IEEE P802.11
Wireless LANs

|  |
| --- |
| Resolution for CIDs assigned to Abhi – part 5 |
| Date: April 17, 2023 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Abhishek Patil | Qualcomm Inc. |  |  | appatil@qti.qualcomm.com |
| Gaurang Naik |  |  |  |
| George Cherian |  |  |  |
| Alfred Asterjadhi |  |  |  |
| Duncan Ho |  |  |  |
| Yanjun Sun |  |  |  |
| Abdel Karim |  |  |  |

 Abstract

This submission proposes resolutions for following 10 CIDs received for TGbe LB271:

15108 16082 16759 16777 16778 16972 17662 18239 18240 18272

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Green tagged and minor updates based on inputs from chair.
* Rev 2: Fixed the reference to r2 in the resolution column

***TGbe editor: Baseline for this document is 11be D3.1***

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

***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** | **Pg.Ln** | **Comment** | **Proposed Change** | **Resolution** |
| 17662 | Brian Hart | 9.4.2.312.2.4 | 265.09 | "in the core of" is not defined | Try "directly in the Frame Body field of" | **Revised**Agree with the comment. The phrase “core of the” is not needed and has been deleted.**TGbe editor, please make changes as shown in 11-23/0661r2 tagged 17662** |
| 18239 | Li-Hsiang Sun | 35.3.3.3 | 482.54 | "The complete profile of a reported STA consists of all the elements and fields ...that would be included in a Management frame, that is if the same subtypes ...". However, in 35.3.11 (re)association response frame with complete profile can add quiet and CSA elements that is not normally included in (re)association response frame | Change to "The complete profile of a reported STA consists of all the elements and fields (subject to inheritance rules defined in 35.3.3.6.1 (Inheritance in the per-STA profile of Basic Multi-Link element) with additional elements defined in 35.3.11, and exceptions ..." | **Revised**Agree with the comment. Subclause 35.3.11 is added to the list of exceptions. In addition editorial changes are made to the paragraph to improve readability.**TGbe editor, please make changes as shown in 11-23/0661r2 tagged 18239** |
| 16759 | Mark RISON | 35.3.3.3 | 482.60 | "NOTE 1--Only Management frames belonging to subtypes (Re)Association Request or (Re)Association Response caninclude the complete profile of a reported STA (see 35.3.5.4 (Usage and rules of Basic Multi-Link element in the contextof multi-link (re)setup, authentication, and FT action frame exchange between two MLDs)), with the exception that amulti-link probe response can also include the complete profile of a reported AP (see 35.3.4.2 (Use of multi-link proberequest and response))." is worded very oddly | Change to "NOTE 1--Only (Re)Association Request and (Re)Association Response frames and multi-link probe responsescaninclude the complete profile of a reported STA (see 35.3.5.4 (Usage and rules of Basic Multi-Link element in the contextof multi-link (re)setup, authentication, and FT action frame exchange between two MLDs) and 35.3.4.2 (Use of multi-link proberequest and response))." | **Revised**Agree with the comment. The changes are made as proposed by the comment. A minor typo in the proposed resolution is fixed in the proposed changes.**TGbe editor, please make changes as shown in 11-23/0661r2 tagged 16759** |
| 18272 | Xiaofei Wang | 35.3.3.3 | 483.01 | Does this note mean that "Only Basic Multi-link element can include complete profile of a reported non-AP STA"? | please clarify | **Rejected**The comment fails to identify an issue. To answer the question – yes, only Basic Multi-Link element can include complete profile. If, in the future, another variant of ML IE can carry complete profile, it must be mentioned in this sentence. |
| 18240 | Li-Hsiang Sun | 35.3.3.4 | 484.60 | MSCS descriptor element should not be included in Per-STA profile subelement b/c (1) it is a MLD level feature. (2) the value should be the same for all links so by inheritance it would not appear in per-STA profile | add MSCS descriptor element to the list of elements not included in the per-STA profileAll STAs affliated with a MLD shall set Mirrored SCS in Extended Capabilities element to the same value | **Revised**Agree with the comment. MSCS Descriptor element is added to the list of elements not carried in the Per-STA Profile subelement.The part about all STAs affiliated with an MLD setting the MSCS field in Ex Cap to the same value is covered in clause 35.18.**TGbe editor, please add “MSCS Descriptor element” in between “BSS Max Idle Period element, a Neighbor Report element” on P490L64 of TGbe D3.1.** |
| 16082 | Insun Jang | 35.3.3.6.1 | 487.44 | Several parts should be modified:1) "of the nontransmitted BSSID" to "affiliated with the AP corresponding the nontransmitted BSSID"2) Remove "per-STA" of complete per-STA profile | As in the comment | **Revised**Agree with the comment. The resolution proposes the necessary changes.**TGbe editor, please make changes as shown in 11-23/0661r2 tagged 16082** |
| 15108 | Xiaogang Chen | 35.3.3.6.1 | 487.65 | "has a value different from the corresponding elements carried in the frame". should be "elements carried outside the basic ML element in the frame?" | as in the comment | **Revised**Agree with the comment. The resolution proposes the necessary changes.**TGbe editor, please make changes as shown in 11-23/0661r2 tagged 15108** |
| 16777 | Mark RISON | 35.3.3.7 | 489.41 | "When the length of the subelement is less than or equal 255 octets but exceeds the remaining size" -- I think this is talking about the length of the Data field of the subelement, not the subelement itself. But then it's true by definition, since there is just 1 length octet | Change to "When the subelement does not fit in the remaining size" | **Revised**Agree with the comment. The text is updated to clarify that the discussion relates to the contents of the subelement (exceeding or not exceeding 255 octets). In addition, other editorial changes are made to improve readability of the sentences.**TGbe editor, please make changes as shown in 11-23/0661r2 tagged 16777** |
| 16778 | Mark RISON | 35.3.3.7 | 489.59 | "When the length of the Per-STA Profile subelement is greater than 255 octets, the length of Basic Multi-Linkelement that carries the subelement would exceed 255 octets. As a result, the element is fragmented" -- the first half cannot occur, since there is only 1 length octet | Change to "When the length of the per-STA information to be carried is greater than 255 octets, the Basic Multi-Linkelement that carries the subelement is fragmented" | **Revised**Agree with the comment. The suggested changes are made with minor editorial changes.**TGbe editor, please make changes as shown in 11-23/0661r2 tagged 16778** |
| 16972 | Mark RISON | 35.3.20 | 576.16 | "outside the Multiple BSSID element" -- it is not clear what is outside the Multiple BSSID element. Also line 25 | Clarify | **Revised**The phrase ‘outside the Multiple BSSID element’ is intended to signify that Basic ML IE is not carried within the Multiple BSSID element. The resolution also fixes a typo (1st letter of element name should be upper case). **TGbe editor, please make changes as shown in 11-23/0661r2 tagged 16972** |

