IEEE P802.11  
Wireless LANs

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| LB266 – CR for CIDs related to 35.3.4.2 | | | | |
| Date: 2022-08-31 | | | | |
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| **CID** | **Clause Number(C)** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 13348 | 35.3.4.2 | 415.04 | The rules to decide whether MLDID is included are not consistant. When the MAC header indicates the non-transmitted BSSID, the MLD ID shall not be carried in Probe Request ML IE since the target MLD is identified by MAC header. When the MAC header indicates a BSSID that doesn't support Multiple BSSID, the MLD ID should also not required since the MAC header indiactes the MLD already. When the MAC header indicates the transmitted BSSID and the MLD of transmitted BSSID is solicited, the MLD ID is not needed. When the MAC header indicates the transmitted BSSID and the MLD of non-transmitted BSSID is solicited, the MLD ID is needed. | As in comment or always indicate the MLD ID even if the MAC header identifies the MLD being solicited. | Revised – Agree with the commenter. Change the rules so that if the requested AP MLD is affiliated with the AP to which the probe request is addressed, MLD ID is not present. If the requested AP MLD is different, then the MLD ID is included. Apply the changes marked as #13348 in this document. |
| 13350 | 35.3.4.2 | 415.04 | It is not necessary to carry the elemnts in Multi-Link Probe Request other than (Extended) Request IE and Probe Request ML IE. | make the change as requested in comment | Revised – agree with the commenter. Only the Multi-link probe request element, the request and extended request elements, and the SSID elements shall be present. Apply the changes marked as #13350 in this document. |
| 10126 | 35.3.4.2 | 415.05 | In some scenarios, an AP MLD needs to keep one affiliated AP not to be discovered by legacy STAs, for example, the affiliated AP is used for rTWT SP only. To make this, the affiliated AP may not transmit Beacon frames or transmit Beacon frames with EHT PPDU. The affiliated AP should not be in RNR element, which helps legacy STAs to save power from discovering it. So an indication is needed to indicate non-AP MLD to use Multi-Link Probe request to discover all affiliated APs. | Define the indication. | Reject – the group decided to make every AP part of an AP MLD to provide basic discovery in a backward compatible manner. |
| 10310 | 35.3.4.2 | 415.07 | There is no text to link the scan primitives to the OTA/MLD behavior. | At the beginning of the cited paragraph, insert the following sentence: "The MLD SME can generate a Multi-Link Probe Request by calling MLME-SCAN with the scan type set to MULTI\_LINK probe." | Accept |
| 11318 | 35.3.4.2 | 415.07 | If we are going to give a frame a name then it should be identifable as such from the content alone and not from the context in which it is used. This is the normal way we do things; this other way leads to trouble (ambiguity as to when a frame is a particular type of frame with the associated difficulties of identifying it in the wild). Also, our normal practice is to capitalize the name and follow that with "frame". And, of course, put the definition in the frame formats section. | Define something called a Multi-Link Probe Request frame in the frame formats section based purely on its content. In this case it looks the distinguishing characteristic is the presence of the Probe Request Multi-Link element. In 9.3.3.9 add a statement to the following effect: "A Multi-Link Probe Request frame is a Probe Request frame the includes a Probe Request Multi-Link element. It is used by a non-AP STA to discover the APs of an AP MLD." Then add the other bahvioral text at this location: "A non-AP STA discovers the APs affiliated with an AP MLD using the Multi-Link Probe Request frame (see 9.3.3.9) sent as a non-scanning probe request transmission (see 11.1.4.3.8). If the MLD ID subfield is present in the ...". Delete the statement at 418.1. Modify statement at 418.5 to just have the "not include other variant" requirement. | Revised – as we are reusing the Probe Request frame, we can not give a new frame name to the multi-link probe request and response. We can however include a description in 9.3.3.9 to indicate what is a mult-link probe response.  