IEEE P802.11
Wireless LANs

|  |
| --- |
| Resolution of CIDs related to MU BA and RD |
| Date: 2018-12-18 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Ilya Bolotin | Intel  |  |  | ilya.bolotin@intel.com |

Abstract

This document proposes resolution for the following CIDs: 3246, 3308, 3344, 3429, 3430, 3431, 3432, 3543, 3544, 3545, 3564 and 3662.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 3246 | 177.00 | 10.3.2.13 | "An MU-MIMO initiator shall set the value of the Response Duration subfield of the Block Ack Schedule frame equal to the duration of the expected BlockAck frame transmission from a STA addressed by an A-MPDU within a transmitted MU PPDU calculated using the lowest MCS."---How about the size of the BA frames transmitted by the STAs? Shoud the initiator also assume that the responder STAs use the maximum size of BA? | add "and the maximum size of BA allowed" to the end of this sentence. |

**Proposed resolution: Rejected**

**Discussion:**

The size of BA is known from established BA agreement.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 3308 | 178.00 | 10.3.2.13 MU acknowledgment procedure | It would be nice if Figure 113 -- "Example of a TXOP containing an EDMG MU PPDU transmission" contained a notation clarifying TX and RX patterns. | For claity, add TX and RX pattern notation as exampled in Figure 133 -- "An example of beamforming training for asymmetric links in a beamforming 3 training allocation". |

**Proposed resolution:** **Revised**

**Discussion:**

Beamforming is not the subject of this subclause. Propose to remove TX and RX patterns from the Figure.

See proposed text below

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 3344 | 653.00 | C.3 | There is no MIB variable associated with Scheduled RD feature. | Add MIB variable for Scheduled RD enablement |

**Proposed resolution:** **Rejected**

**Discussion:**

802.11 includes many optional features, which do not have an associated MIB which is not necessary also in this case.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 3429 | 207.00 | 10.30.4 | last Block Ack Schedule Frame' is ambiguous. What if the rx did not decode the block ack schedule frame in the current AMPDU? It should not use the last one in the previous AMPDU | clarify it is the block ack schedule frame in the AMPDU which has MPDU(s) that just granted the RDG |

**Proposed resolution:** **Revised**

**Discussion:**

Agree with the comment. See proposed text below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 3430 | 208.00 | 10.30.4 | Is the requirement in this line and after for AC constraint=1? | clarify Preferred AC is reserved if AC constraint=0 |

**Proposed resolution: Revised**

**Discussion:**

Agree with the comment. See proposed text below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 3431 | 209.00 | 10.30.5 | The duration of the RD response burst shall be equal to' | change to 'less or equal to' |

**Proposed resolution: Rejected**

**Discussion:**

An RD responder should use the whole provided slot to keep medium busy and avoid any other STA to occupy the medium.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 3432 | 209.00 | 10.30.5 | Can a RD responder send a MPDU w/o BA agreement? i.e. not eleciting a BA frame | add a more explicit requirement that RD responder shall not send a MPDU w/o BA requirement |

**Proposed resolution: Rejected**

**Discussion:**

An RD responder may transmit MPDU w/o BA agreement setting Ack Policy subfield to No Ack (see Table 9-426 in IEEE802.11-2016).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 3543 | 177.00 | 10.3.2.13 | please indicate that Response Offset subfield and Next PPDU Start Offset subfield must not exceed the duration of TXOP or SP indicated by the Duration field | The Response Offset subfield value shall not exceed the value indicated by the Duration field. |

**Proposed resolution: Rejected.**

**Discussion:**

The requirement is already there.

P178L35 of 802.11ay\_D2.1:

“The entire MU sequence shall not exceed the established TXOP duration”

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 3544 | 177.00 | 10.3.2.13 | Lowest MCS must follow rules indicated in section 10.6.7.2. without the indication, reader might think that MCS0 must be used in all cases. | An MU-MIMO initiator shall set the value of the Response Duration subfield of the Block Ack Schedule frame equal to the duration of the expected BlockAck frame transmission from a STA addressed by an A-MPDU within a transmitted MU PPDU calculated using the lowest MCS as indicated in section 10.6.7.2. |

**Proposed resolution: Accepted**

**Discussion:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 3545 | 177.00 | 10.3.2.13 | Add rule for the responder not to exceed the Response Duration value | An EDMG STA shall transmit a BlockAck frame in response to a received EDMG MU PPDU immediately after a period of time equal to the value of the Response Offset subfield from the end of EDMG MU PPDU and its transmission shall not exceed the time indicated in the Response Duration subfield contained in the Block Ack Schedule frame within the MU PPDU. |