**9.4.2.312.3 Probe Request Multi-Link element**

***TGbe editor: Please update the following paragraph in this subclause as shown below:***

If the Complete Profile subfield is set to 0, and if the STA Profile field is not present, the (Extended) Request element for this AP is inherited from the (Extended) Request element included in the [17662]Probe Request frame (see 35.3.4.2 (Use of multi-link probe request and response) and 35.3.3.6.2 (Inheritance in the per-STA profile of Probe Request Multi-Link element)).

**35.3.3.3 Advertisement of complete or partial per-link information**

***TGbe editor: Please update the following paragraph and following NOTE in this subclause as shown below:***

[18239]The complete profile of a reported STA consists of all the elements and fields that would be included in a Management frame that is of the same subtype as the frame transmitted by the reporting STA carrying the Basic Multi-Link element, as if the reported STA were to transmit the frame and subject to inheritance rules defined in 35.3.3.6.1 (Inheritance in the per-STA profile of Basic Multi-Link element) and exceptions as specified in 35.3.3.4 (Fields and elements not carried in a per-STA profile) and 35.3.11 (Multi-link procedures for channel switching, extended channel switching, and channel quieting).

[16759]NOTE 1—Only (Re)Association Request and (Re)Association Response frames and multi-link probe response can include the complete profile of a reported STA (see 35.3.5.4 (Usage and rules of Basic Multi-Link element in the context of multi-link (re)setup, authentication, and FT action frame exchange between two MLDs)) and 35.3.4.2 (Use of multi-link probe request and response)).

35.3.3.6.1 Inheritance in the per-STA profile of Basic Multi-Link element

***TGbe editor: Please update the following paragraph in this subclause as shown below:***

[16082]When an AP corresponding to a transmitted BSSID in a multiple BSSID set transmits a multi-link probe response in response to a multi-link probe request directed to an AP corresponding to a nontransmitted BSSID in the same multiple BSSID set and the Basic Multi-Link element corresponding to the AP MLD affiliated with the AP corresponding to the nontransmitted BSSID carries complete profile of the requested AP(s), then the inheritance (or non-inheritance) for each per-STA profile is with respect to the elements carried in the Probe Response frame that are outside the Multiple BSSID element.

NOTE 4—The Multiple BSSID element and Basic Multi-Link element are not inherited by the profile for a reported AP.

