IEEE P802.11
Wireless LANs

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| Multiple BSSID Probe Response Clarification |
| Date: January 15, 2019 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Po-Kai Huang | Intel |  |  |  |
| Laurent Cariou |  |  |  |
| Robert Stacey |  |  |  |
| Abhishek Patil  | Qualcomm |  |  |  |
| Jouni Malinen | Qualcomm |  |  |  |
| Ming Gan | Huawei |  |  |  |

 Abstract

This submission proposes resolutions for comments of TGmd Draft D2.0 with the following CIDs:

2010

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Revised the text based on the suggestion during the presentation to preserve most of the baseline operation and focus on the bug.
* Rev 2: Revised the text with better wording based on the discussion.
* Rev 3: Further revision based on the discussion during the presentation.

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

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

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

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| **CID** | **Commenter** | **Pg / Ln** | **Section** | **Comment** | **Proposed Change** | **Resolution** |
| 2010 | Abhishek Patil | 2130.00 | 11.1.4.3.4 | In a multiple BSSID set, which BSSID responds when a Probe Request frame is directed to a particular nontransmitted BSSID (i.e., A3=nonTxBSSID or SSID=SSID of nonTxBSSID)? | Clarify that in a multiple BSSID set (per definition) only the transmitted BSSID sends a Probe Response frame. | Revised – Agree in principle with the commenter. Multiple BSSID concept is introduced to combine multiple beacon frames and probe response frames from the same virtual BSSs to one beacon frame or probe response frame.However, the current text in revmd does not specify that only the BSS with transmitted BSSID in a multiple BSSID set will respond to probe request. TGmd editor, please make changes as shown in doc 11-19/0146r3 under all headings that include CID 2010.  |

***TGm editor: Change 11.1.3.8 as follows: (Track change on)***

* Multiple BSSID procedure

(#1095)A STA that supports the Multiple BSSID capability has dot11MultiBSSIDImplemented equal to true and shall set to 1 the Multiple BSSID field of the Extended Capabilities elements that it transmits. Support for the Multiple BSSID capability is mandatory for a FILS STA(11ai).

The nontransmitted BSSID profile shall include the SSID element (see 9.4.2.2 (SSID element)) and Multiple BSSID-Index element (see 9.4.2.73 (Multiple BSSID-Index element)) for each of the supported BSSIDs. The AP or PCP may include all other elements in the nontransmitted BSSID profile. The AP or PCP may include two or more Multiple BSSID elements containing elements for a given BSSID index in one Beacon frame or DMG Beacon frame. If two or more are given, the profile is considered to be the complete set of all elements given in all such Multiple BSSID elements sharing the same BSSID index. Since the Multiple BSSID element is also present in Probe Response frames, an AP or PCP may choose to advertise the complete or a partial profile of a BSS corresponding to a nontransmitted BSSID only in the Probe Response frames. In addition, the AP or PCP may choose to include only a partial list of nontransmitted BSSID profiles in the Beacon frame or DMG Beacon frame or to include different sets of nontransmitted BSSID profiles in different Beacon frames or DMG Beacon frames. (#1293)An AP advertising a complete list of nontransmitted BSSID profiles shall set the Complete List Of NonTxBSSID Profiles field of Extended Capabilities element to 1. An AP may include Active BSSID Count element (see 9.4.2.237 (Active BSSID Count element(#1293))) in its Beacon frame or DMG Beacon frame or Probe Response frame to indicate the number of active BSSIDs in the multiple BSSID set.

(#1293)NOTE—A non-AP STA can send a Probe Request frame to an AP to gather information about all BSSIDs in the multiple BSSID set when the AP advertises partial list of nontransmitted BSSID profiles.

See 11.1.4.3.4 for the rules governing transmission of Probe Response frames in a multiple BSSID set. (#2010)

(…existing texts…)

***TGm editor: Change 11.1.3.8 as follows: (Track change on)***

* Criteria for sending a response(11ai)

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

* The STA does not match any of the following criteria:
* The STA is an AP.
* The STA is an IBSS STA.
* The STA is a mesh STA.
* 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).
* The STA is a PCP.
* The Address 1 field of the Probe Request frame contains an individual address and one of the following criteria is met:.(#2010)

1) The STA is not a member of a multiple BSSID set, and the individual address is not the MAC address of the STA.(#2010)

2) The STA is a member of a multiple BSSID set, and the individual address does not match the BSSID of any of the BSSs in the multiple BSSID set.(#2010)

* The STA is a non-AP STA in an infrastructure BSS and the Address 1 field of the Probe Request frame contains the broadcast address.
* The STA is a non-PCP STA in a PBSS and the Address 1 field of the Probe Request frame contains the broadcast address.
* 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.
* The STA is a mesh STA and either of the following criteria are met:
* The Probe Request frame does not contain a Mesh ID element.
* 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.
* The STA is not a mesh STA and none of the following criteria are met:
* 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.

2a) 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.(#2010)

* The SSID List element is present in the Probe Request frame and includes the SSID of the STA’s BSS.
* 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 the Address 3 field of the Probe Request frame does not match the BSSID of the STA’s BSS(#2010)
2. The STA is a member of a multiple BSSID set 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.(#2010)
* The STA has dot11InterworkingServiceActivated equal to true and the Probe Request frame contains an Interworking element and an Extended Capabilities element whose Interworking field contains the value 1, and at least one of the following criteria is not met:
* The HESSID field of the Interworking element is absent, or is present and contains the wildcard HESSID or matches the HESSID field of the InterworkingInfo parameter of the last MLME-START.request or MLME-JOIN.request primitive.
* The Access Network Type field of the Interworking element contains the wildcard access network type or matches the access network type of the STA.
* (#1553)The Probe Request frame contains a DSSS Parameter Set element in which the Current Channel field contains a value that is not the same as dot11CurrentChannel.
* The STA is a DMG STA and the transmit antenna of the DMG STA is not trained to transmit to the STA from which the Probe Request frame was received.

(…existing texts…)

(#2010)An individually addressed Probe Response frame, subject to the criteria above, shall be transmitted to all non-FILS STAs from which a Probe Request frame is received.

If a FILS STA has dot11FILSOmitReplicateProbeResponses equal to false, an individually addressed Probe Response frame, subject to the criteria above, shall be transmitted to all STAs from which a Probe Request frame is received.

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 above. 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 above; other STAs in the multiple BSSID set shall not send a Probe Response frame. (#2010)

(…existing texts…)

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