IEEE P802.11
Wireless LANs

|  |
| --- |
| Comment resolutions for 9.10.3.X (with X = 1, 3, 4) |
| Date: 2018-11-01 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Alfred Asterjadhi | Qualcomm Inc. | 5775 Morehouse Dr, San Diego, CA 92109 | +1-858-658-5302 | aasterja@qti.qualcomm.com |

Abstract

This submission proposes resolutions for multiple comments related to TGba D1.0 with the following CIDs (15 CIDs):

* 32, 87, 88, 292, 387, 392, 394, 395, 396, 720,
* 850, 884, 885, 1171, 1239

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Updated to IEEE802.11ba D1.1.
* Rev 2: Amended resolutions per discussions during the call: for CID 392 (was reject, now revised), for CID 395 and 396 (added MIC case in the combination as per suggestion), for CID 1171 further discussion is needed for future expansion of WUR frames (currently open CID). Changes are highlighted in green.
* Rev 3: Introduces changes for CID 1171 to allow for future expansion of WUR frames, using similar language as in baseline for similar functionalities. Changes are highlighted in blue.

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.***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 32 | Albert Petrick | 44.56 | WUR Discovery frame format -- Frame control field, protected subfield TD control field and Frame body field should reference 9-963a in addition to 9-963g |  | Revised –Agree with the comment. Proposed resolution adds the reference.TGba editor to make the changes shown in 11-18/1835r3 under all headings that include CID 32. |
| 87 | Alfred Asterjadhi | 44.62 | For simplicity suggest specifying that the TD Control field contains the 12 LSBs of the compressed BSSID. Technically they are equivalent in terms of properties. | As in comment. | Revised –Agree with the comment. Proposed resolution is to clarify that the TD Control field carries the 12 MSBs to be inline with other comments that pointed out the LSB and MSB inconsistencies. Also changed the transmit ID to point to the 12 LSBs.TGba editor to make the changes shown in 11-18/1835r3 under all headings that include CID 87. |
| 88 | Alfred Asterjadhi | 49.39 | I think the LSBs should be before the MSBs based on the conventions. Propose to have the LSBs of the fields in the Address field and the MSBs of the fields in the TD Control field. | As in comment. | Revised –Agree with the comment that the MSB vs LSB swap causes confusion. Proposed resolution is to clarify that the Address field carries the 12 LSBs and the TD control field the 12 MSBs.TGba editor to make the changes shown in 11-18/1835r3 under all headings that include CID 88. |
| 292 | Ganesh Venkatesan | 43.03 | Missing descriptions of what the Length Present and Protected bits are set to in a WUR Beacon frame. | Add that the Length Present subfield is set to 0 and the Protected subfield is set to 0 | Revised –Agree. Added that Length Present is set to 0 and that Misc field is reserved.TGba editor to make the changes shown in 11-18/1835r3 under all headings that include CID 292. |
| 387 | James Lepp | 43.09 | Doesn't explain what values to use in the Fame Control field for a WUR Beacon frame. | The Frame Control field is as defined in 9.10.2.1.1 (Frame Control field). The Frame Control field of a WUR Beacon frame has the Type field set to value 0, the Length Present field set to value 0, the Misc field is reserved and the Protected field is set to 0. | Revised –Agree. Added that Length Present is set to 0 and that Misc field is reserved. The protected field setting will be addressed as part of many other CIDs targeting this subject.TGba editor to make the changes shown in 11-18/1835r3 under all headings that include CID 387. |
| 392 | James Lepp | 44.59 | Is it transmit ID or transmitter's ID |  | Revised –TGba editor: Please replace “transmit ID” with “transmitter ID” throughout the draft.  |
| 394 | James Lepp | 45.30 | erroneous s on the end of vendors |  | Revised –TGba editor: replace :vendors” with “vendor”. |
| 395 | James Lepp | 45.43 | 9.10.3.4 is missing description of the FCS field for WUR Vendor Specific frame format. According to figure 9-963a all WUR frame formats have a FCS. Need to describe it for Vendors Specfic just like all the others. | The FCS field contains a 16-bit CRC or a 16-bit MIC based on the state of the Protected subfield. | Revised –Proposed resolution accounts for the suggested change.TGba editor to make the changes shown in 11-18/1835r3 under all headings that include CID 395. |
| 396 | James Lepp | 45.30 | For WUR Vendor Specific, the Protected subfield should still switch the FCS between MIC and CRC. Not sure why being a vendor specific changes this behavior. | The Protected subfield contains a value of 0 to indicate that the FCS field contains a 16-bit CRC. The Protected subfield contains a value of 1 to indicate that the FCS field contains a 16-bit MIC. | Revised –Proposed resolution accounts for the suggested change.TGba editor to make the changes shown in 11-18/1835r3 under all headings that include CID 396. |
