IEEE P802.11
Wireless LANs

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| Proposed resolution for Subclause 9.10.3.2 |
| Date: 2019-05-10 |
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Abstract

This submission proposes resolutions for multiple comments related to TGba D2.0 subclause 9.10.3.1 & 9.10.3.2 & 30.8.2 with the following CIDs :

2127, 2168, 2169, 2182, 2387, 2389, 2390, 2391, 2427, 2460, 2461, 2520, 2521, 2597, 2598, 2681, 2809, 2162, 2685

Revisions:

Rev 0: Initial version of the document.

Rev1: change all “Agreed” to “Accepted”; change the resolutions for CID 2127, 2168, 2387; defer CID 2169

Rev2: add resolution for CID 2169, 2685, 2387

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

***Editing instructions formatted like this are intended to be copied into the TGba 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** | **Section** | **Pg / Ln** | **Comment** | **Proposed Change** | **Resolution** |
| 2127 | Hanseul Hong | 9.10.3.2 | 58.47 | Does it means that only STAs capable to receive WUR Group ID may receive the WUR Wake-up frame with multiple WID? The description in WUR Capabilities element does not refine VL WUR Frame Support subfield value with the WUR Group IDs Support subfield | Clarify | RevisedAgree with the comment. TGba editor please make the changes as shown in 11-18/0399r2 |
| 2168 | Jeongki Kim | 9.10.3.2 | 58.56 | Counter subfield indicates either BSS Update Counter or PPN (4 LSBs). How about change the name of Counter subfield to Counter/PPN subfield like Length/Misc subfield? | As per comment | Rejected There is description of Counter subfield which clarify the meaning. PPN is 12 bits and naming the 4 bits of PPN could add more confusion. So no need to change the name of the subfield.  |
| 2169 | Jeongki Kim | 9.10.3.2 | 59.43 | Can the VL WUR Wake-up frame be used for indicating only one STA? If not, VL Wake-up frame should be used for indicating two or more STAs. Individually addressed FL Wake-up frame will be used for indicating only one STA. | Modify the related text as follow: “The Frame Body field is only present in a VL WUR Wake-up frame and contains two or more STA Info fields.” | RejectedAgree that it is not efficient for the AP to put only one STA Info field. However, it is up to the AP to decide what is the best option for implementation specific reason as long as STA can receive it. Since there is no interoperability issue, we do not make change.  |
| 2182 | Joseph levy | 9.10.3.2 | 59.5 | PPN is not spelled out in its first use in the specification | Replace: “PPN”With: “partial packet number (PPN)” | Revised TGba editor please make the changes as shown in 11-18/0399r2 |
| 2387 | Mark Hamilton | 9.10.3.2 | 59.23 | A broadcast WUR Wake-up frame uses the Length/Misc field for the Group Addressed BU indication. So, there is no Length subfield. So, this is a FL frame. But, at line 43, it talks about a WUR Wake-up frame that is VL. It would be good to note the mutual-exclusion of these. | Add to the end of this paragraph, “A broadcast WUR Wake-up frame is always a FL frame.” | RevisedAgree with the comment.TGba editor please make the changes as shown in 11-18/0399r2 |
| 2389 | Mark Hamilton | 9.10.3.2 | 59.24 | Any other FL WUR Wake-up frame (not broadcast) has the Misc subfield reserved (I assume). | Add to the end of this paragraph, “The Misc subfield is reserved in FL WUR Wake-up frames that are not broadcast addressed.” | Accepted TGba editor please make the changes as shown in 11-18/0399r2 |
| 2390 | Mark Hamilton | 9.10.3.2 | 58.39 | Need to cover Aps with dot11MuiltiBSSIDImplemented not set to true, also. | Insert, as: “\_with this AP when dot11MultiBSSIDImplemented is not true, or\_ with the AP corresponding to the transmitted …” | RevisedAgree with the comment. TGba editor please make the changes as shown in 11-18/0399r2 |
| 2391 | Mark Hamilton | 9.10.3.2 | 58.47 | At P64.46 it says, “A VL WUR Wake-up frame with WUR group ID in the ID field is a group addressed WUR frame that is addressed to all the WUR non-AP STAs identified by the WUR IDs included in the Frame Body field.” So, what purpose is the WUR group ID in a VL WUR Wake-up frame? What should be put in the field? | Clarify what the WUR group ID value should be that goes in the ID field of a VL WUR Wake-up frame. | RevisedThe WUR group ID in a VL WUR Wake-up frame is to identify the group so that WUR STAs who are not belonging to this group may ignore the frame.Add some text to make it clear.TGba editor please make the changes as shown in 11-18/0399r2 |
| 2427 | Ming Gan | 9.10.3.2 | 59.1 | what is the value type and initial value of BSS Update Counter? | Add “BSS Update Counter an unsigned integer initialized to 0” | Revised Agree with the comment. TGba editor please make the changes as shown in 11-18/0399r2 |
| 2460 | Minyoung Park | 9.10.3.2 | 58.40 | The dot11MultiBSSIDImplemented should be set to false, not set to true. The true case is defined in the last sub-bullet point. | Change “…to the transmitted BSSID when dot11MultiBSSIDImplemented is true” to “to the transmitted BSSID when dot11MultiBSSIDImplemented is false” | Revised Agree with the comment. TGba editor please make the changes as shown in 11-18/0399r2 |
| 2461 | Minyoung Park | 9.10.3.2 | 59.24 | Typically the spec doesn’t define “Reserved” field. It is sufficient to indicate to be just reserved in the Figure 9-988e | Delete “and Reserved subfield” from P59L24-25. | Accepted TGba editor please make the changes as shown in 11-18/0399r2 |
| 2520 | Po-Kai Huang | 9.10.3.2 | 58.38 | The description of transmitter BSSID does not align with the detailed description in 30.4.2. | Simply say as defined in 30.4.2 to avoid inconsistency in the future. | Revised Agree with the comment. TGba editor please make the changes as shown in 11-18/0399r2 |
| 2521 | Po-Kai Huang | 9.10.3.2 | 58.34 | The description for various ID repeats basically what is defined in 30.4 | Make sure that reference are provided. Maybe consider to avoid further description and just provide reference. This avoids further inconsistency in the future. | Revised Agree with the comment. TGba editor please make the changes as shown in 11-18/0399r2 |
| 2597 | Rojan Chitrakar | 9.10.3.1 | 58.11 | “The Protected subfield on the Frame Control field is set to 0.” This means that WUR Beacon frames are not protected? | Clarify whether WUR Beacon frames can be protected or not. If no, this section should mention that the FCS field can only carry CRC. | Revised Currently WUR Beacon is not protected. Add the description about FCS field only carrying CRC .TGba editor please make the changes as shown in 11-18/0399r2 |
| 2598 | Rojan Chitrakar | 9.10.3.2 | 58.38 | This statement should also apply when dot11MultiBSSIDImplemented is true; also the sentence could be simplified. | Change the sentence as:“The transmitter ID when the frame is broadcast addressed to all WUR non-AP STAs that are associated with the WUR AP when dot11MultiBSSIDImplemented is false, or the frame is broadcast addressed to all WUR non-AP STAs that are associated with the WUR AP corresponding to the transmitted BSSID when dot11MultiBSSIDImplemented is true” | Revised Agree with the comment. TGba editor please make the changes as shown in 11-18/0399r2 |
| 2681 | Woojin | 9.10.3.2 | 59.57 | WUR ID field is not defined in 30.4 | Refer 9.4.292 (WUR Mode element) or define WUR ID field | Rejected.WUR ID field is defined in 30.4.4 WUR ID |
| 2809 | Yunsong Yang | 9.10.3.2 | 59.13 | First sentence on L1 states that Counter subfield "Contains the BSS Update Counter field if the WUR Wake-up frame is broadcast addressed". So, to protect a broadcast addressed WUR Wake-up frame, there is no choice but to use partial TSF as the IPN, no matter what the value is in the Common IPN subfield. There could be a case where the AP wishes to protect broadcast addressed WUR Wake-up frames (using TSF as IPN, because the AP has no other choices), meanwhile protecting individually addressed Wake-up frames by providing individual PPN. So, additional condition needs to be added to the bullet on L13 where the protected WUR Wake-up frame is broadcast addressed (while the Common IPN subfield might be 0). | Change the bullet on L13 to read: “Contains the TSF timer [9: 16] if the Protected subfield in the Frame Control field is 1 and either the protected WUR Wake-up frame is broadcast addressed or the most recently sent WUR Operation element has the Common IPN subfield equal to 1 (see 30.9.3.1 (Generation of the IPN by a WUR AP)), or” | Revised Agree with the comment. TGba editor please make the changes as shown in 11-18/0399r2 |
| 2685 | Woojin Ahn | 30.8.2 | 74.00 | It is not clear whether AP could only include WUR ID of a WUR STA identified by the WUR Group ID in the ID field or any WUR ID. | Please clarify  | RevisedAdd a text to clarify that a VL group addressed Wake-up frame shall only include the WUR IDs identified by the WUR Group ID in the ID field for efficient power saving. TGba editor please make the changes as shown in 11-18/0399r2 |