***TGbe editor: Please update the following paragraph in this subclause as shown below:***

Figure 35-4 (Example of inheritance in a complete per-STA profile) illustrates inheritance when a per-STA profile carries complete profile. The example shows a Management frame transmitted by a reporting STA that is affiliated with an MLD. The Management frame carries several elements with their corresponding element IDs shown in parentheses. The frame also carries a Basic Multi-Link element which is carrying two Per-STA Profile subelements corresponding to STA 1 and STA 2. In this example, the profile for STA 1, which is a complete profile is expanded to show the details of inheritance. The contents of the profile for STA 2 are not shown in this illustration. [15108]The per-STA profile for STA 1 includes element with ID B since the contents of the element (i.e., the Information field) inside the profile has a value that is different from the value of the corresponding element carried in the same frame and outside the Basic Multi-Link element. The profile also includes element with ID D and ID Y that are specific to STA 1. In addition, elements with ID C and ID F are inherited and are not carried in the profile for STA 1. The values for these two elements are the same as that carried in the frame. Furthermore, elements with ID A and ID E are not applicable to STA 1 as their corresponding (Extended) Element IDs are listed in the Non-Inheritance element.

35.3.3.7 Subelement fragmentation in the Link Info field of a Multi-Link element

***TGbe editor: Please update the following paragraph in this subclause as shown below:***

This subclause describes the procedure for splitting the contents of a subelement that is carried within a Link Info field of a Multi-Link element, across multiple subelements, when the length of the [16777]contents of the subelement exceeds 255 octets in the Multi-Link element. The procedure is described with respect to the Per-STA Profile subelement of the Basic Multi-Link element. However, the same procedure applies to any subelement (see Table 9-401c (Optional subelement IDs for Link Info field of the Multi-Link element)) except the Fragment subelement and to any variant of Multi-Link element.

[16777]NOTE 1—When the length of the contents of the subelement is less than or equal to 255 octets but exceeds the remaining size of the Multi-Link element, the subelement is not fragmented. Instead, the Multi-Link element is fragmented by following the procedure described in 10.28.11 (Element fragmentation), and the subsequent Fragment element (see 9.4.2.188 (Fragment element)) carries the portion of the subelement that exceeded the remaining size of the element.

If the length of [16777]the contents of a Per-STA Profile subelement for a reported STA exceeds 255 octets, the transmitting STA shall fragment the contents across a series of subelements consisting of the Per-STA Profile subelement, immediately followed by one or more Fragment subelements as illustrated in Figure 35-6 (Per-STA Profile subelement fragmentation). All the information for a fragmented subelement shall be carried across the same Basic Multi-Link element and its Fragment element(s). A Per-STA profile subelement shall not be fragmented if the length of the Data field of the subelement is less than 255 octets. A Fragment subelement shall not be the first subelement or the only subelement within a Link Info field of the Basic Multi-Link element.

NOTE 2—When the length of the contents of the[16777] Per-STA Profile subelement is greater than 255 octets, the length of Basic Multi-Link element that carries the subelement [16778]is fragmented by following the procedure defined in 10.28.11 (Element fragmentation). Also see Figure 35-7 (Per-STA Profile subelement fragmentation within a fragmented Multi-Link element). [16777]

**35.3.20 Multi-link operation in a multiple BSSID set or co-hosted BSSID set**

***TGbe editor: Please update the following paragraph and following NOTE in this subclause as shown below:***

[16972]When an AP corresponding to a transmitted BSSID in a multiple BSSID set transmits a multi-link probe response in response to a multi-link probe request directed to an AP corresponding to a nontransmitted BSSID in the same multiple BSSID set (see 35.3.4.2 (Use of multi-link probe request and response)), the Probe Response frame shall also include a Basic Multi-Link element, carried outside the Multiple BSSID element, corresponding to the AP MLD with which the transmitted BSSID is affiliated and the Basic Multi-Link element shall not carry a complete profile for any of the reported APs and shall not include the AP MLD ID subfield in the Common Info field.

NOTE—When an AP corresponding to a transmitted BSSID in a multiple BSSID set transmits a multi-link probe response in response to a multi-link probe request directed to an AP corresponding to a nontransmitted BSSID in the same multiple BSSID set, the Probe Response frame:

* carries a Basic Multi-Link element, outside the Multiple BSSID element, containing a profile of the requested AP(s) affiliated with the AP MLD with which the AP corresponding to that nontransmitted BSSID is affiliated with and the AP MLD ID subfield of the Common Info field of the Basic Multi-Link element is set to the BSSID Index of the nontransmitted BSSID.
* can include a Basic Multi-Link element corresponding to the AP MLD(s) of other APs corresponding to the nontransmitted BSSIDs in the multiple BSSID set. Such Basic Multi-Link element(s) do not carry complete profile for any reported AP(s) and are carried in the corresponding nontransmitted BSSID profile(s) (if present) contained in the Multiple BSSID element.
* carries a Reduced Neighbor Report element containing information of the other AP(s) affiliated with the transmitting AP’s (transmitted BSSID’s) AP MLD and the information of other AP(s) affiliated with the AP MLD(s) of all the nontransmitted BSSIDs in the same multiple BSSID set by following the rules in 35.3.4.1 (AP behavior).