### IEEE P802.11Wireless LANs

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| PHY Comment resolution for Clause 31.2 |
| Date: 2019-04-24 |
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Abstract

This submission proposes resolutions for comments of TGba Draft D2.0 with the following CIDs: 2020, 2108, 2274, 2275, 2489, 2501, 2631, 2630, and 2791.

Note: All the cross-reference is with respect to TGba Draft 2.1

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| **CID** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 2020 | 108.29 | 31.2.14 | Fix ALL tables and figures in D2.0 for D3.0: the title (not the number) of the figures and tables need to be in parenthesis (....). Without the (....) it makes the text and sentences hard to read. | Figure 31-11 Change: "(PHY transmit.....WUR PPDU)"... | Revised. In the reference for tables and figures, the title is now in parenthesis. Note to editor: This change is already incorporated in Draft 2.1  |
| 2501 | 98.30 | 31.2.8 | The range of t should be specified | add 0<= t <= T\_(WUR\_PPDU) | Revised. Agree in principle. Added the range of t over which the equation is valid and defined the related parameters. TGba Editor to make changes as shown in 802.11-19/0682r0 with CID #2501. |
| 2489 | 98.64 | 31.2.8 | can is not a normative word to use in the draft. | Change "can be" to "is". | Revised. Agree in principle. The corresponding sentence has been changed to “….the baseband signal is described by Equation 31-3.”TGba Editor to make changes as shown in 802.11-19/0682r0 with CID #2489. |
| 2108 | 98.62 | 32.2.9.2 | We decided that OOK waveform is generated by the OFDM transmitter in 17/373r2 and the MC-OOK On symbol is generated by contiguous 13 subcarriers in 17/0964r4. In the corresponding sentence, "can" should be changed to "shall". | See comment. | Revised. Agree in principle. The corresponding sentence has been changed to “….the baseband signal is described by Equation 31-3.”TGba Editor to make changes as shown in 802.11-19/0682r0 with CID #2108. |
| 2274 | 78.64 | 32.2.7 | "the baseband signal can be obtained by taking the Inverse Discrete Fourier Transform (IDFT)" is an incomplete sentence. | "Picking up on comments made in the previous letter ballot on D1.0, the TG did not properbly address the issue raised in the comment, nor does the TG provide an indication that the text commented on has been deleted and hence the comment does not apply. (Note, page and line and sublause number refer to D1.0). In fact, as stated in the TGba minutes (11-19/226r0), the intend of the task group was to ""Move to resolve CIDs that have no approved resolution as rejected with a reason read ""TGba is unable to reach consensus on a resolution"" in the interest of releasing draft 2.0"". Also, the statement """"TGba is unable to reach consensus on a resolution"" was added to the motion text there was one person speaking against the motion."" was only added to the motion after objection to the original motion trying to reject comments in bulk with the reason of releasing a new LB.The TG is asked to give the original comment due consideration and debade the proposed comment resolution as included in 11-18/1794r10. The referenced document includes an actionable comment resolution." | Revised. Agree with the comment in principle. The corresponding sentence has been changed to “…..the baseband signal is described by Equation 31-3.”TGba Editor to make changes as shown in 802.11-19/0682r0 with CID #2274. |
| 2275 | 78.63 | 32.2.7 | The text reads: "For the WUR Sync ON symbols and WUR Data MC-OOK ON symbols (SymLDROn and SymHDROn), the baseband signal can be obtained". This text ought to be normative. As described in 11-09/1034 the usage of the verb "can" is non-normative and its use should be considered carefully. If this text is not normative, then the spec would be incomplete. The normative text in Section 32.2.9.2, page 84, line 11, states that "The encoded binary data shall be modulated using MC-OOK", but MC-OOK is undefined in the current version of this draft. | "Picking up on comments made in the previous letter ballot on D1.0, the TG did not properbly address the issue raised in the comment, nor does the TG provide an indication that the text commented on has been deleted and hence the comment does not apply. (Note, page and line and sublause number refer to D1.0). In fact, as stated in the TGba minutes (11-19/226r0), the intend of the task group was to ""Move to resolve CIDs that have no approved resolution as rejected with a reason read ""TGba is unable to reach consensus on a resolution"" in the interest of releasing draft 2.0"". Also, the statement """"TGba is unable to reach consensus on a resolution"" was added to the motion text there was one person speaking against the motion."" was only added to the motion after objection to the original motion trying to reject comments in bulk with the reason of releasing a new LB.The TG is asked to give the original comment due consideration and debade the proposed comment resolution as included in 11-18/1794r10. The referenced document includes an actionable comment resolution." | Revised. Agree with the comment in principle. The corresponding sentence has been changed to “…..the baseband signal is described by Equation 31-3.”TGba Editor to make changes as shown in 802.11-19/0682r0 with CID #2275. |
| 2631 | 98.64 | 31.2.8 | "can" is non-normative. Change "can be" to "may be" | As shown in the comment. | Revised. The corresponding sentence has been changed to “….the baseband signal is described by Equation 31-3.”TGba Editor to make changes as shown in 802.11-19/0682r0 with CID #2631. |
| 2630 | 96.47 | 31.2.7 | Subcarrier spacing, IDFT/DFT period and Guard interval are not necessary constants for WUR PPDU. | Delete the first three rows of Table 31-3. They can be defined where they are used, e.g., Equation (31-3). | Revised.These parameter need to be defined, as they are being used in 31.2.4.1 and 31.2.4.2. Guard interval is different for Sync-field and LDR-Data. This is now fixed.TGba Editor to make changes as shown in 802.11-19/0682r0 with CID #2630. |
| 2791 | 90.64 | 31.2.4.1 | Having no energy at all in the middle of a packet may cause confusion to other devices in the network. | Change Off-Waveform to a waveform which has certain amount of energy. | Reject. The commenter fails to identify a clear technical problem and the proposed change is not clear.The maximum Off duration within the packet is 8 µs (corresponding to two consecutive LDR MC-OOK Off symbols), which is samller than the SIFS and DIFS duration. Hence, Off waveform with zero energy is not an issue. |

