IEEE P802.11
Wireless LANs

|  |
| --- |
| CR for CID 14331, 14332, 14347 |
| Date: 2018-02-27 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Zhou Lan | Broadcom Ltd. | 250 Innovation Dr, San Jose, CA 95134 | +1-408-9223450 | zhou.lan@broadcom.com |
| Chunyu Hu | Broadcom Ltd. | 250 Innovation Dr, San Jose, CA 95134 |  | chunyu.hu@broadcom.com |
| Matthew Fischer | Broadcom Ltd. | 250 Innovation Dr, San Jose, CA 95134 |  | matthew.fischer@broadcom.com |

Abstract

This submission proposes resolutions for multiple comments related to TGax D2.3 with the following CIDs:

* 14331, 14332, 14347

Revisions:

* Rev 0: Initial version.

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** | **Commenter** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 14331 | Zhou Lan | 287.42 | The UL MU Disable bit in the OM Control field is a bad design to lower down the whole network performance. Remove this bit and corresponding behavior in the spec. | as in the comment | **Revised –**Also, please refer to this document for the benefits of this bit:<https://mentor.ieee.org/802.11/dcn/16/11-16-0657-00-00ax-in-device-multi-radio-coexistence-and-ul-mu-operation.pptx>UL OFDMA is a mantory feature for 11ax. Allowing HE STA to temperaly disable the UL MU operation is for the coexistence purpose, given the fact there are other techinologies operating in the same frequence bands. However we should not abuse this bit to compromise the performance of 11ax and make 11ax less competive. We propose to have a separate UL MU Data Disable bit to allow non-AP STA to have the flexibility to only turn off the TB transmission for data frame; while the STA can still be triggered to transmit acknowledgment frame in TB frame. In such case, the Target RSSI in the trigger frame can be set to 127 to allow non-AP to use the maximum transmission power after power reduction of coexistence purpose and lowest mcs in the basic rate set. TGax editor to make the changes shown in 11-18/0055r2 under all headings that include CID 14331, 14332 and 14347. |
| 14332 | Zhou Lan | 287.42 | The UL MU Disable bit in the OM Control field is a bad design to lower down the whole network performance. Remove this bit and corresponding behavior in the spec. | as in the comment | **Revised –**Also, please refer to this document for the benefits of this bit:<https://mentor.ieee.org/802.11/dcn/16/11-16-0657-00-00ax-in-device-multi-radio-coexistence-and-ul-mu-operation.pptx>UL OFDMA is a mantory feature for 11ax. Allowing HE STA to temperaly disable the UL MU operation is for the coexistence purpose, given the fact there are other techinologies operating in the same frequence bands. However we should not abuse this bit to compromise the performance of 11ax and make 11ax less competive. We propose to have a separate UL MU Data Disable bit to allow non-AP STA to have the flexibility to only turn off the TB transmission for data frame; while the STA can still be triggered to transmit acknowledgment frame in TB frame. In such case, the Target RSSI in the trigger frame can be set to 127 to allow non-AP to use the maximum transmission power after power reduction of coexistence purpose and lowest mcs in the basic rate set. TGax editor to make the changes shown in 11-18/0055r2 under all headings that include CID 14331, 14332 and 14347. |
| 14347 | Zhou Lan | 60.38 | Remove UL MU Disable bit. It gives a backdoor for HE STA not to follow the scheduling instruction from AP and will affect the network performance. | as in the comment | **Revised –**Also, please refer to this document for the benefits of this bit:<https://mentor.ieee.org/802.11/dcn/16/11-16-0657-00-00ax-in-device-multi-radio-coexistence-and-ul-mu-operation.pptx>UL OFDMA is a mantory feature for 11ax. Allowing HE STA to temperaly disable the UL MU operation is for the coexistence purpose, given the fact there are other techinologies operating in the same frequence bands. However we should not abuse this bit to compromise the performance of 11ax and make 11ax less competive. We propose to have a separate UL MU Data Disable bit to allow non-AP STA to have the flexibility to only turn off the TB transmission for data frame; while the STA can still be triggered to transmit acknowledgment frame in TB frame. In such case, the Target RSSI in the trigger frame can be set to 127 to allow non-AP to use the maximum transmission power after power reduction of coexistence purpose and lowest mcs in the basic rate set. TGax editor to make the changes shown in 11-18/0055r2 under all headings that include CID 14331, 14332 and 14347. |

## Discussion:

Refer to the discussion in doc <https://mentor.ieee.org/802.11/dcn/16/11-16-0657-00-00ax-in-device-multi-radio-coexistence-and-ul-mu-operation.pptx> is the oringal proposal of UL MU disable bit in OMI.