Multi-Link probe request and response should also be names multi-link probe request and response.  Instruct the editor to apply the changes marked as #11318 in this document and to replace all occurrence of “Multi-Link probe request” by “multi-link probe request and all occurrences of “Multi-Link probe response” by “multi-link probe response’ in the 802.11be latest draft. |
| 11410 | 35.3.4.2 | 415.08 | Change 'APs of an AP MLD' to 'APs affiliated with an AP MLD' | As in comment | Revised – another paragraph is introducing the use of ML probe request and this part is therefore removed. Apply the changes marked as #11410 in this document. |
| 11317 | 35.3.4.2 | 415.10 | Describe the relationship of the list items to the intro statement. Unnecessary capitalization of "Multi-Link". | 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)) and used to discover the APs affiliated with an AP MLD. The Probe Request frame is formatted as follows: - 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 field set to the BSSID of the AP's BSS - The MLD ID subfield (if present) set to the MLD ID that identifies the targeted AP MLD - Including a Probe Request Multi-Link element (see 9.4.2.312.3) | Revised – agree with the commenter. Split the sentence in 2 parts. Apply the changes marked as #11317 in this document. |
| 11727 | 35.3.4.2 | 415.11 | Rephrase bullet #1 with 'either' / 'or' as follows: either with Address 1 field set to ... BSSID of an AP, or with the Address 1 field... " | as in comment | Accept |
| 13349 | 35.3.4.2 | 415.11 | it is not necessary to allow broadcast address in A1 and solicited AP's BSSID in A3. | always set A1 to be the BSSID of the solicited AP. | Revised – the group converged toward having the 2 possible addressing. In order to make these 2 options more useful, propose to use unicast addressing to request a unicast probe response, and to use the broadcast addressing of the probe request to allow the AP to send the probe response in broadcast or unicast manner. Apply the changes marked as #13349 |
| 10614 | 35.3.4.2 | 415.12 | What is the value of Address 3 field when Address 1 is set to AP's BSSID? | As in comment | Reject – the commenter fails to identify a technical issue. The setting of Address 3 in that case is defined in baseline. |
| 10311 | 35.3.4.2 | 415.14 | Where would this be present? In the multi-link element? If so, then change "targeted AP MLD" to "targeted AP MLD in the basic multi-link element". | At cited location, change "targeted AP MLD" to "targeted AP MLD in the basic multi-link element". | Revised – Agree with the commenter. Change the sentence along the lines of the proposed resolution. Apply the changes marked as #10311 in this document. |
| 12798 | 35.3.4.2 | 415.20 | MLDID doesn't need to be present either if the requested AP MLD is the AP MLD of the AP whose address is indicated in A1 or A3, even if this AP is a transmitted BSSID or if it is not in a MBSSID set. | Add the rule for this case as well. | Revised – agree with the commenter. Change the rules so that if the requested AP MLD is affiliated with the AP to which the probe request is addressed, MLD ID is not present. If the requested AP MLD is different, then the MLD ID is included. Apply the changes marked as #12798 in this document. |
| 10103 | 35.3.4.2 | 415.26 | MLD ID subfield can be omitted for the case that the targeted MLD is the MLD with which the responding AP affiliated. | Change to: 1) MLD ID subfield is not present if the targeted MLD is the MLD with which the responding AP (addressed by Address 1 or 3 of the Probe Request frame) affilated 2) MLD ID subfield is present otherwise. | Revised – agree with the commenter. Change the rules so that if the requested AP MLD is affiliated with the AP to which the probe request is addressed, MLD ID is not present. If the requested AP MLD is different, then the MLD ID is included. Apply the changes marked as #10103 in this document. |
