IEEE P802.11
Wireless LANs

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| Comment resolution to CIDs 15990, 17031 and 17033 |
| Date: 2018-11-02 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Jarkko Kneckt | Apple Inc. | Cupertino, CA |  | jkneckt@apple.com |
| Guoqing Li | Apple Inc.  |  |  |  |

Abstract

The submission is a comment resolution for four CIDs: 15990, 16487, 17031 and 17033 related to the Opering Mode (OM).

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| **CID** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 15990 | 336.23 | "UL MU data transmission is suspended" is not clear because it is not clear whether the special case of a Trigger frame that solicits from a single STA is "UL MU" | At the referenced location change "only UL MU data transmission is suspended but UL MU control response transmissions in response to a Basic Trigger frame or a frame with TRS Control subfield present is not suspended" to "only transmission of QoS Data frames in HE TB PPDUs is suspended but transmission of Control frames in HE TB PPDUs in response to a Basic Trigger frame or a frame with TRS Control subfield present is not suspended" |  Revised. A non-AP STA operates similarly regardless of the number of STAs in a Trigger frame. Thus, also a Trigger frame triggering a single device is not allowed. A Beam Forming Report Poll (BFRP) trigger may solicit very large UL packets. The “UL MU Data transmission suspended” should be capable to control whether the STA responses to BFRP Trigger frames.  - TGax editor to make changes as shown in 11-18/1831r0 that are marked with CID 15990. |
| 16487 | 333.00 | Table 27-9 is missing HE and the Columns are referring to VHT. | Make the following change:Edit Table 27-9:1. Delete the last two columns as the intent is to signal the Nss for 160MHz and not the center frequency2. Change the header of the column starting with "VHT NSS Support" to "NSS Support" | Revised. Agree in principle with the both recommend changes in the comment. Because the new Note 4 of Table 27-9 defines VHT NSS and HE NSS support differently, the RX NSS is written separately for VHT NSS and HE NSS. - TGax editor to make changes as shown in 11-18/1831r0 that are marked with CID 16487. |
| 17031 | 73.21 | "Trigger based UL MU Control response transmission triggered by a Basic Trigger frame or a frame with TRS Control subfield present soliciting only Ack, or Multi-STA BlockAck frames are enabled by the STA (see 27.8.3 (Transmit operating mode (TOM) indication))."How about is other Trigger frames? Is a response triggered by a BFRP, MU-BAR, MU-RTS, BSRP, GCR MU-BAR, BQRP, or NFRP enabled? Please clarify it. | As in comment. |   Revised. Agree in principle with the comment. The UL MU Data Disallow subfield controls BFRP and basic Trigger frame types. Other Trigger types use is not controlled. BFRP may generate very large response and it may not be possible for a STA to transmit. STA is added a control whether it responses to BFRP Triggers - TGax editor to make changes as shown in 11-18/1831r0 that are marked with CID 17031. |
| 17033 | 336.23 | "...indicate that only UL MU data transmission is suspended but UL MU control response transmissions in response to a Basic Trigger frame or a frame with TRS Control subfield present is not suspended (see 27.5.3 (UL MU operation) except only Ack or BlockAck frame transmission is allowed)."Is only data transmission is suspended? Does it means that an UL MU mangement frame is not suspended? Pleasse clarify it.Also please clarify whether a response triggered by a BFRP, MU-BAR, MU-RTS, BSRP, GCR MU-BAR, BQRP, or NFRP is not suspedned. (refer the comment that I submitted in 9.2.4.6a.2.) | As in comment. |  Revised. When the the OM Control UL MU Data Disable RX Support is set to 1, the UL MU Disallow value 0 and UL MU Data Disallow value 1 define that the STA does not respond to BFRP and responds to basic Trigger frame only with ACK and BA. Values 1 and 0 indicate that and responds to basic Trigger frame only with ACK and BA and the STA responds to BFRP without power constraint. The STA responds to all other Trigger frame types. - TGax editor to make changes as shown in 11-18/1831r0 that are marked with CID 17033.  |

