IEEE P802.11
Wireless LANs

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| LB 205 Comment Resolution for 9.12, and 9.13 |
| Date: 2014-11-01 |
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Abstract

This submission proposes resolutions for comments in 9.12, and 9.13 of TGah Draft 3.0 with the following CIDs (TOT 3 CIDs):

* 5224, 5295, 5296

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 TGah Draft. This introduction is not part of the adopted material.

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

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

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| **CID** | **Commenter** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
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|  |  |  |  |  |  |  |
| 5224 | Liwen Chu | 258.18 | 9.12 | With normal MPDU and dynamic A-MSDU, A3 and A4 usage will create wrong MPDU because of different A3, A4 definition. | fix the problem, e.g. dynamic A-MSDU is only used in PV1 MPDU or A3, A4 are redefined. | Revised –Proposed resolution clarifies that in a PV0 MPDU carrying an A-MSDU with Dynamic A-MSDU format sets the A3/A4 fields the same way as it would have been done for the Basic A-MSDU format.TGah editor to make the changes shown in 11-14/1470r0 under all headings that include CID 5224. |

**Discussion:** *None.*

* Data frame format

**TGah Editor: *Change the table below as follows (#5224):***

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| * Address field contents
 |
| To DS | From DS | Address 1 | Address 2 | Address 3 | Address 4 |
| MSDU and Short A-MSDU case | Basic A-MSDU and Dynamic A-MSDU case | MSDU and Short A-MSDU case | Basic A-MSDU and Dynamic A-MSDU case |
| 0 | 0 | RA = DA | TA = SA | BSSID | BSSID | N/A | N/A |
| 0 | 1 | RA ~~= DA~~ (see NOTE 1) | TA = BSSID | SA | BSSID | N/A | N/A |
| 1 | 0 | RA = BSSID | TA ~~= SA~~ (see NOTE 2) | DA | BSSID | N/A | N/A |
| 1 | 1 | RA | TA | DA | BSSID | SA | BSSID |

NOTE 1—Address 1 field of a frame with To DS equal to 0 and From DS equal to 1 is equal to the DA, except when an individually addressed A-MSDU frame is used in DMS and relay(#3434), in which case, the destination address of the frame is included in the DA field of the A-MSDU subframe (see 10.24.16 (Group addressed transmission service)(#3287) and 9.42h (Relay operation)).

NOTE 2—Address 2 field of a frame with To DS equal to 1 and From DS equal to 0 is equal to the SA, except when an individually addressed A-MSDU frame is used in relay(#3434), in which case, the source address of the frame is included in the SA field of the A-MSDU subframe (see 9.42h (Relay operation)).

**Note to TGah Editor: *The resolution of these CIDs resulted in no changes to the subclause below.***

9.12 A-MSDU operation

***Change the 4th paragraph of this subclause as follows:***

An A-MSDU contains only MSDUs whose DA parameter values map to a single RA value (see 8.3.2.2 (Aggregate MSDU (A-MSDU) format)) unless it is generated by an S1G STA that follows the procedures described in 9.42h (Relay operation). An A-MSDU contains only MSDUs whose SA parameter values map to a single TA value (see 8.3.2.2 (Aggregate MSDU (A-MSDU) format)) unless it is generated by an S1G STA that follows the procedures described in 9.42h (Relay operation). For the Short A-MSDU case, an A-MSDU contains only MSDUs whose SA and DA parameter values are the same.

***Change the 10th paragraph of this subclause and insert the paragraphs below after it as follows:***

The following rules in this paragraph apply to the transmission of an A-MSDU:

—A non-DMG and non-S1G STA that has a value of false for dot11HighthroughputOptionImplemented shall not transmit an A-MSDU.

—A non-DMG STA and non-S1G STA shall not transmit an A-MSDU to a STA from which it has not received a frame containing an HT Capabilities element.

An S1G STA shall not transmit an A-MSDU to an S1G STA from which it received a frame containing an S1G Capabilities element with the A-MSDU Supported subfield equal to 0.

