IEEE P802.11
Wireless LANs

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| LB233 CR A-Control Subfield |
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Abstract

This submission proposes resolutions of comments received from TGax LB233.

(The proposed change is based on TGax Draft 3.0.)

* CIDs: 15008, 16740, 16645, 16741, 15009, 15863, 17030, 16742, 17146, 15866, 16913, 16914, ~~16441~~, ~~16448~~, ~~16738~~, 17065 (13 CIDs)

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** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| --- | --- | --- | --- | --- | --- |
| 15008 | 71.47 | 9.2.4.6a.1 | There is no such thing as HT TB PPDU | Change HT TB PPDU to HE TB PPDU | Accepted |
| 16740 | 71.62 | 9.2.4.6a.1 | "The HE TB PPDU Length subfield indicates the length of the HE TB PPDU response and is set to the numberof OFDM symbols in the Data field of the HE TB PPDU minus 1." Why not use the same encoding as used in the Trigger frame? In fact, Table 28-1 says the following about L\_LENGTH: "Indicates the value in the LENGTH field of the L-SIG field inthe range of 1 to 4095. The value is obtained from the Triggerframe or the TRS Control subfield in the frame to which theHE TB PPDU is a response". It would be better to respect this format in the TRS Control field as well. | Change to "The HE TB PPDU Length subfield indicates the value of the L-SIG Length field of the HE TB PPDU." | Rejected-The UL Length field of the Trigger frame is 12 bits. But, the HE TB PPDU Length in the TRS Control subfield is 5 bits.The same encoding can’t be used.  |
| 16645 | 71.63 | 9.2.4.6a.1 | It is not clear why we need the second statement in this paragraph (about calculating the PPDU duration). | Remove the statement "The duration of the ..." | Accepted |
| 16741 | 72.01 | 9.2.4.6a.1 | "The RU Allocation subfield indicates the resource unit (RU) assigned for transmitting the HE TB PPDUresponse and the encoding is defined in 9.3.1.23". Be more specific. | Add reference to Table 9-25h | Revised- Agree in principle. Replace with Table 9-25h (The encoding of B19–B13 of the RU Allocation subfield). TGax editor makes changes as shown in the as specified in 11-18/1504r1. |
| 15009 | 72.06 | 9.2.4.6a.1 | The TRS subfield is not limited to HE MU PPDU | Change to "... used for the HE MU PPDU, HE ER SU PPDU or HE SU PPDU that solicits the HE TB PPDU." | Revised- Agree in principle. (CID 15009, 15863, 17030 are same comment)All HE PPDUs can carry the TRS Control subfield. TGax editor makes changes as shown in the as specified in 11-18/1504r1. |
| 15863 | 72.06 | 9.2.4.6a.1 | change to "...HE MU PPDU, HE SU PPDU, HE ER SU PPDU that solicits..." | As in the comment | Revised- Agree in principle. (CID 15009, 15863, 17030 are same comment)All HE PPDUs can carry the TRS Control subfield. TGax editor makes changes as shown in the as specified in 11-18/1504r1. |
| 17030 | 72.06 | 9.2.4.6a.1 | "...used for the HE MU PPDU that..."The HE SU PPDU and HE ER SU PPDU are also possible. | As in comment. | Revised- Agree in principle. (CID 15009, 15863, 17030 are same comment)All HE PPDUs can carry the TRS Control subfield. TGax editor makes changes as shown in the as specified in 11-18/1504r1. |
| 16742 | 75.18 | 9.2.4.6a.3 | "RU index encoding is as defined 9.3.1.23 (Triggerframe format)." Be more specific. | Add reference to Table 9-25h | Revised- Agree in principle. (Similar comment with CID 16741)Replace with Table 9-25h (The encoding of B19–B13 of the RU Allocation subfield). TGax editor makes changes as shown in the as specified in 11-18/1504r1. |
| 17146 | 76.00 | 9.2.4.6a.4 | Please unify the design of BSR in A-control and QoS control otherwise remove A-control based BSR. | as in the comment | Rejected- The comment fails to identify a specific issue to be addressed. It fails to identify changes in sufficient detail so that the specific wording of the changes that will satisfy the commenter can be determined. |
| 15866 | 78.16 | 9.2.4.6a.4 | "A queue size value of 254 is used for all sizes greater than 254x SF octets."The sentence is not right when the value in the Scaling Factor subfield is not 3. | Change the text according to the comment. | Revised- Change to “A queue size value of 254 in the Queue Size High and Queue Size All subfields indicates that the amount of buffered traffic is greater than 254 x SF octets.”TGax editor makes changes as shown in the as specified in 11-18/1504r1. |
| 16913 | 78.17 | 9.2.4.6a.4 | "If an MSDU or A-MSDU is fragmented and is not carried in an A-MPDU, the queue size value might remain constant in all fragments even if the amount of queued traffic changes as successive fragments are transmitted." An MSDU/A-MSDU won't be directly carried in an A-MPDU but the fragments are the ones that can be carried in an A-MPDU. And this sentence should be describing the fragments that are carried in non-A-MPDU frames, in S-MPDUs, or in different A-MPDUs. | Change it to read "If an MSDU or A-MSDU is fragmented, the queue size values of the fragments carried in non-A-MPDU frames, in S-MPDUs, or in different A-MPDUs might remain constant even if the amount of queued traffic changes as succeesive fragments are transmitted." | Revised- Agree in principle. Change to “When the fragments are carried in non-A-MPDU frames or S-MPDUs, the queue size value of the MPDUs containing the fragments might remain constant in all fragments even if the amount of queued traffic changes as successive fragments are transmitted.”TGax editor makes changes as shown in the as specified in 11-18/1504r1. |
