### IEEE P802.11 Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 11be D1.1 CR for 9.4.2.295b.3 | | | | |
| Date: 2021-08-09 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Xiangxin Gu | Unisoc | 2288 Zuchongzhi Road, Shanghai, China |  | xiangxin.gu@unisoc.com |
| Jay Yang | Nokia |  |  | Zhijie.yang@nokia-sbell.com |
| Rojan Chitrakar | Panasonic |  |  | Rojan.chitrakar@sg.panasonic.com |
| Ming Gan | Huawei |  |  | ming.gan@huawei.com |
|  |  |  |  |  |

Abstract

This submission proposes resolutions for the following CIDs:

4019, 4734, 5039, 5825, 5940, 6237, 6238, 6677, 6678, 6707, 7705, 8166, 8290

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Some editorial changes

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 TGbe D1.0 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbe D1.0.1 Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 4019 | Abhishek Patil | 9.4.2.295b.3 | 135.32 | The description related to Common Info field and Presence Bitmap subfield of the Multi-Link Control field is missing. | Clarify that, in the Probe Request variant Multi-Link element, the Common Info field is not present and the Presence Bitmap subfield is set to 0 | **Revised:**  The ML probe request shall indicate the target MLD in case of Multiple BSSID set, which can be explicitly or implicitly (refer to the discussion section). So the Presence Bitmap subfield contains MLD ID present bit which indicates the presence of MLD ID in the Common Info field.  Tgbe editor: please implement changes as shown in doc 11-21/1332r0 tagged as 4019 |
| 4734 | Chunyu Hu | 9.4.2.295b.3 | 135.25 | The subclause (Probe Request variant Multi-Link element) misses the definition and description of the fields: Presence Bitmap, Common Info. If they are the same as the Basic variant, please state so. If not, need to add new definitions. | As commented | **Revised:**  Same as the resolution for CID 4019 |
| 5039 | Gaurang Naik | 9.4.2.295b.3 | 135.33 | There is no description in the spec on the Common Info field of the Probe Request variant Multi-Link element | Specify if the Common Info field is present in the Probe Request variant Multi-Link element and, if present, the contents of the Common Info field. | **Revised:**  Same as the resolution for CID 4019 |
| 5825 | Lei Wang | 9.4.2.295b.1 | 128.20 | The description of the Presence Bitmap Subfield for the Probe Request variant Multi-Link element is missing in Subsection 9.4.2.295b.3. So, the reference given in line 20 page 128 is not valid. | Add the description of the Presence Bitmap Subfield for the Probe Request variant Multi-Link element in Subsection 9.4.2.295b.3. | **Revised:**  Same as the resolution for CID 4019 |
| 5940 | Li-Hsiang Sun | 9.4.2.295b.3 | 135.32 | Missing description of presence bitmap and common info field | add the description | **Revised:**  Same as the resolution for CID 4019 |
| 6237 | Ming Gan | 9.4.2.295b.3 | 135.31 | Presence Bitmap subfield for Probe Request should contain "MLD ID Present" and "Link ID Info", Please refer to the discussion part in DCN 21/741r3 | as in the comment | **Revised:**  Same as the resolution for CID 4019 |
| 6238 | Ming Gan | 9.4.2.295b.3 | 135.31 | Common info field for Probe Request should contain "MLD ID", to identify the corresponding AP MLD. Please refer to the discussion part in DCN 21/741r3 | as in the comment | **Revised:**  Same as the resolution for CID 4019 |
| 6677 | Rajat Pushkarna | 9.4.2.295b.3 | 135.33 | The format of the Presence Bitmap subfield of the Probe Request ML element should be defined. | Define the format of the Presence Bitmap subfield of the Probe Request ML elemen | **Revised:**  Same as the resolution for CID 4019 |
| 6678 | Rajat Pushkarna | 9.4.2.295b.3 | 135.33 | Presence/Absence of the Common Info field in the Probe Request ML element should be mentioned and the format defined if present. | State the Presence/Absence of the Common Info field in the Probe Request ML element and define the format if present. | **Revised:**  Same as the resolution for CID 4019 |
| 6707 | Rojan Chitrakar | 9.4.2.295b.3 | 135.33 | The format of the Presence Bitmap subfield of the Probe Request ML element should be defined. | Define the format of the Presence Bitmap subfield of the Probe Request ML element | **Revised:**  Same as the resolution for CID 4019 |
| 7705 | Xiaofei Wang | 9.4.2.295b.3 | 135.33 | The common info field of the probe request variant of ML element is not defined | please provide definition of the Common Info subfield | **Revised:**  Same as the resolution for CID 4019 |
| 8166 | Yunbo Li | 9.4.2.295b.3 | 135.26 | The description of Multi-link Control field and Common Info field for Probe Requesst variant Multi-Link element are missing | provide the missing description | **Revised:**  Same as the resolution for CID 4019 |
| 8290 | Zhiqiang Han | 9.4.2.295b.3 | 135.32 | There should be some paragraphs to describe how to set the Presence Bitmap subfield and Common Info field. Please clarify it. | as in comment. | **Revised:**  Same as the resolution for CID 4019 |