| 12797 | 35.3.4.2 | 415.26 | This paragraph is not clear at all. The intention of the paragraph is to say that MLDID has to be present only when the requested AP MLD is not the AP MLD to which the AP is affiliated with. | Rephrase the sentence to correctly reflect the intention: include MLD ID when the requested AP MLD is not affiliated with the AP that is addressed by the probe request. | Revised – agree with the commenter. Apply the changes marked as #12797 in this document. |
| 11411 | 35.3.4.2 | 415.32 | Is a non-AP MLD allowed to send an ML probe request when it is soliciting information of only one AP of the AP MLD? This could occur when the AP MLD is operating only with one affiliated AP or when there is only one common link between the AP MLD and non-AP MLD. | Please clarify | Revised – there is no reasons to not allow that. In that case, the ML probe response will actually be identical to a regular Probe Response frame. Add a NOTE however to clarify that there will not be additional information and that doing ML probe request is not needed in that case. Apply the changes marked as #11411 in this document. |
| 11728 | 35.3.4.2 | 415.32 | Move the 4th paragraph to be the first one in Subclause 35.3.4.2 to improve the flow of the text. | as in comment | Accept |
| 10413 | 35.3.4.2 | 415.36 | 'the Probe Request variant Multi-Link element'' Since clause 9 has defined the term 'Probe Request Multi-link element',please delete the word 'variant'in the following two paragrah | as the comment | Revised – agree with the commenter. Instruct the editor to replace all occurrences of “Probe Request variant Multi-Link element” with “Probe Request Multi-Link element in the subclause 35.3.4.2. |
| 11412 | 35.3.4.2 | 415.37 | Delete 'variant'. Probe Request variant ML element was renamed to Probe Request ML element. Also make the same changes on P415 L42 and P415L45. | As in comment | Revised – agree with the commenter. Instruct the editor to replace all occurrences of “Probe Request variant Multi-Link element” with “Probe Request Multi-Link element in the subclause 35.3.4.2. |
| 11729 | 35.3.4.2 | 415.37 | "Probe Request variant Multi-Link element" and "Probe Request Multi-Link element" is used interchangeably all throughout D2.0. Need to decide on one and subsequently replace all the occurences to that choice. Commenting on this particular line as a placeholder. | as in comment | Revised – agree with the commenter. Instruct the editor to replace all occurrences of “Probe Request variant Multi-Link element” with “Probe Request Multi-Link element in the subclause 35.3.4.2. |
| 13627 | 35.3.4.2 | 415.37 | The "Probe Request variant Multi-Link element" needs to be replaced with "Probe Request Multi-Link element" | As in comment | Revised – agree with the commenter. Instruct the editor to replace all occurrences of “Probe Request variant Multi-Link element” with “Probe Request Multi-Link element in the subclause 35.3.4.2. |
| 13783 | 35.3.4.2 | 415.37 | Currently the information of the transmitting link shall always be solicited, however, in some scenarios, the information of the transmitting link is not needed. Please add rules to allow the non-AP MLD to optionally solicit the information of the transmitting link. Note - the transmitting link means the link on which the ML probe request is transmitted. | As in the comment | Rejected – this has been proposed and discussed several times in previous rounds and the proposal didn’t reach sufficient support. |
| 13784 | 35.3.4.2 | 415.37 | "variant" should be deleted. Same for line 42 of the same page. | Remove "variant" | Revised – agree with the commenter. Instruct the editor to replace all occurrences of “Probe Request variant Multi-Link element” with “Probe Request Multi-Link element in the subclause 35.3.4.2. |
