IEEE P802.11
Wireless LANs

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| LB276 Comment Resolutions for Sensing NDPA Frame Format |
| Date: 2023-09-05 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Ali Raissinia | Qualcomm Inc. |  |  | alirezar@qti.qualcomm.com |
| Chen Cheng | Intel |  |  | cheng.chen@intel.com |

Abstract

**This document proposes comment resolutions for CIDs 3194, 3245, 3246, 3247, 3248, 3284, 3285, 3286, 3287, 3288, 3289, 3290, 3392, 3527, 3528, 3393, 3529, 3531, 3414, and 3469 for NDPA Frame Format based on D2.0.**

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| **CID** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 3194 | 9.3.1.19.1 | 31.13 | If more than one STAs are in the NDPA sounding, it seems that sentence "the RA is set to the address of the sensing responder" is not true, please rephrase it. | as in comment |  RejectThe spec already clarifies behavior as denoted in P31 L15-17, “If the NDP Announcement frame contains more than one STA Info field with a value less than 2008 in the AID11 subfield, then the RA field is set to the broadcast address.” |
| 3245 | 9.3.1.19.5 | 32.27 | Sounds strange to say that something is defined in the figure. Not how things usually are expresssed in the spec. | Change "defined" to "shown" |  Reject.The phrase ‘is defined in Figure” is used in the baseline in many occurrences.  |
| 3246 | 9.3.1.19.5 | 32.49 | Throughout the spec, TB sensing is explained first followed by Non-Tbsensing | Swap the order of paragraphs describing TB sensng measurement exchange and Non-TB sensing measurement exchange |  ReviseTGbf editor: Move text in paragraph P32 L49-50 to P33 L19. |
| 3247 | 9.3.1.19.5 | 33.40 | The sentence reads a bit strange, like the contents of the figure would change depending on whether AID is 2044 or not | Rewrite the sentence to read "The format of the STA Info field is shown in Figure 9-75m for the case that the AID11 subfield is equal to 2044" |  Revise <https://mentor.ieee.org/802.11/dcn/21/11-23-1456-02-00bf-LB276-Comment-Resolutions-for-Sensing-NDPA-Frame-Format>.docx  |
| 3248 | 9.3.1.19.5 | 34.27 | Remove the word "combined" | As in comment |  Accept |
| 3284 | 9.3.1.19.5 | 32.11 | 9.3.1.19.2 (VHT NDP Announcement frame format) does not explicitly specify how to set the FC subtype, the sentence here makes bad reference to VHT. | Remove this sentence, and change the corresponding row in 'Table 9-1--Valid type and subtype combinations' to: VHT/HE/Ranging/Sensing/EHT NDP Announcement |  ReviseTGbf editor: Delete the text in P32 L11-12Table 9-1 has been modified by 802.11be D4.0 with removal of VHT/HE reference hence it is only now “NDP Announcement” so we don’t need to add Ranging/Sensing anymore as it’s generic.  |
| 3285 | 9.3.1.19.5 | 32.15 | How to set Duration and TA fields has already been described in 9.3.1.19.1 General description. The sentence here makes bad reference to VHT. Also RA has rules different from VHT. | Remove this sentence. |  Accept |
| 3286 | 9.3.1.19.5 | 32.19 | Measurement Exchange ID does not include a NDPA frame, so there is a logical issue. | Change to: the Sounding Dialog Token field contains a Measurement Exchange ID value in therange of 0 to 63, which identifies the measurement exchange that this transmitted Sensing NDPAnnouncement frame is part of ... |  Revise<https://mentor.ieee.org/802.11/dcn/21/11-23-1456-02-00bf-LB276-Comment-Resolutions-for-Sensing-NDPA-Frame-Format>.docx  |
| 3287 | 9.3.1.19.5 | 32.24 | STA Info List field has already been described in 9.3.1.19.1 (General description). The sentence here is redundant. | Remove this sentence. |  ReviseTGbf editor: Delete the text in P32 L24 |
| 3288 | 9.3.1.19.5 | 32.49 | 9.3.1.19.1 (General description) has described RA for other variants. It's better to merge RA of sensing there. Same issue for P32L53. | Merge it into 9.3.1.19.1. |  RejectThe 9.3.2.19.1 (General description) is not describing the use of NDP Announcement frame in the Non-TB sensing measurement exchange, besides when it is combined with other text in the baseline specification (i.e., REVmf), the baseline editor will remove the redundant text as needed.  |