| 16914 | 78.19 | 9.2.4.6a.4 | "If an MSDU or A-MSDU is fragmented and is carried in an A-MPDU, the queue size values are set according to the rules in 10.13.1 (A-MPDU operation)." An MSDU/A-MSDU won't be directly carried in an A-MPDU but the fragments are the ones that can be carried in an A-MPDU. And this sentence should be describing all or a subset of fragments that are carried in the same A-MPDU. And the subclause title of 10.13.1 is wrong... | Change it to read "When the fragments are carried in the same A-MPDU, the queue size values are set according to the rules in 10.13.1 (A-MPDU contents)." | Revised- (Similar comment with CID 16913)Change to “When the fragments are carried in the A-MPDU, the queue size values of the MPDUs containing the fragments are set according to the rules in 10.13.1 (A-MPDU contents).”TGax editor makes changes as shown in the as specified in 11-18/1504r1. |
| ~~16441~~ | ~~78.25~~ | ~~9.2.4.6a.5~~ | ~~It would be useful to have a way to signal that the recipient of DATA MPDUs is experiencing eithe resource constraints or local interference that might cause a complete lack of an acknowledgement transmission and that the failure of an AMPDU originator to receive an acknowledgement when thus indicated should not be a reason to adjust the MCS for the link.~~ | ~~Add a signaling indication to the UPH Control to indicate that the recipient is currently resource constrained and that missing acknowledgement frames should not be construed as indicative of a poor MCS choice for the link.~~ | ~~Rejected-~~~~The comment fails to identify a specific issue to be addressed. It fails to identify changes in sufficient detail so that the specific wording of the changes that will satisfy the commenter can be determined.~~  |
| ~~16448~~ | ~~78.44~~ | ~~9.2.4.6a.5~~ | ~~The draft needs a mechanism that provides per MCS link transmit power information so that closed loop transmit power adjustments can be made which reduce the excess margin introduced by the use of conservative estimates for various, unknown link components and allow higher throughputs to be achieved. Also note that UPH value is not useful without knowledge of the UPH sender's TX PA settings per MCS. If a value of 3 is given for UPH at MCS7, does this mean that the transmitted TX Power is 3 dB from the maximum that the PA can output, or does it mean that the power is 3 dB from where the transmitter thinks that TXEVM will be exceeded for this MCS? And how does this 3 dB relate to any other MCS? Probably need to refine the meaning of the UPH value to answer some of these questions. Note that by providing a complete list of TX power values per MCS, a single UPH response can indicate to the AP what values of MCS and Target RSSI are appropriate for each non-AP STA.~~ | ~~At a minimum, refine the meaning of "available power headroom" - with reference to what? To max PA power? To the point when TX EVM is expected to be exceeded? Or to what? Best to also include a link transmit power signaling mechanism to provide a reference value for the UPH parameter.~~ | ~~Revised-~~ ~~Agree in principle.~~ ~~Change to~~ ~~“The UL Power Headroom subfield indicates the available power headroom which the Tx EVM limit is expected to be exceeded, in units of dB, for the current MCS. The UL Power Headroom subfield carries a value 0 to 31 that maps to 0 dB to 31 dB.”~~~~TGax editor makes changes as shown in the as specified in 11-18/1504r1.~~ |
| ~~16738~~ | ~~78.60~~ | ~~9.2.4.6a.6~~ | ~~The channel availability bit map has the lowest resolution of 20 MHz. But there may be colocated radios in future in the field. In those case it may be the case that they require finer resolution atleast in the order of 26 tone or 52 tone RU that is interfered or not interfered. This information when communicated to AP, the scheduler in AP can make RU allocation appropriately to that STA~~ | ~~Whenvever only one 20 MHz channel is available out of entire 80 MHz/160 MHz operating channel, then there are two ways to solve this. First way:.There are two bits available in the BQR Control. In that case use that to indicate whether the upper half (10MHz of that 20 MHz Channel) or lower half (lower 10 MHz part of 20 MHz) is free when the Bits b0 to b7 have only one channel 20 MHz set. Second way: Expand the number of bits to indicate finer resolution and change the coding scheme to 26 tone RU by including 7 more bits which will give resolution in order of 26 tone RU~~ | ~~Rejected-~~~~The comment fails to identify a specific issue to be addressed. It fails to identify changes in sufficient detail so that the specific wording of the changes that will satisfy the commenter can be determined.~~ |
| 17065 | 79.39 | 9.2.4.6a.7 | "higher AC" is not clear. | Replace with "higher priority AC". | Revised- Agree in principle. Replace “higher AC” with “higher priority AC” throughout the TGax Draft 3.0. TGax editor makes changes as shown in the as specified in 11-18/1504r1. |

