IEEE P802.11
Wireless LANs

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| BSS intention in DMG discovery beacon |
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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:*

**9.4.1.47 DMG Parameters field(11ad)**

*Change text P707L27*

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 0, the BSS Type subfield is defined in Table 9-64 (The BSS Type subfield if the Discovery Mode field is 0) 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 if the Discovery Mode field is 0**

*P707L49*

*Editor add following text and table*

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). See 10.38.5.2, which defines rules based on the Responding STA column that identify the STA types that respond to the DMG Beacon frame.

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Subfield value** | **Desired BSS Type** |  | **Responding STA** |
| 3 | Infrastructure BSS |  | AP |
| 2 | PBSS |  | PCP |
| 1 | PBSS or IBSS |  | PCP or a STA capable of operating in a PBSS or IBSS  |
| 0 | Wildcard |  | Any |

**10.38.5.2 Operation during the A-BFT(11ad)**

*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 the STA matches the “Responding STA” column of Table 9-64 xyz.

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.

*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 subfield 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.

**References:**

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