
IEEE P802.11
Wireless LANs

25.10.3 A-MPDU comment resolution**Date:** 2016-09-12**Author(s):**

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Abstract

This submission proposes resolutions for multiple comments related to TGax D0.1 with the following CIDs:

- 984, 70, 229, 191, 2670, 1379, 1380

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.

CID	PP	LL	Comment	Proposed Change	Resolution
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984	65	12	A-MPDU with multiple TIDs shall not be transmitted in an HE extended range SU PPDU either.	Suggest to change to "An A-MPDU with multiple TIDs shall not be transmitted in an HE SU PPDU or HE extended range SU PPDU."	Rejected Discussion: we believe multi-TID A-MPDU can also be used for SU PPDU.
70	65	14	"Multi-STA BlockAck frame shall be used to acknowledge the Multi-TID A-MPDU in MU PPDU. The value of TID field in Multi-STA BlockAck frame is TBD." The definition of Multi-STA BA does not support multi-STA multi-TID.	Revise the structure of Multi-STA BA to include multi-STA multi-TID BA.	Revised Agree in principal. TGax editor makes changes as specified in 11-16/1185r2.
229	83	8	There is a motion stating that the Ack Policy shall be set to normal Ack in QoS Data frames sent in a Trigger based PPDU. This statement needs to be added to this subclause (or maybe better to the UL MU operation in general). Also we do need to define what the Ack policy is going to be set in a multi-TID A-MPDU. Suggest to use the same value of the Ack Policy for all QoS Data frames that are aggregated in the DL A-MPDU (UL A-MPDU is covered by the motion above).	As in comment.	Revised Agree in principal. TGax editor makes changes as specified in 11-16/1185r2.
191	83	14	"The value of TID field in Multi-STA BlockAck frame is TBD." is not correct since the TID's values are already defined in the Multi-STA BlockAck frame format (see 9.3.1.7.something). Hence remove this statement.	As in comment.	Revised Agree in principal. TGax editor makes changes as shown in the as specified in 11-16/1185r2.
2670	65	8	When an AP intends to transmit a DL MU PPDU with multiple TIDs aggregated, it is not clear which EDCAF to be used for initiating a backoff.	Clarify rules for EDCA backoff mechanism in case multiple TIDs are aggregated in DL MU PPDU transmission in 10.22.2.2 of REVmc D5.2.	Revised Agree in principal. TGax editor makes changes as specified in 11-16/1185r2.
1754	51	20	~~The statement on line 20, that "An A-MPDU with multiple TIDs shall not be transmitted in an SU PPDU" contradicts with the statements on lines 13 to lines 16, which allow transmission of A-MPDU containing multiple TIDs between the STAs if they are A-MPDU With Multiple TIDs capable.~~	~~Remove the statement "An A-MPDU with multiple TIDs shall not be transmitted in an SU PPDU." from line 20, page 50 to allow multi TIDs to be transmitted in an A-MPDU for SU.~~	
1379	37	38	Allowing an Action frame will cause trouble if there is also a Data frame (with Ack Policy	Delete this row	Reject.

			set to normal/implicit) since then two things will need to be immediately acked. The baseline does not allow this for the non-multi-TID case		Multi-STA BA differentiate Ack for Action and Ack for MPDU from different TIDs by using different TIDs in Per AID TID Info field (TID 14 is for Action Ack, TID 0 to 7 without BA bitmap are used for MPDUs from TID 0 to 7, at most one data MPDU from a TID is allowed).
1380	37	41	Allowing such a frame will cause trouble if there is also a Data frame (with Ack Policy set to normal/implicit) since then two things will need to be immediately acked. The baseline does not allow this for the non-multi-TID case. Also "At most one data frame of the TID" is too vague (need to refer to the exact frame (sub)type and the other constraints, e.g. Ack Policy)	Delete this row	Reject. Multi-STA BA differentiate Ack for Action and Ack for MPDU from different TIDs by using different TIDs in Per AID TID Info field (TID 14 is for Action Ack, TID 0 to 7 without BA bitmap are used for MPDUs from TID 0 to 7, at most one data MPDU from a TID is allowed).

Discussion: although we reject CID 1379 and 1380, we believe that aggregating Data frame which asks for Ack and Action frame in multi-TID A-MPDU should be optional. The reason is that aggregating Data frame which asks for Ack and Action frame in multi-TID A-MPDU requires TX and RX implementation change.

9.4.2.213 HE Capabilities element

TGax Editor: Add one-bit "Ack Enabled Multi-TID A-MPDU Support" subfield in Figure 9-ax2.

TGax Editor: Add the following paragraph at 9.4.2.213:

The Ack Enabled Multi-TID A-MPDU Support subfield indicates support by an HE STA for the reception of data MPDU in multi-TID A-MPDU which asks for Ack or Action frame in multi-TID A-MPDU. Set to 0 otherwise.

25.10.3 A-MPDU with multiple TIDs

TGax Editor: Add the following paragraph after the first paragraph of 25.10.3:

An HE STA with `dot11MPDUAskedforAckInMultiTIDAMPDU` set to true shall set `dot11AMPDUwithMultipleTIDOptionImplemented` to true. An HE STA with `dot11MPDUAskedforAckInMultipleTIDAMPDU` set to true shall set the Ack Enabled Multi-TID A-MPDU Support subfield of the HE Capabilities element it transmits to 1; otherwise, the HE STA shall set it to 0. A HE transmitter shall not aggregate MPDU that asks for Ack in a multiple-TID A-MPDU to the HE recipient unless the recipient sets Ack Enabled Multi-TID A-MPDU Support subfield to 1 in its announced HE Capabilities element.

An HE STA shall construct a multi-TID A-MPDU as defined in 9.7 (Aggregate MPDU (A-MPDU)) and 10.13 (A-MPDU operation) except that the EOF subfield shall be set to 1 in a nonzero length MPDU delimiter that precedes a QoS Data frame, or Action frame if the QoS Data frame or Action frame solicits an immediate Ack frame.

A multi-TID A-MPDU may contain multiple noncontiguous nonzero length MPDU delimiters with EOF subfield equal to 1, one for each TID that solicits Ack and/or multiple noncontiguous nonzero length MPDU delimiters with EOF subfield equal to 0, one for each TID that solicits BlockAck.

An HE STA that receives a multi-TID A-MPDU shall respond with a Multi-STA BlockAck frame that contains (see 25.4 (Block acknowledgement):

- One Per STA Info field indicating an Ack for each successfully received MPDU that solicits a response that is preceded by a nonzero length MPDU delimiter whose EOF is 1 (TID value equals that of the QoS Data/QoS Null frame or 15 for the Action frame),
- One Per STA Info field indicating a BlockAck for each TID of a successfully received MPDU that solicits a response that is preceded by a nonzero length MPDU delimiter whose EOF is 0 (TID value equals that of the QoS Data frame).

TGax Editor: Change the last paragraph of 25.10.3 as following (70, 229, 191):

Multi-STA BlockAck frame shall be used to acknowledge the Multi-TID A-MPDU ~~in MU PPDU~~. The ~~value of TID field in Multi-STA BlockAck frame is TBD~~ rules for Multi-STA BlockAck are defined in subclause 25.4.

TGax Editor: Add the following paragraph at the end of 25.10.3(2670):

An HE AP may aggregate MPDUs from any TIDs in multi-TID A-MPDU for DL MU PPDU transmission and the number of TIDs in multi-TID A-MPDU shall not be more than the Multi-TID Aggregation Support announced by the recipient.