IEEE P802.11
Wireless LANs

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| D1.0 comment resolutions on MAC CIDs in Clause 3.2 |
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Abstract

This document proposes resolutions for CIDs 2150, 3128, 2149, 2550, 2554, 3695, 3541, 2606 and 2718 (MAC). (comments on P802.11ac/D1.0)

Changes in the text refer to: Draft P802.11ac/D1.2 and Draft P802.11REVmb/D11.0

Comments (CID 2150 - MAC)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2150 | Chu, Liwen | 3.2 | 2 | 1 | T | What is the meaning of "can be used to setup a VHT 40 MHz BSS."? | