IEEE P802.11
Wireless LANs

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| LB271 – CR for some CIDs related to 35.3.4.2 |
| Date: 2023-03-12 |
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| **CID** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 16779 | 35.3.4.2 | 492.21 | "the ScanType" should be "the ScanType parameter" | As it says in the comment |  Accept |
| 16780 | 35.3.4.2 | 492.22 | "MULTI\_LINK" should be "MULTI-LINK" | As it says in the comment |  Accept |
| 15518 | 35.3.4.2 | 492.27 | When A1 field is set to the BSSID, what should be the value of A3 field? Could it be different from the value of A1? Could it be the BSSID of another affiliated AP of the same MLD or even BSSID of co-located MLD? | Change the text to 3 subbullets:-- either with the Address 1 field set to the broadcast address and the Address 3 field set to the BSSID of the intended recipient AP's BSS (which is either the transmitted BSSID or a nontransmitted BSSID), or-- with both the Address 1 field and Address 3 field set to the BSSID of an intended recipient AP's BSS (which is either the transmitted BSSID or a nontransmitted BSSID), or-- with the Address 1 field set to the BSSID of an intended recipient AP's BSS (which is either the transmitted BSSID or a nontransmitted BSSID) and the Address 3 field set to the BSSID of a different AP's BSS (which is either the transmitted BSSID or a nontransmitted BSSID) and the two APs are affiliated with the same AP MLD or corresponding to the same multiple BSSID set but affiliated with different AP MLDs. |  Revised – agree with the commenter in principle. Modify the sentence and apply the changes marked as #15518 in this document. |
| 17821 | 35.3.4.2 | 492.27 | the first half of the sentece says "the BSSID of an AP", while the second half of the sentence says "the BSSID of an AP's BSS" | unify the expression |  Revised – agree with the commenter. Apply the change marked as #17821 in this document |
| 16284 | 35.3.4.2 | 492.35 | Sentence seems misleading : "If a non-AP MLD is sending a multi-link probe request,...". Is there any other STA able to send such a frame ? | change "if" by "when" |  Revised – as this bullet is now well captured in 35.3.4.5, just refer to that subclause. Apply the changes marked as #16284 in this document |
| 16781 | 35.3.4.2 | 492.35 | This is not in the same style as the other bullets, and does not fit | Either debulletify, or convert the style to e.g. "-- following the rules defined in 9.3.3.9(Probe Request frame format) regarding" etc. |  Revised – as this bullet is now well captured in 35.3.4.5, just refer to that subclause. Apply the changes marked as #16781 in this document |
| 16283 | 35.3.4.2 | 492.37 | The sentence refering to "the rules defined in 35.3.4.2 (Use of multi-link probe request and response)" is strange as it is located in the same section as it refers to. | clarify the rule. |  Revised – as this bullet is now well captured in 35.3.4.5, just refer to that subclause. Apply the changes marked as #16283 in this document |
| 16782 | 35.3.4.2 | 492.45 | " corresponds to the nontransmitted BSSID" -- there coul dbe more than one | Change to " corresponds to a nontransmitted BSSID" or whatever the usual terminology is |  Revised – agree with the commenter. Apply the changes marked as #16782 in this document |
| 15519 | 35.3.4.2 | 492.46 | The sentence is confusing. What is the AP MLD that corresponds to the nontransmitted BSSID? | Change to:If either the Address 1 field or the Address 3 field of the multi-link probe request is set to the MAC address of the AP that is affiliated with the targeted AP MLD and that corresponds to a nontransmitted BSSID, then the AP MLD ID subfield shall not be present in the Probe Request Multi-Link element of the multi-link probe request. |  Revised – agree with the commenter. Apply the changes marked as #15519 in this document. |
| 15972 | 35.3.4.2 | 492.46 | Clarify why is AP MLD ID subfield not present in the ML probe request sent for to a nontransmitted BSSID? Similarly why AP MLD ID subfield is needed when ML probe request is sent for the responding AP as described in next para line 53? | Add Note to clarify why AP MLD ID is included in one case and not in the other. |   |
| 16085 | 35.3.4.2 | 492.46 | We need to describe clearly what "the nontransmitted BSSID" is, e.g., What multiple BSSID set includes it, what AP is transmitted BSSID | As in the comment |  Reject – here the condition does not involve the transmitted BSSID so there is no need to describe it. |
| 15973 | 35.3.4.2 | 493.07 | My understanding is that elements can be requested with Request element, Extended Request element or both for a partial profile. Current text indicated that only one element can be included. Update text to clarify this. Similar modification needed in the text where "(Extended) Request element" is captured in other paragraphs in this clause. | Modify text to indicate that elements can be requested with Request element, Extended Request element or both for a partial profile, in all applicable places in this clause. |  Revised – agree with the commenter. Apply the changes marked as #15973 in this document |
| 16783 | 35.3.4.2 | 493.16 | If it's a list of items then there should be no full stop at the end of each item | As it says in the comment |  Revised – apply the changes marked as #16783 in this document |
| 16245 | 35.3.4.2 | 493.47 | The text "possibly among other requests for other requested APs" is not required and can be removed. It does not add anything to the normative behaviour. | Remove the cited text and also at a 2nd location P493L52. |  Accept |
| 16784 | 35.3.4.2 | 493.63 | “to broadcast address” missing article | Add “the” after “to” |  Accept |
| 16086 | 35.3.4.2 | 494.01 | We can add to this pargraph more information (e.g., as Note) that the information of an AP corresponding to the nontransmitted BSSID would be included in NonTxBSSID Profile subelement not Basic ML IE | As in the comment |  Revised – agree with the commenter. Apply the changes marked as #16086 in this document |
| 16087 | 35.3.4.2 | 494.17 | In Note 4, the complete information should be complete profile as overall in D3.0 | As in the comment |  Revised – apply the changes marked as #16087 in this document. |

