IEEE P802.11
Wireless LANs

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| Comment resolutions for CIDs 4813 and 4814 |
| Date: 2017-07-01 |
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Abstract

This submission proposes resolutions for multiple comments related to TGax D1.0 with the following CIDs (2 CIDs):

* 4813, 4814.

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** | **Commenter** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 4813 | Alfred Asterjadhi | 164.58 | what else can the AP send, or in which frames? These bullets define only may conditions, but no restrictions | add a reference to A-MPDU context and other restrictions where a trigger frame may not be included | Revised –Agree in principle. Proposed change is to explicitly state what can be sent in all the cases.TGax editor to make the changes shown in 11-17/1087r0 under all headings that include CID 4813. |
| 4814 | Alfred Asterjadhi | 165.13 | the Ack,This rule is ambiguous, especially on the second part of the sentence. "BlockAck or Multi-STA BlockAck frame shall be the first MPDU in the A-MPDU and a Triggerframe shall follow the Ack, BlockAck or Multi-STA BlockAck frame" | Clarify indicating that "at least one" of Ack/MA/M-BA shall be the first, and tha the trigger shall follow the first frame. Also verify these rules are consistent with the A-MPDU context rules | Revised –Agree in principle. Proposed change is to explicitly state what can be sent in all the cases.TGax editor to make the changes shown in 11-17/1087r0 under all headings that include CID 4814. |

## Discussion: *None*

**27.5.2.3 STA behavior for UL MU operation**

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The RA field of the frames sent in response to a MU-RTS Trigger frame is set as defined in 9.3.1.3 (CTS frame format). The RA field of the MPDUs sent in response of a GCR MU-BAR Trigger frame or MU-BAR Trigger frame is set as defined in 9.3.1.9 (BlockAck frame format). BlockAck frame and Data frames whose RAs are different shall not be aggregated in one A-MPDU in responding to a GCR MU-BAR Trigger frame or MU-BAR Trigger frame. The RA field of the Data frames and Management frames sent in response to a Trigger frame shall be set to the MAC address of the destination AP.

NOTE—All MPDUs within an A-MPDU carried in an HE TB PPDU have the same RA (see 9.7.3 (A-MPDU con-tents)). The settings of the address fields of MPDUs within the A-MPDU depend on the type and subtype of the MPDU as defined in 9.3 (Format of individual frame types).

A STA generates the A-MPDU carried in the HE TB PPDU as defined in 27.5.2.3a (A-MPDU contents in an HE TB PPDU).

**27.5.2.3a A-MPDU contents in an HE TB PPDU**

A STA that is the intended receiver of a Trigger frame or of an MPDU that includes an UMRS Control field shall follow and construct the A-MPDU carried in the response HE TB PPDU as described below

NOTE—The MU RTS Trigger frame and the NFRP Trigger frame are exempt from these construction rules since the MU RTS Trigger frame does not solicit an HE TB PPDU and the NFRP Trigger frame solicits an HE TB PPDU that does not carry an A-MPDU.

A STA that responds to a DL MU PPDU containing MPDU(s) addressed to it that include UMRS Control field(s) follows the rules defined in 10.3.2.9 (Ack procedure) for generating the Ack frame, the rules defined in 10.24.7.5 (Generation and transmission of BlockAck frames by an HT STA or DMG STA) for generating the BlockAck frame, and the rules defined in 27.4 (Block acknowledgement) for generating the Multi-STA BlockAck frame if at least one of the received MPDUs solicits an immediate acknowledgment. The contents of the A-MPDU carried in the HE TB PPDU shall be as defined in:

* Table 9-428 (A-MPDU contents MPDUs in the control response context) when at least one of the received MPDUs solicits an immediate acknowledgment. The STA may aggregate any type of Action No Ack frame in the A-MPDU.
* Table 9-426 (A-MPDU contents in the data enabled no immediate response context) when none of the received MPDUs solicits an immediate acknowledgment. The STA shall not aggregate QoS Data frames.

NOTE 1—The STA additionally follows the rules defined in 27.3.2 (Fragmentation) when fragments are present in the soliciting (A-)MPDU(s).

NOTE 2—The responding STA would be an unassociated STA when the MPDUs are contained in an RU identified by STA-ID equal to 2045.

