IEEE P802.11
Wireless LANs

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| CR for Misc. |
| Date: 2019-05-07 |
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Abstract

This submission proposes text changes of TGax Draft 4.1 for CID

20150

20378

20504

20516

20537

20558

20886

20950

21437

21440

21544

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: editorial;
* Rev 2: updated resolution to CID 20378

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

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

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| **CID** | **Clause** | **P.L.** | **Comment** | **Proposed change** | **Resolution** |
| 20150 | 27.3.21 | 641.36 | How does a receiver determine the SignalExtension? Shouldn't based on the TXVECTOR. | as in the comment | RevisedNO\_SIG\_EXTN is not a RXVECTOR. Receiver determine Signalextension presented or not by the operating band 2.4/5GHz-TGax editor to make the changes shown in 11-19/0866r2 under all headings that include CID 20150. |
| 20378 | 27.3.21 | 639.53 | "If the CRC check is valid, the PHY entity shall report TXOP, BSS Color andcheck Format field, and continue to receive HE-STF." In this section, it is my understanding that if the Reserved bit is set to an Unreserved value, the receiving STA will still read the TxOP, the BSS Color and the Format fields if the CRC is valid, and not the other fields. This way, it can still do spatial reuse or intra-PPDU power save, based on the BSS color field, for that PPDU. However, this would need to be better described to make sure that this is the expected behavior. | Add clarification in the spec for this behavior to collect BSS Color and TxOP duration, even when the Reserved bit in HE-SIGA is set to the unreserved value, is the expected behavior. | Revised-Clean up the text. SR is not feasible if CRC failure.-TGax editor to make the changes shown in 11-19/0866r2 under all headings that include CID 20378. |
| 20504 | 27.3.21 | 638.58 | "Figure 27-63---PHY receive state machine if midambles are not present" is missing the RXIND for the NoError case. Also the RXEND is to be send after signal extension; see "When receiving a signal extended PPDU, the PHYRX-END.indication primitive shall be emitted a period of aSignalExtension after the end of the actual endingtime of the PPDU." in 27.3.4 | In the "End of Wait" box add "PHY-RXEIND.indication (RxEndStatus)". In Figures 27-59 to 27-63 move the PHY-RXEND.indication to be immediately after the PHY-CCA.indication (IDLE) | Revised-As commenter suggested-TGax editor to make the changes shown in 11-19/0866r2 under all headings that include CID 20504. |
| 20516 | 27.3.7 | 507.61 | "The HE-MCS is a compact representation of the modulation and coding used in the Data field of the PPDU. " -- also in the HE-SIG-B field | In the cited text at the referenced location change "the Data field of the PPDU" to "the VHT-SIG-B and Data fields of an HE PPDU" | Revised-the HE-SIG-B and Data fields of an HE PPDU |
| 20537 | 27.3.21 | 638.62 | Problems with Figure 27-63---PHY receive state machine if midambles are not present: the "Carrier lost" path checks for SE but the "Valid signal" path assumes its presence; the RX Symbol box has no check; the End of PSDU RX box has no check; refers to "HE-SIGA" | As it says in the comment | Revised-But no change was made to RX Symbol box.-TGax editor to make the changes shown in 11-19/0866r2 under all headings that include CID 20537. |
| 20558 | 27.3.6.10.2 | 506.61 | Table 27-14---Tone allocation related constants makes it clear that only 80+80M transmissions have two segments. 160M segments do not. So in 27.3.6.10.2 what does 160M have a segment parser, and why does 160M but not 80+80M have a segment deparser? | Clarify | Rejected-80+80 has two segment so no deparser is needed. |
| 20886 | 27.3.20 | 633.58 | "HE-MCS Coding types" -- what are those? Is this referring to the coding rate? If so, it's encoded in the HE-MCS | Delete "HE-MCS Coding types and " | Revised-TGax editor to make the changes shown in 11-19/0866r2 under all headings that include CID 20886. |
| 20950 | 27.3.20 | 634.26 | "A packet extension and/or a signal extension may be present in the PPDU. The PHY-TXEND.confirm prim-itive is generated at the latest of the actual ending time of the PPDU, the end of the packet extension if pres-ent, and the end of the signal extension if present." -- the signal extension is not in the PPDU. Conversely, the PE is clearly part of the PPDU (as shown in the PPDU figures, e.g., in 27.3.4). The rules for the TXEND.cfm when there's a signal extension are given in 27.3.4 | Delete the cited text at the referenced location | Rejected- A PPDU containing a signal extension is called a signal extended PPDU. When transmitting a signalextended PPDU… |
| 21437 | 27.3.5 | 497.10 | In Figure 27-19, for User 0, it looks like only the last stream has CSD applied. This seems incorrect. | Redraw the figure so that for User 0 the first stream has zero CSD, but all other streams have CSD. | Revised--TGax editor to make the changes shown in 11-19/0866r2 under all headings that include CID 21437. |
| 21440 | 27.3.20 | 634.59 | In the right column of the figure, the OFDM symbol construction ends with "scramble, encode and buffer" This is quite incomplete for HE symbols. Maybe the figure should refer to the remaining steps after encoding and buffering. | Augment the figure with additional description after "encode and buffer" | Rejected-This flow chart is not intended to include all steps to construct a symbol. Further details can be find in 27.3.6.10 |
| 21544 | 27.3.21 | 638.11 | In Figure 27-63, the down arrow from "Detect HTü]GF" (when BPSK) go to two procedures (i.e. "Detect RLü]SIG" and "Detect SIG for nonü]HT, HT, and VHT") at the same time."Detect RL-SIG" should be precede to "Detect SIG for non-HT, HT, and VHT" logically, although the both processes may be performed simultaneously in the implementation. | In Figure 27-63, remove the arrow from "Detect HT-GF" to "Detect SIG for nonü]HT, HT, and VHT" | Rejected-Hard to tell which one is first. Auto detection is implementation dependent. Keep the current structure doesn’t impact the interpretation of autodetection. |

