### IEEE P802.11 Wireless LANs

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| 11ba D3.0 MAC Comment Resolution for WUR Beacon and Synchronization | | | | |
| Date: 2019-06-28 | | | | |
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Abstract

This submission proposes resolutions for comments of TGba Draft D3.0 with the following CIDs:

3042, 3076, 3146, 3246, 3363, 3364

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Revision based on the discussion in teleconference.

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 TGba D3.0 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGba D3.0 Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

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

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| **CID** | **Commenter** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 3042 | Gaurav Patwardhan | 63.10 | 9.4.2.297 | Add a note stating that DFS channels are not used for WUR PPDU transmission in WUR Operating Class subfield description. | As in comment | Revised –  Agree in principle with the commenter. We add “shall” requirements based on the following sentence in 29.2.  *A WUR AP shall not transmit a WUR PPDU in an operating class for which the behavior limits set listed in Annex E includes the DFS\_50\_100\_Behavior.*  TGba editor to make the changes shown in 11-19/1049r1 under all headings that include CID 3042 |
| 3076 | Graham Smith | 109.55 | 29.6.2 | "At each TWBTT, the WUR AP if dot11MultiBSSIDImplemented is false or the WUR AP with BSSID equal to transmitted BSSID in a multiple BSSID set if dot11MultiBSSIDImplemented is true shall schedule a WUR Beacon frame on the WUR primary channel indicated by the WUR Operating Class and WUR Channel subfields in the WUR Operation element except if any one of the following conditions is met:" This is very confusing and needs re-writing so as to be clear. | Replace cited text with something along the lines of "At each TWBTT, the WUR AP shall schedule a WUR Beacon frame on the WUR primary channel indicated by the WUR Operating Class and WUR Channel subfields in the WUR Operation element if either of the following conditions are met: - dot11MultiBSSIDImplemented is false - if dot11MultiBSSIDImplemented is true and BSSID is equal to transmitted BSSID in a multiple BSSID. The WUR AP shall not schedule a WUR Beacon frame on the WUR primary channel indicated by the WUR Operating Class and WUR Channel subfields in the WUR Operation element if any one of the following conditions is met:" | Revised –  Agree in principle that we should rewrite the sentence. Note that it is not technically correct to separate into two paragraphs: one with “shall” and one with "shall not". We rewite it with different ways but aligning the line of the intention from the commenter.  TGba editor to make the changes shown in 11-19/1049r1 under all headings that include CID 3076 |
| 3146 | Joseph Levy | 23.11 | 3.4 | This is a resubmission of CID 2185 - "Offset of TWBTT" is a subfield and TWBTT is defined as abbreviation. There are 3 uses of "Offset of TWBTT subfield" and only 2 uses of TWBTT as abbreviation. Therefore, there is no need to define and use the abbreviation TWBTT. The subfield names should remain unchanged and the two instances TWBTT is used as a noun it should simply be spelled out. The commenter does not agree that TWBTT is the same as TBTT. There are 526 instances of TBTT in the P802.11REVmd\_D2.2, hence it should be defined in 3.4. The limited use of TWBTT does not require a listing in 3.4. | Delete: "TWBTT target WUR beacon transmission time" Also: On page 63 line 25 delete "(TWBTTTs) On page 63 line 28 replace "TWBTT" where it is used as a noun (not as subfield name) with "target WUR beacon transmission time" On page 109 line 48 replace "TWBTT" with "target WUR beacon transmission time" On page 109 line 55 replace "TWBTT" with "target WUR beacon transmission time" On page 126 line 49 replace "TWBTTs" with "target WUR beacon transmission times" On page 126 line 49 replace "TWBTTs" with "target WUR beacon transmission times" | Accepted - |
| 3246 | Po-Kai Huang | 110.40 | 29.6.3 | transmitter may not used by the WUR AP that the WUR non-AP STA is associated. Simply use transmitter ID. | Replace "Upon receiving a WUR Beacon frame with a valid FCS and transmitter ID that matches the transmitter ID of the WUR AP to which the WUR non-AP STA is associated" with "Upon receiving a WUR Beacon frame with a valid FCS and transmitter ID (see 29.5.3 (Transmitter ID))" | Revised ––  Agree in principle with the commenter. We describe the transmitted BSSID description from the perspective of the WUR non-AP STA to make sure that it is technically accurate.  TGba editor to make the changes shown in 11-19/1049r1 under all headings that include CID 3246 |
| 3363 | Xiaofei Wang | 61.17 | 9.4.2.297 | I disagree with the resolution of the CID 2723. If a WUR primary channel is the channel used by a WUR AP to transmit beacon, the WUR Channel subfield indicates the WUR Primary channel. The naming of the subfield is fine, but the description of the subfield should be changed to "indicates the WUR primary channel". | change the description of "WUR Channel" subfield to say that it indicates the WUR Primary Channel. | Revised –  We add the description of the WUR primary channel and reference.  TGba editor to make the changes shown in 11-19/1049r1 under all headings that include CID 3363 |
| 3364 | Xiaofei Wang | 61.10 | 9.4.2.297 | I disagree with the resolution of the CID 2722. If a WUR primary channel is the channel used by a WUR AP to transmit beacon, the WUR Operating Class subfield is used to indicate the operating class of the WUR Primary channel. The naming of the subfield is fine, but the description of the subfield should be changed to "indicates the WUR primary channel". | change the description of "WUR Operating Class" subfield to say that it indicates the operating class of the WUR Primary Channel. | Revised –  We add the description of the WUR primary channel and reference.  TGba editor to make the changes shown in 11-19/1049r1 under all headings that include CID 3364 |

