### IEEE P802.11 Wireless LANs

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| 11ba D2.1 MAC Comment Resolution for Miscellaneous CIDs | | | | |
| Date: 2019-04-17 | | | | |
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Abstract

This submission proposes resolutions for comments of TGba Draft D2.1 with the following CIDs:

2055, 2211, 2262, 2691

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Revision based on the discussion in the adhoc F2F.

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 D2.1 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGba D2.1 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** |
| 2055 | Alfred Asterjadhi | 73.58 | 30.8.1 | Could not find the requirement (note the requirement) for the AP to schedule for transmission a WUR Wake up frame to the STA if DL BUs are available at the PCR. Also it is not clear what WUR frame the AP generates within the SP if the AP does not have any DL BUs to be sent to the STA. Please explicitly state the requirement for both cases (Yes DL BUs available and No DL BUs available keeping in mind that the STAs need some certainty that they are in range with the AP). | As in comment. | Revised –  Agree in principles with the commenter. We add a general sentence for this. We also change the title of 30.7.3 and 30.7.4 to differentiate from the title of 30.8.2 and 30.8.3.  TGba editor to make the changes shown in 11-19/0599r1 under all headings that include CID 2055 |
| 2211 | Joseph Levy | 66.11 | 30.5.2 | What is an Offset of TWBTT? I don't see it defined in the specification? What is it offset from? What is the accuracy of the offset? What is it used for? In Clause 9 it states that: "The Offset of TWBTT subfield indicates the TWBTT, which has the smallest TSF time in units of TU (see 30.5.2 (WUR Beacon generation)).", but I don't see any clear definition on 30.5.2. | Please provide a definition of "Offset of TWBTT subfield". | Revised –  Agree in principle with the commenter. The definition in Clause 9 is already revised based on the resolution of CIDs 2425, 2035, 2725.  *The Offset of TWBTT subfield indicates the time difference between the TWBTT with the smallest TSF time in units of TU and TSF 0 (see 30.5.2 (WUR Beacon generation)).*  TGba editor: there is no need to make further change. |
| 2262 | Lei Wang | 65.65 | 30.5.1 | Few questions about the WUR Beacon frame, e.g., 1) Is it possible for dot11WURBeaconPeriod less than or equal to dot11BeaconPeriod? If no, then should it be specified clearly in the spec? If yes, then please explain how WUR achieve its power saving purpose? 2) If WUR Beacon frame is transmitted as the main data radio primary channel, then which Beacon frame has priority if the Regular Beacon and the WUR beacon happen to be due at the same time? | Please answer the questions listed in this comment and add clarificatin text in the spec as needed. | Revised –  Agree in principle with the commenter. Like Beacon frame, we clarify that it is up to WUR AP to determine the value of WUR Beacon period.  For the priority of Beacon frame and WUR Beacon frame, we give priority to the Beacon frame because it is required for all associated and unassociated STAs to discovery the BSS.  TGba editor to make the changes shown in 11-19/0599r1 under all headings that include CID 2262 |
| 2691 | Woojin Ahn | 76.27 | 30.8.3 | It is worth to mention that the WUR non-AP STA may be in the 'WUR doze state' until the indicated time subject to its transition delay. Same comment for BSS Parameter Update Counter case. | As in comment | Revised –  Agree in principle with the commenter. We add similar sentence for the WUR non-AP STA to remain in the doze state before next TBTT for BSS parameter update case.  TGba editor to make the changes shown in 11-19/0599r1 under all headings that include CID 2691 |

**Discussion:** *None.*

**Propose:** Revised for CID 2691, 2262, 2055 per discussion and editing instructions in 11-19/0599r1.

***TGba editor: Change 30.5.2 WUR Beacon generation as follows:***

**30.5.2 WUR Beacon generation**

(…existing texts …)

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: (#2262)

* 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 30.7 (WUR power management procedure)).
* All the associated WUR non-AP STAs are in Active mode.

NOTE—To achieve this requirement of scheduling a WUR Beacon frame, the WUR AP suspends any pending transmis­sions until the WUR Beacon frame has been transmitted.If the WUR AP schedules a WUR Beacon frame, the WUR Beacon frame shall be the next frame for transmission according to the medium access rules specified in Clause 10 unless a Beacon frame is scheduled for transmission as defined in 11.1.3.2 (Beacon generation in non-DMG infrastructure networks) in which case the Beacon frame is the next frame for transmission and the WUR Beacon frame is the next frame for transmission after transmitting the Beacon frame.(#2262)

(…existing texts …)

***TGba editor: Change the title of 30.7.4 WUR AP operation to 30.7.4 WUR AP operation for WUR power management(#2055)***

***TGba editor: Change the title of 30.7.3 WUR non-AP STA operation to 30.7.3 WUR non-AP STA operation for WUR power management(#2055)***

***TGba editor: Change 30.7.4 WUR AP operation as follows:***

**30.7.4 WUR AP operation**

For each WUR non-AP STA that requests WUR power management service from an associated WUR AP, the WUR AP shall maintain a WUR status that indicates whether the WUR non-AP STA is in WUR mode or WUR mode suspend.