**Proposed changes for CID 20150:**

*To the TGax Editor: Modify P.L. 647.36 as following:*

*SignalExtension* is ~~0 µs if TXVECTOR parameter NO\_SIG\_EXTN is true and is aSignalExtension as~~ defined in Table 19-25 (HT PHY characteristics) ~~if TXVECTOR parameter NO\_SIG\_EXTN is false~~.

*To the TGax Editor: Modify P.L. 511.57 as following :*

The HE-MCS is a compact representation of the modulation and coding used in the HE-SIGB and Data field of the PPDU.

**Proposed changes for CID 20378:**

*To the TGax Editor: Modify P.L. 646.27 to the end of this paragraph as following:*

If the HE-SIG-A indicates a valid CRC and Reserved HE-SIG-A Indication is not indicated, for all supported modes, unsupported modes, the PHY entity shall maintain PHY-CCA.indication(BUSY, channellist) primitive for the predicted duration of the transmitted PPDU, as defined by RXTIME in Equation (27-132), unless it receives a PHY-CCARESET.request primitive before the end of the PPDU for instance during spatial reuse operation as described in 26.10 (Spatial reuse operation). If the HE-SIG-A indicates an unsupported mode, the PHY shall issue a PHY-RXEND.indication(UnsupportedRate)primitive. If the HE-SIG-A indicates an Reserved HE-SIG-A Indication, the PHY shall issue the error condition PHY-RXEND.indication(FormatViolation) primitive and maintain PHYCCA.indication(BUSY, channellist) primitive for the predicted duration of the transmitted PPDU derived from the LENGTH field in L-SIG as defined in Equation (27-133)unless it receives a PHY-CCARESET.request primitive before the end of the PPDU for instance during spatial reuse operation as described in 26.10 (Spatial reuse operation). If the HE-SIG-A indicates an invalid CRC ~~or Reserved HE-SIG-A~~, the PHY shall issue the error condition PHY-RXEND.indication(FormatViolation) primitive and maintain PHYCCA.indication(BUSY, channellist) primitive for the predicted duration of the transmitted PPDU derived from the LENGTH field in L-SIG as defined in Equation (27-133)~~, unless it receives a PHY-CCARESET.request primitive before the end of the PPDU for instance during spatial reuse operation as described in 26.10 (Spatial reuse operation)~~.