A STA that responds to a Basic Trigger frame addressed to it shall construct the A-MPDU carried in the HE TB PPDU as defined in:

* Table 9-428 (A-MPDU contents MPDUs in the control response context) when the TID Aggregation Limit field of the User Info field addressed to the STA is 0, the Trigger frame is contained in an A-MPDU, and the STA receives at least another MPDU that solicits an immediate acknowledgment. The A-MPDU shall contain at least the solicited control response and may contain the other MPDUs listed in the table.
* Table 9-426 (A-MPDU contents in the data enabled no immediate response context) when the TID Aggregation Limit field of the User Info field addressed to the STA is 0 and the Trigger frame is either not contained in an A-MPDU or is contained in an A-MPDU but the STA receives no other MPDUs that solicit an immediate acknowledgment*.* The STA shall not aggregate QoS Data frames.
* Table 9-429 (A-MPDU contents in the S-MPDU context) when the TID Aggregation Limit field of the User Info field addressed to the STA is greater than 0 and the STA intends to carry only one MPDU in the A-MPDU, where the MPDU is preceded by a nonzero length MPDU delimiter with EOF equal to 1. The A-MPDU may contain any of the MPDUs listed in the table with the following restrictions:
	+ Shall contain the control response frame if the STA received at least another MPDU that solicits an immediate acknowledgment.
	+ If the MPDU is a Multi-TID BAR frame then the number of TIDs present in the frame shall not exceed the TID aggregation limit
* Table 9-425 (A-MPDU contents in the data enabled immediate response context) when the TID Aggregation Limit field of the User Info field addressed to the STA is greater than 0 and the STA intends to carry one or more MPDUs, each preceded by nonzero length MPDU delimiter with EOF equal to 0 (see also 27.10.4.2 (Multi-TID A-MPDU operation)). The A-MPDU may contain any of the MPDUs listed in the table with the following restrictions:
	+ Shall not contain QoS Data frames not sent under HT-immediate agreement, or Action frame.
	+ Shall contain the control response frame if the STA received at least another MPDU that solicits an immediate acknowledgment.
	+ May contain either QoS Data sent under HT-immediate agreement or BlockAckReq frames but not both.
	+ The number of TIDs present in the A-MPDU shall count towards reaching the TID aggregation limit.
* Table 9-425 (A-MPDU contents in the data enabled immediate response context) when the TID Aggregation Limit field of the User Info field addressed to the STA is greater than 0 and the STA intends to carry an ack-enabled A-MPDU (see also 27.10.4.3 (Ack-enabled multi-TID A-MPDU operation). The A-MPDU may contain any of the MPDUs listed in the table with the following exceptions*:*
	+ Shall contain the control response frame if the STA receives at least another MPDU that solicits an immediate acknowledgment.
	+ Shall contain at least one MPDU preceded by a nonzero length MPDU delimiter with EOF equal to 1, where each of these MPDUs may be either a QoS Data frame or an Action frame.
	+ May contain zero or more QoS Data frames sent under HT-immediate agreement, each preceded by a nonzero length MPDU delimiter with EOF equal to 0.
	+ May contain either QoS Data or BlockAckReq frames but not both.
	+ Nonzero length MPDU delimiters preceding QoS Data frames of a given TID shall have the same EOF field value

The number of TIDs present in the A-MPDU, in either QoS Data or BlockAckReq frames, shall count towards reaching the TID aggregation limit

A STA that responds to a BRP Trigger frame addressed to it shall construct the A-MPDU carried in the HE TB PPDU as defined in Table 9-428 (A-MPDU contents MPDUs in the control response context), except that only Compressed Beamforming And CQI frames shall be allowed in the A-MPDU; other frames shall not be allowed in the A-MPDU. The STA includes at least one Compressed Beamforming And CQI frame in the A-MPDU as defined in 27.6 (HE sounding).

A STA that responds to an MU BAR Trigger frame addressed to it shall construct the A-MPDU carried in the HE TB PPDU as defined in Table 9-428 (A-MPDU contents MPDUs in the control response context). The STA includes either a BlockAck frame or a Multi-STA BlockAck frame in the A-MPDU as defined in 27.4 (Block acknowledgment).

A STA that responds to a GCR MU BAR Trigger frame addressed to it shall construct the A-MPDU carried in the HE TB PPDU as defined in Table 9-428 (A-MPDU contents MPDUs in the control response context). The STA includes a GCR BlockAck frame in the A-MPDU as defined in 10.24.10 (GCR and GLK-GCR block ack).

A STA that responds to a BSRP or BQRP Trigger frame addressed to it shall construct the A-MPDU carried in the HE TB PPDU as defined in Table 9-426 (A-MPDU contents in the data enabled no immediate response context). The STA shall include in the A-MPDU at least one QoS Null frame.

An STA that decides to send only one MPDU in the A-MPDU carried in an HE TB PPDU may set the EOF field to 1 in the MPDU delimiter preceding the MPDU*.*

NOTE 1—An AP can include other MPDUs in a soliciting DL MU PPDU that contains Trigger frames as specified in 9.7.3 (A-MPDU contents).

NOTE 2—The frame type of MPDUs may be different across A-MPDUs within the(#6688) same HE TB PPDU.(#4828)

NOTE 3—A STA follows the rules in 27.10.4 (A-MPDU with multiple TIDs) for aggregating the QoS Data frames with multiple TIDs in HE TB PPDUs.(17/249r2)

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