**Discussion:** *None.*

**Propose:** Revised for CID 3042, 3076, 3146, 3246, 3363, 3364 per discussion and editing instructions in 11-19/1049r1.

***TGba editor: Change 3.4 Abbreviations and acronyms as follows:***

3.4 Abbreviations and acronyms

Insert the following acronym definitions (maintaining alphabetical order):

(..exsiting texts…)

(#3146)(..exsiting texts…)

**29.2 WUR channel, WUR primary channel, and WUR discovery channel**

WUR channel is a channel in which a WUR AP transmits WUR Wake-up frames to an associated WUR non-AP STA.

WUR primary channel is a channel in which a WUR AP transmits WUR Beacon frames (see 29.6.2 (WUR Beacon generation)). The WUR primary channel is indicated in the WUR Operating Class and the WUR Channel subfields in the WUR Operation element contained in a Beacon, Association Response, Reassocia­tion Response, or Probe Response frame transmitted by the WUR AP.

A WUR AP shall not set the WUR Operating Class subfield in the WUR Operation element it transmits to an operating class for which the behavior limits set, listed in Annex E, includes the DFS\_50\_100\_Behavior (see 30.1 (Introduction)).(#3042)

A WUR AP shall not set the WUR Discovery Operating Class field in the WUR Discovery element it transmits to an operating class for which the behavior limits set, listed in Annex E, includes the DFS\_50\_100\_Behavior (see 30.1 (Introduction)).(#3042)

(..existing texts…)

***TGba editor: Change 9.4.2.297 WUR Operation element as follows:***

**9.4.2.297 WUR Operation element**

(…existing texts…)

The WUR Operating Class subfield indicates the operating class values of the WUR primary channel as defined in Annex E in use for transmission of WUR Beacon frames from the WUR AP to the WUR non-AP STA. The operating class is interpreted in the context of the country specified in the Beacon frame (see 29.2 (WUR channel, WUR primary channel, and WUR discovery channel)). The encoding is the same as the defi­nition of Operating Class field in 9.4.1.22 (Operating Class and Channel field).(#3364)

The WUR Channel subfield indicates a channel number of the WUR primary channel, which is interpreted in the context of the indicated operating class as defined in Annex E in use for transmission of WUR Beacon frames from the WUR AP to the WUR non-AP STA (see 29.2 (WUR channel, WUR primary channel, and WUR discovery channel)). The encoding is the same as the definition of Channel field in 9.4.1.22 (Operating Class and Channel field).(#3363)