1. **Introduction**
2. **Proposed spec text**

Tgbe editor: Modify subclause 35.3.4.2 35.3.4.2 Use of multi-link probe request and response as follows:

###### **Use of multi-link probe request and response**

A multi-link probe request allows a non-AP STA affiliated with a non-AP MLD to request an AP affiliated with an AP MLD to include the complete or partial set of capabilities, parameters and operation elements of the AP(s) affiliated with the targeted AP MLD in the response frame. The complete profile and partial profile of a requested AP are defined in [35.3.3.3 (Advertisement of complete or partial per-link](#bookmark14) [information)](#bookmark14).

NOTE 1—If an AP MLD has only one affiliated AP, a multi-link probe response will not provide additional information compared to a Probe Response frame that is not a multi-link probe response.

An MLD SME may generate a multi-link probe request by calling MLME-SCAN.request with the ScanType (#16779)parameter set to (#16780)MULTI-LINK PROBE. A multi-link probe request is a Probe Request frame that is sent as a non- scanning probe request transmission (see 11.1.4.3.8 (Non-scanning probe request transmission)). The Probe Request frame shall be formatted as follows:

1. either 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 (#15518) and Address 3 fields set to the BSSID of an (#17821)AP.
2. with the AP MLD ID subfield (if present in the Probe Request Multi-Link element) set to the AP MLD ID that identifies the targeted AP MLD with which the requested AP(s) are affiliated.
3. including a Probe Request Multi-Link element defined in 9.4.2.312.3 (Probe Request Multi-Link element).
4. (#16284, #16781, #16283)following the rules defined in [35.3.4.5 (Probe Request frame content for a non-AP EHT STA)](#bookmark28) for the inclusion of elements.

If either the Address 1 field or the Address 3 field of the multi-link probe request is set to the MAC address of the AP (#15519)that is affiliated with (#15519)a targeted AP MLD (#15519)and that corresponds to (#16782)a nontransmitted BSSID, then the AP MLD ID subfield shall not be present in the Probe Request Multi-Link element of the multi-link probe request(#15519).

If either the Address 1 field or the Address 3 field of the multi-link probe request is set to the MAC address of the responding AP that operates on the same link where the multi-link probe request is sent, then the AP MLD ID subfield shall be present in the Probe Request Multi-Link element of the multi-link probe request and the targeted AP MLD is identified by the AP MLD ID subfield, which is set to the same AP MLD ID value as the one used by the AP that is addressed by the multi-link probe request to identify the AP MLD in the Beacon and Probe Response frames that it transmits.

If the Probe Request Multi-Link element in the multi-link probe request does not include any per-STA profile, then all APs affiliated with the same AP MLD as the AP identified in the Address 1 or Address 3 field or AP MLD ID of the multi-link probe request shall be requested APs.

If the Probe Request Multi-Link element in the multi-link probe request includes one or more per-STA profiles, then only APs affiliated with the same AP MLD as the AP identified in the Address 1 or Address 3 field or in the AP MLD ID subfield (if present) of the multi-link probe request and whose link ID is equal to the value in the Link ID field in a per-STA profile in the Probe Request Multi-Link element in the multi-link probe request shall be requested APs.

(#15973)The partial profile of a requested AP sent by a reporting AP consists of one or more elements that are requested in the Request element, Extended Request element or both elements carried in the multi-link probe request.