| 3289 | 9.3.1.19.5 | 33.32 | This paragraph applies to both TB and non-TB? Or only applies to non-TB?This paragraph somewhat duplicates with the previous TB and non-TB paragraphs, it should be merged into those three paragraphs. | Merged it into the previous paragraphs. |  Revise <https://mentor.ieee.org/802.11/dcn/21/11-23-1456-02-00bf-LB276-Comment-Resolutions-for-Sensing-NDPA-Frame-Format>.docx  |
| 3290 | 9.3.1.19.5 | 33.32 | Since this paragraph is under 9.3.1.19.5 (Sensing NDP Announcement frame format), it's clear that it is talking about Sensing NDPA, so B31 definitely is set to 1, the word 'if' should be removed. | Change to: In the STA Info field with AID11 subfield equal to 2045, bit B31 is set to 1 to indicate that the frame is a Sensing NDP Announcement frame, bits B28 through B30 are set to the Measurement Session ID of the corresponding sensing measurement exchange. |  Revise TGbf editor: Delete the word “if” from P34L40 and add the word “and” before the phrase “bits B28”. |
| 3392 | 9.3.1.19.1 | 29.06 | Table9-42a has gone through several changes in 11be D4.0. | Align Table 9-42a with the 11be D4.0 |  Revise <https://mentor.ieee.org/802.11/dcn/21/11-23-1456-02-00bf-LB276-Comment-Resolutions-for-Sensing-NDPA-Frame-Format>.docx  |
| 3527 | 9.3.1.19.1 | 31.32 | Is it " or " or "and" | change to "Ranging NDP Announcement frame or Sensing NDP Announcement..." |  Accept |
| 3528 | 9.3.1.19.5 | 32.45 | Does this sentence imply that a sensing NDP Announcement frame may main more one STA Infor field for one STA that is an intended recipient of this frame? | Please clarify this. | Revise TGbf editor on P32L45 change the word “least” to “most”.  |
| 3393 | 9.3.1.19.5 | 32.45 | The sentence "A Sensing NDP Announcement frame contains at least one STA Info field with an AID11 subfield less than 2008 per STA that is an intended recipient of this frame" is confusing and may be wrongly interpreted that a Sensing NDPA frame may contain one or more STA Info field "per STA". Also it is stated in 11be D4.0 that "An NDP Announcement frame contains at most one STA Info field per STA." | remove "per STA" | Revise TGbf editor on P32L45 change the word “least” to “most”. |
| 3529 | 9.3.1.19.5 | 32.64 | It is a bit contradictory here. It is illustrated in line 50, the RA field is set to the address of that STA, which is an AP in a non-TB sensing measurement exchange. However, it is illustrated in line 64 that the intended recipient is identified by the RA field and the AID11 subfield is set to 0 in the case of a non-TB sensing measurement exchange. Does this imply that the address of the AP is 0 no matter what AP is? | Please clarify this. |  RejectThe below quoted text by the commenter “the intended recipient is identified by the RA field and the AID11 subfield is set to 0”Which does not imply that RA is set to zero but rather only AID11 set to 0. The RA field is the MAC address of the AP in this case.  |
| 3531 | 9.3.1.19.5 | 34.40 | What is the setting of B28 to B30 if bit B31 is set to 0 in the STA Info field with AID11 subfield equal to 2045? | Please add the clarification when bit B31 is set to 0 in the STA Info field with AID11 subfield equal to 2045. |  RejectThe STA Info with AID11 set to 2045 with B31 not set to 1 is used in the ranging measurement exchange where the format is already shown in Figure 9-61h (802.11az-2022) and B28-B31 are reserved. |
| 3414 | 11.55.1.5.2.1 | 143.51 | It is not allowed to perform NDPA sounding in TB sensing measurement exchanges without reporting and polling phases. If neither of them is needed, one of them has to be included what decreases efficiency. | Allow a TB sensing measurement exchange that only consists of an NDPA sounding phase. | Revise<https://mentor.ieee.org/802.11/dcn/21/11-23-1456-02-00bf-LB276-Comment-Resolutions-for-Sensing-NDPA-Frame-Format>.docx  |
| 3469 | 11.55.1.5.2.1 | 143.51 | In TB sensing mode, NDPA sounding which doesn't need reporting cannot be done without a polling phase. Removing the polling phase requirement can result in a low overhead means to do sensing. | Allow a TB session to consist of only NDPA sounding phase. | Revise<https://mentor.ieee.org/802.11/dcn/21/11-23-1456-02-00bf-LB276-Comment-Resolutions-for-Sensing-NDPA-Frame-Format>.docx |

