IEEE P802.11
Wireless LANs

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| **Resolutions to comments to subclause 9.3.1.8** |
| **Date:** 2019-05-10 |

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Abstract

This submission proposes resolutions for the following CIDs submitted to subclause 9.3.1.8 (**13 CIDs**):

* 21045,
* 20584,
* 20200, 20827, 20104, 20648, 21124, 21469, 21171, 20105, 20954, 20955, 20893

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.***

# 9.3.1.8.1

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| **CID** | **Commenter** | **PP.LL** | **Comment** | **Proposed Change** | **Resolution** |
| 21045 | Matthew Fischer | 91.60 | It would be nice to have the ability to inform the transmitter of an AMPDU that missing acknowledgements for some MPDUs are not due to a poor MCS choice, but instead, to local interference that occurred during the AMPDU reception. An indication of such occurence should be signaled in the BA. | Add a mechanism in the BA frame, perhaps the MBA, to allow a recipient transmitting the MBA to indicate to the originator that missing acknolwedgements within the BA frame are due to local interference and not a poor MCS choice. | Rejected. The proposal from the commenter, doc.18/1822, was discussed during comment resolution process to the previous draft but didn’t reach consensus.  |
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# 9.3.1.8.5

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| **CID** | **Commenter** | **PP.LL** | **Comment** | **Proposed Change** | **Resolution** |
| 20584 | Mark RISON | 95.08 | "is sent in response to the GCR MU-BAR Trigger frame" -- wrong article | Change "the" to "a" in the cited text at the referenced location | Accept.  |
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TGax Editor: Change texts under 9.3.1.8.5 in P802.11ax D4.0 as follows:

##### 9.3.1.8.5 GCR Block Ack variant

Change the 3rd paragraph as follows:

The GCR Group Address subfield is set to the value from the Group Address subfield of the GCR BAR Information field in the BlockAckReq frame to which the BlockAck frame is sent in response. If the BlockAck frame is sent in response to a(#20584) GCR MU-BAR Trigger frame, the GCR Group Address subfield is set to the value from the RA field in the GCR MU-BAR Trigger frame.

