IEEE P802.11
Wireless LANs

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| LB240 comment and resolution for PHY structure |
| Date: 2019-05-01 |
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Abstract

This document proposes comment resolutions to the following CIDs (6 CIDs) for TGaz D1.0:

1172 1731 2477 2502 2503 2504

Revisions:

* Rev 0: Initial version of the document. Use 11az D1.0 as baseline spec text.

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 TGaz 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.***

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| **CID** | **Commenter** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 1172 | Allert Van Zelst | 146.08 | Adding to a Chapter that is still in flux, because it is a draft itself, is dangerous and can break 11ax. | Move the 11az PHY to its own clause, to not break the 11ax draft. | Revised. Agree in principle that it will be more clear to have a separate 11az PHY clause and use 11ax PHY clause 27 as a baseline. However, since HE Ranging PHY is not a typical major PHY entity but only a variant of HE PHY with a few modifications. We propose to have a few separate sub clauses defining HE Ranging PHY within HE PHY spec. TGaz Editor: Please make changes to IEEE P802.11az D1.0 according to the proposed text changes as resolution to CID 1172 in 11-19/0699r0 |
| 1731 | Hongyuan Zhang | 146.08 | It is not convenient to write up PHY by revising on top of an on-going amendment (11ax). | Start a new PHY clause, similar to 11af (TVHT) | Revised. See resolution for CID 1172.  |
| 2477 | Vincent Knowles IV Jones | 146.08 | The 11az draft is making many changes to the PHY section of 11ax. Create a new section which describes the 11az PHY and do not modify Section 28. This will prevent the industry from 11ax interoperabiilty problems. | Create a new section which describes the 11az PHY and do not modify Section 28. | Revised. See resolution for CID 1172. |
| 2502 | Youhan Kim | 146.08 | 11az PHY is substantially different from that of 11ax. For example, GI has zero energy instead of cyclic prefix. LTF sequences are randomized, and LTF uses 8-PSK. LTF has repetition. Introduces a yet another new HE TB PPDU mode with no data symbols. 11ax PE has no GI. But 11az PE has GI. Etc. And a lot of the related text changes are breaking 11ax operation. Furthermore, 11ax draft is still under development, thus is a moving target. Making these substantial changes on top of a moving target will create issues to both 11ax and 11az. For example, P147L1 redefines APEP\_LENGTH=0 for HE TB PPDU, which ends up disallowing a valid mode used in 11ax (respond to Trigger frame with EOF MPDU delimiters). | Do not modify 11ax Clause 28. Rather, create a new PHY clause for 11az. See, for example, how 11af took 11ac Clause 21 as a baseline, but spelled out changes separately in Clause 22. | Revised. Agree in principle. 11az PHY are designed on top of 11ax PHY but has some modifations. Move all 11az related PHY sub clauses into a separate subclause under 11ax PHY clause but not mix with other 11ax PHY subclauses. See resolution for CID 1172.For the breaking signaling of HE TB Ranging NDP format in TXVECTOR/RXVECTOR, need to define a separate PHY service interface for 11az. See resolution for CID 2360.  |
| 2503 | Youhan Kim | 147.01 | In 11ax, APEP\_LENGTH=0 for HE TB PPDU means that the STA has no MPDUs to transmit. But now, 11az is redefining APEP\_LENGHT=0 in HE TBPPPDU to mean randomizing the LTF sequence. This breaks 11ax UL OFDMA/MU-MIMO operation. | Do not break 11ax. Move 11az to a new PHY clause. | Revised. See resolution for CID 2502. |
| 2504 | Youhan Kim | 148.01 | In 11ax, APEP\_LENGTH=0 for HE TB PPDU means that the STA has no MPDUs to transmit. With this change on P148, 11az has removed ability of 11ax STAs to respond to Trigger frames w/ EOF MPDU delimiters. | Do not break 11ax. Move 11az to a new PHY clause. | Revised. See resolution for CID 2502. |

***TGaz Editor: Change the structure of clause 28 as follows:***

**~~28 High Efficiency (HE) PHY specification~~**

**27.6 HE Ranging PHY specification**

**27.6.1 Introduction**

**This subclause specifies the HE Ranging PHY based on HE PHY specification. PHY service interface, Ranging PPDU formats and preamble for Ranging PPDUs are defined in this sub clause to support HE ranging PHY.**

**~~28.2 HE PHY service interface~~**

**27.6.2 HE Ranging PHY service interface**

**~~28.2.2~~ 27.6.2.1 TXVECTOR and RXVECTOR parameters**

**~~28.2.3a~~ 27.6.2.2 LTFVECTOR parameters**

**~~28.3.4~~ 27.6.3 HE Ranging PPDU formats**

**~~28.3.19 Receiver specification~~**

**~~28.3.19a~~ 27.6.3.1 HE Ranging NDP**

**~~28.3.17b~~ 27.6.3.2 HE TB Ranging NDP**

**27.6.4 Ranging Preamble**

**The preamble for HE Ranging NDP PPDU is the same as HE SU PPDU except for the HE-LTF field. The preamble for HE TB Ranging NDP PPDU is the same as HE TB PPDU except for the HE-LTF field.**

**27.6.4.1 Secure HE-LTF**

 **~~28.3.17c~~ 27.6.4.1.1 Generation of Randomized LTF sequence**

 **~~28.3.17d~~ 27.6.4.1.2 Construction of Secure HE-LTF**

**References:**