IEEE P802.11
Wireless LANs

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| D3.0 CR for 6GHz Post Association |
| Date: 2018-11-13 |
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Abstract

This submission proposes resolutions for the following comments on 6GHz post association of TGax D3.0:

* 15178

Revisions:

* Rev 0: Initial version of the document. Use D3.2 as baseline spec text.

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** | **Clause Number** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 15178 | 27.2 | 253 | A STA that operates in the 6 GHz band cannot do EDCA whenever it wants. Ensure that the STA can do EDCA only if it is explicitly allowed by the AP. | Will submit a proposal. | **Revised.***TGax Editor: TGax editor to make changes as shown in 11-18/1828r0* |

**Discussion:**

Discussion can be found in 11-18/1827r0, “6 GHz operation for 11ax follow up”

In summary, we agree that limiting EDCA access (for both active scanning and normal data transmission) may bring higher network throughput and it may ensure implementation of fairness in overall BSS performance by central entity. However, complete scheduling based scheme has problem at non-AP STA. To solve this problem, we propose an “Enhanced MU EDCA Operation”

* Limiting use of disable UL OFDMA
* Transmitting following frames using EDCA
	+ QoS Null frame containing BSR, PM=1, OM Control subfield
	+ DISASSOC
	+ DEAUTH

**Proposed Changes:**

***TGax Editor: Modify text in 9.4.2.238(HE Operation element):***

***…***

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0       B2 | B3 | B4      B13 | B14 | B15 | B16 | B17 | B18     B23 |
|  | Default PE Duration | TWT Required | TXOP Duration RTS Threshold | VHT Operation Information Present | Co-Located BSS | ER SU Disable | Enhanced MU EDCA Operation | Reserved |
| Bits: | 3 | 1 | 10 | 1 | 1 | 1 | 1 | 6 |
| * HE Operation Parameters field format
 |  |

The Default PE Duration subfield indicates the PE field(#16005) duration in units of 4 μs for an HE TB PPDU that is solicited with a TRS Control subfield and its use is defined in 27.5.3.3 (Non-AP STA(#16562) behavior for UL MU operation). Values 5-7 of the Default PE Duration subfield are reserved.

The TWT Required subfield is set to 1 to indicate that the AP requires its associated non-AP HE STAs that have declared support for TWT (by setting any one of TWT Requester Support or TWT Responder Support or Broadcast TWT Support subfield in HE Capabilities element that it transmits to 1) to operate in the role of either TWT requesting STA, as described 27.7.2 (Individual TWT agreements), or TWT scheduled STA, as described in 27.7.3 (Broadcast TWT operation) and set to 0 otherwise.

The TXOP Duration RTS Threshold subfield enables an HE AP to manage RTS/CTS usage by non-AP HE STAs that are associated with it (see 27.2.1 (TXOP duration-based RTS/CTS)). The TXOP Duration RTS Threshold subfield contains the TXOP duration RTS threshold in units of 32 s, which enables the use of RTS/CTS except for the value 1023. The value 1023 indicates that TXOP duration-based RTS is disabled.

The VHT Operation Information Present subfield is set to 1 to indicate that the VHT Operation Information field is present in the HE Operation element and set to 0 otherwise. The VHT Operation Information Present subfield is set as defined in 27.16 (HE BSS operation).(#17090)

The Co-Located BSS subfield is set to 1 to indicate that the AP transmitting this element shares the same operating class, channel and antenna connectors with at least one other BSS and is set to 0 otherwise. A TDLS STA, IBSS STA or mesh STA transmitting this element sets the subfield to 0.

The ER SU Disable subfield indicates whether 242-tone HE ER SU PPDU reception is disabled or enabled by the AP. The ER SU Disable subfield is set to 1 to indicate that 242-tone HE ER SU PPDU reception is disabled and set to 0 to indicate that 242-tone HE ER SU PPDU reception is enabled.

The Enhanced MU EDCA Operation subfield indicates whether enhanced MU EDCA access of associated STAs is enabled in the 6 GHz band. The Enhanced MU EDCA Operation field is set to 1 to indicate that enhanced MU EDCA access is required and set to 0 otherwise.

***TGax Editor: Insert a new paragraph in 27.16.1a (HE BSS functionality in 6 GHz band):***

*When a 6 GHz non-AP HE STA associated with an HE AP that has set Enhanced MU EDCA Operation field to 1 in the HE Operation element it transmits, the non-AP HE STA:*

* *Shall set to 0 the UL MU Disable subfield and the UL MU Data Disable subfield in OM Control fields it transmits to the AP*
* *May contend using EDCA to transmit following non-A-MPDU frames carried in a 20 MHz PPDU even if MUEDCATimer[AC] does not reached 0.*
	+ *QoS Null frame*
	+ *Disassociation or deauthentication frame*

***TGax Editor: Modify text in 27.2.6 (EDCA operation using MU EDCA parameters) as follows:***

*A non-AP STA is not required to update its state variables to the values contained in the MU EDCA Parameter Set element when:*

*— The Trigger frame addressed to the STA is not a Basic Trigger frame*

*— The STA does not include QoS Data frames in the HE TB PPDU response sent in response to the Basic Trigger frame*

*— The STA transmits the HE TB PPDU in response to a Basic Trigger frame following the rules defined in 27.5.5 (UL OFDMA-based random access (UORA)).*

**End of proposed changes.**