* OM Control

***Note to ax Editor. Please make the changes as shown below.***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0        B2 | B3        B4 | B5 | B6          B8 | B9 | B10 | B11 |
|  | Rx NSS |  Channel Width | UL MU Disable | Tx NSTS | ER SU Disable(#11261) | DL MU-MIMO Resound Recommendation(18/906r7) | UL MU Data Disable(#14331) |
| Bits: | 3 | 2 | 1 | 3 | 1 | 1 | 1 |
| * Control Information subfield for OM Control(#11971)
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The UL MU Disable subfield is combined with the UL MU Data Disable subfield and the recipient's setting of the OM Control UL MU Data Disable RX Support subfield in the HE MAC capabilities to determine the allowed UL MU operations and frame types that can be transmitted as a response to Basic Trigger frame or a frame with TRS Control field, as indicated in Table 9-18b (UL MU Disable and UL MU Data Disable subfields encoding). (#15099, #17031, #17033)

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| --- |
| * UL MU Disable and UL MU Data Disable subfields encoding
 |
| UL MU Disable subfield | UL MU Data Disable subfield | Interpretation by an AP that transmits a value of 0 in the OM Control UL MU Data Disable RX Support in the HE Capability element | Interpretation by an AP that transmits a value of 1 in the OM Control UL MU Data Disable RX Support in the HE Capability element |
| 0 | 0 | All trigger based UL MU operations are enabled by the STA as defined in 27.5.3 (UL MU operation). | All trigger based UL MU operations are enabled by the STA as defined in 27.5.3 (UL MU operation). |
| 0 | 1 | All trigger based UL MU operations are enabled by the STA as defined in 27.5.3 (UL MU operation). | The STA does not respond to Basic Trigger frames or frames with a TRS Control subfield except with Ack or BlockAck frames (see 27.8.3 (Transmit operating mode (TOM) indication)). Responses to other Trigger types are unaffected.  **(#15990, #17031, #17033)** |
| 1 | 0 | All triggered UL MU transmissions are suspended by the STA. The STA will not respond to a received Trigger frame or TRS Control subfield. | All triggered UL MU transmissions are suspended by the STA. The STA will not respond to a received Trigger frame or TRS Control subfield. |
| 1 | 1 | All triggered UL MU transmissions are suspended by the STA. The STA will not respond to a received Trigger frame or TRS Control subfield. | The STA does not respond to BFRP Trigger frames or Basic Trigger frames or frames with a TRS Control subfield except with Ack or BlockAck frames. Responses to other Trigger types are unaffected.  **(#15990, #17031, #17033)** |

* + 1. General(#12841)

The channel width and the VHT NSS allowed and HE NSS allowed at an HE STA transmitting an OM Control subfield are defined in Table 27-9 (Setting of the Channel Width and NSS at an HE STA transmitting the OM Control subfield) to determine the allowed VHT NSS and HE NSS when operating as HE STA using channel bandwidth of 160 MHz or 80+80 MHz(#16487).