An S1G STA transmitting an A-MSDU shall use only the Dynamic A-MSDU subframe format (see 8.3.2.2.4 (Dynamic A-MSDU format)). The DA Present and SA Present subfields in the Subframe Control field of each Dynamic A-MSDU subframe shall be set to 1 unless the frame carrying the A-MSDU is a Short frame (see 8.8 (MAC frame format for PV1 frames)).

A non-S1G STA transmitting an A-MSDU shall not use the Dynamic A-MSDU frame format.

The length of an A-MSDU transmitted in an S1G PPDU is limited by the maximum MPDU size supported by the recipient STA (see 9.13.5 (Transport of A-MPDU by the PHY data service)).

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| **CID** | **Commenter** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 5295 | Alfred Asterjadhi | 258.55 | 9.13.2 | What about the Maximum A-MPDU Exponent Length field setting for S1G STA? Similarly other cases that apply to VHT STAs are missing for the S1G STA case throughout 9.13. | Go over the 9.13 and identify which rules that apply to VHT apply to S1G as well. It may be as easy as appending S1G after VHT qualifiers. | Revised –Agree with the comment. Proposed resolution is to amend the subclauses of 9.13 for the S1G case whenever necessary.TGah editor to make the changes shown in 11-14/1470r0 under all headings that include CID 5295. |
| 5296 | Alfred Asterjadhi | 259.56 | 9.13.5 | The "Aggregation" should be in capital letters as it is a parameter of the TXVECTOR so replace it with "AGGREGATION". Also the PPDU can carry an A-MPDU so referring to the MPDU is not correct here. Replace "MPDU" with "PSDU" | As in comment. | Revised –Agree with the comment. Proposed resolution accounts for the proposed change.TGah editor to make the changes shown in 11-14/1470r0 under all headings that include CID 5296. |

**Discussion:** *None.*

**9.13 A-MPDU operation**

**9.13.2 A-MPDU length limit rules**

**TGah Editor: *Change the 1st paragraph of this subclause as follows (#5295):***

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 STA indicates in the Maximum A-MPDU Length Exponent field in its S1G Capabilities element the maximum length of the A-MPDU pre-EOF padding that it can receive in an S1G 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. The encoding of these fields is defined in Table 8-168 (Subfields of the A-MPDU Parameters field) for an HT PPDU, in Table 8-250 (Subfields of the VHT Capabilities Info field) for a VHT PPDU, in Table 8-258a5 (Subfields of the S1G Capabilities Info field) for an S1G STA, and in Table 8-234 (Subfields of the AMPDU Parameters field) for a DMG STA.

**TGah Editor: *Change the 3rd paragraph of this subclause as follows (#5295):***

Using the Maximum A-MPDU Length Exponent fields in the HT Capabilities and VHT 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 AMPDU

Length Exponent field in its HT Capabilities element. A VHT STA shall be capable of receiving AMPDUs 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 S1G STA that sets the A-MPDU Supported subfield in the S1G Capabilities element to 1 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 S1G Capabilities element.

**TGah Editor: *Change the 4th paragraph of this subclause as follows (#5295):***

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. 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. An S1G STA shall not transmit an A-MPDU in an S1G PPDU where the A-MPDU pre-EOF padding length field is longer than the value indicated by the Maximum A-MPDU Length Exponent field in the S1G 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.

***Insert the following paragraph at the end of this subclause as follows:***

An S1G STA shall not transmit an A-MPDU, except for a VHT Single MPDU, to an S1G STA from which it received a frame containing an S1G Capability element with the A-MPDU Supported subfield equal to 0.

**9.13.3 Minimum MPDU Start Spacing field**

**TGah Editor: *Change the paragraph below as follows (#5295):***

A STA shall not start the transmission of more than one MPDU within the time limit described in the Minimum MPDU Start Spacing field declared by the intended receiver. To satisfy this requirement, the number of octets between the start of two consecutive MPDUs in an A-MPDU, measured at the PHY SAP, shall be equal or greater than

where

is the time (in microseconds) defined in the “Encoding” column of Table 8-168 (Subfields of the A-MPDU Parameters field) for an HT STA, of Table 8-258a5 (Subfields of the S1G Capabilities Info field) for an S1G STA for the value of the Minimum MPDU Start Spacing field, and of Table 8-234 (Subfields of the A-MPDU Parameters field) for a DMG STA for the value of the Minimum MPDU Start Spacing field