TGba Editor: Please make PPN spell out in the first appearance of the TGba draft (#2182)

9.4.2.290 WUR Capabilities element

TGba Editor: Please modify Table 9-321a (pg 42, line 29 in D2.0) by replacing the text using the underlined blue font text as follows:

Table 9-321a—Subfields of the WUR Capabilities Information field

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| --- | --- | --- |
| WUR Group IDs Support  | Indicates WUR Group IDs support | For a WUR non-AP STA:- Set to 0 to indicate no support for WUR group IDs if the VL WUR Frame Support subfield is 0 and to indicate support for one WUR group ID when the VL WUR Frame Support subfield is 1- Set to 1 to indicate support for up to 16 WUR group IDs- Set to 2 to indicate support for up to 32 WUR group ID - Set to 3 to indicate support for up to 64 WUR group ID (#2127) Note: if the WUR Group ID Support subfield is set to a non-zero value, then it implies support of group addressed FL WUR Wake-up frameFor a WUR AP:- Set to 0 to indicate no support for WUR group IDs - Set to 1 to indicate support for WUR group IDs(#2127) Note: if the VL WUR Frame Support subfield is 1, then WUR Group ID Support subfield shall set to 1. When WUR Group ID Support subfield set to 1, it also implies support of group addressed FL WUR Wake-up frame. |

9.10.3.1 WUR Beacon frame format

TGba Editor: Please make the changes (pg 58, line 23 in D2.0) in this section as follows:

The frame format of the WUR Beacon frame is as defined in Figure 9-988a (WUR frame format).