UL OFDMA is a mantory feature for 11ax. Allowing HE STA to temperaly disable the UL MU operation is for the coexistence purpose, given the fact there are other techinologies operating in the same frequence bands. However we should not abuse this bit to compromise the performance of 11ax and make 11ax less competive.

DL OFDMA is mandatory for STA to support. In order to achieve gain againt 802.11ac SU mode, DL OFDMA Data transmission should be followed by a UL OFDMA acknowledgment frame transmission to optimize the throughput performance.

We propose to allow non-AP STA to have the flexibility to only turn off the TB transmission for data frame; while the STA can still be triggered to transmit acknowledgment frame in TB frame. In such case, the Target RSSI in the trigger frame can be set to 127 to allow non-AP to use the maximum transmission power after power reduction of coexistence purpose and lowest mcs in the basic rate set.

**9.4.2.237.2 HE MAC Capabilities Information field**

**TGax Editor:*take one reserverd bit (B43) in the HE MAC capabilities field and make it as OM Control UL MU Data Disable RX support***

**TGax Editor: *modify table Table 9-262z—Subfields of the HE MAC Capabilities Information field as follows:***

**Table 9-262z—Subfields of the HE MAC Capabilities Information field**

|  |  |  |
| --- | --- | --- |
| HE Subchannel Selective Transmission Support(# 11837) | Indicates whether an HE STA supports an HE subchannel selective transmission operation described in 27.7.7 (HE subchannel selective transmission operation). | Set to 1 if supported. Set to 0 otherwise. |
| OM Control UL MU Data Disable RX support  | Indicates whether an HE AP STA supports receiving UL MU Data Disable bit in the OM Control filed as descripbed in 9.2.4.6a.2. | Set to 1 if supported. Set to 0 otherwise.  |

**9.2.4.6a.2 OM Control**

**TGax Editor: *modify section 9.2.4.6a.2 as follows:***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0 B2 | B3 B4 |  B5 |  B6 B8 |  B9 |  B10 |  B11 |
|  | RX NSS | Channel width | UL MU Disable | TxNSTS | ER SU Disable | UL MU Data Disable | Reserved |
| Bits: | 3 | 2 | 1 | 1 | 3 | 1 | ~~2~~1 |

~~The UL MU Disable subfield is set to 1 to indicate that UL MU operation is suspended and set to 0 to indicate that UL MU operation is resumed. An AP sets the UL MU Disable subfield to 0.~~

The UL MU Disable subfield is combined with UL MU Disable subfield to determine which triggered operation is allowed by the STA transmitting these subfields as indicated in Table xxx. If the HE AP has set the OM Control UL MU Disable RX Support field in the HE Capabilities element it transmits to 1, a HE non-AP STA may indicate whether UL MU data transmission is suspended or resumed using the UL MU Data Disable field. The UL MU Data Disable subfield is set to 1 to indicate that UL MU data transmission is suspended, but the non-AP STA is capable of being triggered by either a Basic Trigger frame or a frame with TRS A-Control field present to send Acknoleddgement in TB frame for the previous received data frame contained in the DL HE SU or MU PPDU; otherwise it is set to 0 to indicate that UL MU Data transmission is resumed. If the HE AP has set set the OM Control UL MU Disable RX Support field in the HE Capabilities element it transmits to 0, it shall ignore the received UL MU Data Disable subfield in the OM Control field. Table xxx lists possible combination of the UL MU Disable and UL MU Data Disable subfields. (#CID 14331, 14332 and 14347)

**Table 9-xxx—UL MU Disable and UL MU Data Disable subfield setting**

|  |  |  |
| --- | --- | --- |
| **UL MU Disable** | **UL MU Data Disable** |  |
| 0 | 0 | All trigger based UL MU operation are allowed or resumed |
| 0 | 1 | Only UL MU Data transmission is disallowed or suspended |
| 1 | 0 | All trigger based UL MU operation are disallowed or suspended  |
| 1 | 1 | Reserved |

**TGax Editor: *editorial changes end here:***