**Table 27-9—Setting of the Channel Width and NSS at an HE STA transmitting the OM Control subfield** (#16487)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **OM Control subfield** | **VHT capabilities of STA transmitting OM Control subfield** | **VHT NSS and HE NSS Support of STA transmitting the OM Control subfield as a function of the PPDU bandwidth (× Max VHT NSS and Max HE NSS) (see requirements R1 and R2)** (#16487). | **~~Location of 160 MHz center frequency if BSS bandwidth is 160 MHz~~**(#16487). | **~~Location of secondary 80 MHz center frequency if BSS bandwidth is 80+80 MHz~~** |
| **Channel Width** | **Supported Channel Width** | **Extended NSS BW Support** | **20 MHz** | **40 MHz** | **80 MHz** | **160 MHz** | **80+80 MHz** |  |  |
| 0 | 0-2 | 0-3 | 1 |  |  |  |  |  |  |
| 1 | 0-2 | 0-3 | 1 | 1 |  |  |  |  |  |
| 2 | 0-2 | 0-3 | 1 | 1 | 1 |  |  |  |  |
| 3 | 0 | 1 | 1 | 1 | 1 | 1/2 |  | ~~CCFS2~~ |  |
| 3 | 0 | 2 | 1 | 1 | 1 | 1/2 | 1/2 | ~~CCFS2~~ | ~~CCFS2~~ |
| 3 | 0 | 3 | 1 | 1 | 1 | 3/4 | 3/4 | ~~CCFS2~~ | ~~CCFS2~~ |
| 3 | 1 | 0 | 1 | 1 | 1 | 1 |  | ~~CCFS1~~ |  |
| 3 | 1 | 1 | 1 | 1 | 1 | 1 | 1/2 | ~~CCFS1~~ | ~~CCFS2~~ |
| 3 | 1 | 2 | 1 | 1 | 1 | 1 | 3/4 | ~~CCFS1~~ | ~~CCFS2~~ |
| 3 | 1 | 3 | 2 | 2 | 2 | 2 | 1 | ~~CCFS1~~ | ~~CCFS1~~ |
| 3 | 2 | 0 | 1 | 1 | 1 | 1 | 1 | ~~CCFS1~~ | ~~CCFS1~~ |
| 3 | 2 | 3 | 2 | 2 | 2 | 1 | 1 | ~~CCFS1~~ | ~~CCFS1~~ |
| R1: NSS support shall be rounded down to the nearest integer.R2: The maximum NSS support shall be 8.NOTE 1—The Rx NSS field indicates the value of Max HE NSS and Max VHT NSS. For all allowed MCS values, the Max HE NSS and Max VHT NSS values are same, but the supported VHT NSS and HE NSS values can be different. (#16487).NOTE 2—(1/2 or 3/4) × (Max VHT NSS and Max HE NSS) support might end up being 0, indicating no support. (#16487).NOTE 3—Any other combination than the ones listed in this table is reserved.(#16487). NOTE 4—A supported multiple of Max VHT NSS applies to both transmit and receive. A supported multiple of Max HE NSS applies to receiveNOTE 5—Some combinations of Supported Channel Width Set and Extended NSS BW support might not occur in practice. |

* Transmit operating mode (TOM) indication(#12841)

***Note to ax Editor. Please make the changes as shown below.***

If a HE non-AP STA has received the OM Control UL MU Data Disable RX Support field in the HE Capabilities element set to 1, then the HE non-AP STA, acting as an OMI initiator, may set:

* The UL MU Disable subfield to 0 and the UL MU Data Disable subfield to 1 to indicate that the HE STA does not respond to Basic Trigger frames or frames with a TRS Control subfield except with Ack or BlockAck frames.Responses to other Trigger types are unaffected. **(#15990, #17031, #17033)**
* The UL MU Disable subfield to 1 and the UL MU Data Disable subfield to 1 to indicate that the HE STA does not respond to BFRP Trigger frames and responds to Basic Trigger frames or frames with a TRS Control subfield with only either Ack or BlockAck frames. Responses to other Trigger types are unaffected. **(#17031, #17033)**

NOTE – The UL MU Data Disable subfield does not control the use of MU-BAR, MU-RTS, BSRP, GCR MU-BAR, BQRP, and NFRP Trigger frames. **(#15990, #17031, #17033)**

 **(#15990, #17031, #17033)**

An OMI responder that has transmitted the OM Control UL MU Data Disable RX Support subfield set to 1 shall regard an OMI initiator as capable of:

* Only transmitting Ack and BlockAck frames (#15990) in HE TB PPDUs as a response to Basic Trigger frames or as a response to a frame with a TRS Control subfield when the UL MU Disable subfield is equal to 0 and the UL MU Data Disable subfield is equal to 1 in the most recently received OM Control subfield from that OMI initiator. **(#15990, #17031, #17033)**
* Not responding to BFRP Trigger frames and only transmitting Ack and BlockAck frames in HE TB PPDUs as a response to Basic Trigger frames or as a response to a frame with a TRS Control field if the UL MU Disable subfield is equal to 1 and the UL MU Data Disable subfield is equal to 1 in the most recently received OM Control subfield from that OMI initiator. (#14331) **(#15990, #17031, #17033)**

**References:**