IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 11az LB240 Comment Resolution Section 9.3.1.19 | | | | |
| Date: 2019-04-03 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Christian Berger | Marvell |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Abstract

This submission proposes the comment resolution of CIDs in LB240 related to section 9.3.1.19

Revisions:

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 TGaz Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

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

**The text preceded by “Discussion” is not part of the adopted changes.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 1100 | 31.05 | 9.3.1.19 | VHT/HE/NGP Ranging Announcement... This will easily become unreadable as more amendments are brought in. | Please use separate subclauses for each variant. | **Revised**  Made changes to split into three subclauses as shown below: |
| 1102 | 33.16 | 9.3.1.19 | A lot of definitions and encodings depend on the interpretation of these STAs as HE STAs which make the overall settings confusing. E.g., disambiguation bit is already defined as such. | Ensure that there is no redundancy, changes to baseline (yes, in this case referring to 11ax) resulting from the new definitions and encodings. | **Revised**  Removed double definition of disambiguation bit, also see CID 1100 for other related changes. |
| 1113 | 25.08 | 9.3.1.19 | The text "The Offset subfield can take values between 0 and 63 and indicates the number of HE-LTF to skip when processing the following NDP and is set 0 in all cases except the secure variant of the TB Ranging measurement exchange" implies when offset is 0 then NDP is shared for all STAs in the DL NDP, which is correct, however if the STAs sharing NDP would require different DL Reps then need a note to describe the expected client behavior. | Add a note to indicate "in a non-secure case the STAs not needing additional Rep LTFs can ignore the additional LTFs". | **Reject**  Since the offset value is in the STA-Info field, it is for one given STA only. The STA parsing the offset subfield simply uses the offset of 0, and skips zero LTF symbols. It does not need to be aware of other LTF or offset values given to other STA. |
| 1192 | 24.21 | 9.3.1.19 | "but can have the" - "but" what "can have the"? Not clear what is the subject. | Add the subject (possbily "the frame" also consider changing "can" to "may" | **Revised**  Tried to clarify by breaking the sentence up and changing the workdign as suggested. |
| 1194 | 24.24 | 9.3.1.19 | "The AID11/RID11 subfield contains the 11 least significant Bits of the AID or RID of an  unassociated STA or an associated STA respectively" - AID is for associated STAs while RID is for unassociated STA | replace with "The AID11/RID11 subfield contains the 11 least significant Bits of the AID or RID of an associated STA or an unassociated STA respectively" | **Accepted** |
| 1329 | 32.02 | 9.3.1.19 | When ranging subfiled is set to 1, how to set the HE subfield. Also need to make many changes to the baseline text that for HE NDP and VHT NDP the ranging subfield is 0 | as in the comment | **Revised**  Addressed as part of reorganization in CID #1100 |
| 1330 | 32.13 | 9.3.1.19 | Add a definition of Measurement Sounding Part and remove the text in the bracket | as in the comment | **Revised**  Removed text in brackets and refer to appropriate subclause for definition |
| 1389 | 25.34 | 9.3.1.19 | Note is unncessary, the behavior described in the note does not belong in section 9, but in section 11 | Remove note | **Accepted** |
| 1500 | 24.11 | 9.3.1.19 | what is the format of "The Sounding Dialog Token Number subfield" ? In Figure 9-61a, the Sounding Dialog Token field is defined as one octet. | clarify it. | **Rejected**  The Sounding Dialog Token field is described in Figure 9.59, the Sounding Dialog Token Number subfield is described as follows:  “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 Sounding Part that this Ranging NDP Announcement frame is transmitted as a part of” |
| 1531 | 24.15 | 9.3.1.19 | What applies here to TB ranging also applies to Passive Location Ranging. | Change from 'TB ranging' to 'TB ranging and Passive Location Ranging'. |  |
| 1532 | 25.01 | 9.3.1.19 | What applies here to TB ranging also applies to Passive Location Ranging. | Change from 'TB ranging measurement exchange' to 'TB ranging or Passive Location Ranging measurement exchanges'. |  |
| 1608 | 24.00 | 9.3.1.19 | reference to AID and RID is out of order in "The AID11/RID11 subfield contains the 11 least significant Bits of the AID or RID of an unassociated STA or an associated STA respectively, expected to process the following NDP frame." | Replace with "The AID11/RID11 subfield contains the 11 least significant Bits of the AID or RID of an unassociated STA or an unassociated STA respectively, that is expected to process the following NDP frame that follows this NDP Announcement frame." | **Accepted**  See also CID #1194 |