| 11560 | 35.3.4.2 | 415.42 | It should be explained how the Link IDs of the requested STAs in the Multi-link probe request frame is obtained, particularly when only the Common Info field is included in the beacon/non-multi-link probe response frames; this will help clarify the functioning of the probing procedure for potential users of the spec. | as in comment | Revised– All link IDs of affiliated APs are obtained in the RNR in beacons and probe responses transmitted by all APs affiliated with the AP MLD, following procedure in 35.3.4.1.  In addition, subclause 35.3.4.6 provides an explanation of the the general discovery flows. However, we can further clarify how to set the linkID value. Apply the changes marked as #11560 in this document. |
| 13628 | 35.3.4.2 | 415.42 | The "Probe Request variant Multi-Link element" needs to be replaced with "Probe Request Multi-Link element" | As in comment | Revised – agree with the commenter. Instruct the editor to replace all occurrences of “Probe Request variant Multi-Link element” with “Probe Request Multi-Link element in the subclause 35.3.4.2. |
| 13629 | 35.3.4.2 | 415.45 | The "Probe Request variant Multi-Link element" needs to be replaced with "Probe Request Multi-Link element" | As in comment | Revised – agree with the commenter. Instruct the editor to replace all occurrences of “Probe Request variant Multi-Link element” with “Probe Request Multi-Link element in the subclause 35.3.4.2. |
| 11413 | 35.3.4.2 | 415.49 | Move this statement two paragraphs above i.e., after the paragraph on P415L32. This is where complete and partial profile are first referenced. | As in comment | Revised – as another comment asks to move the paragraph P415L32 to be the first in the subclause, move the paragraph P415L49 to the new first paragraph as the changes marked as #11413 in this document |
| 11129 | 35.3.4.2 | 415.56 | When no Per STA profiles are included, how can a STA ask for a complete or partial profile, since no Complete Profile field is sent? From P415L56-57 "If a STA affiliated with a non-AP MLD sends a Multi-Link probe request to an AP to retrieve partial profile for AP(s) affiliated with the targeted AP MLD", partial profiles seem to be anticipated, but there is no clarity about complete profiles in this case. | At P226L63, define what the absence of any per-STA profile expresses (i.e., all APs) and if the request is partial or complete. As I understand it, this signaling only and always solicits partial information. Try "The absence of the Link Info field indictates that \*partial\* information is requested for all APs affiliated with the AP MLD that is identified by the MLD ID field" | Revised – add a sentence in 9.4.2.312.3 Probe Request Multi-Link element to clarify what happens if the Complete Profile subfield is set to 1 and if the STA Profile field is not present. Clarify also the text in 35.3.4.2 to cover all possible cases. Apply the changes marked as #11129 in this document. |
| 11320 | 35.3.4.2 | 416.13 | If we are going to give a frame a name then it should be identifable as such from the content alone and not from the context in which it is used (see my other comment on the multi-link probe request). | Define somethng called a Multi-Link Probe Response frame in 9.3.3.10 purely in terms of its content, e.g. "A Multi-Link Probe Response frame is a Probe Response frame that includes the Basic Multi-Link element. It is sent by an AP affiliated with an AP MLD in reponse to a Multi-Link Probe Request frame." Then add behavioral text at this location (although it looks like that is mostly in place). | Revised – agree with the commenter. Apply the same changes as #11318. |
| 11554 | 35.3.4.2 | 416.15 | "receiving a" should be "a received" | as in comment | Revised – agree with the commenter. Apply the changes marked as #11554 in this document. |
| 11414 | 35.3.4.2 | 416.17 | Delete 'per-STA' in 'complete of partial per-STA profile(s)'. We have definitions for complete and partial profiles, and not for complete/partial per-STA profiles. | As in comment | Accept |