*r* is the value of the PHY Data Rate (in megabits per second) defined in 20.5 (Parameters for HT MCSs) for HT PPDUs, in 22.5 (Parameters for VHT-MCSs) for VHT PPDUs, in 24.5 (Parameters for S1G-MCSs) for S1G PPDUs, and in Clause 21 (Directional multi-gigabit (DMG) PHY specification) for a DMG STA

**9.13.5 Transport of A-MPDU by the PHY data service**

**TGah Editor: *Change the last paragraph of this subclause as follows (#5295):***

A STA shall not transmit an MPDU in a VHT PPDU to a STA that exceeds the maximum MPDU length capability indicated in the VHT Capabilities element received from the recipient STA. A STA shall not transmit an MPDU in an S1G PPDU to a STA that exceeds the maximum MPDU length capability indicated in the S1G Capabilities element received from the recipient STA.

**TGah Editor: *Change the paragraph below as follows (#5295, 5296):***

An S1G STA shall set the TXVECTOR parameter AGGREGATION to 1 when the length of the PSDU to be carried in the S1G PPDU is greater than 511 octets.

**TGah Editor: *Change the subclause heading as follows (#5295):***

**9.13.6 A-MPDU padding for VHT PPDU or S1G PPDU**

**TGah Editor: *Change the 1st paragraph of this subclause as follows (#5295):***

A VHT STA that transmits a VHT PPDU or an S1G STA that transmits an S1G PPDU, which contains one or more PSDUs, each of which contains an A-MPDU, shall construct the A-MPDU(s) as described in this subclause.

**TGah Editor: *Change the 5th paragraph of this subclause as follows (#5295):***

This initial value of A-MPDU\_Length[*n*] for user *n* is used as the APEP\_LENGTH[*n*] parameter value for the PLME-TXTIME.request primitive (see 6.5.7 (PLME-TXTIME.request)). The PLME-TXTIME.request primitive is then invoked once for the VHT PPDU or the S1G PPDU. The PLME-TXTIME.confirm primitive (see 6.5.8 (PLME-TXTIME.confirm)) provides the TXTIME parameter and PSDU\_LENGTH[] parameters for all the users for the transmission.

**TGah Editor: *Change the 6th paragraph of this subclause as follows (#5295):***

Subsequently, for each user n, as permitted by the rules for EDCA TXOP Sharing (see 9.22.2.6 (Sharing an

EDCA TXOP)), a VHT STA or S1G STA may add A-MPDU subframes to the A-MPDU for that user that meets either of the following conditions:

— Have a TID that maps to an AC that is not the primary AC

— Have 0 in the MPDU Length field and 0 in the EOF field

**TGah Editor: *Change the 9th paragraph of this subclause as follows (#5295):***

Subsequently, for each user n, a VHT STA or S1G STA may add A-MPDU subframes to the A-MPDU for that user that meet the following condition:

— Have 0 in the MPDU Length field

**TGah Editor: *Change the 13th paragraph of this subclause as follows (#5295):***

The final value of A-MPDU\_Length[] shall be used as APEP\_LENGTH[] in the PHY-TXSTART.request

primitive for the VHT PPDU or S1G PPDU.

**9.13.7 Setting the EOF field of the MPDU delimiter**

**TGah Editor: *Change the 1st paragraph of this subclause as follows (#5295):***

The EOF field of an A-MPDU subframe with an MPDU Length field with a nonzero value that is the only A-MPDU subframe with an MPDU Length field with a nonzero value in an A-MPDU carried in a VHT PPDU or S1G PPDU may be set to 1. The EOF field of each A-MPDU subframe with an MPDU Length field with a nonzero value that is not the only A-MPDU subframe with MPDU Length field with a nonzero value in the A-MPDU carried in a VHT PPDU or S1G PPDU shall be set to 0. The EOF field shall be set to 0 in all A-MPDU subframes that are carried in an HT PPDU.

An MPDU that is the only MPDU in an A-MPDU and that is carried in an A-MPDU subframe with 1 in the

EOF field is called a VHT single MPDU.