| 1610 | 25.00 | 9.3.1.19 | Not clear what is meant by the 'number of space-time streams'. Is this related to NSTS, defined in the baseline (e.g. see 19.3.9.4.6 HT-LTF definition)? If so, fix it accordingly. | Provide some reference to what is meant by number of space-time streams by referring to some value (e.g. NSTS) in the baseline (REVmd D2.0 or .11ax D4.0). | **Revised**  Added a reference to explain |
| 1704 | 31.27 | 9.3.1.19 | For VHT/HE NDP the field "Ranging" is a Reserved Field so it is expected to be "0". | Add the following sentence: "The Ranging subfield in the Sounding Dialog Token field is set to 0 to identify the frame as a VHT/HE NDP Announcement frame" | **Revised**  Addressed as part of reorganization in CID #1100 |
| 1705 | 32.00 | 9.3.1.19 | What is the text trying to convey "(DL NDP  frame and UL NDP frame announced by a Ranging NDP Announcement in non-TB  ranging or UL NDP frames + DL NDP frame announced by Sounding Trigger frame +  NDP Announcement frame in TB ranging)." | Better to add a figure or refer to a figure if one exists and clarify how a particular Sounding Sequence is tagged to a specific Dialog Token | **Revised**  Addressed in CID #1330 |
| 1706 | 32 | 9.3.1.19 | Rewrite the text " A Ranging NDP Announcement frame contains at most 1 STA Info field per STA, where in the non-TB Ranging protocol there is always only one STA (see 11.22.6.4.4) but can have the optional STA Info SAC field present when operating in secure mode (see 11.22.6.4.6.1)." | If I understand correctly what the text is trying to say is: - TB Ranging: Ranging NDP Announcement frame will have no more than one entry of STA Info for a specific STA (identified by AID11/RIS11 field) - non TB Ranging: Ranging NDP announcment has STA Info n where n = 1 When operating in secure mode and using either TB or non-TB Ranging, the Ranging NDP Announcement (can or will ?) carry STA info SAC field and is there one entry for each STA ? | **Revised**  Addressed in CID #1192 |
| 1732 | 23.08 | 9.3.1.19 | "The VHT/HE/NGP Ranging Announcement frame" should be "The VHT/HE/Ranging NDP Announcement frame" | Change "The VHT/HE/NGP Ranging Announcement frame" to "The VHT/HE/Ranging NDP Announcement frame" in the first sentence | **Revised**  Addressed in CID #1100 |
| 1767 | 23.08 | 9.3.1.19 | What is the frame name? is it A) VHT/HE/NGP Ranging Announcement frame or B) VHT/HE/Ranging NDP Announcement frame? | Please use a single name for the frame. | **Revised**  Addressed in CID #1100 |
| 1768 | 24.23 | 9.3.1.19 | RID is defined in 802.11md 4.0 as response indication deferral(11ah). Please define an abreviation for ranging association Identifier that is not already used. | Please change RID to Ranging Unassociated STA Identifier (RUID). |  |
| 1769 | 24.23 | 9.3.1.19 | The Ranging Association Identifier is wrongful term, because it is used for an unassociated STA. | Please change RID to Ranging Unassociated STA Identifier (RUID). |  |
| 1770 | 24.23 | 9.3.1.19 | RID is a new concept. Please add RID to definitions. | As in comment. |  |
| 1771 | 24.23 | 9.3.1.19 | AID or RID of an unassociated STA or an associated STA respectively, | please change to" AID of an associated STA or RID of an unassociated STA respectively" | **Accepted**  See also CID #1194 |
| 1785 | 24.23 | 9.3.1.19 | An unassociated STA does not have an AID, RID and AID case are inverted here. | change to "of the RID or the AID of an unassociated or an associated..." | **Accepted**  See also CID #1194 |
| 1917 | 24.02 | 9.3.1.19 | Need to clarify that an HE and Ranging Announcement frame are mutually exclusive. | Add clarification that the HE bit and the Ranging bit shal not both be set. Suggest a small table with the three (of four) legal options shown explicitly, and both bits set as Reserved, which will allow for using both bits in the future as another type. | **Revised**  Addressed as part of reorganization in CID #1100 |
| 2282 | 23.08 | 9.3.1.19 | "The VHT/HE/NGP Ranging Announcement frame has two three variants, the VHT NDP Announcement frame, the HE NDP Announcement frame and the Ranging NDP Announcement frame. " Both "NGP Ranging Announcement frame" and "Ranging NDP announcement frame" are used to refer to the same thing. Unify the terminology to be consistent. | As in comment. | **Revised**  Addressed as part of reorganization in CID #1100 |
| 2416 | 24.09 | 9.3.1.19 | The STA Info SAC field is said to be optional in pp.ll 24.22. So the length should be corrected to "0/4". | As in comment. | **Accept** |
| 2418 | 24.21 | 9.3.1.19 | "... there is always only one STA (see 11.22.6.4.4) ..." This sentence should be talking about the number of STA Info field. Correct it to read "... there is always only one STA Info field (see 11.22.6.4.4) ...". | As in comment. | **Revised**  There is in fact only one STA addressed by the NDP-A and therefore also only one STA Info. Tried to clarify. |
| 2419 | 24.21 | 9.3.1.19 | Not sure how the received STA can figure out whether the STA Info SAC field is present or not. Signaling seems to be required. Or it is always present under secure mode and is never present otherwise? If that's the case, clarify it in the sentence. | As in comment. | **Reject**  There are two ways for the receiver to figure out if the optional STA Info SAC field is present, i) two STA Info fields, even thought the frame is unicast or ii) parse for the reserved AID of 2047 |

