IEEE P802.11
Wireless LANs

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| LB271 CR for subclause 36.3.23 EHT receive procedure |
| Date: 2023-04-07 |
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Abstract

This submission contains proposed comment resolutions to the following CID based on P802.11be D3.0. The changes are based on P802.11 be D3.1

CID 17229, 17231, 15035, 17230, 17625, 17632, 17631

Revisions:

- Rev 0: Initial version of the document.

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# CID 17229, 17231

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| **CID** | **Page.****Line** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 17229 | 899.54 | 36.3.23 | "PHY version identifier or the BSS color or theUL/DL does not contain an intended value, (...)". What is an "intended value"? | Clarify (Note that "intended value" appears in multiple places) | RevisedAgree with the commenter, we need to clarify “intended value”. A note is added for this clarification.**Instructions to the editor:****Please make the changes to the spec as shown in 11/23-0615r0 under CID 17229.** |
| 17231 | 900.29 | 36.3.23 | "PHY version identifier, the BSS color, and the UL/DL all indicates an intended value,". What is intended value? | Clarify | RevisedAgree with the commenter, we need to clarify “intended value”.A note is added for this clarification.**Instructions to the editor:****Please make the changes to the spec as shown in 11/23-0615r0 under CID 17231.****Note to the editor: the resolution of CID 17231 and 17229 are the same.** |

***TGbe editor:***

***Please make the following changes in Page 906 Line59 in D3.1:***

— If the U-SIG field indicates a valid CRC, and the PHY version identifier or the BSS color or the UL/DL does not contain an intended value, or the constellation of the second symbol of the U-SIG field is QBPSK, the PHY entity shall issue a PHY-RXSTART.indication(RXVECTOR) then issue a PHY-RXEND.indication(Filtered).

(#17229)(#17231)Note— The intended value is:

* 0 for the PHY Version Identifier subfield;
* the BSS color indicated in the BSS color information subfield in the HE operation element (transmitted by the AP which the non-AP STA is associated with) for the BSS Color subfield;
* 1 for the DL/UL subfield if the PPDU is addressed to an AP and 0 for the DL/UL subfield if the PPDU is addressed to a non-AP STA.

# CID 15035

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| **CID** | **Page.****Line** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 15035 | 901.33 | 36.3.23 | Regarding of equation (36-108) and (36-109), not easily look up on different pages. | It may be better to put equation (36-109) together with previous equation (36-108) for easier lookup, like (27-133) and (27-134) in HE spec. | RevisedAgree with the commenter to put equation (36-108) together with equation (36-109).**Instructions to the editor:****Please make the changes to the spec as shown in 11/23-0615r0 under CID 15035.** |

***TGbe editor:***

***Please move equation (36-108) in front of equation (36-109) in P908L32 in D3.1:***

(#15035) (36-108)

where

LENGTH is the value of the LENGTH field in L-SIG.

*SignalExtension* is defined in Table 27-54 (HE PHY characteristics).

 (36-109)

# CID 17230

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| **CID** | **Page.****Line** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 17230 | 900.05 | 36.3.23 | "--The PHY entity shall not process the Disregard field". Do we need this bullet? The next bullet in fact describes in detail how Disregard fields should be handled. | Delete Bullet "--The PHY entity shall not process the Disregard field" | Revised To make this clear, it’s better to move this bullet after the end of the next bullet instead of deleting it. **Instructions to the editor:****Please make the changes to the spec as shown in 11/23-0615r0 under CID 17230.** |

***TGbe editor:***

***Please make the following changes in Page 907 Line5 in D3.1:***

—If the U-SIG field indicates a valid CRC and the U-SIG field indicates a Disregard U-SIG indication, the PHY entity shall continue processing the U-SIG. A Disregard U-SIG indication is defined as a Disregard field in the U-SIG field being set to any value or a field value of a field in the U-SIG field being set to a Disregard state. (#17230)The PHY entity shall not process the Disregard field.

# CID 17625

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| **CID** | **Page.****Line** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 17625 | 900.58 | 36.3.23 | "may" undermines the entire RX procedure. While there continues to be a valid PPDU that could be intended for the reciveer, the receiver \*shall\* continue to receive it. Otherwise the receiver could use this exception to selectively ignore any frame in an EHT MU PPDU that the receiver doesn't like by pointing to this gaping exception. | Append something along the lines of "If the STA-ID field is checked and equals the intended STA-ID or if the STA\_ID field is not checked, the receiver shall continue receiving the EHT-STF right after the EHT-SIG" | RevisedWhen the Rx starts receiving EHT-STF, U-SIG has successfully received and decoded the intended BSS color and intended DL/UL. So, Rx is a non-OBSS AP. In this case, AP has to receive this PPDU whether the STA-ID subfield is checked or not.**Instructions to the editor:****Please make the changes to the spec as shown in 11/23-0615r0 under CID 17625.** |

**Discussion**



***TGbe editor:***

***Please make the following changes in Page 907 Line58 in D3.1:***

— If the UL/DL subfield of the U-SIG field is set to 1 and the CRC protecting the common encoding block of the EHT-SIG is valid and an unsupported mode or a Validate EHT-SIG indication is not indicated, the PHY entity (#17625)shall continue receiving the EHT-STF right after the EHT-SIG whether the STA-ID subfield is checked or not.

# CID 17632

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| **CID** | **Page.****Line** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 17632 | 899.43 | 36.3.23 | A very short non-HT PPDU cannot be an 11be PPDU because the 11be preamble is just too long. | Add a long-enough LENGTH as a consideration for continuing to hunt for an EHT PPDU. And a short-enough LENGTH field as a reason to jump to the 11a RX procedure at P899L29 or similar. | RejectedDisagree with the commenter for adding two type lengths to distinguish EHT and non-HT. There are two reasons:(1) Once Rx evaluates LENGTH, the parity and RATE check are passed. The RL-SIG is detected, and the received signal can only be HE or EHT. Non-HT is impossible.(2) A long-enough LENGTH and a short-enough LENGTH can’t be used to distinguish between 11a and 11be. Because in addition to 11a, other PPDU format may have ultra short length which is shorter than the shortest EHT PPDU. E.g. 11n may have 5 symbols (SIG(2 sym)+STF/LTF/Data(3sym)) after L-SIG, which is shorter than shortest EHT (RL-SIG+U-SIG(2sym)+EHT-SIG(1sym)+STF/LTF). Similar for 11ac. Implementation is free to implement such algorithm but including in spec is not necessary. |

# CID 17631

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| **CID** | **Page.****Line** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 17631 | 899.30 | 36.3.23 | 11me has added a new primitive PHY-RXEARLYSIG.ind and made changes to aRxPHYStartDelay (see 23/138) | Update 11be with this new approach. | Revised Agree with the commenter to add the PHY-RXEARLYSIG.indication primitive in EHT receive procedure.In addition, by checking the Figure 36-80, we found that when L-SIG repetition detected, Rx check the parity bit and RATE fields in L-SIG and RL-SIG, if either the check of the parity bit is invalid or the RATE field is not set to 6 Mb/s, Rx should continue to detect the received signal using non-HT, HT, VHT receiver procedure. So, we correct the Figure 36-80.**Instructions to the editor:****Please make the changes to the spec as shown in 11/23-0615r0 under CID 17631.****The Visio files will be provided if motion passed.** |

***TGbe editor, please make the following changes in Page 906 Line14 in D3.1:***

The PHY shall not issue a PHY-RXEARLYSIG.indication nor a PHY-RXSTART.indication primitive in response to a PPDU that does not overlapthe primary channel unless the PHY at an AP receives the EHT TB PPDU solicited by the AP. The PHY
shall issue both a PHY-RXEARLYSIG.indication primitive and a PHY-RXSTART.indication primitive for the EHT TB PPDU solicited by the AP.

The PHY includes the measured RSSI and RSSI\_LEGACY values in the
PHY-RXSTART.indication(RXVECTOR) primitive issued to the MAC.

After the PHY-CCA.indication(BUSY, channel-list) primitive is issued, the PHY entity shall begin receiving
the training symbols and searching for L-SIG in order to set the maximum duration of the data stream. Then
the PHY will search for the preambles for non-HT, HT, VHT, HE, and EHT PPDUs, respectively. If the
constellation used in the first symbol after the first long training field is QBPSK, the PHY entity shall
continue to detect the received signal using the receive procedure for HT-GF depicted in Clause 19 (High
Throughput (HT) PHY specification). For detecting the EHT preamble, the PHY entity shall search for
RL-SIG and evaluate the LENGTH field. If RL-SIG is detected, the PHY entity should check the parity bit
and RATE fields in L-SIG and RL-SIG. If either the check of the parity bit is invalid or the RATE field is not
set to 6 Mb/s, neither a PHY-RXEARLYSIG.indication nor a PHY-RXSTART.indication primitive is issued. If the check of the parity bit is valid and
the RATE field indicates 6 Mb/s but the LENGTH field value in L-SIG is a not a multiple of three, neither a PHY-RXEARLYSIG.indication nor a PHY-RXSTART.indication primitive is issued. If the EHT preamble is not detected, the PHY should continue
to detect the received signal using non-HT, HT, VHT, and HE receive procedure in Clause 17 (Orthogonal
frequency division multiplexing (OFDM) PHY specification), Clause 19 (High Throughput (HT) PHY
specification), Clause 21 (Very High Throughput (VHT) PHY specification), and Clause 27 (High
Efficiency (HE) PHY specification), respectively.

If a valid parity bit and the RATE with 6 Mb/s are indicated in L-SIG and RL-SIG and the LENGTH field
value in L-SIG and RL-SIG is a multiple of three, U-SIG field is present after RL-SIG. PHY entity shall issue a PHY-RXEARLYSIG.indication primitive and shall
begin receiving the U-SIG field and identify the PPDU version based on the PHY Version Identifier field in
the U-SIG field. The PHY entity shall check the constellation of the second symbol of the U-SIG field. If the
constellation is QBPSK, the PHY entity shall receive the U-SIG field and the repeated U-SIG field (four
symbols in total following the RL-SIG). If the constellation is BPSK, the PHY entity shall receive the U-SIG
field (two symbols in total following the RL-SIG). Then the PHY entity shall check the CRC of the U-SIG
field (and the repeated U-SIG field if present).

***In addition, TGbe editor, please replace Figure 36-78—PHY receive procedure for an EHT MU PPDU, Figure 36-79—PHY receive procedure for an EHT TB PPDU and Figure 36-80—PHY receive state machine with the three figures below respectively:***



***Figure 36-78—PHY receive procedure for an EHT MU PPDU***



***Figure 36-79—PHY receive procedure for an EHT TB PPDU***



***Figure 36-80—PHY receive state machine***