A multi-link probe request allows a non-AP STA to request an AP to include the partial profile for a requested AP affiliated with the targeted AP MLD if the Probe Request Multi-Link element carries a Per- STA Profile subelement for the requested AP to retrieve partial profile. To do so, the STA shall include (#15973)a Request element(#15973), an Extended Request element or both elements in the frame body of the multi-link probe request and/or in a Per-STA Profile subelement in a Probe Request Multi-Link element carried in the multi-link probe request, and:

1. the Complete Profile Requested subfield of the STA Control field in the Per-STA Profile subelement shall be set to 0(#16783)
2. the (Extended) Request element, if carried in the per-STA profile corresponding to the requested AP, specifies the partial profile(#16783)
3. (#15973)the (Extended) Request element(s), if not carried in the per-STA profile corresponding to the requested AP that requests the same partial profile as the AP addressed by the multi-link probe request can be inherited from the (Extended) Request element(s) in the frame body, subject to the rules defined in

[35.3.3.6.2 (Inheritance in the per-STA profile of Probe Request Multi-Link element)](#bookmark20).

A multi-link probe request allows a non-AP STA to request an AP to include the complete profile of all requested APs affiliated with the targeted AP MLD if the Probe Request frame does not include the (Extended) Request (#15973)element(s) in the frame body and the Probe Request Multi-Link element in the Probe Request frame does not include any per-STA profile.

A multi-link probe request allows a non-AP STA to request an AP to include the same requested partial profile for all requested APs affiliated with the targeted AP MLD if the Probe Request frame includes the (Extended) Request (#15973)element(s) in frame body and the Probe Request Multi-Link element in the Probe Request frame does not include any per-STA profile.

A multi-link probe response is a Probe Response frame:

1. that is transmitted in response to a received multi-link probe request
2. and that includes Basic Multi-Link element which can carry complete or partial profile(s), based on the soliciting request, for each of the requested AP(s) affiliated with the targeted AP MLD.

If an AP that is affiliated with an AP MLD receives a multi-link probe request from a non-AP STA affiliated with a non-AP MLD requesting complete profile for a requested AP(#16245), it shall respond with a multi-link probe response that includes a Basic Multi-Link element with a per-STA profile with complete profile for the requested AP subject to the rules defined in 11.1.4.3.4 (Criteria for sending a response). If it receives a multi-link probe request from a non-AP STA affiliated with a non-AP MLD requesting partial profile for a requested AP, (#16245)it shall respond with a multi-link probe response that includes a Basic Multi-Link element with a per-STA profile with at least the elements requested from the (Extended) Request element for the requested AP, unless the elements requested are not part of the complete profile for the requested AP and subject to the rules defined in 11.1.4.3.4 (Criteria for sending a response).

If an AP that is affiliated with an AP MLD receives a multi-link probe request requesting complete profile and responds with a multi-link probe response (per 11.1.4.3.4 (Criteria for sending a response)), the Address 1 field of the Probe Response frame may be set to the broadcast address.

NOTE 2—An AP operating in the 6 GHz band is allowed to set the Address 1 field of the Probe Response frame to (#16784)the broadcast address as defined in 26.17.2.3.2 (AP behavior for fast passive scanning).

An AP corresponding to the transmitted BSSID in a multiple BSSID set shall transmit a multi-link probe response in response to a multi-link probe request that is soliciting information of an MLD with which an AP corresponding to the nontransmitted BSSID in the same multiple BSSID set is affiliated. Such a multi- link probe response shall carry a Basic Multi-Link element containing information of the solicited AP MLD and one or more APs affiliated with it. The Basic Multi-Link element shall be carried in the frame body of the multi-link probe response, whose location is outside of the Multiple BSSID element carried in the frame and the AP MLD ID Present subfield of the Presence Bitmap subfield of the Basic Multi-Link element shall be set to 1. The AP MLD ID subfield of the Common Info field of the Basic Multi-Link element shall be set to the same value as the BSSID Index subfield of the Multiple-BSSID Index element carried in the Nontransmitted BSSID Profile subelement of the Multiple BSSID element.

NOTE 3—A multi-link probe request can only solicit information of only one AP MLD and one or more APs affiliated with that MLD.

NOTE 4—A multi-link probe response carries complete (#16087)profile for only one AP MLD and one or more APs affiliated with that MLD.

NOTE 5—A non-AP STA affiliated with a non-AP MLD that receives such a multi-link probe response identifies that the Basic Multi-Link element in the frame, outside the Multiple BSSID element, corresponds to an AP MLD with which the AP corresponding to the nontransmitted BSSID is affiliated with based on the presence of the AP MLD ID subfield.

(#16086)NOTE 6—The information of the AP corresponding to the nontransmitted BSSID is included in the corresponding Nontransmitted BSSID Profile subelement of the Multiple BSSID element in the multi-link probe response.