| 11607 | 35.3.4.2 | 416.33 | What does it mean by "that is part of an AP MLD"? Does it mean that the AP is part of an AP MLD? If so, should it use the term "affiliated with"? Or does it mean that the 2.4 GHz band or the 5 GHz band is part of an AP MLD? If so, should it use the term "operating in the 2.4 GHz band or the 5 GHz band"? | Please clarify what it means by "that is part of an AP MLD", and use the terminology consistently in the spec. | Revised – agree with the commenter. Should be affiliated with.  Apply the changes marked as #11607 in this document. |
| 12615 | 35.3.4.2 | 416.33 | "If an AP that is operating in the 2.4 GHz band or the 5 GHz band that is part of an AP MLD receives an MLD probe request frame requesting complete information and responds with an MLD probe response frame (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\*" - it is not aligned with the strict rule of 802.11REVme section 11.1.4.3.9 - "A non-FILS STA that transmits a Probe Response frame shall set the Address 1 field to the address of the STA that generated the probe request" | In case we want to apply these change only for EHT AP, then need to add the following sentence at the end of the 2nd paragraph in subclause 11.1.4.3.9, as follows: " A non-FILS EHT AP may responds with ML Probe Response with Address1 field of Probe Response frame set to broadcast address (see 35.3.4.2)". | Revised – agree with the commenter. Apply the changes marked as #12615 in this document. |
| 12799 | 35.3.4.2 | 416.33 | It is important to control if the ML probe response is sent as unicast or broadcast. As we have 2 ways to address the AP, we can use one mode (sending a probe with A1 set to the address of the AP) to request a Unicast ML Probe response and the other mode (sending a probe with A1 set to broadcast and A3 set to the address of the AP) to allow the ML probe response to be sent in broadcast manner. Also make it consistent between 2.4/5/6GHz | As in comment | Revised – agree with the commenter. Apply the changes marked as #12799 in this document. |
| 11319 | 35.3.4.2 | 416.37 | Does an AP have an SSID or is it the ESS that has the SSID? What is the difference between an "actual SSID" and an "SSID"? (Hint - the distintion might have to do with advertising an SSID vs not advertising an SSID). Using "may <do something> unless <condition applies>" does not make sense; "may <do something> if <condition is met>" makes more sense. | ...may be set to the broadcast address if the Beacon frame last received from the AP included an SSID element. | Revised – the term “actual SSID” is used in baseline to refer to particular hidden SSID solution. Rephrase the sentence to clarify the behavior in such condition. Apply the changes marked as #11319 in this document. |
| 10226 | 35.3.4.2 | 416.40 | Phrasing of the note "An AP operating in the 6 GHz band might already set the Address 1 field of the Probe Response frame to broadcast address as defined in 26.17.2.3.2 (AP behavior for fast passive scanning)" is confusing. | Rephrase as "An AP operating in the 6 GHz band is allowed to set the Address 1 field of the Probe Response frame to broadcast address as defined in 26.17.2.3.2 (AP behavior for fast passive scanning)." | Revised – agree with the commenter. Apply the changes marked as #10226 in this document. |
| 10312 | 35.3.4.2 | 416.40 | Do not need the word "already" | At cited location, change "might already set" to "might set" | Revised – agree with the commenter. Follow suggestion in #10226. Apply the changes marked as #10226 in this document. |
| 12801 | 35.3.4.2 | 416.43 | An ML Probe response describing a non-transmitted BSSID is sent by the transmitted BSSID. In such case, the non-transmitted BSS is described in the Multiple BSSID element, and the APs affiliated with the same AP MLD as the non-transmitted BSSID are described in a User Info field in the ML element in the core of the ML probe response. How is the inheritence of the user info field of the ML element done. Is it in reference to the transmitted BSSID (reporting AP), or is it in reference to the non-transmitted BSSID (AP reported in the M-BSSID element)? | Define proper inheritence rules for this case | Revised – this change has been done in document 1182r10.  No further actions needed for this CID. |