| 720 | Minyoung Park | 44.56 | The following sentence is vague: "The Protected subfield in the Frame Control field is reserved." If a field is reserved, the field is set to 0 as default and when the Protected subfield in the Frame Control field is set to 0, it means the frame is non-protected frame. The sentence should be replaced as follows "The Protected subfield in the Frame Control field is set to 0." | As shown in the comment. | Revised –If the field is reserved then the AP can set it to a nonzero value if in the future a functionality is defined and the STAs that don’t support that functionality will simply ignore it. If we hard code it to 0 then the STA can potentially discard the whole frame because it sees a bit with an unexpected value. Proposed resolution is to specify that the FCS field contains the CRC-16.TGba editor to make the changes shown in 11-18/1835r3 under all headings that include CID 720. |
| 850 | Po-Kai Huang | 45.36 | In convention, we have the following description for bit order. It looks like we should have Address field be the 12 LSB of the OUI and TD control field be the 12 MSB of the OUI. "In figures, all bits within fields are numbered, from 0 to k, where the length of the field is k + 1 bits. Bits within numeric fields that are longer than a single bit are depicted in increasing order of significance, i.e., with the lowest numbered bit having the least significance." | As in comment. | Revised –Agree with the comment that the MSB vs LSB swap causes confusion. Proposed resolution is to clarify that the Address field carries the 12 LSBs and the TD control field the 12 MSBs.TGba editor to make the changes shown in 11-18/1835r3 under all headings that include CID 850. |
| 884 | Rojan Chitrakar | 45.36 | The bit order of the 12 MSBs of the OUI should be clarified. | Since the IEEE MAC Header fields are LSB first by default, if the intention is to have the OUI as a 3 octet field in big endian format, specify that the order is MSB first, i.e. MSB is at bit 0. | Revised –Agree with the comment that the MSB vs LSB swap causes confusion. Proposed resolution is to clarify that the Address field carries the 12 LSBs and the TD control field the 12 MSBs.TGba editor to make the changes shown in 11-18/1835r3 under all headings that include CID 884. |
| 885 | Rojan Chitrakar | 45.38 | The bit order of the 12 LSBs of the OUI should be clarified. | Since the IEEE MAC Header fields are LSB first by default, if the intention is to have the OUI as a 3 octet field in big endian format, specify that the order is MSB first, i.e. MSB is at bit 0. | Revised –Agree with the comment that the MSB vs LSB swap causes confusion. Proposed resolution is to clarify that the Address field carries the 12 LSBs and the TD control field the 12 MSBs.TGba editor to make the changes shown in 11-18/1835r3 under all headings that include CID 885. |
| 1171 | yujin noh | 45.50 | if design of frame body field of WUR discovery frame is complete, then specify how to set Length present field and Length field, resepctively. If not it may open the door to define the unnecessary longer WUR PPDU. | as in comment | Revised –Agree in principle with the comment. Proposed resolution clarifies it by clarifying that for forward compatibility if for next gen WUR Discovery frame the length increases then WUR STAs can ignore the additional information that follows the PCR Operating Channel field (this needs to be added somewhere in subclause 31.10.TGba editor to make the changes shown in 11-18/1835r3 under all headings that include CID 1171. |
| 1239 | Yunsong Yang | 45.36 | Given "The Address field is set to the 12 MSBs of the OUI (see 9.4.1.31 (Organization Identifier field)).The TD Control field is set to the 12 LSBs of the OUI.", how are B0 - B23 of the OUI mapped to B0 - B11 of the Address field and B0 - B11 of the TD Control field? | Please clarify. | Revised –Agree with the comment that the MSB vs LSB swap causes confusion. Proposed resolution is to clarify that the Address field carries the 12 LSBs and the TD control field the 12 MSBs.TGba editor to make the changes shown in 11-18/1835r3 under all headings that include CID 1239. |

**Discussion:** *For CID 1171 – WUR frame extensibility for future revisions of the standard is conceptually similar to the extension elements defined in baseline. Citing from baseline:*

* *Table 9-95 (Element IDs) indicates which elements are considered extensible in future revisions of the standard, by placing a Yes in the Extensible column. Each element that has a Yes in the Extensible column has an Information field with a known length that can be determined from the definition of the Information field in this Standard – i.e., the Information field has a fixed structure, or has a variable structure whose length is determined by fields within the Information field. A STA that receives an extensible element in which the Length field exceeds the known length of the Information field of that element shall discard any part of the Information field beyond the known length and shall otherwise process the element as though this truncated element had been received.*

9.10.3.1 WUR Beacon frame format

The Element ID, Length, and Element ID Extension fields are defined in 9.4.2.1 (General).

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

**TGba Editor: *Change the paragraphs below of this subclause as follows (#CID 292, 387):***

The Length Present field is set to 0 and the Misc field is reserved.*(#292, 387)*

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 31.4.1 (General).

