### **IEEE P802.11Wireless LANs**

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| Updated PDT Sensing NDPA Frame Format |
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**This document is the updated version of the NDPA frame format to be used instead of text in D0.51**

**11bf editor: Modify Line 61-65 page 149 under subclause 9.3.1.19.1 (i.e., General) in IEEE802.11be D2.3 as following:**

The ~~VHT/HE/Ranging~~ NDP Announcement frame has ~~three~~ ~~four~~ five variants, the VHT NDP Announcement frame, the HE NDP Announcement frame, ~~and~~ the Ranging NDP Announcement frame, the Sensing NDP Annoucement frame, and the EHT NDP Announcement frame. The ~~three~~ ~~four~~ five formats are distinguished by the setting of the NDP Announcement ~~Type~~ Variant subfield in the Sounding Dialog Token field and the presence or absence of the STA Info field with AID subfield equal to 2045 (i.e., Special AID) with its B31 set to 1 (see Table 9-42a and Table 9-42ab). The STA Info field with AID subfield equal to 2045 is always present in a Sensing NDP Announcement frame and it is transmitted as the first STA Info field. The STA Info field with AID subfield equal to 2045 is not present in the Ranging NDP Announcement frame used for TB ranging measurement exchange but it is present in the non-TB ranging measurement exchange.

**11bf editor: Modify Line 7-17 page 150 of text in IEEE802.11be D2.3 as following:**

The ~~VHT/HE/Ranging~~ NDP Announcement frame contains at least one STA Info field. If the ~~VHT/HE/Ranging~~ NDP Announcement frame contains only one STA Info field (#13542) with a value less than 2008 in the AID11 subfield, (#11993)then in the case of VHT, ~~or~~ HE or EHT NDP Announcement frames the RA field is set to the address of the STA (#12540) addressed in the only STA Info field of this NDP Announcement frame ~~that can provide feedback~~ (see 10.37.5.2 (Rules for VHT sounding protocol sequences), 26.7 (HE sounding operation), 35.7 (EHT sounding operation)), while in the case of Ranging NDP Announcement frames, the RA address is set to the address of the RSTA or ISTA that is the intended recipient of the frame. In the case of Sensing NDP Announcement frames, the RA address is set to the address of the AP or non-AP STA that is the intended recipient of the frame. If the ~~VHT/HE/Ranging~~ NDP Announcement frame contains more than one STA Info field(#13542) with a value less than 2008 in the AID11 subfield, then the RA field is set to the broadcast address.

**11bf editor: Modify the Table 9-42a in Line 54-65 page 150 of IEEE802.11be D2.3 as following:**

**Table 9-42a NDP Announcement frame variant encoding**

|  |  |
| --- | --- |
| NDP Announcement Variant subfield  | NDP Announcement frame variant |
| 0 | VHT NDP Announcement frame |
| 1 | Ranging NDP announcement frame and Sensing NDP announcement frame (see Table 9-42ab) |
| 2 | HE NDP Announcement frame |
| 3 | EHT NDP Announcement frame |

**Table 9-42ab Ranging NDP announcement frame and Sensing NDP announcement frame (NDP Announcement Variant subfield is equal to 1) encoding**

|  |  |  |
| --- | --- | --- |
| **Presence of STA Info field with AID subfield equal to 2045** | **B31 in the STA Info field with AID subfield equal to 2045** | **NDP Announcement frame variant** |
|  |
| N/A | N/A | Ranging NDP Announcement frame in TB ranging exchange |  |
| Yes | Reserved | Ranging NDP Announcement frame in non-TB ranging exchange |  |
| Yes | Set to 1 | Sensing NDP Announcement frame in TB sensing measurement instance |  |
| Yes | Set to 1 | Sensing NDP Announcement frame in non-TB sensing measurement instance |  |

**11bf editor: Insert a new subclause 9.3.1.19.5 before subclause 9.3.1.22 (Trigger frame format) included in IEEE802.11be D2.3 as following:**

**9.3.1.19.5 Sensing NDP Annoucement frame format**

The Duration, RA, and TA fields are set as in a VHT NDP Announcement frame.

The STA Info List field contains one or more (n) STA Info fields

The Sensing NDP Announcement frame use~~s~~ the same Frame Control subtype as the VHT NDP Announcement frame. The frame format of the Sensing NDP Announcement frame is the same as the HE NDP Announcement frame shown in Figure 9.61a (HE NDP Announcement frame format).

The Sounding Dialog Token Number subfield in the Sounding Dialog Token (SDT) field contains a value in the range of 0 to 63, which identifies the Measurement Instance ID that this transmitted Sensing NDP Announcement frame is part of; see 11.55.1.5.2 (TB sensing measurement instance), and 11.55.1.5.3 (Non-TB sensing measurement instance).

The format of the STA Info field in a Sensing NDP Announcement frame, when the AID11 subfield is less than 2008, is defined in Figure 9-61db (STA Info field format in a Sensing NDP Announcement frame when the AID11 subfield is less than 2008).



A Sensing NDP Announcement frame contains at least one STA Info field with an AID11 subfield equal to or less than 2007 per STA that is an intended recipient of this frame.

In the cases of the non-TB sensing measurement instance (11.55.1.5.3 (Non-TB sensing measurement instance)) there is always only one intended recipient STA and the RA field is set to the address of that STA.

