### IEEE P802.11 Wireless LANs

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| Proposed Changes to WUR PHY Specification | | | | |
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Abstract

This document contains the proposed changes towards the Section “32.3.6 Timing related parameters” and “32.4.2 TXTIME and PSDU length calculation” of “IEEE P802.1ba D0.1”.

The purpose of this proposal is to revise the Section 32.4.2:

1. Rearrange the order of calculation equations and paragraphs, and remove several redundant sentences and equations;
2. Add the description of PSDU length and the calculation of Length field in L-SIG;
3. Add the new constant *T*WUR-Sync and description in Table 32-3 of Section 32.3.6 to support the revisions in Section 32.4.2.

Reference:

[1] IEEE Std. 802.11-2016: Equation (21-24)

Revision History:

-r0: Intitial version

-r1: add “Reference”

* Wake-Up Radio (WUR) PHY specification
* WUR PHY
* Timing related parameters

Table 32-3 (Timing-related constants) defines the timing-related parameters for WUR PPDU formats.

Table 32-4 (Frequently used parameters) defines parameters used frequently in Clause 32.

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| Table 32-3- Timing-related constants | | |
| 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 | 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 OOK symbol in WUR-Data field |
| *TSym-HDR* | 2 µs | Duration of WUR HDR OOK symbol in WUR-Data field |
| *TSym* | *TSym-LDR* or *TSym-HDR* depending on WUR Data Rate | Duration of OOK symbol in WUR-Data field |
| *TSync* | TBD | Duration of OOK symbol in WUR-Sync field |
| *T*L-STF | 8 µs = 10 × *TDFT,*WUR /4 | Non-HT Short Training field duration |
| *T*L-LTF | 8 µs = 2 × *TDFT,*WUR + *TGI,*L-LTF | Non-HT Long Training field duration |
| *T*L-SIG | 4 µs | Non-HT SIGNAL field duration |
| *T*BPSK-Mark | 4 µs | BPSK-Mark field duration |
| *T*WUR-Sync-LDR | 128 µs | WUR-Sync field duration for WUR LDR |
| *T*WUR-Sync-HRD | 64 µs | WUR-Sync field duration for WUR HDR |
| *T*WUR-Sync | *T*WUR-Sync-LDR or *T*WUR-Sync-HRD depending on WUR Data Rate | WUR-Sync field duration for WUR |

Frequently used parameters defines parameters used frequently in Clause 32.

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| Table 32-4 Frequently used parameters | |
| Symbol | Explanation |
| *NSPDB* | Number of OOK symbols per information data bit.  For WUR LDR, *NSPDB* =4.  For WUR HDR, *NSPDB* =2. |
| *NTX* | Number of transmit chains |
| *NWUR-Sync* | Number of OOK symbols in the WUR-Sync field |

* WUR PLME

**32.4.2 TXTIME and PSDU length calculation**

The value of the TXTIME parameter shall be calculated for a WUR PPDU as follows:

(32.4)

where

, , , , , and are defined in Table 32-3 (Timing-related constants); is the number of OOK symbols in the WUR-Data field.

The number of OOK symbols is a function of the length of WUR MAC frame in WUR-Data (WUR\_MPDU\_LENGTH) and as follows:

(32.5)

where

is defined in Table 32-4 (Frequently used parameters).

The value of PSDU\_LENGTH parameter is calculated as follows:

(32.6)

The Length field set in the L-SIG (L\_Length) is calculated as follows [1]:

(32.7)