IEEE P802.11  
Wireless LANs

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| CR for 35.3.4.3 Multi-link element usage | | | | |
| Date: Feb 9, 2021 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Ming Gan | Huawei |  |  | ming.gan@huawei.com |
| Jason Yuchen Guo | Huawei |  |  |  |
| Yunbo Li | Huawei |  |  |  |
| Guogang Huang | Huawei |  |  |  |
| Yiqing Li | Huawei |  |  |  |
| Mengyao Ma | Huawei |  |  |  |
| Hongjia Su | Huawei |  |  |  |
| Jianhui Li | Huawei |  |  |  |

Abstract

This submission proposes resolutions for following 8 CIDs received for TGbe CC34:

1191 1192 2096 2323 2329 2422 2423 2977

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: update based on D1.0

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.

***Editing instructions formatted like this are intended to be copied into the TGbe 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.***

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| **CID** | **Commenter** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 1191 | Arik Klein | 130.43 | 35.3.4.3 | Modify the rule of Basic Variant usage in MLE for the case of \*MLD\* Probe Request (and not for the case of Probe Request) | Change the text to "\*An MLD\* Probe Request frame shall not include a Basic variant Multi-Link element" | Revised-  Agree with the comment. Chang it to "A Probe Request frame that is an ML probe request shall not include a Basic variant Multi-Link element". This has be fixed in the resolution for CID 1155 in 11-21/0242r4.  TGbe editor: No further changes are needed to address this comment. |
| 1192 | Arik Klein | 130.43 | 35.3.4.3 | The current text prohibits only the Basic variant MLE from being used in MLD Probe Request. However, since in Table 9-322am--Type subfield encoding (section 9.4.2.295b) more types are expected to be included (now defined as reserved) this prohibition is insufficient. | Replace with "positive" context sentence: An MLD Probe Request frame shall only include a Probe Request variant Multi-Link element. | Revised-  Agree with the comment in principal, more ML element variants are expected to be included and the existing prohibition is insufficient. Change it to "shall not include other variant Multi-Link element"  TGbe editor  Please implement changes as shown in doc 11-21/0467r1 tagged as 1192. |
| 2096 | kaiying Lu | 130.39 | 35.3.4.3 | It is ambiguous when a Basic Variant multi-link element is present in a non-ML or ML Probe Request frame. | please clarify it | Revised-  Both non-ML and ML Probe Request frame shall not include Basic variant Multi-Link element. This change is made in the resolution for CID 1155 in 11-210242r4.  TGbe editor: No further changes are needed to address this comment. |
| 2323 | Ming Gan | 130.39 | 35.3.4.3 | The PDT document 1333r2 is missing in 35.3.4.3 and the existing text should not be in this subclause | As in comment | Revised-  Agree with the comment. The missed part was added back by the editor by using the approved doc 11-21/0290r0 (which is one of the baselines for this document).   TGbe editor: No further changes are needed to address this comment. |
| 2329 | Ming Gan | 130.39 | 35.3.4.3 | regular (non-ML) Probe request could also be used to solicit the info of any AP in an AP MLD based on received basic info carried in RNR element, this part is missing | A corresponding contribution (DCN1108) is submitted | Revised-  Agree with the comment in principal, proposed resoltion accounts for the suggested change.  TGbe editor: Please implement changes as shown in doc 11-21/0467r0 tagged as 2329. |
| 2422 | namyeong kim | 130.41 | 35.3.4.3 | We need to clarify the word of "non-ML probe request". In 35.3.4.2 Use of MLD probe request, we defined that a Probe Request frame including Probe Request variant Multi-Link element is an "MLD probe request". So, what is correct "non-MLD probe request" or "non-ML probe request"? | Please clarify the word of "non-ML probe request". | Revised-  Change "MLD Probe Request" to ML Probe Request" and change "Non-ML Probe Request" to "is not an ML probe request". All of these have be fixed in the resolution for CID 1155 in 11-210242r4.  TGbe editor: No further changes are needed to address this comment. |
| 2423 | namyeong kim | 130.43 | 35.3.4.3 | For clarification, modify a sentence "Probe Request frame" to "Probe request frame that is MLD probe request". | Please see comment. | Revised-  Agree with the comment and change it to "Probe request frame that is an ML probe request..." This has be fixed in the resolution for CID 1155 in 11-210242r4.  TGbe editor: No further changes are needed to address this comment. |
| 2977 | Tomoko Adachi | 130.41 | 35.3.4.3 | There is no description on a non-ML probe request elsewhere. I suspect it is intended to be an non-MLD probe request. | Change the sentence to "A Probe Request frame that is not an MLD probe request shall not include a Multi-Link element." | Revised-  Change "MLD Probe Request" to ML Probe Request" and change "Non-ML Probe Request" to "is not an ML probe request". All of these have be fixed in the resolution for CID 1155 in 11-210242r4.  TGbe editor: No further changes are needed to address this comment. |

***TGbe editor: Please note baselines are REVmd D5.0, 11ax D8.0 and 11be D1.0***

**35.3.4.3 Multi-link element usage rules in the context of discovery**

***TGbe editor: Please update the subclause as shown below***

An AP affiliated with an AP MLD shall include, in a Beacon frame or a Probe Response frame, which is not an ML probe response, only the Common Info field of the Basic variant Multi-Link element as defined in 9.4.2.295b (Multi-Link element) unless conditions in 35.3.9 (General procedures) are satisfied.

