IEEE P802.11
Wireless LANs

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| 11ax D2.0 Comment Resolution 9.7.1 |
| Date: 2018-02-28 |
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Abstract

This submission proposes resolutions for multiple comments related to TGax D2.0 with the following CIDs:

* 11129, 11255, 11328, 11329, 11502, 12815, 12816, 13661, 14327.

Revisions:

* .

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** |
| 11129 | 169 | 7 | The NOTE is well past its "best before" date - i.e. the relevance of "N" to HE is lost in the mists of time. | Delete table NOTE and reference to it at line 6. | **Revised.****Generally agree with the commenter.****TGax editor to make changes in 11-18/0425r1 under CID 11129** |
| 11255 | 168 | 57 | In Table 9-422 -MPDU delimiter fields (non-DMG) the Reserved field is assigned 1 bit. Description is missing in the table in the text. | Add description "Reserved. Set to 1." | **Rejected.****Discussion: In 9.2.2, the following rule is defined about how to set Reserved field: “**Reserved fields and subfields are set to 0 upon transmission and are ignored upon reception**”.** |
| 11328 | 168 | 35 | "The maximum length of an A-MPDU pre-EOF padding in an HE PPDU is4 194 303 octets." Is this number correct? | As in comment. | **Revised.****Generally agree with the commenter. The A-MPDU in 2.4GHz band is less than 4194303 octets. In 11ax D1.0 comment resolution, MAC ad hoc group agreed the change of maximal A-MPDU size to be 223-1 octets at 5GHz band and 219-1 octets at 2.4GHz band in 11-17/1283r3 under CID 8672.****TGax editor to make changes in 11-18/0425r1 under CID 11328** |
| 11329 | 168 | 54 | It may be a good idea to try and differentiate these types (thinking acronym wise): S-MPDU, A-MPDU, AE A-MPDU, MT A-MPDU, AEMT A-MPDU? | As in comment. | **Revised****Generally agree with the commenter.** **TGax editor to make changes in 11-18/0425r1 under 11329** |
| 11502 | 168 | 42 | It is highly possible that multiple MPDU delimiter may be inserted between MPDUs. Usefull information such as color, can be inserted into HE MPDU delimiter for better efficiency. | as in the comment | **Rejected.****Discussion: Changing MPDU Delimiter may provide some benefit. However the complexity introduced can’t justify the MPDU delimiter change.** |
| 12815 | 168 | 47 | The EOF bit no longer indicates EOF in HE PPDUs | In Table 9-422 delete "End of frame indication." and add a NOTE at the end of the cell containing this saying "NOTE---The EOF field indicates EOF in a VHT PPDU. It does not indicate EOF in an HE PPDU." | **Revised****Generally agree with the commenter.** **TGax editor to make changes in 11-18/0425r1 under 12815** |
| 12816 | 168 | 52 | "a QoS Data frame or Action frame soliciting an Ack frame" is confusing because an Action frame always solicits an Ack | Change " set to 1 in a MPDU delimiter preceding a QoS Dataframe or Action frame soliciting an Ack frame in response that are contained inan ack-enabled multi-TID A-MPDU" to "set to 1 in an MPDU delimiter preceding a QoS Dataframe that solicits a non-block acknowledgment or preceding an Action frame, where contained inan ack-enabled multi-TID A-MPDU" | **Rejected****Discussion: The commenter is right that Action frame is always soliciting Ack. However Action frame in Ack-enabled (multi-TID) A-MPDU is new aggregation rules in 11ax. In order to be in line with the MPDU delimiter setting rule of the Action frame in S-MPDU, Action frame in Ack-enabled (multi-TID) A-MPDU is identified by a MODU delimiter with EOF equal to 1.** |
| 13661 | 168 | 54 | "... and set to 1 in a MPDU delimiter preceding a QoS Data frame or Action frame soliciting an Ack frame in response that are contained in an ack-enabled multi-TID A-MPDU as described in 10.13.7 (Setting the EOF field of the MPDU delimiter) and 27.10.4.3 (Ack-enabled multi-TID A-MPDU operation). Set to 0 otherwise." Subclause 10.13.7 adds nothing for a case when a QoS Data frame or Action frame soliciting an Ack frame aggregated. | Delete "10.13.7 (Setting the EOF field of the MPDU delimiter) and " from pp.ll 168.54. | **Revised.****Generally agree with the commenter.****TGax editor to make changes in 11-18/0425r1 under CID 13661** |
| 14327 | 168 | 42 | It is highly possible that multiple MPDU delimiter may be inserted between MPDUs. Usefull information such as color, can be inserted into HE MPDU delimiter for better efficiency. | as in the comment | **Rejected.****Discussion: Changing MPDU Delimiter may provide some benefit. However the complexity introduced can’t justify the MPDU delimiter change.** |

