of the MPDU is not the same with TID values of other MPDUs in the A-MPDU, the EOF field may be set to 1.

**10.13.2 A-MPDU length limit rules**

***TGax editor: change the first paragraph as follows:***

A STA indicates in the Maximum A‑MPDU Length Exponent field in its HT Capabilities element the maximum A‑MPDU length that it can receive in an HT PPDU. A STA indicates in the Maximum A-MPDU Length Exponent field in its VHT Capabilities element the maximum length of the A-MPDU pre-EOF padding that it can receive in a VHT PPDU. A DMG STA indicates in the Maximum A-MPDU Length Exponent field in its DMG Capabilities element the maximum A-MPDU length that it can receive. A STA indicates in the Maximum A-MPDU Length Exponent field in its HTCapabilities, VHT Capabilities and HE Capabilities element the maximum length of the A-MPDU pre-EOF padding that it can receive in an HE PPDU.(#4753, 6968) The encoding of these fields is defined in Table 9-163 (Subfields of the A-MPDU Parameters field) for an HT PPDU and a HE PPDU (#CID6970), in Table 9-249 (Subfields of the VHT Capabilities Information field) for a VHT PPDU and a HE PPDU (#CID6969), ~~and~~ in Table 9-229 (Subfields of the A-MPDU Parameters subfield) for a DMG STA, and in 9.4.2.218 (HE Capabilities element) (#CID 3241, 3350, 3454, 3762, 3848).

***TGax editor: change the third paragraph as follows:***

Using the Maximum A-MPDU Length Exponent fields in the HT Capabilities, ~~and~~ VHT Capabilities, and HE Capabilities elements, the STA establishes at association the maximum length of an A-MPDU pre-EOF padding that can be sent to it. An HT STA shall be capable of receiving A-MPDUs of length up to the value indicated by the Maximum A-MPDU Length Exponent field in its HT Capabilities element. A VHT STA shall be capable of receiving A-MPDUs where the A-MPDU pre-EOF padding length is up to the value indicated by the Maximum A-MPDU Length Exponent field in its VHT Capabilities element. An HE STA shall be capable of receiving A-MPDUs where the A-MPDU pre-EOF padding length is up to the value indicated by the Maximum A-MPDU Length Exponent field in its HT Capabilities element, VHT Capabilities element and HE Capabilities element (#CID 6972).

***TGax editor: change the last paragraph as follows:***

A STA shall not transmit an A-MPDU in an HT PPDU that is longer than the value indicated by the Maximum A-MPDU Length Exponent field in the HT Capabilities element received from the intended receiver. MPDUs in an A-MPDU carried in an HT PPDU shall be limited to a maximum length of 4095 octets. A STA shall not transmit an A-MPDU in a VHT PPDU where the A-MPDU pre-EOF padding length is longer than the value indicated by the Maximum A-MPDU Length Exponent field in the VHT Capabilities element received from the intended receiver. A DMG STA shall not transmit an A-MPDU that is longer than the value indicated by the Maximum A-MPDU Length Exponent field in the DMG Capabilities element received from the intended receiver. A STA shall not transmit an A-MPDU in an HE PPDU where the A-MPDU pre-EOF padding length is longer than the value indicated by the Maximum A-MPDU Length Exponent field in the HT Capabilities, VHT Capabilities and HE Capabilities element received from the intended receiver (#CID 4753, 6973).