* Control subfield variants of an A-Control subfield

TGax Editor: Change 9.2.4.6a.1 as follows:(#12027)

* TRS Control(#13136)

If the Control ID subfield in a Control subfield of an A-Control subfield is 0, the Control Information subfield of the Control subfield contains triggered response scheduling (TRS)(#13136) information for soliciting an HE TB PPDU that follows an HE MU PPDU, HE SU PPDU or HE ER SU PPDU carrying the Control subfield(#13136)(#11970) (see 27.5.3.2 (Rules for soliciting UL MU frames))(#12027). See 27.5.3.4 (A-MPDU contents in an HE TB PPDU) for details on allowed content in an A-MPDU carried in H~~T~~E TB PPDU.(#14344) The format of the subfield is shown in Figure 9-15c (Control Information subfield for TRS Control).

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|  | B0            B4 | B5              B12 | B13          B17 | B18                   B22 | B23      B24 | B25 |
|  | HE TB PPDU Length | RU Allocation | DL Tx Power | UL Target RSSI | UL MCS | Reserved |
| Bits: | 5 | 8 | 5 | 5 | 2 | 1 |
| * Control Information subfield for TRS Control(#13136)(#11971)
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The HE TB PPDU Length subfield indicates the length of the HE TB PPDU response and is set to the number of OFDM symbols in the Data field of the HE TB PPDU minus 1. ~~The duration of the HE TB PPDU is calculated as defined in 28.4.3 (TXTIME and PSDU\_LENGTH calculation).~~

The RU Allocation subfield indicates the resource unit (RU) assigned for transmitting the HE TB PPDU response and the encoding(#11276) is defined in ~~9.3.1.23 (Trigger frame format)~~ Table 9-25h (The encoding of B19–B13 of the RU Allocation subfield).

(#13756)The DL TX Power subfield indicates the AP transmit power, in dBm, referenced to the antenna connector, combined over all TX antennas and normalized to 20 MHz bandwidth, used for the HE MU PPDU, HE SU PPDU or HE ER SU PPDU that solicits the HE TB PPDU. The transmit power, *PTX*, is calculated as *PTX* = 20 + 2×*FVal*, where *FVal* is the value of the DL TX Power subfield, except for the value 31, which is reserved.

TGax Editor: Change Table 9-18c as follows:(#12027)

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| * HLA Control subfields
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| Subfield | Meaning | Definition |
| RU Allocation(#13173) | RU of the recommended HE-MCS/RU specified by MFB requester to get feedback | If the Unsolicited MFB subfield is 1, the RU subfield indicates the RU for which the recommended HE-MCS applies(#11144), as defined in 27.13 (Link adaptation using the HLA Control subfield).If the Unsolicited MFB subfield is 0 and the MRQ subfield is 1, the RU subfield indicates the RU requested by the MFB requester to get feedback.The RU Allocation subfield is interpreted with the BW subfield to specify the RU.RU index encoding is as defined ~~9.3.1.23 (Trigger frame format)~~ in Table 9-25h (The encoding of B19–B13 of the RU Allocation subfield).Otherwise, this subfield is reserved. |

TGax Editor: Change 9.2.4.6a.4 as follows:(#12027)

* BSR Control

The queue size values in the Queue Size High and Queue Size All subfields are the total sizes, rounded up to the nearest multiple of *SF* octets, of all MSDUs and A-MSDUs buffered at the STA (including the MSDUs or A-MSDUs in the same PSDU as the MPDU containing the BSR Control subfield) in the delivery queues used for MSDUs and A-MSDUs with AC(s) that are specified in the ACI High and ACI Bitmap subfields, respectively. A queue size value of 254 in the Queue Size High and Queue Size All subfields indicates that the amount of buffered traffic is ~~used for all sizes~~ greater than 254*SF* octets. A queue size value of 255 in the Queue Size High and Queue Size All subfields indicates(#11062) that the amount of buffered traffic is an unspecified or unknown size. When the fragments are carried in non-A-MPDU frames or S-MPDUs, ~~If an MSDU or A-MSDU is fragmented and is not carried in an A-MPDU~~, the queue size value of the MPDUs containing the fragments might remain constant in all fragments even if the amount of queued traffic changes as successive fragments are transmitted. When the fragments are carried in the A-MPDU ~~If an MSDU or A-MSDU is fragmented and is carried in an A-MPDU~~, the queue size values of the MPDUs containing the fragments are set according to the rules in 10.13.1 (A-MPDU ~~operation~~contents).

~~TGax Editor: Change 9.2.4.6a.5 as follows:(#12027)~~

* ~~UPH Control~~

~~The UL Power Headroom subfield indicates the available power headroom which the Tx EVM limit is expected to be exceeded, in units of dB, for the current MCS. (#13176)The UL Power Headroom subfield carries a value 0 to 31 that maps to 0 dB to 31 dB.~~

TGax Editor: (#12027)Replace “higher AC” with “higher priority AC” throughout the TGax Draft 3.0.