# 9.3.1.8.7

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| **CID** | **Commenter** | **PP.LL** | **Comment** | **Proposed Change** | **Resolution** |
| 20200 | Emily Qi | 95.53 | The AID11 subfield needs to be defined before using it for other field definitions. | Move paragraphs (including the figure) at 96.21 to 96.41 to 95.52.At 95.51, add a paragraph or something like: "The Per AID TID Info subfield includes the AID TID Info subfield and optional subfields." | Revised. Agree in principle. See the instructions to the TGax editor in doc. 11-19/0816r2 under all headings that include CID 20200. |
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| 20827 | Mark RISON | 96.10 | Re CID 16379/16391: the reasons given for rejection are invalid. As it says on page 1, "This document is an unapproved draft of a proposed IEEE Standard. As such, this document is subject tochange. USE AT YOUR OWN RISK! Because this is an unapproved draft, this document must not beutilized for any conformance/compliance purposes." And the proposed change will be a simple software change | Delete the Reserved field in Figure 9-47c | Reject. There are opinions that the proposed change will give impact to hareware bcause it is a control frame. A SP result taken for this issue in November shows sufficient support to keep the current frame format. Note – SP to this resolution was Y17: N2: A4.  |
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| 20104 | Alfred Asterjadhi | 96.18 | Please replace "is ignores" with "ignores". And specify that the originator is still expected to parse the following Per AID TID Info fields that follow this one (if any). | As in comment. | Revised. Agree in principle. See the instructions to the TGax editor in doc. 11-19/0816r2 under all headings that include CID 20104.Subclause 26.4.2 didn’t describe such exception, so added there, too.  |
| 20648 | Mark RISON | 96.18 | "NOTE---An originator not supporting the UORA procedure and associated with an AP is ignores the 10 octets followingthe AID TID Info subfield that are the remainder of the Per AID TID Info subfield if the AID11 subfield is 2045." -- an originator of what? And this is behaviour not format anyway | Delete the cited text at the referenced location | Revised. See the instructions to the TGax editor in doc. 11-19/0816r2 under all headings that include CID 20648. As the behaviour is not directly about the format, it is written as a Note. It is worth to write it here to avoid wrong implementation which may become a problem in the future. Subclause 26.4.2 where the behaviour requirements are described didn’t cover this exception, so added there, too. |
| 21124 | Pascal VIGER | 96.18 | Error in the note: "An originator not supporting the UORA procedure and associated with an AP is ignores the 10 octets...". Remove the verb is. | as per comment | Revised. See the instructions to the TGax editor in doc. 11-19/0816r2 under all headings that include CID 21124. |
| 21469 | Wookbong Lee | 96.18 | Grammar - "is ignores" should be "ignores" | As suggested in the comment | Revised. See the instructions to the TGax editor in doc. 11-19/0816r2 under all headings that include CID 21469. |
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| 21171 | Pooya Monajemi | 97.10 | We have effectively deprecated support for TID 8 to 15, although it is not actively stated. | I think we should have a more general statement, and consider if this applies only to HE STA, or more generally? | Revised. See the instructions to the TGax editor in doc. 11-19/0816r2 under all headings that include CID 21171.Note that in 10.24.1, there is the following statement: “HCCA is not used by DMG and HE STAs.” And the reuse of TIDs 8 to 15 only applies to Multi-STA BlockAck and the rules according to Multi-STA BlockAck is described under HE MAC specification in section 26, so Multi-STA BlockAck accompanied with the reuse of TIDs 8 to 15 is only for HE STAs.  |
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| 20105 | Alfred Asterjadhi | 97.18 | Some of the descriptions that were present in D3.0 (please refer to P119-120 L62-L15) are still beneficial (e.g., how the responding STA determines that all the MPDUs carried in the eliciting A-MPDU are successfully received). Another example is the Ack Type field setting when responding to MU BAR Trigger frame. | Please add some of the clarifying text that was removed from the paragraphs after this table to the table itself. | Revised. See the instructions to the TGax editor in doc. 11-19/0816r2 under all headings that include CID 20105.The two points that the commenter pointed out are identified to be the only ones to consider restoring. The second point is restored in 26.4.2. The first point, how the responding STA determines all the MPDUs within the A-MPDU are correct, is covered in 26.4.2. Please see pp.ll 314.55 in D4.0.  |
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| 20954 | Mark RISON | 97.37 | There is no reason to describe the container of Management/PS-Poll frames. It's not done for the TID 0-7 cases | In Table 9-30b change "Sent as an acknowledgment to a Management frame carriedin an A-MPDU or S-MPDU, or PS-Poll frame in an S-MPDU." to "Sent as an acknowledgment to a Management or PS-Poll frame." | Revised. See the instructions to the TGax editor in doc. 11-19/0816r2 under all headings that include CID 20954. |
| 20955 | Mark RISON | 97.37 | Per previous resolutions (and 26.6.4.1), an ack-enabled multi-TID A-MPDU and an ack-enabled A-MPDU and a multi-TID A-MPDU are all non-overlapping things | In Table 9-30b change "Sent as an acknowledgment to an A-MPDU or multi-TIDA-MPDU that contains an MPDU that solicits an immedi-ate response and all MPDUs contained in the A-MPDU ormulti-TID A-MPDU are received successfully." to "Sent as an acknowledgment to an A-MPDU, ack-enabled A-MPDU, non-ack-enabled multi-TID A-MPDU or ack-enabled multi-TID A-MPDU that contains an MPDU that solicits an immedi-ate response, where all MPDUs are received successfully." | Revised. Even though the subtypes of the A-MPDUs mentioned by the commenter are non-overlapping, the term A-MPDU covers ack-enabled multi-TID A-MPDU, ack-enabled A-MPDU, and multi-TID A-MPDU. See the instructions to the TGax editor in doc. 11-19/0816r2 under all headings that include CID 20955. |
| 20893 | Mark RISON | 97.41 | Re CID 16049: missed a couple | Change "all ack " to "the all ack context " at 97.41. Change "the all ack support" to "support for the all ack context" at 317.37, 318.21, 319.12, 319.56 | Revised. Making the changes suggested by the commenter and making a couple of cross reference fixes. See the instructions to the TGax editor in doc. 11-19/0816r2 under all headings that include CID 20893. |
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TGax Editor: Change texts under 9.3.1.8.7 in P802.11ax D4.0 as follows, while renumbering the figure and table numbers according to their order of appearance:

