IEEE P802.11
Wireless LANs

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| BSS intention in DMG discovery beacon |
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| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Trainin, Solomon  | Intel Corporation |  | 972547885738 | solomon.trainin@intel.com |
| Carlos Cordeiro  | Intel Corporation |  |  | carlos.cordeiro@intel.com |
| Aharon, Mordechay  | Qualcomm  |  |  | maharon@qti.qualcomm.com |
|  |  |  |  |  |

Abstract

Define use of the BSS Type field in DMG Beacon with Discovery Mode set to 1

Discussion:

Active scan in DMG requires engaging in BTI/A-BFT and then exchange probes between stations. The role of the BTI/A-BFT is to provide basic connectivity between stations to allow probe exchange. In case a STA that initiates active scanning is looking for specific type of BSS, the STA gets the information only after completion of probe exchange due to lack of BSS type information in the SSW frame transmitted to the active scan initiator. For example, searching for a PBSS and not an infrastructure BSS, and vice versa, the STA shall do a probe exchange to get the BSS type information. Providing the BSS type information as an intention of the STA that initiates active scanning improves link utilization and allows spending less power in scanning phase. The information is coveyed only in DMG Beacon with Discovery mode field set to 1.

*Proposed changes:*

*Add the following after Figure 9-115*

If the BSS Type field is transmitted as part of a DMG Beacon frame that has the Discovery Mode field within the Beacon Interval Control field (see Figure 9-60) equal to 1 the BSS Type subfield is defined in Table 9-64xyz (The BSS Type subfield if the Discovery Mode field is 1). A DMG STA sets the BSS Type subfield to 3 to indicate to a receiving STA that is not an AP not to respond in the following A-BFT. A DMG STA sets the BSS Type subfield to 2 to indicate to a receiving STA that is not a PCP not to respond in the following A-BFT. A DMG STA sets the BSS Type subfield to 1 to indicate to a receiving STA that is not able to participate in PBSS or IBSS not to respond in the following A-BFT.

**Table 9-64 xyz - The BSS Type subfield if the Discovery Mode field is 1**

|  |  |  |
| --- | --- | --- |
| Subfiled value | Desired BSS Type | Type of STA being searched for |
| 3 | Infrastructure BSS | AP |
| 2 | PBSS | PCP |
| 1 | PBSS or IBSS | STA |
| 0 | Wildcart  |  |

*Change text P707L27*

In all other cases, the BSS Type subfield is defined in Table 9-64 (The BSS Type subfield for all other cases) for specific types of frame cited below. An AP sets the BSS Type subfield to 3 within transmitted DMG Beacon, Probe Response, or (Re)Association Response frames. A PCP sets the BSS Type subfield to 2 within transmitted DMG Beacon, Probe Response, or (Re)Association Response frames. An IBSS STA or a STA that is not a member of a BSS sets the BSS Type subfield to 1 within transmitted DMG Beacon or Probe Response frames. The BSS Type subfield is reserved for all other types of frame.

*Change name of Table 9-64 as follows*

**Table 9-64- The BSS Type subfield for all other cases**

*Modify in P1554L62*

… redo beamforming with the initiator, unless one of following conditions is met:

* in the BTI preceding the A-BFT, the responder receives a DMG Beacon frame that has the Discovery Mode field equal to 1 and in which the BSS Type subfiled is different from the last received DMG Beacon frame that has the Discovery Mode field equal to 1,
* in the BTI preceding the A-BFT the responder receives a DMG Beacon frame that has the Discovery Mode field equal to 1, the CC Present field equal to 1 and the value of the A-BFT Responder Address subfield equal to the responder’s MAC address.

*Modify in P1552L46*

A DMG STA that receives a DMG Beacon frame with the Discovery Mode field equal to 1 and the CC Present field equal to 1 may transmit in the A-BFT following the BTI where the DMG Beacon frame is received if at least one of the following conditions is met:

— The STA’s MAC address is equal to the value of the A-BFT Responder Address subfield within the received DMG Beacon frame.

— The value of the ABFT Responder Address subfield within the received DMG Beacon frame is a group address of a group to which the STA belongs.

If none of these conditions is met following the reception of a DMG Beacon frame with the Discovery Mode field equal to 1 and the CC Present field equal to 1, the STA shall not transmit in the A-BFT.

A DMG STA that receives a DMG Beacon frame with the Discovery Mode field equal to 1 and the may transmit in the A-BFT following the BTI where the DMG Beacon frame is received if at least one of the following conditions is met:

* The DMG STA is an AP and the BSS Type subfield is equal to 3
* The DMG STA is a PCP and the BSS Type subfield is equal to 2 or 1
* The DMG STA is a non- AP and non-PCP that is able to support operation in a PBSS or an IBSS, and the BSS Type subfield is equal to 1
* The BSS Type subfield is equal to 0

If none of these conditions is met following the reception of a DMG Beacon frame with the Discovery Mode field equal to 1 and the CC Present field equal to 0, the STA shall not transmit in the A-BFT.

**References:**

1. IEEE P802.11-REVmc/D5.3, April 2016