**Proposed resolution: Rejected**

**Discussion:**

AP should not limit the duration of BA transmission. The BA duration is defined by its size (defined by BA agreement) and used MCS (defined in section 10.3.2.13).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 3564 | 208.00 | 10.30.4 | Rules for Multi-TID aggregation (starting from line 15) are general for initiator as well, why they appear in RD Responder section ? | Consolidate general Multi-TID rules with those of section 10.73 EDMG A-MPDU with multiple TIDs |

**Proposed resolution: Rejected**

**Discussion:**

The rules are not general, they define the behaviour of RD responder depending on the content of Block Ack Schedule frame sent by RD initiator. The rules are specific for RD responder as it is said in line 13: “The following provides additional rules for an RD responder that constructs a multi-TID A-MPDU in response to a MU PPDU”.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 3662 | 207.00 | 10.30.4 | "If an RDG was granted by an MPDU contained in an A-MPDU with the ack policy equal to Scheduled Ack,..." Provided rules does not cover SU w/o Multi-TID that the BlockAck schedule can be used to limit RD time. Clarify if this case is allowed and if it does, the rule shall be clear that the response starts in SIFS time. | Modify the rule to make clear that in no MU case the first response starts in SIFS time. The first Response Offset may be set to 0 for this case.Clarify if the feature is applicable for SU w/o multi-TID. |

**Proposed resolution: Revised**

**Discussion:**

There is no limitation to MU or Multi-TID in the text. The rule is general, so it is also applicable for SU w/o Multi-TID.

Additional rule for Response Offset = SIFS for the first responder was added both for MU acknowledgement procedure (10.3.2.12) and for RD initiator rules (10.29.3). See proposed text below

**Proposed text**

**9.3.1.23 Block Ack Schedule frame format**

*To TGay editor: change the last paragraph as follows:*

If the EDMG Multi-TID Aggregation Support subfield is greater than 0 in the STA’s EDMG Capabilities element, the Preferred AC subfield indicates the lowest AC for aggregation of MPDUs in an A-MPDU sent as part of an RDG. Otherwise, the Preferred AC subfield is reserved. The Preferred AC subfield is reserved if AC Constraint subfield is equal to 0. The encoding of the Preferred AC subfield is shown in Table 4.

**10.3.2.12 MU acknowledgment procedure**

*To TGay editor: change the second paragraph as follows:*

An MU-MIMO initiator shall set the ack policy of MPDUs contained in each A-MPDU transmitted within an EDMG MU PPDU to Scheduled Ack and shall include at least one Block Ack Schedule frame in each A-MPDU transmitted within an EDMG MU PPDU. Each Block Ack Schedule frame shall contain the scheduling information for the EDMG STA which is an intended receiver of the A-MPDU. An MU-MIMO initiator shall set the value of the Response Duration subfield of the Block Ack Schedule frame equal to the duration of the expected BlockAck frame transmission from a STA addressed by an A-MPDU within a transmitted MU PPDU calculated using the lowest MCS as indicated in section 10.6.7.2. The values of all subfields of the Block Ack Schedule frame shall not change if transmitted multiple times in the same A-MPDU. An MU-MIMO initiator shall set the value of the Response Offset subfield equal to SIFS in the A-MPDU transmitted to the STA, which is expected to be the first responder.

*To TGay editor: Replace Figure 116 with the following one*

~~~~

1. ~~— Example of a TXOP containing an EDMG MU PPDU transmission~~



1. — Example of a TXOP containing an EDMG MU PPDU transmission

**10.29.3 Rules for RD initiator**

If an RD initiator and an RD responder are EDMG STAs with the Scheduled RD Supported field in their EDMG Capabilities element equal to 1, then the RD initiator may set the ack policy of MPDUs contained in A-MPDU transmitted within an RDG PPDU to Scheduled Ack. In this case, the RD initiator shall include at least one Block Ack Schedule frame with Response Offset and Response Duration fields set to nonzero values in an A-MPDU transmitted within the RDG PPDU. If the A-MPDU is transmitted not as a part of EDMG MU PPDU, the RD initiator shall set the value of the Response Offset field equal to SIFS.

**10.29.4 Rules for RD responder**

*Change the second paragraph as follows:*

If an RDG was granted by an MPDU contained in an A-MPDU with the ack policy equal to Scheduled Ack, an RD responder shall transmit the initial PPDU of the RD response burst at a time equal to *T\_Offset* from the end of RDG PPDU, where *T\_Offset* is the value of Response Offset subfield of the Block Ack Schedule frame in the A-MPDU which has MPDU that granted the RDG ~~last Block Ack Schedule frame received from the RD initiator~~. The duration of the RD response burst shall not exceed the value of Response Duration subfield of the Block Ack Schedule frame in the A-MPDU which has MPDU that granted the RDG ~~last Block Ack Schedule frame received from the RD initiator~~.

References

1. Draft P802.11ay\_D2.1

**Straw Poll:**

* **Do you agree to accept comment resolutions as proposed in doc 11-18/2155r0?**