##### 9.3.1.8.7 Multi-STA BlockAck variant

The Multi-STA BlockAck frame is supported if either UL MU or multi-TID A-MPDU operation is supported and acknowledges MPDUs carried in an HE TB PPDU or multi-STA multi-TID, multi-STA single TID, or single-STA multi-TID A-MPDUs.

An HE AP that sends a Multi-STA BlockAck frame where the Per AID TID Info fields are addressed to more than one STA sets the RA field to the broadcast address. An HE AP that sends a Multi-STA BlockAck frame where the Per AID TID Info fields are all addressed to a single recipient STA and that is sent in response to an HE TB PPDU sets the RA field of the Multi-STA BlockAck frame to either the address of the recipient STA or to the broadcast address. An HE AP that sends a Multi-STA BlockAck frame where the Per AID TID Info fields are all addressed to a single recipient STA and that is not sent in response to an HE TB PPDU sets the RA field of the Multi-STA BlockAck frame to the address of the recipient STA.

A non-AP HE STA sets the RA field to the TA field of the soliciting frame or to the address of the recipient STA whose Data or Management frames are acknowledged.

The TID\_INFO subfield of the BA Control field of the Multi-STA BlockAck frame is reserved.

The BA Information field of the Multi-STA BlockAck frame comprises one or more Per AID TID Info subfields as defined in Figure 9-47a (BA Information field format (Multi-STA BlockAck)).

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|  | Repeated for each <AID, TID> tuple |
|  | Per AID TID Info |
| Octets: | variable |

**Figure 9-47a—BA Information field format (Multi-STA BlockAck)**

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The format of the Per AID TID Info subfield depends on the value of the AID11 subfield.(#20200)

(#20200)

If the AID11 subfield of the AID TID Info subfield is not 2045, then the Per AID TID Info subfield has the format shown in Figure 9-47b (Per AID TID Info subfield format if the AID11 subfield is not 2045).

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|  | AID TID Info | Block Ack Starting Sequence Control | Block Ack Bitmap |
| Octets: | 2 | 0 or 2 | 0, 4, 8, 16 or 32 |

**Figure 9-47b—Per AID TID Info subfield format if the AID11 subfield is not 2045**

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|  |  |  | (#20955) |
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|  |  |  |  frame(#20954) |
|  1the context(#20893)NOTE 2—As HE STAs do not use HCCA (see 10.24.1 (General)), TID values from 8 to 15 are not used in QoS Data frames.(#21171) |

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(#20200)

If the AID11 subfield of the AID TID Info subfield is 2045, then the Per AID TID Info subfield has the format shown in Figure 9-47c (Per AID TID Info subfield format if the AID11 subfield is 2045), where the RA subfield indicates the MAC address of an unassociated STA for which the Per AID TID Info subfield is intended.

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|  | AID TID Info | Reserved | RA |
| Octets: | 2 | 4 | 6 |

**Figure 9-47c—Per AID TID Info subfield format if the AID11 subfield is 2045**

NOTE—An associated HE STA that receives a Multi-STA BlockAck frame in response to frames it transmitted and does not support the UORA procedure ignores the 10 octets following the AID TID Info subfield that are the remainder of the Per AID TID Info subfield if the AID11 subfield is 2045 and processes the following Per AID TID Info subfields if any(#20104, #20648, #21124, #21469).

