IEEE P802.11  
Wireless LANs

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| 11ax Comment Resolutions for Clauses 26.3.2 | | | | |
| Date: 2016-05-02 | | | | |
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Abstract: This document contains proposed resolutions for comments in *Clauses 26.3.2* from 11ax D0.1 with the CIDs below.

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| ***Clauses 26.3.2*** |  |  |
| * 542 * 836 * 837 * 881 * 883 * 884 * 1186 |  |  |
| * 1032 * 1612 * 1613 * 1614 * 1615 * 1844 * 1929 |  |  |
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***CIDs for Clause 26.3.2***

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| CID | Commenter | Section | Page | Comment | Proposed Change | Resolution |
| 1186 | Lei Huang | 26.3.2 | 75.05 | There is duplicated description on the Data field in Table 26-2 | Delete the second last row of Table 26-2 | **Accepted.** |

ax editor: please make the following change in *Clause 26.3.2*:

* On P75L05 (CID #1186): Delete the second last row of Table 26-2.

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| CID | Commenter | Section | Page | Comment | Proposed Change | Resolution |
| 881 | JUNG HOON SUH | 26.3.2 | 74.25 | Wrong description of the Figure 26-4 | Change to: “The format of the HE trigger-based PPDU is defined as in Figure 26-04. This format is used for a transmission that is a response to a Trigger frame. The HE trigger-based PPDU format is identical to the HE SU PPDU format for the L-STF, L-LTF, L-SIG, RL-SIG, HE-SIG-A fields. Only the contents of HE-SIG-A will be different. The duration of the HE-STF field is 8 μs.” | **Revised.**  Change to as in the resolution of CID881. |

**Discussion:**

The commenter is right that the description for Figure 26-4 is wrong. But part of the proposed change “Only the contents of HE-SIG-A will be different.” is irrelevant since we only talk about PPDU format, not contents here.

ax editor: please make the following changes in *Clause 26.3.2*:

* On P74L25 (CID #881): Change to “The format of the HE trigger-based PPDU is defined as in Figure 26-04. This format is used for a transmission that is a response to a Trigger frame. The HE trigger-based PPDU format is identical to the HE SU PPDU format for the L-STF, L-LTF, L-SIG, RL-SIG, HE-SIG-A fields. The duration of the HE-STF field is 8 µs.”

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| CID | Commenter | Section | Page | Comment | Proposed Change | Resolution |
| 1612 | Mark RISON | 26.3.2 | 75.12 | "In the HE NDP PPDU the Data field is not present." -- this is true of all NPDs, since this stands for Null Data Packet | Delete the cited sentence | **Accepted.** |
| 1032 | Ke Yao | 26.3.2 | 75.19 | "DL HE NDP is one DL HE sounding format." means only one? Or one of some choices? It's not clear. And what does DL HE sounding format refer to? | make it clear | **Revised.**  Change to as in the resolution of CID1032. |
| 1613 | Mark RISON | 26.3.2 | 75.19 | "DL HE NDP is one DL HE sounding format." -- what does this mean? | Delete the cited sentence | **Accepted** |
| 1929 | Sigurd Schelstraete | 26.3.2 | 75.20 | Make separate subclause for sounding PPDU | See comment | **Accepted.** |
| 1614 | Mark RISON | 26.3.2 | 75.21 | "The format of a HE NDP PPDU is shown in Figure 26-5 (HE NDP PPDU format)." -- as the end of this subclause says, an HE NDP PPDU is just a vanilla HE SU PPDU without a Data field | Delete lines 21 to 43 inclusive | **Rejected.**  Although HE NDP PPDU transmission uses HE SU PPDU format without Data field, it has some specific properties such as HELTF-2x symbol format, 4μs PE duration. It is worth to put it in a separate subclause. |
| 836 | Jinsoo Choi | 26.3.2 | 75.25 | There are some fields with variable size in the Figure 26-5 NDP PPDU format such as HE-SIG-A (2 symbols or 4 symbols) or HE-STF (1x or 2x), but there is no note or explanation on those fields. It would be better to add some explanation or include the duration of each field in the figure explicitly. | Specify the duration of each field in Figure 26-5. | **Revised.**  Change to as in the resolution of CID836. |
| 883 | JUNG HOON SUH | 26.3.2 | 75.33 | Need to confirm the description for HE NDP PPDU, NOTE 2 | Change to: “There is only one HE-LTF mode for NDP packet” | **Revised.**  Change to as in the resolution of CID883. |
| 884 | JUNG HOON SUH | 26.3.2 | 75.35 | Need to confirm the description for HE NDP PPDU, NOTE 3 | Change to: " T\_HE-LTF-2X is the only symbol length for NDP PPDU” | **Revised.**  Change to as in the resolution of CID884. |
| 542 | Eunsung Park | 26.3.2 | 75.37 | We agreed the PE for NDP is 4us. | Define the PE extension for NDP as 4us. | **Revised.**  Change to as in the resolution of CID542. |
| 837 | Jinsoo Choi | 26.3.2 | 75.37 | The duration of PE in the NDP PPDU was decided as being always 4us. | Change to: "The PE is always present and the duration of PE is 4us." | **Revised.**  Change to as in the resolution of CID837. |
| 1844 | Sameer Vermani | 26.3.2 | 75.42 | The text "The HE NDP PPDU has the following properties:  --It uses the HE SU PPDU format but without the Data field  --is an HE SU PPDU as implied by the value of L-Length field in L-SIG field" seems redundant and unclear. The first bullet says it is an HE-SU PPDU format already and then second bullet again talks about it being an HE SU PPDU | Make this more succinct and technically precise. | **Revised.**  Change to as in the resolution of CID 1844. |
| 1615 | Mark RISON | 26.3.2 | 75.42 | It says "L-Length field" but there is no such field | Refer to a field that exists | **Revised.**  Change to as in the resolution of CID 1615. |

