IEEE P802.11
Wireless LANs

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| Proposed resolution to CID2098 |
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Abstract

This submission proposes a resolution to CID2098.

The proposed modifications are in reference to Draft P802.11REVmc\_D2.0.

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| 2098 |  | 1363 | 49 | 10.1.4.3.2 |  |  |  |  |  | Much of the active scanning procedure is dependent on DMG/non-DMG. This obscures the logic. | Describe DMG and non-DMG cases as either two separate lists or two separate subclauses. |  |

Proposed resolution: Revised.

Discussion on resolution text:

* A new, separate subclause 10.1.4.3.2a is proposed to be created specifically for DMG active scanning
* All DMG specific normative text is thus removed from subclause 10.1.4.3.2
* Everywhere reference in the draft to 10.1.4.3.2 is changed to 10.1.4.3.2a if in the context of DMG behavior.
* From a technical perspective, the DMG behavior in the newly inserted subclause 10.1.4.3.2a is the same as in subclause 10.1.4.3.2, but with the following issues being addressed:
	+ The timing of each step has been specified.
	+ For transmissions of Probe Requests in the multiple SSID case, a basic access is used prior to each Probe Request transmission
	+ Move the probe timer early in the scanning phase, so that it accounts the time takes to sweep the DMG Beacon frames

Proposed resolution text:

**8.3.3.1 Format of Management frames**

***Change the second para as follows***

A STA uses the contents of the Address 1 field to perform the address matching for receive decisions. In the case where the Address 1 field contains a group address and the frame subtype is other than Beacon or the frame subtype Action, Category Multihop Action (Multihop Action frame), the Address 3 field also is validated to verify that the group addressed frame originated from a STA in the BSS of which the receiving STA is a member or from a mesh STA to which mesh peering is maintained. Details of addressing and forwarding of the group addressed frame in an MBSS are defined in 9.33.5 (Addressing and forwarding of group addressed Mesh Data frames). When the Address 1 field contains a group address and the frame subtype is either Probe Request or Action with Category Public, a wildcard BSSID value matches all receiving STA’s BSSIDs. If the frame subtype is Beacon, other address matching rules apply, as specified in 10.1.3.7 (Beacon reception). Frames of subtype Probe Request with a group address in the Address 1 field are additionally processed as described in 10.1.4.3.2 (Active scanning procedure) for non-DMG STAs and 10.1.4.3.2a for DMG STAs. If the frame subtype is Action, the Category is Public, and the Action is 20/40 BSS Coexistence Management, then additional address matching rules for receive decisions apply as specified in 10.16 (20/40 MHz BSS operation) and 10.18 (20/40 BSS Coexistence Management frame usage).

**10.1.3.4 DMG Beacon generation before network initialization**

***In the first para, change “10.1.4.3.2 “ to “10.1.4.3.2a”***

**10.1.4.3 Active scanning**

***Change 10.1.4.3.2 as follows:***

* Active scanning procedure for a non-DMG STA

Upon receipt of the MLME-SCAN.request primitive with ScanType indicating an active scan, a STA shall use the fol-lowing procedure:

For each channel to be scanned:

* Wait until the ProbeDelay time has expired or a (#1601)PHY‑RXSTART.indication primitive has been received.
* Perform the Basic Access procedure as defined in 9.3.4.2 (Basic access).

(11ad)

* Send a probe request to the broadcast destination.

The probe request is sent,(11ad) with the SSID and BSSID from the MLME-SCAN.request primitive. When the SSID List is present in the MLME-SCAN.request primitive, send one or more Probe (#99)Request frames,(Ed) each with an SSID indicated in the SSID List and the BSSID from the MLME-SCAN.request primitive.

* Set to 0 and start a timer (M34)(#1311)
* If PHY-CCA.indication (BUSY)(#1604) primitive has not been detected before the timer(#1311) reaches MinChannelTime (M34) then
* Set the NAV to 0 and scan the next channel.(11ad)
* Otherwise, when the timer(#1311) reaches MaxChannelTime, process all received probe responses.(11ad)
* Set the(11ad) NAV to 0 and scan the next channel.

See Figure 10-4 (Probe response) for non-DMG STAs.(11ad) 

When all channels in the ChannelList have been scanned, the MLME shall issue an MLME-SCAN.confirm primitive with the BSSDescriptionSet containing all of the information gathered during the scan.

***Editor: insert the following subclause***

**10.1.4.3.2a Active scanning procedure for a DMG STA**

Upon receipt of the MLME-SCAN.request primitive with ScanType indicating an active scan, a DMG STA shall use the following procedure:

For each channel to be scanned:

1. Wait until the ProbeDelay time has expired or a (#1601)PHY‑RXSTART.indication primitive has been received.
2. Set to 0 and start a timer

c)       If the DiscoveryMode parameter of the MLME-SCAN.request primitive is equal to 1, generate DMG Beacon frames as described in 10.1.3.4 (DMG Beacon generation before network initialization) for a period no longer than MaxChannelTime

d)      If a DMG Beacon frame is received before the timer reaches MaxChannelTime and beamforming training is required (see 9.36), perform beamforming training defined in 9.36.5 (Beamforming in A-BFT).

e)      Perform the basic access procedure defined in 9.3.4.2 (Basic access)

f)       If an SSW-Feedback frame is transmitted or received in step (d), send a probe request to the broadcast destination address or:

a.       Following the transmission of an SSW-Feedback frame, send a probe request to the MAC address of the STA addressed by the SSW-Feedback frame and

b.      Optionally, following the reception of an SSW-Feedback frame, perform the basic access procedure defined in 9.3.4.2 (Basic access) to send a probe request to the MAC address of the STA that transmitted the SSW-Feedback frame.

In all these cases, the probe request is sent with the SSID and BSSID from the MLME-SCAN.request primitive. The probe request includes the DMG Capabilities element. When the SSID List is present in the MLME-SCAN.request primitive, perform the basic access procedure defined in 9.3.4.2 (Basic access) prior to the transmission of each of the one or more Probe Request frames, each with an SSID indicated in the SSID List and the BSSID from the MLME-SCAN.request primitive.

g)      If an SSW-Feedback frame is neither transmitted nor received in step (d), optionally send a probe request to the broadcast destination address. The probe request is sent with the SSID and BSSID from the MLME-SCAN.request primitive. The probe request includes the DMG Capabilities element. When the SSID List is present in the MLME-SCAN.request primitive, perform the basic access procedure defined in 9.3.4.2 (Basic access) prior to the transmission of each of the one or more Probe Request frames, each with an SSID indicated in the SSID List and the BSSID from the MLME-SCAN.request primitive.

h)      When the timer reaches MaxChannelTime, process all received probe responses.

i)        Set the NAV to 0 and scan the next channel.

See Figure 10-5 (Active scanning for DMG STAs) for DMG STAs that generate DMG Beacon frames with the Discovery Mode field set to 1.

Figure 10-5 – Active scanning for DMG STAs

When all channels in the ChannelList have been scanned, the MLME shall issue an MLME-SCAN.confirm primitive with the BSSDescriptionSet containing all of the information gathered during the scan.

**10.1.4.3.3 Sending a probe response**

***In the third para, change “10.1.4.3.2 “ to “10.1.4.3.2a”***

***In the fifth para, change “10.1.4.3.2 “ to “10.1.4.3.2a”***