*Modify P.L. 645.61 to the end of this paragraph as following:*

If the HE-SIG-A indicates a valid CRC and Reserved HE-SIG-A Indication is not indicated, for all supported modes, unsupported modes, the PHY entity shall maintain PHY-CCA.indication(BUSY, channellist) primitive for the predicted duration of the transmitted PPDU, as defined by RXTIME in Equation (27-132), unless it receives a PHY-CCARESET.request primitive before the end of the PPDU for instance during spatial reuse operation as described in 26.10 (Spatial reuse operation). If the HE-SIG-A indicates an unsupported mode, the PHY shall issue a PHY-RXEND.indication(UnsupportedRate)primitive. If the HE-SIG-A indicates an Reserved HE-SIG-A Indication, the PHY shall issue the error condition PHY-RXEND.indication(FormatViolation) primitive and maintain PHYCCA.indication(BUSY, channellist) primitive for the predicted duration of the transmitted PPDU derived from the LENGTH field in L-SIG as defined in Equation (27-133)unless it receives a PHY-CCARESET.request primitive before the end of the PPDU for instance during spatial reuse operation as described in 26.10 (Spatial reuse operation). If the HE-SIG-A indicates an invalid CRC ~~or Reserved HE-SIG-A~~, the PHY shall issue the error condition PHY-RXEND.indication(FormatViolation) primitive and maintain PHYCCA.indication(BUSY, channellist) primitive for the predicted duration of the transmitted PPDU derived from the LENGTH field in L-SIG as defined in Equation (27-133)~~, unless it receives a PHY-CCARESET.request primitive before the end of the PPDU for instance during spatial reuse operation as described in 26.10 (Spatial reuse operation)~~.

*Modify P.L. 647.1 to the end of this paragraph as following:*

If the HE-SIG-A indicates a valid CRC and Reserved HE-SIG-A Indication is not indicated, for all supported modes, unsupported modes, the PHY entity shall maintain PHY-CCA.indication(BUSY, channellist) primitive for the predicted duration of the transmitted PPDU, as defined by RXTIME in Equation (27-132), unless it receives a PHY-CCARESET.request primitive before the end of the PPDU for instance during spatial reuse operation as described in 26.10 (Spatial reuse operation). If the HE-SIG-A indicates an unsupported mode, the PHY shall issue a PHY-RXEND.indication(UnsupportedRate)primitive. If the HE-SIG-A indicates an Reserved HE-SIG-A Indication, the PHY shall issue the error condition PHY-RXEND.indication(FormatViolation) primitive and maintain PHYCCA.indication(BUSY, channellist) primitive for the predicted duration of the transmitted PPDU derived from the LENGTH field in L-SIG as defined in Equation (27-133)unless it receives a PHY-CCARESET.request primitive before the end of the PPDU for instance during spatial reuse operation as described in 26.10 (Spatial reuse operation). If the HE-SIG-A indicates an invalid CRC ~~or Reserved HE-SIG-A~~, the PHY shall issue the error condition PHY-RXEND.indication(FormatViolation) primitive and maintain PHYCCA.indication(BUSY, channellist) primitive for the predicted duration of the transmitted PPDU derived from the LENGTH field in L-SIG as defined in Equation (27-133)~~, unless it receives a PHY-CCARESET.request primitive before the end of the PPDU for instance during spatial reuse operation as described in 26.10 (Spatial reuse operation)~~.

**Proposed changes for CID 20504, 20537:**

*To the TGax Editor: replace figure 27-59, figure 27-60, figure 27-61, figure 27-62, figure 27-63 with the below five figures respectively*



**Figure 27-59—PHY receive procedure for an HE SU PPDU**



**Figure 27-60—PHY receive procedure for an HE ER SU PPDU**



**Figure 27-61—PHY receive procedure for an HE MU PPDU**



**Figure 27-62—PHY receive procedure for an HE TB PPDU**



**Figure 27-63—PHY receive state machine if midambles are not present**

**Proposed changes for CID 20886:**

*To the TGax Editor: modify P.L. 640.23 as following:*

Other transmit parameters, such as HE-MCS, Coding types and transmit power, are set via the PHY-SAP using the
PHYTXSTART.request(TXVECTOR) primitive, as described in 27.2.2 (TXVECTOR and RXVECTOR
parameters).

**Proposed changes for CID 21437:**

*To the TGax Editor: replace figure 27-19 and 27-20 with the figures below. And change the title of figure 27-19 as following:*



**Figure 27-19—Transmitter block diagram for the Data field of an HE DL MU-MIMO transmission in a 106 tone or 242 tone ~~106-, 242-, 484- or 996-tone~~ RU with BCC encoding**



**Figure 27-20—Transmitter block diagram for the Data field of an HE DL MU-MIMO transmission in 106-, 242-, 484- or 996-tone RU with LDPC encoding**