IEEE P802.11
Wireless LANs

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| EDMG A-MPDU with multiple TID comment resolution |
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Abstract

Comments to align EDMG multi-TID flow with 11.ax flow is presented CID1956

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 1956 | 197.10 | 10.63 | Presented definition does not cover several cases. Two capabilities EDMG Multi-TID Aggregation Support subfield and EDMG Multi-TID BlockAck Support subfield introduces excessive complexity. Relevant normative behavior is also not define. Propose to keep single capability to be aligned with TGax flow and fix the normative behavior text. | Proposed changes are presented in separate submission |

*Discussion: Besides of .11ay support of multi-TID A-MPDU is presented in HT networks as part of PSMP feature and in the new established HE (802.11ax) networks. A flow to support the single STA multi-TID A-MPDU of .11ax and .11ay does not require substantial differences. Removal of EDMG Multi-TID BlockAck Support subfield and keeping only the EDMG Multi-TID Aggregation Support subfield makes the flows very similar that allows reuse of the implemetations. Other changes are mostly to share the normative rules between subclauses 10.24.6 and 10.63 to keep the subclauses aligned with the relevant content.*

**9.4.2.250.6 MAC Capability field**

The EDMG Multi-TID Aggregation Support subfield contains the number of TIDs minus one of QoS Data frames that the STA is able to receive or aggregate in a multi-TID A-MPDU as described in 10.63. A value of zero indicates that the STA does not support EDMG multi-TID aggregation.

**10.24.6 Selection of BlockAck and BlockAckReq variants**

An EDMG STA that indicates 0 in the EDMG Multi-TID Aggregation Support subfield shall not initiate transmission of Multi-TID BlockAckReq variant.

An EDMG STA shall not initiate transmission of Multi-TID BlockAckReq variant to another STA that indicates 0 in the EDMG Multi-TID Aggregation Support subfield

An EDMG STA that indicates 0 in the EDMG Multi-TID Aggregation Support subfield shall not respond with EDMG Multi-TID BlockAck variant.

An EDMG STA that indicates non-zero value in in the EDMG Multi-TID Aggregation Support subfield shall respond with EDMG Multi-TID BlockAck variant to Multi-TID BlockAckReq variant.

An EDMG STA that indicates non-zero value in in the EDMG Multi-TID Aggregation Support subfield shall not respond with EDMG Compressed BlockAck variant to Multi-TID BlockAckReq variant.

An EDMG STA that indicates non-zero value in in the EDMG Multi-TID Aggregation Support subfield shall respond with EDMG Multi-TID BlockAck variant to A-MPDU that contain MPDUs of different TIDs and Ack policy equal to Normal Ack.

An EDMG Multi-TID BlockAck frame shall not include more than one BA Information field for a specific TID/TSID.

**10.63 EDMG A-MPDU with multiple TIDs**

A multi-TID A-MPDU is an A-MPDU that contains QoS Data frames with at least two different TID values.

An EDMG STA with dot11AMPDUwithMultipleTIDOptionImplemented set to true shall set the EDMG Multi-TID Aggregation Support subfield of the EDMG Capabilities element it transmits to a nonzero value Otherwise, the subfield shall be set to 0.

An EDMG STA shall not send a multi-TID A-MPDU to an EDMG STA that has the EDMG Multi-TID Aggregation Support subfield in its EDMG Capabilities element equal to 0.

The number of different TID values in the multi-TID A-MPDU shall not exceed the number specified by the intended recipient in the Multi-TID Aggregation Support subfield of the recipient’s EDMG Capabilities element plus one.

Ack Policy field in all MPDUs sent in multi-TID A-MPDU shall be set to the same value.

The originator shall not transmit two or more consecutive Multi-TID A-MPDUs if following conditions apply

* Ack policy of the contained MPDUs in first A-MPDU is equal to Block Ack

Total number of different TIDs in all consecutive A-MPDUs is greater than value in Multi-TID Aggregation Support subfield of the recipient’s EDMG Capabilities element plus one

A number of MPDUs sent under multi-TID A-MPDU(s) shall not exceed

* the size of Block Ack Bitmap subfield that is negotiated during the block ack establishment (see 10.24) per each TID
* total number of MPDUs equal to 20148

The limitation applies to outstanding multi-TID A-MPDU that Ack policy of the MPDUs is equal to normal Ack and to sequence of multi-TID A-MPDU that starts with one or few multi-TID A-MPDUs with Ack policy of the MPDUs is equal to BlockAck.

An EDMG STA that receives a Multi-TID A-MPDU containing an MPDU(s) with Ack Policy set to Implicit Block Ack shall respond with an EDMG Multi-TID BlockAck frame that contains Per-TID Info field with a BlockAck Bitmap subfield for each of the TIDs of the MPDUs.

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*Editor note:*

*this sub clause is Taken from 10.24.6 Selection of BlockAck and BlockAckReq variants and resolved below*

The originator may transmit Multi-TID BlockAckReq frame with the TID value in the Per TID Info subfield that is equal to the TID of MPDUs sent out of multi-TID A-MPDU. The originator shall not transmit Multi-TID BlockAckReq frame with the TID value in the Per TID Info subfield that is not equal to the TID of MPDUs sent out of multi-TID A-MPDU.

The number of BAR Information fields included in a Multi-TID BlockAckReq frame shall not be greater than the value indicated in the EDMG Multi-TID Aggregation Support subfield plus one.

An EDMG STA that receives a Multi-TID BlockAckReq shall respond with an EDMG Multi-TID BlockAck frame that contains Per-TID Info field with a BlockAck Bitmap subfield for each of the TID indicated in the Multi-TID BlockAckReq

An EDMG STA may aggregate in a Multi-TID A-MPDU QoS Data frames with different TIDs as defined in Table 9-425 (A-MPDU contents in the data enabled immediate response context), Table 9-426 (A-MPDU contents in the data enabled no immediate response context) or Table 9-428 (A-MPDU contents MPDUs in the control response context).

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A multi-TID A-MPDU transmitted in an EDMG SU PPDU shall contain MPDUs with TIDs that correspond only to the AC that was used to gain access to the medium to transmit the A-MPDU.

An EDMG AP may aggregate MPDUs from any TIDs in a multi-TID A-MPDU within a DL MU PPDU transmission. In this case, the number of TIDs in the multi-TID A-MPDU addressed to a recipient of the DL MU PPDU shall not be more than the value of the EDMG Multi-TID Aggregation Support subfield announced by the recipient plus one.

**References:**

IEEE P802.11ay/D1.0, November 2017