IEEE P802.11  
Wireless LANs

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| D1.0 CR for Section 9.2.5.2 and 9.3.1.19 | | | | |
| Date: 2021-7-22 | | | | |
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Abstract

This submission proposes resolutions for the following comments on section 9.2.4.2, 9.3.1.19 and 10.6.6.1 of TGbe D1.0:



Baseline documents: TGbe D1.01.

Revisions:

* Rev 0: Initial version of the document. Use D1.01 as baseline spec text.
* Rev 1: Add clarification of 484 feedback and updated proposed resolution for CID 4143
* Rev 2: Updated during conference call
* Rev 3: Updated resolutions for CID 4144, 5394, 4150, 4143, 5393 and 5537

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 TGbe Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbe Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGbe Editor: Editing instructions preceded by “TGbe Editor” are instructions to the TGbe editor to modify existing material in the TGbe draft. As a result of adopting the changes, the TGbe editor will execute the instructions rather than copy them to the TGbe Draft.***

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| **CID** | **Clause Number** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 4144 | 9.2.5.2 | 74 | Can Beamforming Report Poll frames be used for EHT sounding? Comment is in 9.2.5.2 as this is the first time I see this frame, but I would guess it applies to EHT sounding protocol (35.5). | As in comment. | **Rejected:**  In D1.01, Beamforming Report Poll frames are not used for EHT sounding. |
| 5537 | 9.3.1.19 | 78 | delete 'a' | the TA field is a set to a bandwidth signaling TA. | **Revised:**  TGbe editor: At the cited location, change "the TA field is a set to" to "the TA field is set to" . |
| 5393 | 9.3.1.19 | 78 | There are two grammar mistakes in this sentence. Change "6G" to "in 6G". Also change "the TA field is a set to" to "the TA field is set to". | Please refer to my comment. | **Revised:**  Note to the commenter:  The term “STA 6G” is defined in IEEE Std 802.11ax-2021 (Section 3.2 Page 45) as  “station (STA) 6G: A STA that is operating on a channel that belongs to any operating class that has a value of 5.950 for the entry in the Channel starting frequency column of Table E-4.”  Thus there is no grammar error with the “STA 6G” term.  TGbe editor: At the cited location, change "the TA field is a set to" to "the TA field is set to" .  *Note to editor: same resolution as in #5537* |
| 6006 | 9.3.1.19 | 78 | Ths sentence is same as P78L61. | delete one of them. | **Revised:**  Please see resolution in 11-21/1105r5. |
| 5506 | 9.3.1.19 | 79 | The sentence regarding identification of EHT NDP Announcement frame is duplicated with one in P78L62. | Delete the second duplicated sentence | **Revised:**  Please see resolution in 11-21/1105r5.  Same as #6006 |
| 8079 | 9.3.1.19 | 79 | This paragraph is redundant. The similar description is shown right above in the same subclause. Delete it. | as in comment | **Revised:**  Please see resolution in 11-21/1105r5.  Same as #6006 |
| 6931 | 9.3.1.19 | 78 | AP that request BFR from station with lower BW than the transmitted NDP frame (e.g. NDP BW =320MHz, STA BW =80MHZ) should ensure that the partial BW Info field indicate a supported primary channel of responder STA (e.g. P20, P40, P80) and will not indicate any channel that is not in the STA supported channels (e.g. S80) | Add normative | **Rejected:**  All the normative texts requested are in section 35.5.2. For example, P307L59-60 of D1.01, we have “An EHT NDP Announcement frame shall not request partial BW feedback on a 242-tone RU outside of the beamformee’s operating channel width.” |
| 7918 | 9.3.1.19 | 78 | Table 9-29a and 9-29b (in 11ax-2021) now serve both HE and EHT sounding, and thus the title should be updated to reflect that. | Copy Table 9-29a from IEEE Std 802.11ax-2021 (P106), and update the table title from  "Feedback Type And Ng subfield and Codebook Size subfield encoding for HE TB sounding"  to  "Feedback Type And Ng subfield and Codebook Size subfield encoding for HE and EHT TB sounding"   Copy Table 9-29b from IEEE Std 802.11ax-2021 (P106), and update the table title from  "Feedback Type And Ng subfield and Codebook Size subfield encoding for HE non-TB sounding"  to  "Feedback Type And Ng subfield and Codebook Size subfield encoding for HE and EHT non-TB sounding" | **Accepted** |
| 5788 | 9.3.1.19 | 79 | Table 9-28d does not deal with EHT variant NDPA only. | delete "an EHT" from the title of Table 9-28d | **Revised:**  Delete EHT in the title of “Table  9-28d—AID11 subfield encoding in an NDP Announcement frame” |