In the cases of the TB sensing measurement instance (11.55.1.5.2 (TB sensing measurement instance)) the RA field is set to the broadcast address if more than one STA is an intended recipient of this frame; otherwise the RA field is set to the address of the STA that is the only intended recipient of this frame.

If the AID11 subfield is less than 2008, it identifies a STA that is an intended recipient of this frame and assigns the parameters within this STA Info field to this STA. In case of the TB sensing measurement instance (11.55.1.5.2 (TB sensing measurement instance)), the AID11 subfield contains the 11 least significant bits of the AID of an associated STA, or the USID of an unassociated STA, that is to process the following NDP. In the case of the non-TB sensing measurement instance (11.55.1.5.3 (Non-TB sensing measurement instance)), the intended recipient is identified by the RA field and the AID11 subfield

is set to 0.

When used as part of the TB sensing measurement instance, see 11.55.1.5.2 (TB sensing measurement instance), for the bandwidth of the PPDU carrying theNDP Announcement frame less than or equal to 160 MHz, the SI2SR NSTS and SI2SR Rep subfields are used to indicate the following SI2SR NDP’s HE-LTF configuration see 27.3.18a.1 (HE Ranging NDP); while the SR2SI NSTS and the SR2SI Rep subfields are reserved. For the bandwidth of the PPDU carrying the NDP Announcement equal to 320 MHz, the SI2SR NSTS subfield is used to indicate the following SI2SR NDP’s number of spatial streams; the SI2SR Rep, the SR2SI NSTS and the SR2SI Rep subfields are reserved.

When used as part of the non-TB sensing measurement instance, see 11.55.1.5.2 (TB sensing measurement instance), for the bandwidth of the PPDU carrying the NDP Announcement frame less than or equal to 160 MHz, the SI2SR NSTS and SI2SR Rep subfields are used to indicate the following SI2SR NDP’s HE-LTF configuration, see 27.3.18a.1 (HE Ranging NDP), while the SR2SI NSTS and SR2SI Rep subfields indicate the HE-LTF configuration of the SR2SI NDP sent in response by the AP (i.e.,sensing responder).

For the bandwidth of the PPDU carrying the Sensing NDP Announcement frame less than or equal to 160 MHz, the SR2SI Rep and SI2SR Rep subfields 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 and SR2SI Rep subfields have a value equal to 0, then there is no HE-LTF repetition in the SI2SR and SR2SI NDP subfields respectively. When used as part of the TB sensing measurement instance, for the bandwidth of Sensing NDP Announcement frame is equal to 320 MHz, both the SI2SR Rep and the SR2SI Rep subfields are reserved.

The format of the STA Info field with AID11 subfield equal to 2045 is shown in Figure 9-61de (STA Info field in a Sensing NDP Announcement frame if AID subfield is equal to 2045.

AID:

2045

SI2SR NDP

TX Power

SR2SI NDP

Target RSSI

Disambiguation

Measurement

Set-up ID

B0

B11

B31

B10

B18

B19

B26

B27

B28

Bits:

11

8

8

1

B30

Sensing

3

1

Figure 9-61de STA Info field in a Sensing NDP Announcement frame with AID11 subfield equal to 2045

The STA Info field with AID11 subfield equal to 2045, is used in the non-TB sensing measurement

instance, see 11.55.1.5.3 (Non-TB sensing measurement instance) to carry the SI2SR NDP Tx Power and SR2SI

NDP Target RSSI subfields, and also used in the TB sensing measurement instance, see 11.55.1.5.2 (TB sensing measurement instance) to carry the SI2SR NDP Tx Power, while the SR2SI NDP Target RSSI subfield is reserved.

In the STA Info field with AID subfield equal to 2045, the B31 is set to 1 to indicate the frame is a Sensing NDP Announcement frame and B28 to B30 are set to the Measurement Setup ID of the corresponding sensing measurement instance (Figure 9-61de-STA Info field in a Sensing NDP Announcement frame with AID11 subfield equal to 2045).

**11bf editor: Modify the Table 9-45a in page 155 of IEEE802.11be D2.3 as following:**

AID11 subfield encoding in (#12773)NDP Announcement frame is defined in Table 9-45a (AID11 subfield encoding in an NDP Announcement frame(#11896)).

**Table 9-45a—AID11 subfield encoding in an NDP Announcement frame(#11896)**

|  |  |  |
| --- | --- | --- |
| **AID 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 | STA Info field is addressed to an associated STA whose AID is equal to the value in the AID11 sub-field if the NDP Announcement frame is not a Ranging or a Sensing variant. 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 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 | Not applicable | Not applicable | Not applicable | Applicable | Not applicable |
| 2044 | STA Info field contains a partial TSF | Not applicable | Not applicable | Not applicable | Applicable | Applicable |
| 2045 | ~~contains ranging the I2R NDP Tx Power and R2I NDP Target RSSI sub-fields if the NDP Announcement frame is a Ranging variant.~~For Ranging NDP Announcement frame it contain I2R NDP TX Power and R2I RSSI targetFor Sensing NDP Announcement frame it contains SI2SR TX power and MS ID | Not applicable  | Not applicable | Not applicable | Applicable | Applicable |
| 2046 | N/A | Not applicable |
| 2047 | STA Info field contains a disallowed subchannel bitmap | 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. |

**Reference document: IEEE802.11be D2.3**