***TGba editor: Change the following paragraphs in 31.2.8 Mathematical description of signals: (Track change on) (#2108, 2274, 2275, 2489, 2631)***

…………………………………….(several lines of text)…………………………………………..

For the WUR-Sync On symbols and WUR-Data MC-OOK On symbols (SymLDROn and SymHDROn), the baseband signal is described by Equation (31-3).

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…………………………………….(several lines of text)…………………………………………..

***TGba editor: Change the following paragraphs in 31.2.8 Mathematical description of signals: (Track change on) (#2501)***

…………………………………….(several lines of text)…………………………………………..

The baseband signal is constructed by the concatenation of several fields as shown in Figure 31-10 (Timing boundaries for the WUR PPDU Fields). It shall be as shown in Equation (31-2):

*

The timing offset values for various fields are given below:

*tL-LTF* = *TL-STF*

*tL-SIG* = *tL-LTF* + *TL-LTF*

*tBSPK-Mark* = *tL-SIG* + *TL-SIG*

*tWUR-Sync* = *tBSPK-Mark* + *TBSPK-Mark*

*tWUR-Data* = *tWUR-Sync* + *TWUR-Sync*

*TWUR-PPDU* = *tWUR-Data* + *TWUR-Data*

where *TField* is the duration of the field, *TWUR-Sync* is the duration of WUR-Sync field, *TWUR-Sync*=*TWUR-sync-LDR* if low data rate is used to transmit the WUR-Data field of a WUR PPDU, and *TWUR-Sync*=*TWUR-sync-HDR* if high data rate is used to transmit the WUR-Data field of a WUR PPDU. *TWUR-Data* is the duration of WUR-Data field, with *TWUR-Data = NSym* x *TSym,* where *NSym* is the number of MC-OOK symbols in the WUR-Data field, as given in Equation (31-12). The duration of different fields of the WUR PPDU are provided in Table 31-3 (Timing-related constants).

…………………………………….(several lines of text)…………………………………………..

***TGba editor: Change the Table 31-3—Timing-realted constants: (Track change on) (#2630)***

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| * **Timing-related constants**
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| **Parameter** | **Value** | **Description** |
|  | 312.5 kHz | Subcarrier frequency spacing for WUR PPDU |
| *TDFT,WUR* | 3.2 µs | IDFT/DFT period for the WUR PPDU |
| *TGI,WUR* | 0.8 µs or 0.4 µs depending on MC-OOK symbol duration | Guard interval duration for the WUR PPDU |
| *TGI,L-LTF* | 1.6 µs | Guard interval duration for the L-LTF field |
| *TSym-LDR* | 4 µs | Duration of WUR LDR MC-OOK symbol in WUR-Data field |
| *TSym-HDR* | 2 µs | Duration of WUR HDR MC-OOK symbol in WUR-Data field |
| *TSym* | *TSym-LDR* or *TSym-HDR* depending on WUR data rate | Duration of MC-OOK symbol in WUR-Data field |
| *TSync* | 2 µs | Duration of MC-OOK symbol in WUR-Sync field |
| *TL-STF* | 8 µs = 10 × *TDFT,*WUR /4 | Non-HT Short Training field duration |
| *TL-LTF* | 8 µs = 2 × *TDFT,*WUR + *TGI,*L-LTF | Non-HT Long Training field duration |
| *TL-SIG* | 4 µs | Non-HT SIGNAL field duration |
| *TBPSK-Mark* | 4 µs | BPSK-Mark field duration |
| *TWUR-Sync-LDR* | 128 µs | WUR-Sync field duration for WUR LDR |
| *TWUR-Sync-HDR* | 64 µs | WUR-Sync field duration for WUR HDR |
| *TWUR-Sync* | *T*WUR-Sync-LDR or *T*WUR-Sync-HDR depending on WUR data rate | WUR-Sync field duration for WUR PPDU |