| 4806 | 9.3.1.19 | 79 | The content of the table refers to Ranging variant while the Table itself is for EHT NDP-A frames. Its not clear if they are typos or the intent is to cover also case of NDP-As that are both for EHT and Ranging.. | Either (a) Remove references to "Ranging variant" from this table as its mentioned upfront in the title that its an EHT NDP-A or (b) create a general Table for all NDP-A variants and clarify the AID subfield values interpretation for each NDP-A variant. | **Revised:**  The table 9-28d is not only for EHT NDP-A but also for all other variants as well.  Delete EHT in the title of “Table  9-28d—AID11 subfield encoding in an NDP Announcement frame”  *Note to editor: same resolution as in #5788.* |
| 5314 | 9.3.1.19 | 80 | The EHT NDP announcement frame defines values for HE NDP Announcement frame? The HE NDP frame should be handled in its own chapter. | Please move/add AID 2047 definition to HE variant NDP Announcement frame definition. | **Revised:**  The table 9-28d is not only for EHT NDP-A but also for all other variants as well.  Delete EHT in the title of “Table  9-28d—AID11 subfield encoding in an NDP Announcement frame”  *Note to editor: same resolution as in #5788.* |
| 5538 | 9.3.1.19 | 79 | In Table 9-28d, AID 0 is that STA Info field is addressed to the associated AP. But other texts in 11ax and 11be said that AID set to 0 if the STA is an AP, mesh STA, or IBSS STA. Are they the same meaning or is AID 0 restricted to only the associated AP with any reason? Please clarify it | as a comment | **Revised:**  Replace second row middle column in table 9-28d for AID 0 as follows:  “STA Info field is addressed to the associated AP or mesh STA or IBSS STA.” |
| 5789 | 9.3.1.19 | 79 | An EHT AP does not use the value 2007 as an AID for any STA associated to it. Therefore, AID11 = 2007 should be reserved in any NDPA that is not a Ranging variant transmitted by an EHT AP. | as in the comment | **Revised:**  Maximum value AID is 2007 for HE STA.    *Add following sentence at the end of description for 1-2007 in table 9-29d.*  “The value 2007 is reserved for EHT variant.” |
| 8080 | 9.3.1.19 | 79 | 2007 is not assined for EHT STAs in Trigger frame because it indicates a special user field. 2007 should fall onto the different row because 2007 is applicable for VHT and HE variant. 2007 assigned in NDPA does not make because it can not be triggered using the same AID 2007 when the AID11 subfield contains an identifier of a STA expected to process the following EHT sounding NDP and prepare the sounding feedback | as in comment | **Revised:**  Maximum value AID is 2007 for HE STA.    *Add following sentence at the end of description for 1-2007 in table 9-29d.*  “The value 2007 is reserved for EHT variant.”  *Note to editor: this is same resolution as in #8080.* |
| 5790 | 9.3.1.19 | 79 | AID11 =2043,2044 or 2045 is applicable only to ranging variant NDPA | For rows corresponding to AID11 = 2043, 2044, 2045 under the column "NDP Announcement frame variant applicability", change "Applicable to any variant" to "Applicable only to ranging variant" | **Accepted** |
| 6007 | 9.3.1.19 | 79 | Change "Apply to any vairant" to "Apply to Ranging NDP Announcement". | As in comment | **Revised:**  *Note to editor: resolution is same as in #5790* |
| 6008 | 9.3.1.19 | 79 | Change "Apply to any vairant" to "Apply to Ranging NDP Announcement". | As in comment | **Revised:**  *Note to editor: resolution is same as in #5790* |
| 7473 | 9.3.1.19 | 79 | In Table 9-28d, AID 2043, 2044 and 2045 shall be applicable only to Ranging Variant. | Change to "Applicable only to Ranging variant" | **Accepted:**  *Note to editor: resolution is same as in #5790* |
| 6009 | 9.3.1.19 | 80 | Change "Apply to any vairant" to "Apply to Ranging NDP Announcement". | As in comment | **Accepted:**  *Note to editor: resolution is same as in #5790* |
| 4871 | 9.3.1.19 | 80 | Add the following text for indication of 484-tone RU in the second paragraph. "If B1 and B2 are all set to 1, it indicates the feedback request on the 484-tone RU. " | As in comment | **Rejected:**  There is no 484-tone RU feedback. In the case in the comment, RU 1 and RU 2 of 242-tone RU will be feedback as described in table 9-91j. |