**Discussion:**

The Probe Request variant Multi-Link element is used to request an AP to provide information of other APs affiliated with the same AP MLD as the AP. The inclusion of a Probe Request variant Multi-Link element in a Probe Request frame identifies it as an ML probe request.

In case that the transmitted AP is affiliated with an AP MLD and APs corresponding to nontransmitted BSSID of the same multiple BSSID set as the transmitted AP are affiliated with other AP MLD(s), the ML probe request needs to indicate the targeted MLD. Either of the following methods can be used.

1. Explicitly Including the MLD ID of the targeted MLD in the ML probe request.
2. Implicitly indicating the targeted MLD via the address1 or address3 of the ML probe request frame.

Note: ML probe request is sent outside the context of active scanning. So MLD ID can be obtained from RNR element in advance.

Method 1 is proposed. On one hand, explicitly including the targeted MLD ID brings simplification, especially to request the information of the APs affiliated with an AP MLD which do not have an affliated AP on same link as the transmitted AP. On the other hand, the cost of signalling overhead is very little.

However, Method 2 is not excluded.

**Propose:**

SP: Do you agree to incorporate the changes provided in IEEE 802.11-21/1332r0 for CIDs 4019, 4734, 5039, 5825, 5940, 6237, 6238, 6677, 6678, 6707, 7705, 8166, 8290 to the next revision of 802.11be draft?

*TGbe editor: Change 9.4.2.295b3 Probe Request variant Multi-Link element as follows (track changes on):*

**9.4.2.295b.3 Probe Request variant Multi-Link element**

The Probe Request variant Multi-Link element is used to request an AP to provide information of other APs affiliated with the same AP MLD as the AP. The inclusion of a Probe Request variant Multi-Link element in a Probe Request frame identifies it as an ML probe request(#2583)(#3360).

(#4019)(#4734)(#5825)(#5940)(#6237)(#6238) (#6677)(#6707)(#8166)(#8290)The format of the Presence Bitmap subfield of the Probe Request variant Multi-Link element is defined in Figure 9-788xx (Presence Bitmap subfield of the Probe Request variant Multi-Link element format).

B0 B1 B11

|  |  |
| --- | --- |
| MLD ID Present | Reserved |

Bits: 1 11

**Figure 9-788xx—Presence Bitmap subfield of the Probe Request variant Multi-Link element format**

The MLD ID Present subfield is set to 1 if the MLD ID Info subfield is present in the Common Info field. Otherwise, the MLD ID Present subfield is set to 0.

The format of the Common Info field of the Probe Request variant Multi-Link element is defined in Figure 9-788yy (Common Info field of the Probe Request variant Multi-Link element format).

|  |
| --- |
| MLD ID |

Octets: 0 or 1

**Figure 9-788yy—Common Info field of the Probe Request variant Multi-Link element for- mat**

The MLD ID subfield in the Common Info field indicates the AP MLD targeted.

*TGbe editor: Change 35.3.4.1 Use of ML probe request and response as follows (track changes on):*

* + - 1. **Use of ML probe request and response(#2583)(#3360)**

(#2583)(#3360)(#1187)An ML probe request is a Probe Request frame that is sent outside the context of active scanning that is used to discover an AP:

* + - * + (#1045)(#1187)(#1673)(#2150)with the Address 1 field set to the broadcast address and the Address 3 field set to the BSSID of an AP, or with the Address 1 field set to the BSSID of an AP’s BSS.
        + (#4019)(#4734)(#5825)(#5940)(#6237)(#6238) (#6677)(#6707)(#8166)(#8290)with the MLD ID subfield (if present) in the Common Info field set to the MLD ID which identifies the targeted AP MLD.
        + (#1808)(#2124)(#3217)and that includes a Probe Request variant Multi-Link element defined in 9.4.2.295b.3 (Probe Request variant Multi-Link element).

(#4019)(#4734)(#5825)(#5940)(#6237)(#6238) (#6677)(#6707)(#8166)(#8290)To solicit information of the APs affiliated with an AP MLD and corresponding to nontransmitted BSSID of the same multiple BSSID set as the transmitted AP, the ML probe request shall indicate the targeted MLD via the MLD ID subfield in the Common Info field or the Address field of the frame or both.