| 10622 | 35.3.4.2 | 416.55 | The last sentence of paragraph starting line 43 of pg 416 can be simplified: "... which carries the information of the AP ..." is not needed. | Delete the cited text and adjust commas as needed | Revised – agree with the commenter. Apply the changes marked as #10622 in this document. |
| 13785 | 35.3.4.2 | 416.57 | "no more than one" includes one and zero, however, it is impossible to solicit the information of zero AP MLD, it seems better to change it to "only one". Same for the next paragraph. | Change "no more than one" to "only one" | Revised – Agree with the commenter. Apply the changes marked as #13785 in this document. |
| 11321 | 35.3.4.2 | 416.58 | It is better to set requirements on the frame content rather than on what the expected outcome is from the recipients. It is not clear to me that this statement is even needed since the restrictions on addressing are already in place. | Delete this sentence. If the existing request frame content requirements do not prevent this form happening then tighten up the frame content requirements to prevent this from happening. | Revised – agree with the commenter. Keep the sentence but just as a Note. Only one Probe Request ML element can be included in a probe request frame as captured in 9.3.3.9 but clarify the statement in 9.3.3.9. Apply the changes marked as #11321 in this document. |
| 10105 | 35.3.4.2 | 416.61 | the ML probe response can carry RNR and mutliple BSSID element, so it can carry other AP MLD information. | A Multi-Link probe response shall carry information of no more than one AP MLD and one or more APs affiliated with that MLD in it's ML elment. | Revised – agree with the commenter. Remove the normative sentence and replace with a NOTE. Change the text in 9.3.3.10 to better capture the different possible inclusions on ML element.  Apply the changes marked as #11322 in this document. |
| 11322 | 35.3.4.2 | 416.61 | This kind of reponse statement easily leads to contridictions in the spec. If you have a statement that says "A STA that receives a a probe request soliciting information X, shall respond with information X. A STA that receives a probe request soliciting information Y, shall respond with information Y." And you have this satement "A STA shall not send more than one piece of information" then you have a dilema. What do you do? Be strict on the soliciting requirements. A solicitor that violates these requirements gets an undefined behavior in response. | Delete this statement. If necessary tighten up the soliciting requirements. If we really need to define how a recipient responds to an invalid request, then add a statement to the effect "An AP shall not respond to a Multi-Link Probe Request frame soliciting information on more than one AP MLD" | Revised – agree with the commenter. Remove the normative sentence and replace with a NOTE. Change the text in 9.3.3.10 to better capture the different possible inclusions on ML element.  Apply the changes marked as #11322 in this document. |
| 11555 | 35.3.4.2 | 417.05 | An non-AP MLD can also discover an AP MLD by sending a multi-link probe request and receives a multi-link probe response; this part of the procedure is missing and it should be described here. | as in comment | Rejected – this is already captured and covered in the specification, and clearly described in 35.3.4.2 and 35.3.4.3. |
| 11519 | 9.4.2.312.3 | 223.60 | the MLD ID is not unique across different APs as shown in RNR (such as an AP affiliated with another AP MLD), how would a receiving MLD know for sure which MLD the requesting STA is requesting? If the MLD ID in the RNR cannot be used in a Probe Request frame, then that should be specified. In that case, maybe a different name should be used in RNR than MLD ID. | as in comment | Revised – agree with the commenter. Clarify how to exactly set the MLD ID. Make the changes marked as #11519 in this document. |