9.2.4.1.3 Type and Subtype subfields

Change Table 9-1(Valid type and subtype combinations) as follows:

Table 9-1 - Valid type and subtype combinations

|  |  |  |  |
| --- | --- | --- | --- |
| **Type value**  **B3 B2** | **Type description** | **Subtype value**  **B7 B6 B5 B4** | **Subtype description** |
| 01 | Control | 0101 | ~~VHT/HE~~ NDP Announcement |

Change the title of 9.3.1.19 as follows:

9.3.1.19 ~~VHT/HE~~ NDP Announcement frame formats

Change the first two paragraphs of 9.3.1.19 as follows:

The ~~VHT/HE~~ NDP Announcement frame has ~~two~~ three variants, the VHT NDP Announcement frame, ~~and~~ the HE NDP Announcement frame and the Ranging NDP Announcement frame. The ~~two~~ three formats are distinguished by the setting of the HE subfield and the Ranging subfield in the Sounding Dialog Token field.

The frame format of the VHT NDP Announcement frame is shown in Figure 9-58 (VHT NDP Announcement frame format). This format is used as part of VHT sounding, see subclause 10.37.5 VHT sounding protocol.

Figure 9-58 here

Insert the following paragrapsh and figures here:

The frame format of the HE NDP Announcement frame is shown in Figure 9-61a (HE NDP Announcement frame format). This format is used as part of HE sounding, see subclause 26.7 HE sounding protocol.

Move Figure 9-61a here

The frame format of the Ranging NDP Announcement frame is shown in Figure 9-61a Ranging NDP Announcement frame format. This format is used as part of the TB and non-TB Modes of the fine timing measurement procedure, see subclause 11.22.6.4.3 Measurement Exchange in TB Mode and 11.22.6.4.4 Measurement Exchange in Non-TB Mode respectively.



Figure 9-61a Ranging NDP Anouncement frame format

The Duration field is set as defined in 9.2.5 (Duration/ID field (QoS STA)).

All the ~~VHT/HE~~ NDP Announcement frames contain~~s~~ at least one STA Info field. If the ~~VHT/HE~~ NDP Announcement frame contains only one STA Info field, then in the case of VHT or HE NDP Announcement frames the RA field is set to the address of the STA that can provide feedback (see 10.37.5.2 (Rules for VHT sounding protocol sequences)), while in the case of Ranging NDP Announcement frames, the RA address is set to the address of the RSTA or ISTA who is the intended recipient of this frame. If the ~~VHT/HE~~ NDP Announcement frame contains more than one STA Info field, then the RA field is set to the broadcast address.

The TA field is set to the address of the STA transmitting the ~~VHT/HE~~ NDP Announcement frame or the bandwidth signaling TA of the STA transmitting the ~~VHT/HE~~ NDP Announcement frame. In a ~~VHT/HE~~ NDP Announcement frame transmitted by a VHT or HE STA in a non-HT or non-HT duplicate format and where the scrambling sequence carries the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT, the TA field is set to a bandwidth signaling TA.

The format of the Sounding Dialog Token field is shown in Figure 9-59 (Sounding Dialog Token field). The HE subfield in the Sounding Dialog Token field is set to 0 to identify the frame as a VHT NDP Announcement frame and set to 1 to identify the frame as an HE NDP Announcement frame. The Ranging subfield in the Sounding Dialog Token field is set to 1 to identify the frame as a Ranging NDP Announcement frame and 0 otherwise.

Change Figure 9-59 as follows:

|  |  |  |
| --- | --- | --- |
| B0 | B1 | B2          B7 |
| ~~Reserved~~ Ranging | HE | Sounding Dialog Token Number |
| 1 | 1 | 6 |
| **Figure 9.59 Sounding Dialog Token field** | | | |

Create a new subclause 9.3.1.19.1 here:

9.3.1.19.1 VHT NDP Announcement frame format

The Duration, RA, and TA fields are set as described above in subclause 9.3.1.19 NDP Announcement frame formats.