| 5394 | 9.3.1.19 | 80 | The sentence "B1-B4 indicate the request of feedback on each of the four 242-tone RUs from lower frequency to higher frequency." is only true when B1-B4 are not all set to 1. This is somewhat overwritten by the last sentence. Better rewrite this paragraph for clarity. Same comment to P80L57, P80L63. | Change "B1-B4 indicate the request of feedback on each of the four 242-tone RUs from lower frequency to higher frequency" to "B1-B4 indicate the request of feedback on each of the four 20 MHz from lower frequency to higher frequency." Add the following sentence to the end of the paragraph: Otherwise, B1-B4 indicate the feedback request on each of the four 242-tone RUs. Suggest a similar change to P80L57, P80L63 and end of the two paragraphs. | **Revised:**  Feedback for 996-tone RU and others are different. Please refer Table 9-91j and Table 9-91k. So, we need to distinguish these cases. Spec talks about 242-tone RU feedback or 996-tone RU feedback.  *Adopt proposed change #3 in doc 11-21/1237r4.* |
| 7389 | 9.3.1.19 | 80 | In this paragraph change "is 20 MHz" etc to "is equal to 20 MHz". | In the indented bullet points change "is 20 MHz" to "is equal to 20 MHz", "is 40 MHz" to "is equal to 40 MHz", "is 80 MHz" to "is equal to 80 MHz" and "is 160 MHz" to "is equal to 160 MHz". At P80L62, change "is 320 MHz" to "is equal to 320 MHz". | **Accepted** |
| 7390 | 9.3.1.19 | 80 | On this page change "is 2046" etc to "is equal to 2046". | At the cited position, change "is 2046" to "is equal to 2046". At P93L18, make a similar change. At P91L46 change "is 4095" to "is equal to 4095". | **Revised:**  Wrong page and line number.  Add “equal to” between “is” and “2046” in P94L24 and P96L5 of D1.01 as “is equal to 2046”, and add “equal to” between “is” and “4095” in P94L28 of D1.01 as “is equal to 4095” |
| 5395 | 9.3.1.19 | 81 | What about values not defined in Table 9-28e? What if the Partial BW Info subfield is set to values other than the ones defined in Table 9-28e? What's the Rx behavior in this case? | Should add a sentence or two here to address this. For example, "Any values of the Partial BW Info subfield other than the ones defined in Table 9-28e are reserved." | **Revised:**  *Add the suggested example after the table 9-28e,* “Any values of the Partial BW Info subfield other than the ones defined in Table 9-28e are reserved.” |
| 7022 | 9.3.1.19 | 81 | Table 9-28a: add that values not explicitly shown in the table are not allowed | See comment | **Revised:**  Wrong reference. It should be table 9-28e.  *Add the suggested example after the table 9-28e,* “Any values of the Partial BW Info subfield other than the ones defined in Table 9-28e are reserved.”  *Note to editor: same resolution as in #5395.* |
| 7921 | 9.3.1.19 | 81 | The order of the Partial BW Info subfield binary representation needs to be specified. | In Table 9-28e, first row, last column, change  "Partial BW Info subfield values"  to  "Partial BW Info subfield values in binary format (B0 B1 B2 B3 B4 B5 B6 B7 B8)" | **Accepted** |
| 8157 | 9.3.1.19 | 81 | A beamformer can not request a Feedback RU that is larger than the beamformee's operating channel width. | reorgnize the table to make it clean | **Revised:**  *Adopt proposed change #1 in doc 11-21/1237r1.* |
| 4126 | 9.3.1.19 | 82 | In the note, The Disambiguation subfield set to 1 prevents a non-EHT VHT from incorrectly identifying its AID. | Change "wrongly" to "incorrectly" to provide additional clarity. | **Accepted** |
| 4150 | 9.3.1.19 | 82 | This paragraph and the next have some ambiguity issues. The first paragraph seems to imply that there can be a broadcast NDPA with one STA info field. Is that the case? Please check 11ax and make it inline. And second paragraph implies that an individually addressed NDPA can have multiple STA Info fields. Same consideraton. | As in comment. | **Revised:**  *Adopt proposed change #2 in doc 11-21/1237r4.* |
| 5396 | 9.3.1.19 | 82 | What's a "non-EHT VHT STA"? A typo here? Same comment to P82L15. | Please fix it. | **Rejected:**  EHT STA is VHT STA. And the sentence is only applicable for VHT STA which is not EHT STA. In 11ax, there is a similar sentence. |
| 4143 | 9.2.5.2 | 74 | We keep adding VHT, HE, EHT every amendment. Suggest to just call it NDPA in those locations where the rule applies to all NDP announcements. And then amendment specific rules should be the ones that target the respective term (e.g., EHT in our case). | As in comment. | **Revised:**  Agreed.  *Adopt proposed change #4 in doc 11-21/1237r4.* |
| 8303 | 10.6.6.1 | 172 | Can an EHT STA use an <EHT-MCS,NSS> that is not supported by all recipient STAs? An EHT STA shall use an <EHT-MCS,NSS> that is supported by all recipient STAs. | as in comment. | **Revised:**  Even though EHT STA may use other rate if all receipient STA supports, the sentence  is for EHT PPDU. Thus, “shall” use <EHT MCS, NSS> should be right.  Replace P182L52-55 as follows:  “An EHT STA shall use an <EHT\_MCS, NSS> tuple that is supported by all recipient STAs if the PPDU carrying any of these frames is an EHT PPDU.” |