The Frame Control field is as defined in 9.10.2.1.1 (Frame Control field).

The Protected subfield of the Frame Control field is set to 0.

The Length Present field is set to 0, and the Misc field is reserved.

The ID field of the WUR Beacon frame is set to the transmitter ID.

The Type Dependent Control field contains the partial TSF that is generated as defined in 30.5.1 (General).

The Frame Body field is not present in the WUR Beacon frame.

The FCS field contains the CRC as defined in 9.10.2.5.2 (Cyclic Redundancy Check (CRC) for WUR frames). (#2597)

9.10.3.2 WUR Wake-up frame format

TGba Editor: Please make the changes (pg 58, starting from line 33 in D2.0) in this section as follows:

The ID field of the FL WUR Wake-up frame contains one of the following:

—The WUR ID when the frame is individually addressed to a WUR non-AP STA (see 30.4.4 (WUR ID)) (#2521)

—The WUR group ID when the frame is group addressed to all WUR non-AP STAs belonging to the group identified by the WUR group ID (see 30.4.3 (WUR Group ID)).(#2391, #2520, #2521)

—The transmitter ID when the frame is a broadcast frame transmitted by the WUR AP identified by the transmitter ID (see 30.4.2 (Transmitter ID)) (#2390, #2460,#2520, #2521,#2598)

—The nontransmitter ID when the frame is a broadcast frame transmitted by the WUR AP identified by the nontransmitted ID when dot11MultiBSSI-DImplemented is true (see 30.4.5 (Nontransmitter ID)) (#2521)

The ID field of the VL WUR Wake-up frame contains a WUR group ID when the frame is group addressed to one or more WUR non-AP STAs belonging to the group identified by the WUR group ID (#2391) (see 30.4.3 (WUR Group ID)).

The Counter subfield:

—Contains the BSS Update Counter field if the WUR Wake-up frame is broadcast addressed. The BSS Update Counter field is defined as an unsigned integer initialized to 0 (#2427) that increments when a critical update to the BSS parameters has occurred (see 30.8.2 (WUR AP Operation)), or

—Contains the 4 LSBs of the partial packet number (PPN) (#2182) (see 31.8 (Protected WUR frames)) if the WUR Wake-up frame is not broadcast addressed, the Protected subfield in the Frame Control field is 1, and the most recently sent WUR Operation element has the Common IPN subfield equal to 0, or

—Is reserved otherwise.

The Sequence Number subfield:

—Contains the TSF timer [9: 16] if the Protected subfield in the Frame Control field is 1 and either

the protected WUR Wake-up frame is broadcast addressed or (#2809) the most recently sent WUR

Operation element has the Common IPN subfield equal to 1 (see 30.9.3.1 (Gen-eration of the IPN by

a WUR AP)), or

—Contains the 8 MSBs of the PPN (see 30.9 (Protected WUR frames)) if the WUR Wake-up frame

is not broadcast addressed, the Protected subfield in the Frame Control field is 1, and the most re-

cently sent WUR Operation element has the Common IPN subfield equal to 0, or

—Is reserved otherwise.

The Misc subfield is only present in the broadcast WUR Wake-up frame which is always a FL WUR Wake-up frame (#2387) and contains the Group Addressed BU subfield (#2461) as defined in Table 9-988e (Misc subfield of broadcast WUR Wake-up frame). The Misc subfield is reserved in FL WUR Wake-up frames that are not broadcast addressed.(#2389)

30.8 Wake-up Operation

**30.8.1 General**

TGba Editor: Please make the changes (pg 73, line 64 in D2.0) in this section as follows

The WUR AP may transmit a WUR Wake-up frame to an associated WUR non-AP STA to indicate that individually addressed BU(s) are available for the non-AP STA. The WUR Wake-up frame shall satisfy any of the conditions below:

—The ID field of the WUR Wake-up frame contains a WUR ID that identifies the WUR non-AP STA.

— (#2685)If the WUR Wake-up frame is of fixed length, the ID field of the WUR Wake-up frame contains a WUR group ID that identifies a group of WUR non-AP STAs that include the WUR non-AP STA.—(#2685)If the WUR Wake-up frame is of variable length, the ID field of the WUR Wake-up frame contains a WUR group ID that identifies a group of WUR non-AP STAs that include the WUR non-AP STA, and one of the identifiers in the Frame Body field identifies the WUR non-AP STA (see 9.10.3.2 (WUR Wake-up frame format)).