**Resolution for CID 3247**

TGbf editor: Change the text in P33 L40-41 as follows

~~If the AID11 subfield is equal to 2044, t~~The format of the STA Info field with AID11 equal to 2044 is shown in Figure 9-75m (STA Info field in a Sensing NDP Announcement frame with AID11 subfield equal to 2044).

**Resolution for CID 3286**

TGbf editor: Change the text in P32 L17-21 as follows

The Sounding Dialog Token Number ~~sub~~field in the Sounding Dialog Token field contains a ~~value in the range of 0 to 63, which identifies the~~ Measurement Exchange ID value in the range of 0 to 63, which identifies the measurement exchange that this transmitted Sensing NDP Announcement frame is part of (see 11.55.1.5.2 (TB sensing measurement exchange) and 11.55.1.5.3 (NonTB sensing measurement exchange)).

**Resolution for CID 3289**

TGbf editor: Add the text in underline (below) in P33 after L8 after the following black text (below)

When used in a TB sensing measurement exchange (see 11.55.1.5.2 (TB sensing measurement exchange)), if the bandwidth of the PPDU carrying the NDP Announcement frame is less than or equal to 160 MHz,

— the SI2SR NSTS and SI2SR Rep fields are used to indicate the HE-LTF configuration (see 27.3.18a.1 (HE Ranging NDP)) of the SI2SR NDP that follows

— the sensing responder to sensing initiator (SR2SI) NSTS and SR2SI Rep fields are reserved

--- the SI2SR Rep field is set to the number of HE-LTF repetitions of the corresponding HE Ranging NDP minus 1 (see 27.3.18a.1 (HE Ranging NDP)). If the SI2SR Rep is equal to 0, then there is no HE-LTF repetition in the SI2SR NDP.

TGbf editor: Add the text in underline (below) P33 after L29 after the following black text (below)

When used in a non-TB sensing measurement exchange (see 11.55.1.5.3 (Non-TB sensing measurement exchange)), if the bandwidth of the PPDU carrying the NDP Announcement frame is less than or equal to 160 MHz,

— the SI2SR NSTS and SI2SR Rep fields are used to indicate the HE-LTF configuration (see 27.3.18a.1 (HE Ranging NDP)) of the SI2SR NDP that follows

— the SR2SI NSTS and SR2SI Rep fields indicate the HE-LTF configuration of the SR2SI NDP sent in response by the AP (i.e., sensing responder)

--- the SR2SI Rep and SI2SR Rep fields are set to the number of HE-LTF repetitions of the corresponding HE Ranging NDP minus 1 (see 27.3.18a.1 (HE Ranging NDP)). If the SI2SR Rep and SR2SI Rep are equal to 0, then there is no HE-LTF repetition in the SI2SR NDP and SR2SI NDP that follows, respectively.