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

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

ml (#11728) The complete profile and partial profile of a requested AP are defined in 35.3.2.2 (Advertisement of complete or partial per-link information). (#11413)

(#11411) NOTE – 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 set to MULTI\_LINK PROBE. (#10310) 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)). (#11410) The Probe Request frame shall be formatted as follows (#11317):

— 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 field set to the BSSID of an AP’s BSS. (#11727)

— with the MLD ID subfield (if present in the Probe Request Multi-Link element (#10311)) set to the MLD ID that identifies the targeted AP MLD with which the requested AP(s) are affiliated.

— including a Probe Request Multi-Link element defined in 9.4.2.312.3 (Probe Request Multi-Link element).

—If a non-AP MLD is sending a multi-link probe request, it shall follow the rules defined in 9.3.3.9 (Probe Request frame format) regarding the inclusion of the SSID element, the SSID List element, the rules defined in 35.3.4.2 (Use of multi-link probe request and response) regarding the inclusion of the Request element, the Extended Request element and the Probe Request Multi-Link element, and shall follow the rules for sending a Probe Request frame outside the context of active scanning as defined in 35.3.4.5 (Active scanning for a non-AP EHT STA) regarding the inclusion of the other elements. (#13350)

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 affiliated with an AP MLD, and the MLD ID subfield is not present in the Probe Request Multi-Link element of the multi-link probe request, the AP MLD shall be the targeted AP MLD. (#13348, #12798, #10103, #12797)

If an AP MLD has an affiliated AP operating on a channel, and if a non-AP MLD intends to send a multi-link probe request to target the AP MLD, the multi-link probe request shall be sent on the channel and shall be addressed to the affiliated AP. (#13348, #12798, #10103, #12797)

If either the Address 1 field or the Address 3 field of the multi-link probe request is set to the MAC address of an AP and the targeted AP MLD has all its affiliated APs that are part of the same co-located AP set as the AP but doesn’t have any AP operating on the channel on which the multi-link probe request is sent, then the 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 MLD ID subfield (#13348, #12798, #10103, #12797), which is set to the same 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 (#11560, #11519).

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

If the Probe Request variant Multi-Link element in the multi-link probe request includes one or more perSTA profiles, then only APs affiliated with the same AP MLD as the AP identified in the Address 1 or Address 3 field or MLD ID 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 variant Multi-Link element in the multi-link probe request shall be requested APs.

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

(#11129)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 the (Extended) Request element 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:

* the Complete Profile subfield of the STA Control field in the Per-STA Profile subelement shall be set to 0.
* The (Extended) Request element, if carried in the per-STA profile corresponding to the requested AP, specifies the partial profile.
* The (Extended) Request element, 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 in the frame body, subject to the rules defined in 35.3.2.4.2 (Inheritance in the per-STA profile of Probe Request Multi-Link element).

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

(#11129)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 element 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:

— that is transmitted in response to a received (#11554)multi-link probe request

— and that includes Basic Multi-Link element which can carry complete or partial (#11414) 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, possibly among other requests for other requested APs, 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 nonAP STA affiliated with a non-AP MLD requesting partial profile for a requested AP, possibly among other requests for other requested APs, 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 (#11607) an AP MLD receives a multi-link probe request with the Address 1 field set to the BSSID of the AP 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 shall be set to the address of the STA that sent the ML probe request. (#13349, #12799)

If an AP that is affiliated with an AP MLD receives an ML probe request with the Address 1 field set to the broadcast address and the Address 3 field set to the BSSID of the AP and responds with an ML 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 unless the AP is not including its actual SSID in the SSID element of its Beacon frames, in which case it shall be set to the address of the STA that sent the ML probe request, disregarding the addressing rules defined for a FILS STA in 11.1.4.3.9 (Contents of a probe response) if the AP is a FILS STA. (#13349, #12799, #11319).

NOTE—An AP operating in the 6 GHz band is allowed to set the Address 1 field of the Probe Response frame to broadcast address as defined in 26.17.2.3.2 (AP behavior for fast passive scanning). (#10226)

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 MultiLink 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. The MLD ID Present subfield of the Presence Bitmap subfield of the Basic Multi-Link element shall be set to 1. The MLD ID subfield of the Common Info field of the Basic Multi-Link element shall be present, and 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. (#10622)

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

(#13785, #11321, #11322, #10105)

NOTE – A multi-link probe response carries complete information for only one AP MLD and one or more APs affiliated with that MLD.