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

* WUR Discovery frame format

**TGba Editor: *Change the paragraph below of this subclause as follows (#CID 32):***

The frame format of the WUR Discovery frame is as defined in Figure 9-963a (WUR frame format).*(#32)*

The Frame Control field is set as defined in 9.10.2.1.1 (Frame Control field).The Address field is set to the Transmit ID.

The TD Control is set to bits 8 to 19 of the compressed BSSID. The Address field is set to the Transmit ID.

The TD Control is set to bits 8 to 19 of the compressed BSSID.

The Protected subfield in the Frame Control field is reserved.

The ID field is set to the transmitter ID.

**TGba Editor: *Change the paragraphs below of this subclause as follows (#CID 87):***

The Type Dependent Control field is set to 12 MSBs of the compressed BSSID (see 31.3.1 (General)).*(#87)*

The format of the Frame Body field is as defined in Figure 9-963g (Frame Body Field format of WUR Discovery frame).

|  |  |  |
| --- | --- | --- |
|  | B0                     B15 | B16                                 B31 |
|  | Compressed SSID | PCR Operating Channel |
| Bits: | 16 | 16 |
| * Frame Body Field format of WUR Discovery frame
 |

The Compressed SSID field contains 16 LSBs of the Short-SSID as defined in 9.4.2.170.3 (Calculating the Short-SSID).

The PCR Operating Channel field contains operating class and channel information as defined in 9.4.1.22 (Operating Class and Channel field).The format of the Frame Body field is as defined in Figure 9-747a (Frame Body field format of WUR Discovery frame).The Compressed SSID field contains 16 LSBs of the Short-SSID as defined in 9.4.2.171.2. The PCR Operating Channel field contains operating class and channel information as defined in 9.4.1.22.

**TGba Editor: *Change the paragraphs below of this subclause as follows (#CID 720):***

The FCS field contains the CRC as defined in 9.10.2.5.2 (Cyclic Redundancy Check).*(#720)*

* WUR Vendor Specific frame format

The Element ID, Length, and Element ID Extension fields are defined in 9.4.2.1 (General).

The Frame Body field is optionally present in certain WUR frame types and is defined in 9.10.2.4 (Frame Body field).

The Protected subfield in the Frame Control field contains vendor specific information that is out of scope of the standard.

The Misc subfield in the Frame Control field, if present, contains vendors specific information that is out of scope of the standard.

**TGba Editor: *Change the paragraphs below of this subclause as follows (#CID 1239, 885, 884, 850, 88):***

The ID field is set to the 12 LSBs of the OUI (see Table 9-533b).

The Type Dependent Control field is set to the 12 MSBs of the OUI (see 9.4.1.31 (Organization Identifier field)).*(#1239, 885, 884, 850, 88)*

The Frame Body field, if present, contains vendor specific information that is out of scope of the standard.

**TGba Editor: *Change the paragraphs below of this subclause as follows (#CID 395, 396):***

The FCS field contains the CRC as defined in 9.10.2.5.2 (Cyclic Redundancy Check) when the Protected field is 0 and a MIC when the Protected field is 1, wherein the MIC contains vendor specific information that is out of scope of the standard.*(#395, 396)*

31.3.2 Transmitter ID

A transmitter ID identifies the WUR AP transmitting the WUR frame. A WUR frame with transmitter ID in the ID field is a broadcast WUR frame that is addressed to all the WUR non-AP STAs that are associated with the transmitting WUR AP.

**TGba Editor: *Change the paragraphs below of this subclause as follows (#CID 87, 88):***

A WUR AP shall use the 12 LSBs*(#87, 88)* of the compressed BSSID as the transmitter ID of WUR frames it transmits.

9.10.2.5.2 Cyclic Redundancy Check (CRC)

**TGba Editor: *Change the paragraphs below of this subclause as follows (#CID 87):***

The Embedded BSSID field, if present, is the last field of the *calculation fields*. The Embedded BSSID field contains the 16 MSBs*(#87)* of the compressed BSSID, which is defined in 31.3.1 (General).

**TGba Editor: *Insert a new subclause as follows (#CID 1171):***

31.2a WUR frame processing

This subclause describes WUR frame processing requirements to provide frame extensibility.

A WUR STA shall discard a received WUR frame when any of the following events occur:

* The Type subfield indicates a value that is not supported by the WUR STA
* The Length Present subfield indicates a value that is not supported by the WUR STA
* The Protected subfield indicates a value that is not supported by the WUR STA
* The ID subfield indicates a value that is not recognized by or is unknown to the WUR STA

A WUR STA that receives a WUR frame and encounters a field or subfield with an unknown or reserved value shall ignore that field and parse any remaining recognizable subfields in the WUR frame.