**Discussion:**

The commenter does have a point that “sounding PPDU needs a separate subclause” for clarity. The commenters are right that HE-LTF mode and PE duration for HE NDP PPDU are explicitly specified in ax spec framework. The commenters are right that duration of each field in Figure 26-5 need to be specified.

ax editor: please make the following changes in *Clause 26.3.2*:

* On P75L12 (CID #1612), On P75L20 (CID #1929), On P75L33 (CID #883), On P75L35 (CID #884), On P75L37 (CID #542, CID #837): Add a separate subclause 26.3.2.1 **HE sounding PPDU format** with HE NDP PPDU related text. Move Notes 1-3 to clause 26.3.2 and delete Note 4. Delete HE NDP PPDU related text in clause 26.3.2.
* On P75L25 (CID #836): Figure 26-5 is modified as suggested.
* On P75L19 (CID #1032, CID #1613): ~~DL HE NDP is one DL HE sounding format.~~
* On P75L42 (CID #1844, CID #1615): ~~--is an HE SU PPDU as implied by the value of L-Length field in L-SIG field.~~

The RL-SIG, HE-SIG-A, HE-SIG-B, HE-STF, HE-LTF, and PE fields exist only in HE PPDUs. ~~In the HE NDP PPDU the Data field is not present. The number of OFDM symbols in the HE-LTF field, N~~*~~HE-LTF~~*~~, is 1, 2, 4, 6, or 8 and the duration of each symbol in the HE-LTF field is 3.2 μs, 6.4 μs, or 12.8 μs plus the GI duration.~~ The HE-SIG-B field is present only in the HE MU PPDU. The duration of the PE field is determined by the TXVECTOR parameter PE\_DURATION.

~~DL HE NDP is one DL HE sounding format.~~

NOTE 1—The number of HE-LTF OFDM symbols, *N*HE-LTF ~~in the NDP~~ is a function of the total number of space-time streams *N*STS as shown in Table 26-6 (Frequently used parameters).

NOTE 2—The duration of each HE-LTF OFDM symbol, *T*HE-LTF, is defined in Table 26-3 (Timing-related constants).

NOTE 3—The combination of HE-LTF modes and GI duration is indicated in HE-SIG-A field.

**26.3.2.1 HE sounding PPDU format**

NDP is the only HE sounding PPDU format.

The format of a HE NDP PPDU is shown in Figure 26-5 (HE NDP PPDU format).

L

-

STF

L

-

LTF

L

-

SIG

RL

-

SIG

HE

-

SIG

-

A

HE

-

STF

HE

-

LTF

HE

-

LTF

...

8

µ

s

8

µ

s

4

µ

s

4

µ

s

8

µ

s

4

µ

s

-

6.4μs+GI per HE-LTF symbol

PE

4µs

**Figure 26-5—HE NDP PPDU format**

The HE NDP PPDU has the following properties:

—It uses the HE SU PPDU format but without the Data field

—2X HE-LTF sequence is the only mandatory mode for NDP. 4X HE-LTF shall not be supported in NDP.

—PE is always present in a NDP PPDU, with a duration of 4uS.

—NDP PPDU uses either of the mandatory GI values (1.6uS or 0.8uS). Whether GI=3.2uS is to be added is TBD.