The HE and Ranging subfields in the Sounding Dialog Token field are set to 0 to identify the frame as an VHT NDP Announcement frame.

The Sounding Dialog Token Number subfield in the Sounding Dialog Token field contains a value selected

by the beamformer to identify the VHT NDP Announcement frame.

…

Create a new subclause 9.3.1.19.2 here:

9.3.1.19.2 HE NDP Announcement frame format

The Duration, RA, and TA fields are set as in a ~~VHT NDP Announcement frame.~~ described in subclause 9.3.1.19 NDP Announcement frame formats.

The HE and Ranging subfields in the Sounding Dialog Token field ~~is~~ are set to 1 and 0 respectively to identify the frame as an HE NDP Announcement frame.

The Sounding Dialog Token Number field in the Sounding Dialog Token field contains a value selected by

the beamformer to identify the HE NDP Announcement frame.

…

Create a new subclause 9.3.1.19.3 here:

9.3.1.19.3 Ranging NDP Announcement frame format

The Duration, RA, and TA fields are set as described in subclause 9.3.1.19 NDP Announcement frame formats.

The HE and Ranging subfields in the Sounding Dialog Token field are set to 0 and 1 respectively, to identify the frame as a Ranging NDP Announcement frame (#1100/#1329/#1704/#1917).

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 Sounding Part that this Ranging NDP Announcement frame is transmitted as a part of (see subclauses 11.22.6.4.3 Measurement Exchange in TB Mode and 11.22.6.4 Measurement Phase in Non-TB Mode) (#1330/#1705).

The format of the STA Info field in a Ranging NDP Announcement Frame is defined in Figure 9-61b STA Info field format in a Ranging NDP Announcement frame.



Figure 9-61b STA Info field format in a Ranging NDP Announcement frame

A Ranging NDP Announcement frame contains 1 STA Info field per STA that is intended to receive this frame. In case of the non-TB Ranging protocol there is always only one intended receiver and accordingly only one STA Info field (#2418) (see subclause 11.22.6.4.4 Measurement Phase in Non-TB Mode), but the Ranging NDP Announcement frame may also (#1192/#1706) contain the optional STA Info SAC field present when operating in secure mode (see 11.22.6.4.6.1).

The AID11/RID11 subfield contains the 11 least significant Bits of the AID or RID of an associated STA or an unassociated STA respectively (#1194/1608/#1771/#1785), expected to process the following NDP frame.

When used as part of the TB Ranging measeurement exchange, the Offset, DL N\_STS and DL Rep subfields are used to indicate the following DL NDP’s HE-LTF configuration, see Subclause 28.3.17.

When used as part of the non-TB Ranging measurement exchange, the UL N\_STS and UL Rep subfields are used to indicate the following UL NDP’s HE-LTF configuration, while the DL N\_STS and DL Rep subfields indicate the HE-LFT configuration of the DL NDP sent in response by the RSTA, see Subclause 11.22.6.4.4.

The Offset subfield can take values between 0 and 63 and indicates the number of HE-LTF to skip when processing the following NDP and is set 0 in all cases except the secure variant of the TB Ranging measurement exchange.

The DL N\_STS and UL N\_STS subfields indicate the number of space-time streams of the corresponding NDP (see NUM\_STS parameter in subclause 28.2.2 TXVECTOR and RXVECTOR parameters) (#1610) and is set to the number of space-time streams minus 1.

The DL Rep and UL Rep subfields indicate the number of repetitions N\_REP of the HE-LTF symbols of the corresponding HE Ranging NDP beyond the number of space-time streams, see Subclause 28.3.17.

The Disambiguation subfield is defined the same as in subclause 9.3.1.19.2, HE NDP Announcement frame format (#1102).



Figure 9-61c STA Info SAC Field

The STA Info SAC field is used in the secure variant of the non-TB Ranging measurement exchange protocol to carry the secure authentication code (SAC), see Figure 9-61c. It is included in the Ranging NDP Announcement frame after the other STA Info field(s), see Figure 9-61a.

The RSVD AID11 subfield is set to 2047, which is a value above the maximum AID value of 2007, and is used to identify the STA Info SAC field. The Disambiguation subfield is also included in the STA Info SAC field such that together with the RSVD AID11 subfield, other STAs can avoid interpreting the STA Info SAC field as another STA Info field addressed to them.

The SAC subfield contains the 16bit SAC used in the secure variant of the non-TB Ranging protocol, see Subclause 11.22.6.4.

(#1389)