TGbf editor: Delete the text in P33 L32-37 as shown below

~~If the bandwidth of the PPDU carrying the Sensing NDP Announcement frame is less than or equal to 160 MHz, the SR2SI Rep and SI2SR Rep fields are set to the number of HE-LTF repetitions of the corresponding HE Ranging NDP minus 1 (see 27.3.18a.1 (HE Ranging NDP)). If the SI2SR Rep and SR2SI Rep fields are both equal to 0, then there is no HE-LTF repetition in the SI2SR NDP and SR2SI NDP that follows, respectively.~~

**Resolution for CID 3392**

TGbf editor: Change Table 9-42a in P30 with following changes to reflect the changes incorporated by 802.11be D4.0. Note changes are all editorial with moving text

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| * Table 9-42a- AID11 subfield encoding in an NDP Announcement frame
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| AID11 subfield | Description | NDP Announcement frame variant applicability (see NOTE) |
| VHT | HE | EHT | Ranging | Sensing |
| 0 | STA Info field is addressed to the associated AP or mesh | Applicable |
| 1–2006 | If the NDP Announcement frame is not a Ranging or a Sensing variant, the STA Info field is addressed to an associated STA whose AID is equal to the value in the AID11 subfield ~~if the NDP Announcement frame is not a Ranging or a Sensing variant.~~If the NDP Announcement frame is not a Ranging or a Sensing variant, the STA Info field is addressed to an unassociated STA or an associated STA whose RSID/USID/AID is equal to the value in the RSID11/USID11/AID11 subfield ~~if the NDP Announcement frame is not a Ranging or a Sensing variant.~~ | Applicable |
| 2007 | Applicable | Applicable (subject to 35.15.1 (Basic EHT BSS operation)) | Not applicable | Applicable | Applicable |
| 2008–2042 | N/A | Not applicable |
| 2043 | STA Info field contains a sequence authentication code subfield | Not applicable | Not applicable | Not applicable | Applicable | Not applicable |
| 2044 | STA Info field contains a partial TSF subfield | Not applicable | Not applicable | Not applicable | Applicable | Applicable |
| 2045 | ~~STA Info field contains ranging the I2R NDP Tx Power and R2I NDP Target RSSI subfields if the NDP Announcement frame is a Ranging variant.~~For Ranging NDP Announcement frame, it contains I2R NDP TX Power and R2I RSSI target. For Sensing NDP Announcement frame, it contains the SI2SR TX power and the Measurement Session ID, and it may contain the SR2SI NDP Target RSSI. | Not applicable | Not applicable | Not applicable | Applicable | Applicable |
| 2046 | N/A | Not applicable |
| 2047 | STA Info field contains a Disallowed Subchannel Bitmap subfield | Not applicable | Applicable | Not applicable | Not applicable | Not applicable |
| NOTE—Not applicable means that the particular AID11 value is not used for that variant and is reserved. |

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**Resolution for CID 3414 and CID 3469**

Discussion:

The commenter is suggesting to not include polling or reporting phase with NDPA sounding phase alone however, without polling phase or reporting phase the AP cannot ensure that the non-AP STA as a responder is participating in the TB sensing measurement exchange in the availability window as there is a sensing measurement session expiry timer that would need to be reset upon completion of the measurement exchange between peers.

TGbf editor: Change the text in P143 L51-52 as follows and also add the NOTE below:

A TB sensing measurement exchange shall not consist of: ~~a reporting phase alone nor of an NDPA sounding phase alone, and also shall not solely consist of a polling phase and a reporting phase.~~

* a report phase alone,
* an NDPA sounding phase alone,
* a TF sounding phase of the SR2SR variant alone in which the sensing responder is a sensing receiver,
* a polling phase and a reporting phase

NOTE – To allow for an AP to determine whether a non-AP STA is present in a sensing availability window and manage the sensing measurement session expiry timer appropriately, TB sensing measurement exchange(s) that consist(s) of

* an NDPA sounding phase alone, or
* a TF sounding phase of the SR2SR variant alone in which the sensing responder is a sensing receiver

include(s) either a polling phase, a reporting phase, or both a polling phase and a reporting phase.

**References: IEEE P802.11bf D2.0**