IEEE P802.11
Wireless LANs

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Abstract

This submission proposes resolutions for multiple comments related to TGax D1.1 with the following CIDs:

* CIDs: 9332, 9119, 9120

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.***

# OFDMA based Random Access (27.5.2.6)

| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| --- | --- | --- | --- | --- | --- |
| 9332 | 172.25 | 27.5.2.6 | Currently, it is considered that both the associated STAs and unassociated STAs are allowed to join the UL OFDMA-based random access. However, the real state that the STA is in and the state that the AP thinks the STA is in according to the association may be different. This is because there is no complete mechanism for the AP to syncrhonize with the STA. Therefore, when the AP acknowledges to those STAs that the AP thinks they are still associated with the Multi-STA BlockAck, some of the STAs that already disassociated may not distinguish the AIDs that the AP used for those STAs. The opposite perception gap may also occur. And as the unassociated STAs don't have their AIDs assigned, the AP can't acknowledge those unassociated STAs with the regular Multi-STA BlockAck procedure. | If both the associated STAs and unassociated STAs are handled together in the UL OFDMA-based random access, the way to solve the problems described in the comment will be to have the STAs responding to the UL OFDMA-based random access to set their AIDs if they are associated and temporary AIDs if they are unassociated in the Duration/ID field of the MPDUs. The temporary AIDs will be selected randomly from the range other than the one for AIDs. The AP will use the AIDs and/or temporary AIDs set in the Duration/ID fields for the Multi-STA BlockAck to respond to those transmission sent through UL OFDMA-based random access. For the probability of temporary AIDs colliding, as the unassociated STAs will only transmit management request frames and have timeout to wait for management response frames, the unassociated STAs can solve by themselves.The other way will be to divide the STAs to those associated and unassociated for the UL OFDMA-based random access. Specify in the Trigger frame such as AID=0 for only the associated STAs and AIDs with special values to allocate random access RUs for the unassociated STAs. The special AID values are assigned to each of the RUs and the AP will use that special AIDs when acknowledging with the Multi-STA BlockAck. The AP will acknowledge with the regular Multi-STA BlockAck procedure for the STAs that accessed in the "associated" RUs. But with this method, the behavior at the AP has to be different for the "associated" RUs and "unassociated" RUs. So, only assigning random access RUs to unassociated STAs may make the mechanism more simple. | RevisedAgree with the comment.AID 2045 is used to assign RU for un-associated STA. (AID 0 is only for random access of associated STA)The AP will acknowledge with the regular Multi-STA BlockAck or ACK procedure to un-associated STA using AID 2045.  TGax editor please make the changes as shown in 11-17/0353r1 |
| 9119 | 295.18 | 28.3.10.8.5 | In this spec, STAID 0 is only for broadcast frame. If an AP want to send a data or management frame to an unassociated STA, STA-ID field in HE-SIG-B would be 0 because the receiver STA doesn't have an AID yet. In this case, all stations near the AP will decode this frame unnessocery becase its STA-ID field is 0. It is desirable to avoid. | Define broadcast STAID value for unassociated STA only | RevisedSTAID value 2045 is used to indicate that the RU is used to transmit PPDU to an un-associated HE STATGax editor please make the changes as shown in 11-17/0353r1 |
| 9120 | 163.09 | 27.5.1.2 | In this spec, STAID 0 is only for broadcast frame. If an AP want to send a data or management frame to an unassociated STA, STA-ID field in HE-SIG-B would be 0 because the receiver STA doesn't have an AID yet. In this case, all stations near the AP will decode this frame unnessocery becase its STA-ID field is 0. It is desirable to avoid. | Define broadcast STAID value for unassociated STA only | RevisedSTAID value 2045 is used to indicate that the RU is used to transmit PPDU to an un-associated HE STATGax editor please make the changes as shown in 11-17/0353r1 |

**TGax Editor: Add this subclause as follows [9332]:**

**27.5.2.6.4 Response of UL OFDMA random access for un-associated STA**

When receiving at least one frame from one or more un-associated HE STA(s) and that require an immediate acknowledgement, an AP may send an Ack frame or a Multi-STA BlockAck frame to the un-associated HE STA(s) in HE MU PPDU. STA-ID field in HE-SIG-B of Ack frame for un-associated HE STA shall be 2045.

**TGax Editor: Add this paragraph after 2nd paragraph:**

**27.5.1.2 HE MU PPDU payload**

An AP may send a management frame to an un-associated HE STA in HE MU PPDU with the STA-ID field set to 2045 in HE-SIG-B.

**TGax Editor: Modify this table as follows:**

**28.3.10.8.5 HE-SIG-B per-user content**

**Table 28-22—Fields of the HE-SIG-B user field for an non-MU-MIMO allocation**

|  |  |  |  |
| --- | --- | --- | --- |
| Bit | Field | Number of bits | Description |
| B0-B10 | STA-ID | 11 | The STA-ID refers to the AID described in 9.4.1.8(AID field). The 11 LSBs of the AID field are used toaddress the STAs in this field.For RUs that carry a broadcast allocation:— For single BSS AP, the STAID for broadcast will be 0— For Multiple BSS AP, the STAID for broadcast to a specific BSS will follow the group addressed AID assignment in the TIM according to the existing Multi-BSSID TIM operation— For multiple BSS AP, the STAID for broadcast to all BSS of the AP is set to 2047And further:— STAID value 2046 is used to indicate that the RU carries no data— When a STA transmits on the uplink using the HE MU PPDU format, the STA-ID field is populated by the AID of the transmitter assigned by the AP— STAID value 2045 is used to indicate that the RU is used to transmit PPDU to an un-associated HE STA [9119] |

**TGax Editor: Add this paragraph after 2nd paragraph:**

**27.5.1.2 HE MU PPDU payload**

There shall be only one STA-ID field having the value is 2045 in HE-SIG-B, which is used to indicate that an RU is used to transmit PPDU to a HE STA which is not associated with the AP. [9120]

**TGax Editor: Modify 2nd paragraph as follows:**

**27.11 Setting TXVECTOR parameters for an HE PPDU**

* For an AP with dot11MultiBSSIDActivated equal to false, if the RU is intended for more than one STA in the BSS, the STA\_ID\_LIST element is set to 0, or if the RU is intended for more than one STA which are not associated with the AP, the STA\_ID\_LIST element is set to 2045. [9119,9120] The AP may include only one element with this value in a DL MU PPDU.

**TGax Editor: Add this paragraph after 4th paragraph:**

**27.11 Setting TXVECTOR parameters for an HE PPDU**

* For an AP with dot11MultiBSSIDActivated equal to true, if the RU is intended for more than one STA which are not associated with the AP, the STA\_ID\_LIST element is set to 2045. The AP may include only one element with this value in a DL MU PPDU. [9119,9120]