(…existing texts…)

The WUR Beacon Period subfield represents the number of time units (TUs) between consecutive target WUR beacon transmission times (see 29.6.2 (WUR Beacon generation)).(#3146)

The Offset of TWBTT subfield indicates the time difference between the target WUR beacon transmission time with the smallest TSF time in units of TU and TSF 0 (see 29.6.2 (WUR Beacon generation)).(#3146)

(…existing texts…)

***TGba editor: Change 29.6.2 WUR Beacon generation as follows:***

29.6.2 WUR Beacon generation

The WUR AP shall define the timing for the WUR operations by transmitting WUR Beacon frames accord­ing to dot11WURBeaconPeriod and the Offset of TWBTT subfield of the WUR Operation element that the WUR AP transmits. This defines a series of target WUR beacon transmission times exactly dot11WURBeaconPeriod TUs apart.(#3146)

(…exsiting texts….)

At each target WUR beacon transmission time, the WUR AP shall schedule a WUR Beacon frame on the WUR primary channel indicated by the WUR Operating Class and WUR Channel subfields in the WUR Operation element if all the following conditions are met:

* dot11MultiBSSIDImplemented is false or dot11MultiBSSIDImplemented is true, and the BSSID of the WUR AP is equal to transmitted BSSID in a multiple BSSID set
* None of the following conditions are met:
* There are no WUR non-AP STAs associated with the WUR AP if dot11MultiBSSIDImplemented is false.(#2605)
* There are no WUR non-AP STAs associated with any WUR APs in the multiple BSSID set if dot11MultiBSSIDImplemented is true.(#2605)
* The WUR AP does not provide WUR power management service to any associated WUR non-AP STA (see 29.8 (WUR power management procedure)).
* All the associated WUR non-AP STAs are in Active mode.(#3076, #3146)

(…exsiting texts….)

***TGba editor: Change 29.6.3 Maintaining TSF Timer Synchronization with WUR Beacon frame as follows:***

**29.6.3 Maintaining TSF Timer Synchronization with WUR Beacon frame**

Upon receiving a WUR Beacon frame with a valid FCS and transmitter ID that matches the transmitter ID of the WUR AP to which the WUR non-AP STA is associated if dot11MultiBSSIDImplemented is false or the transmitter ID of the WUR AP correspoinding to the transmitted BSSID of the multiple BSSID set, where the WUR AP to which the WUR non-AP STA is associated is a member, if dot11MultiBSSIDImplemented is true (see 29.5.3 (Transmitter ID)), a WUR non-AP STA shall update its TSF timer according to the algorithm described below.(#3246)

(…exsiting texts….)

***TGba editor: Change 29.11*** *WUR FDMA operation* ***as follows:***

29.11 WUR FDMA operation

(…existing texts …)

If a WUR AP receives from a WUR non-AP STA a WUR Capabilities element of which the WUR FDMA Channel Switching subfield of the WUR Capabilities Information field is equal to 1, the WUR AP may set the WUR Channel Offset subfield of the WUR Parameters field of the WUR Mode element that it transmits to a nonzero value as defined in Table 9-321d (Subfields of WUR Parameters field from WUR AP), subject to the following constraints:

— The negotiated WUR duty cycle schedule does not overlap with the target WUR beacon transmission times at which the WUR AP schedules transmission of WUR Beacon frames, except for the case when the value indicated in the On Duration subfield of the WUR Parameters field in the WUR Mode element received from the WUR non-AP STA is equal to the value indicated in the Duty Cycle Period subfield

—The WUR AP shall not transmit in the WUR secondary channel and WUR secondary 40 MHz chan­nel any WUR frame addressed to the WUR non-AP STA for aPPDUMaxTime defined in Table 30-13 (WUR PPDU Time and Length Characteristics) from the target WUR beacon transmission times .

(…existing texts …)