***Proposed Change #1***

*Replace table 9-28e with follow,*

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| **Feedback RU/MRU Size** | **Bandwidth of EHT NDP Announcement frame** | **Partial BW Info subfield values in binary format (B0 B1 B2 B3 B4 B5 B6 B7 B8)** | **Operating channel width of the EHT beamformee (MHz)** |
| 242 | 20 MHz | 010000000 | 20, 40, 80, 160, 320 |
| 40 MHz | 010000000, 001000000 |
| 80 MHz | 010000000, 001000000, 000100000, 000010000 | 20, 80, 160, 320 |
| 160 MHz | 010000000, 001000000, 000100000, 000010000, 000001000, 000000100, 000000010, 000000001 |
| 484 | 40 MHz | 011000000 | 40, 80, 160, 320 |
| 80 MHz | 011000000, 000110000 | 80, 160, 320 |
| 160 MHz | 011000000, 000110000, 000001100, 000000011 |
| 320 MHz | 110000000, 101000000, 100100000, 100010000, 100001000, 100000100, 100000010, 100000001 |
| 484+242 | 80 MHz | 011100000, 011010000, 010110000, 001110000 |
| 160 MHz | 011100000, 011010000, 010110000, 001110000, 000001110, 000001101, 000001011, 000000111 |
| 996 | 80 MHz | 011110000 | 80, 160, 320 |
| 160 MHz | 011110000, 000001111 |
| 320 MHz | 111000000, 100110000, 100001100, 100000011 |
| 996+484 | 160 MHz | 011111100, 011110011, 011001111, 000111111 | 160, 320 |
| 320 MHz | 111100000, 111010000, 110110000, 101110000, 100001110, 100001101, 100001011, 100000111 |
| 996+484+242 | 160 MHz | 011101111, 011011111, 010111111, 001111111, 011111110, 011111101, 011111011, 011110111 |
| 2x996 | 160 MHz | 011111111 |
| 320 MHz | 111110000, 100001111, |
| 2x996+484 | 320 MHz | 111111000, 111110100, 111101100, 111011100, 110111100, 101111100, 100111110, 100111101, 100111011, 100110111, 100101111, 100011111 | 320 |
| 3x996 | 320 MHz | 111111100, 111110011, 111001111, 100111111 |
| 3x996+484 | 320 MHz | 111111110, 111111101, 111111011, 111110111, 111101111, 111011111, 110111111, 101111111 |
| 4x996 | 320 MHz | 111111111 |

***Proposed Change #2***

*Add following paragraph at P81L29 of D1.01.*

***Change the third and fourth paragraphs from the last as follows:***

In ~~a broadcast~~ an HE NDP Announcement frame that has more than one STA Info field with a value other than 2047 in the AID11 field, the RA is a broadcast address and the following applies to each STA Info subfield with a value other than 2047:

— If the Feedback Type subfield indicates SU or MU, the Nc subfield indicates the number of columns, Nc, in the compressed beamforming feedback matrix and is set to Nc – 1

— If the Feedback Type subfield indicates CQI, the Nc subfield indicates the number of space-time streams, Nc, in the CQI report and is set to Nc – 1

— There is more than one STA Info field with a value other than 2047 in the AID11 field

In an ~~individually addressed~~ HE NDP Announcement frame with a single STA Info field, the RA is an individual address, the AID11 field in the STA Info field has a value other than 2047 and Nc subfield is reserved.~~the STA Info fields having a value in the AID11 field other than 2047, the Nc subfield is reserved.~~

*Modify P84L63 – P85L13 as follows:*

In ~~a broadcast~~ an EHT NDP Announcement frame, the RA is a broadcast address and the following applies:

—(#1639)If the Feedback Type And Ng subfield and the Codebook Size subfield indicate SU or MU, the Nc Index subfield indicates the number of columns in the compressed beamforming feedback matrix minus 1, . Nc Index subfield values above 7 are reserved.

—(#1639)If the Feedback Type And Ng subfield and the Codebook Size subfield indicate CQI, the Nc Index subfield indicates the number of spatial streams in the CQI report minus 1, . Nc Index subfield values above 7 are reserved.

~~— In a broadcast EHT NDP Announcement frame, the number of STA Info field shall be more than one.~~

    — There is more than one STA Info field

(#1639)~~In an individually addressed EHT NDP Announcement frame, the Nc Index subfield is reserved. In an individually addressed EHT NDP Announcement frame, the number of STA Info field shall be one.~~ In an EHT NDP Announcement frame with a single STA Info field, the RA is an individual address and Nc subfield is reserved.

***Proposed Change #3***

*Modify P84L14 –31 of D1.01 as follows:*

—When the bandwidth of the PPDU carrying the EHT NDP Announcement frame is 80 MHz, set the Resolution bit B0 to 0 to indicate a resolution of 20 MHz. If B1–B4 are all set to 1, it indicates the feedback request on the 996-tone RU, otherwise, B1–B4 indicate the request of feedback on each of the four 242-tone RUs from lower frequency to higher frequency. B5–B8 are reserved and set to 0.

—When the bandwidth of the PPDU carrying the EHT NDP Announcement frame is 160 MHz, set the Resolution bit B0 to 0 to indicate a resolution of 20 MHz. If B1–B4 are all set to 1, it indicates the feedback request on the lower 996-tone RU, otherwise it indicates the request of feedback on each of four 242-tone RUs from lower frequency to higher frequency in the lower 80 MHz. If B5–B8 are all set to 1, B5–B8 indicate the feedback request on the upper 996-tone RU, otherwise B5–B8 indicate the request of feedback on each of the four 242-tone RUs from lower frequency to higher frequency in the upper 80 MHz.

When the bandwidth of the PPDU carrying the EHT NDP Announcement frame is 320 MHz, set the Resolution bit B0 to 1 to indicate a resolution of 40 MHz. If B1 and B2 are both set to 1, it indicates the feedback request on the first 996-tone RU, otherwise B1 and B2 indicate the request of feedback on each of the two 484-tone RUs from lower frequency to higher frequency in the first 80 MHz. If B3 and B4 are both set to 1, it indicates the feedback request on the second 996-tone RU, otherwise B3 and B4 indicate the request of feedback on each of the two 484-tone RUs from lower frequency to higher frequency in the second 80 MHz. If B5 and B6 are both set to 1, it indicates the feedback request on the third 996-tone RU, otherwise B5 and B6 indicate the request of feedback on each of the two 484-tone RUs from lower frequency to higher frequency in the third 80 MHz. If B7 and B8 are both set to 1, it indicates the feedback request on the fourth 996-tone RU, otherwise 7two in the fourth 80 MHz. The feedback tone sets for each 484-tone RU is composed of the feedback tone sets of the two 242-tone RUs overlapping with the 484-tone RU

***Proposed Change #4***

*Find “VHT/HE/EHT NDP Announcement frames” and “VHT/HE/EHT NDP Announcement frames”, and update it to “~~VHT/HE~~ NDP Announcement frames” and “NDP Announcement frames”, respectively.*