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TGax Editor: Add a paragraph after the 2nd paragraph starting with “The procedure for different acknowledgment contexts …” in 26.4.2 in P802.11ax D4.0 as follows:

The Ack Type subfield(s) in a Multi-STA BlockAck frame shall be set to 0 when the Multi-STA BlockAck frame is sent in response to an MU-BAR Trigger frame.(#20105)

TGax Editor: Add a paragraph at the end of 26.4.2 in P802.11ax D4.0 as follows:

A non-AP originator not supporting the UORA procedure and associated with an AP shall be able to identify the Per AID TID Info subfield that has the AID11 subfield set to 2045 and ignore the remainder of the Per AID TID Info subfield.(#20104, #20648)

TGax Editor: Change texts of the third item under 26.4.4.2 in P802.11ax D4.0 as follows:

3) If the A-MPDU does not include an EOF MPDU but does include one or more non-EOF-MPDUs that are QoS Data frames belonging to the same block ack agreement and with the Ack Policy field equal to Implicit Block Ack Request for at least one MPDU, then the STA shall either respond with a Compressed BlockAck frame as defined in 10.26.6.5 (Generation and transmission of BlockAck frames by an HT STA, DMG STA, or S1G STA) or a Multi-STA BlockAck frame with Ack Type field set to 1 and the TID field set to 14 as defined in 26.4.2 (Acknowledgment context in a Multi-STA BlockAck frame) if the recipient has indicated support for the all ack context(#20893) by setting the All Ack Support subfield in the HE MAC Capabilities Information field to 1.

TGax Editor: Change texts of the third item under 26.4.4.3 in P802.11ax D4.0 as follows:

3) If the A-MPDU does not include an EOF-MPDU but does include one or more non-EOF-MPDUs that are QoS Data frame belonging to the same block ack agreement and with the Ack Policy field equal to Implicit Block Ack Request for at least one MPDU, then the STA shall either respond with a Compressed BlockAck frame as defined in 10.26.6.5 (Generation and transmission of BlockAck frames by an HT STA, DMG STA, or S1G STA)(#20893) or a Multi-STA BlockAck frame with the Ack Type set to 1 and the TID field set to 14 as defined in 26.4.2 (Acknowledgment context in a Multi-STA BlockAck frame) if the recipient has indicated support for the all ack context(#20893) by setting the All Ack Support subfield in the HE MAC Capabilities Information field to 1.

TGax Editor: Change texts of the third item under 26.4.4.4 in P802.11ax D4.0 as follows:

3) If the A-MPDU does not include an EOF-MPDU but does include one or more non-EOF-MPDUs that are QoS Data frames belonging to the same block ack agreement and with the Ack Policy field equal to HTP Ack for at least one MPDU, then the STA shall respond with a Compressed BlockAck frame as defined in 10.26.6.5 (Generation and transmission of BlockAck frames by an HT STA, DMG STA, or S1G STA) or a Multi-STA BlockAck frame with the Ack Type set to 1 and the TID field set to 14 as defined in 26.4.2 (Acknowledgment context in a Multi-STA BlockAck frame) if the recipient has indicated support for the all ack context by setting the All Ack Support subfield in the HE MAC Capabilities Information field to 1.

TGax Editor: Change texts of the third item under 26.4.4.5 in P802.11ax D4.0 as follows:

3) If the A-MPDU does not include an EOF MPDU but does include one or more non-EOF-MPDUs that are QoS Data frames belonging to the same block ack agreement and with Ack Policy field equal to Implicit Block Ack Request for at least one MPDU, then the HE AP shall respond with a Compressed BlockAck frame as defined in10.26.6.5 (Generation and transmission of BlockAck frames by an HT STA, DMG STA, or S1G STA)(#20893)(#20893), a Multi-STA BlockAck with the Ack Type field set to 1 and the TID field set to 14 if the recipient has indicated support for the all ack context(#20893) by setting the All Ack Support subfield in the HE MAC Capabilities Information field to 1 or a Multi-STA BlockAck frame with the Ack Type field set to 0 as defined in 26.4.2 (Acknowledgment context in a Multi-STA BlockAck frame).