If a WUR non-AP STA is in WUR mode, then:

* A WUR AP shall schedule a WUR Wake-up frame for transmission to the WUR non-AP STA to notify the WUR non-AP STA that the WUR AP intends to have operation with the WUR non-AP STA as described in 30.8.2 (WUR AP operation) and 30.8.3 (WUR non-AP STA operation) if the WUR non-AP STA is in the doze state.(#2055)
* The WUR AP may send a WUR Wake-up frame to the WUR non-AP STA in the WUR duty cycle schedule agreed between the WUR AP and the WUR non-AP STA if the WUR non-AP STA is in the doze state.
* The existing negotiated service period between WUR AP and WUR non-AP STA for the WUR non-AP STA’s schedule is suspended:
  + The WUR AP expects that the WUR non-AP STA is in the awake state at the next service period following the existing PS operation (e.g., individual TWT) agreed between the WUR AP and the WUR non-AP STA after the WUR AP transmits a WUR Wake-up frame addressed to the WUR non-AP STA with an indication of individually addressed buffered BU(s) plus the transition delay indicated by the WUR non-AP STA in the WUR Capabilities elements.
  + The parameters of the negotiated service period for the WUR non-AP STA’s schedule between the WUR AP and the WUR non-AP STA are maintained by the WUR AP.
* The WUR AP shall follow the wake-up operation defined in 30.8 (Wake-up Operation).

(…existing texts…)

***TGba editor: Change 30.8.3 WUR non-AP STA operation as follows:***

30.8.3 WUR non-AP STA Operation

A WUR non-AP STA that receives a WUR Wake-up frame addressed to it with an indication of individually addressed BU(s) (see 30.8.1 (General)) shall follow existing operation, which is any PS operation the associ­ated WUR AP and the WUR non-AP STA has agreed to use (e.g., baseline PM change, U-APSD, TWT, etc.), to retrieve individually addressed BU(s) and follow the wake up timing information (e.g., the next ser­vice period) that is provided along with the agreed PS operation. In this case, the WUR non-AP STA may be in the doze state until the time indicated by the wake up timing information (e.g., the next service period) that is provided along with the agreed PS operation.

NOTE 1—For example, rule b), c), and d) in 11.2.3.7 (Receive operation for STAs in PS mode) describes one operation for a WUR non-AP STA to retrieve individually addressed BU(s) using PS-Poll or U-APSD.

NOTE 2—To use both PS-Poll and U-APSD, the WUR non-AP STA can set all ACs as delivery-enabled as defined in 11.2.3.7 (Receive operation for STAs in PS mode).(#2689)

A WUR non-AP STA that receives a WUR Wake-up frame with an indication of buffered group addressed BU(s) (see 30.8.1 (General)) shall follow existing operation, which is any PS operation that the WUR AP and the WUR non-AP STA has agreed to use (e.g., DTIM, FMS, etc.) to receive group addressed BU(s) and follow the wake up timing information (e.g., the next DTIM TBTT) that is provided along with the agreed PS operation. In this case, the WUR non-AP STA may be in the doze state until the time indicated by the wake up timing information (e.g., the next DTIM TBTT) that is provided along with the agreed PS opera­tion.

NOTE—For example, rule e) in 11.2.3.7 (Receive operation for STAs in PS mode) describes one operation for a WUR non-AP STA to receive group addressed frame.

A WUR non-AP STA shall maintain a BSS Parameter Update Counter. The WUR non-AP STA shall update the value of its BSS Parameter Update Counter to the Counter subfield contained in the latest WUR Opera­tion element received from the WUR AP with which it is associated. A WUR non-AP STA that receives the Counter subfield of the Type Dependent Control field in a broadcast WUR Wake-up frame that contains a value that is different from the value of its BSS Parameter Update Counter shall follow the procedure defined in 11.2.3.15 (TIM Broadcast) to attempt to receive the Beacon information. (#Ed) In this case, the WUR non-AP STA may be in the doze state until the time indicated by the next TBTT.(#2691)