**3. Definitions, acronyms, and abbreviations**

**3.4 Abbreviations and acronyms**

***TGax editor: Insert the following acronym definitions (maintaining alphabetical order) (11329):***

**AE A-MPDU ack-enabled A-MPDU**

**AEMT A-MPDU ack-enabled multi-TID A-MPDU**

**MT A-MPDU multi-TID A-MPDU**

**NAEMT A-MPDU non-ack-enabled multi-TID A-MPDU**

***TGax editor: Change ack-enabled A-MPDU to AE A-MPDU through the draft (11329)***

***TGax editor: Change ack-enabled* multi-TID A-MPDU*to AEMT A-MPDU through the draft (11329)***

***TGax editor: Change* multi-TID A-MPDU*to MT A-MPDU through the draft (11329)***

***TGax editor: Change non-ack-enabled* multi-TID A-MPDU*to NAEMT A-MPDU through the draft (11329)***

**9.4.2.237 HE Capabilities element**

**9.4.2.237.2 HE MAC Capabilities Information field**

***TGax editor: Change the row with*** Maximum A-MPDU Length Exponent in Table 9-262z as follows ***(11328):***

**Table 9-262z—Subfields of the HE MAC Capabilities Information field**

|  |  |  |
| --- | --- | --- |
| Maximum A-MPDU Length Exponent Extension (11328) | Indicates the exponent extension for the maximum A-MPDU length supported in reception (see 27.10 A-MPDU operation). (11328) | Set to the value of the exponent extension value (11328) |

***TGax editor: Change the last two paragraphs as follows:***

**9.7 Aggregate MPDU (A-MPDU) 9.7.1 A-MPDU format**

***TGax editor: make the change as follows:***

The maximum length of an A-MPDU in an HT PPDU is 65 535 octets. The maximum length of an A-MPDU in a DMG PPDU is 262 143 octets. The maximum length of an A-MPDU pre-EOF padding in a VHT PPDU is 1 048 575 octets. The maximum length of an A-MPDU pre-EOF padding in an HE PPDU is 4 194 303 octets. The length of an A‑MPDU addressed to a particular STA can be further constrained as described in 10.13.2 (A-MPDU length limit rules).

***TGax editor: change Table 9-422 as follows:***

**Table 9-422— MPDU delimiter fields (non-DMG)**

|  |  |  |
| --- | --- | --- |
| Field | Size (bits) | Description |
| EOF | 1 | End of frame indication. Set to 1 in an A-MPDU subframe that has 0 in the MPDU Length field and that is used to pad the A-MPDU in a VHT or HE PPDU as described in 10.13.6 (A-MPDU padding for VHT PPDU). Set to 1 in the MPDU delimiter of an S-MPDU(#6479) as described in 10.13.7 (Setting the EOF field of the MPDU delimiter)) and set to 1 in a MPDU delimiter preceding a QoS Data frame or Action frame soliciting an Ack frame in response that are contained in an AEMT A-MPDU as described in 27.10.4.3 (Ack-enabled multi-TID A-MPDU operation) and AE A-MPDU as described in 27.10.4.1 (General)(#7537, #7937, #9348). Set to 0 otherwise.(11329, 13661)NOTE---The EOF field indicates EOF in a VHT PPDU. In an HE PPDU the EOF indicates either the EOF or that the immediate following MPDU solicits a Ack response.(12815) |
| Reserved | 1 |  |
| MPDU Length | 14 | Length of the MPDU in octets. Set to 0 if no MPDU is present. An A-MPDU subframe with 0 in the MPDU Length field is used as defined in 10.13.3 (Minimum MPDU Start Spacing field) to meet the minimum MPDU start spacing requirement and also to pad the A-MPDU to fill the available octets in a VHT or HE PPDU as defined in 10.13.6 (A-MPDU padding for VHT PPDU). |
| CRC | 8 | 8-bit CRC of the preceding 16 bits |
| Delimiter Signature | 8 | Pattern that may be used to detect an MPDU delimiter when scanning for an MPDU delimiter.The unique pattern is 0x4E which is the ASCII value of the character 'N' chosen as the unique pattern for the value in the Delimiter Signature field. (11129) |
| (11129) |

**27.10 A-MPDU operation**

**27.10.1 General**

***TGax editor: Insert the following paragraph at the and of this subclaus)( 11328):***

An HE STA that sends a VHT Capabilities element and an HE Capabilities element with Exponent Extension field of 0 shall support in reception an A-MPDU pre-EOF padding with maximum length defined in 10.13.2 (A-MPDU length limit rules).

An HE STA that sends a VHT Capabilities element and an HE Capabilities element with Exponent Extension field greater than 0 shall support in reception an A-MPDU pre-EOF padding as defined in 10.13.2 (A-MPDU length limit rules) except that the maximum length is equal to 2(20 + Exponent Extension)****1. An HE STA that sets the Exponent Extension field of the HE Capabilities element to a value greater than 0 shall set the Maximum A-MPDU Length Exponent subfield of the VHT Capabilities element to 7.

An HE STA that does not send a VHT Capabilities element but sends an HT Capabilities element and an HE Capabilities element with Exponent Extension field of 0 shall support in reception an A-MPDU pre-EOF padding with maximum length defined in 10.13.2 (A-MPDU length limit rules).

An HE STA that does not send a VHT Capabilities element but sends an HT Capabilities element and an HE Capabilities element with Exponent Extension field greater than 0 shall support in reception an A-MPDU pre-EOF padding as defined in 10.13.2 (A-MPDU length limit rules) except that the maximum length is equal to 2(16 + Exponent Extension)****1. An HE STA that sets the Exponent Extension field of the HE Capabilities element to a value greater than 0 shall set the Maximum A-MPDU Length Exponent subfield of the HT Capabilities element to 3