(#11322, #10105)

**9.3.3.9 Probe Request frame format**

TGbe editor: modify Table 9-66 Probe Request frame body is follows(#13785, #11321, #11322, #10105)

**Table 9-66—Probe Request frame body(#10532)**

|  |  |  |
| --- | --- | --- |
| **Order** | **Information** | **Notes** |
| <Last assigned + 1> | Multi-Link | A single Probe Request Multi-Link element is present if dot11Multi- LinkActivated is true and the Probe Request frame is a Multi-Link probe request as defined in 35.3.4.2 (Use of Multi-Link probe request and response). Otherwise the Multi-Link element is not present. |
| <Last assigned + 2> | EHT Capabilities | The EHT Capabilities element is present if dot11EHTOptionIm- plemented is true; otherwise it is not present. |

TGbe editor: Add the following paragraph at the end of subclause 9.3.3.9 Probe Request frame format as follows ***(#11318)***

A multi-link probe request is a Probe Request frame the includes a Probe Request Multi-Link element. It is used by a non-AP STA affiliated with a non-AP MLD to discover the APs affiliated with an AP MLD as described in 35.3.4.2 (Use of multi-link probe request and response).

**9.3.3.10 Probe Response frame format**

TGbe editor: modify Table 9-67 Probe Response frame body is follows(#11322, #10105)

**Table 9-67—Probe Response frame body**

|  |  |  |
| --- | --- | --- |
| **Order** | **Information** | **Notes** |
| 11 | Quiet | The Quiet element is optionally present if dot11SpectrumManage- mentRequired is true or if dot11RadioMeasurementActivated is true or dot11RestrictedTWTOptionImplemented is true. |
| 96 | TWT | The TWT element is optionally present within broadcast Probe Response frames if dot11TWTOptionActivated, dot11HEOption- Implemented and dot11FILSOmitReplicateProbeResponses are true; otherwise, it is not present.  The TWT element is present if the dot11RestrictedTWTOption- Implemented is true and the AP has at least one (#11109)R-TWT schedule as described in 35.9.3 (R-TWT SPs announce- ment(#10893)(#11109)). Otherwise, the TWT element is not pres- ent.  If the TWT element is present, then the Negotiation Type subfield of the TWT element is 2. |
| <Last assigned + 1> | Multi-Link | (#10534)If dot11MultiLinkActivated is true and dot11MultiBSSIDImplemented is false, then a single Basic Multi-Link element is present and a single Reconfiguration Multi-Link element is optionally present (see 35.3.6.2.2 (Removing affiliated APs)); oth- erwise the Multi-Link element is not present.  If dot11MultiLinkActivated is true and dot11MultiBSSIDImplemented is true, one or more Basic Multi-Link element is (are) present as defined in 35.3.20 (Multi-link operation in a multiple BSSID set or co-hosted BSSID set) and a single Reconfiguration Multi-Link element is optionally present (see 35.3.6.2.2 (Removing affiliated APs)); oth- erwise the Multi-Link element is not present. |
| <Last assigned + 2> | EHT Capabilities | The EHT Capabilities element is present if dot11EHTOptionIm- plemented is true; otherwise it is not present. |

TGbe editor: Add the following paragraph at the end of subclause 9.3.3.10 Probe Response frame format as follows ***(#11318)***

A multi-link probe response is a Probe Response frame that is sent in response to a multi-link probe request, and is used as described in 35.3.4.2 (Use of multi-link probe request and response).

**11.1.4.3.9 Contents of a probe response**

TGbe editor: Add the following sentence at the end of the second paragraph in subclause 11.1.4.3.9 Contents of a probe response as follows ***(#12615)***

A non-FILS STA that transmits a Probe Response frame shall set the Address 1 field to the address of the STA that generated the probe request, except that a non-FILS EHT AP affiliated with an AP MLD may respond with a multi-link probe response with the Address 1 field of the Probe Response frame set to the broadcast address (see 35.3.4.2).

**9.4.2.312.3 Probe Request Multi-Link element**

TGbe editor: Add the following paragraph before the last paragraph in subclause 9.4.2.312.3 Probe Request Multi-Link element ***(#11129)***

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 core of the Probe Request frame (see 35.3.4.2 (Use of multi-link probe request and response) and 35.3.2.4.2 (Inheritance in the per-STA  
profile of Probe Request Multi-Link element)).