The Common Info field of the Basic variant Multi-Link element carried in the Beacon frame or Probe Response frame shall

—include the MLD MAC address subfield for the AP MLD with which the AP is affiliated by setting MLD MAC Address Present subfield of the Multi-Link Control field of the Basic variant Multi-Link element to 1

—include the Link ID Info subfield for the AP by setting the Link ID Info Present subfield of the Multi-Link Control field of the Basic variant Multi-Link element to 1

—(#1068)include the BSS Parameters Change Count subfield for the AP by setting the BSS Parameters Change Count Present subfield of the Multi-Link Control field of the Basic variant Multi-Link element to 1.A Probe Request frame that is not an ML probe request shall not include a Multi-Link element of any type.

A Probe Request frame that is an ML probe request shall include a Probe Request variant Multi-Link element and shall not include other variant Multi-Link element. (#CID 1192)

An AP of an AP MLD shall have a unique link ID that shall not change during the lifetime of the AP MLD. The Link ID field in the per-STA profile corresponding to this AP in the Multi-Link element corresponding to this AP MLD shall be set to the unique link ID value of this AP.

**11.1.4.3.4 Criteria for sending a response (11ai)**

If a STA that receives a Probe Request frame is not in a multiple BSSID set, that STA shall send the Probe Response frame(s), subject to the criteria below. If a STA that receives a Probe Request frame is in a multiple BSSID set, the STA corresponding to the transmitted BSSID shall send the Probe Response frame(s), subject to the criteria below; other STAs in the multiple BSSID set shall not send a Probe Response frame.

A STA that receives a Probe Request frame shall not respond if any of the following apply:

a) The STA does not match any of the following criteria:

1) The STA is an AP.

2) The STA is an IBSS STA.

3) The STA is a mesh STA.

4) The STA is a DMG STA that is not a member of a PBSS and that is performing active scan as defined in 11.1.4.3.3 (Active scanning procedure for a DMG STA).

5) The STA is a PCP.

b) The Address 1 field of the Probe Request frame contains an individual address and one of the following criteria is met:

1) The STA is not a member of a multiple BSSID set and is not affiliated with an MLD, and the individual address is not the MAC address of the STA.

2) The STA is a member of a multiple BSSID set and is not affiliated with an MLD, and the individual address does not match the BSSID of any of the BSSs in the multiple BSSID set.

3) The STA is not a member of a multiple BSSID set and is affiliated with an MLD, and the individual address does not match the MAC address of any of the APs in the MLD.

4) The STA is a member of a multiple BSSID set and is affiliated with an MLD, and the individual address does not match the MAC address of any of the APs in the MLD and the BSSID of any of the BSSs in the multiple BSSID set. (#CID 2329)

c) The STA is a non-AP STA in a DMG infrastructure BSS and the Address 1 field of the Probe Request frame contains the broadcast address.

d) The STA is a non-PCP STA in a PBSS and the Address 1 field of the Probe Request frame contains the broadcast address.

e) The STA is in an IBSS and did not transmit a Beacon or DMG Beacon frame since the last TBTT, and the Address 1 field of the Probe Request frame contains the broadcast address.

f) The STA is a mesh STA and either of the following criteria are met:

1) The Probe Request frame does not contain a Mesh ID element.

2) The Mesh ID element in the Probe Request frame is present but does not contain the wildcard Mesh ID and does not match the Mesh ID of the MBSS with which the STA is peered.

g) The STA is not a mesh STA and none of the following criteria are met:

1) The SSID in the Probe Request frame is the wildcard SSID.

2) The SSID in the Probe Request frame matches the SSID of the STA’s BSS.

3) The STA is a member of a multiple BSSID set and the SSID in the Probe Request frame matches any of the SSIDs of the members of that multiple BSSID set.

4) The SSID List element is present in the Probe Request frame and includes the SSID of the STA’s BSS.

h) The STA is not a mesh STA and the Address 3 field of the Probe Request frame does not contain a wildcard BSSID and one of the following criteria is met:

1) The STA is not a member of a multiple BSSID set and is not affiliated with an MLD, and the Address 3 field of the Probe Request frame does not match the BSSID of the STA’s BSS.

2) The STA is a member of a multiple BSSID set and is not affiliated with an MLD, and the Address 3 field of the Probe Request frame does not match the BSSID of any of the BSSs in the multiple BSSID set.

3) The STA is not a member of a multiple BSSID set and is affiliated with an MLD, and the Address 3 field of the Probe Request frame does not match the BSSID of any of the BSSs in the MLD.

4) The STA is a member of a multiple BSSID set and is affiliated with an MLD, and the Address 3 field of the Probe Request frame does not match the BSSID of any of the BSSs in the MLD and the BSSID of any of the BSSs in the multiple BSSID set. (#CID 2329)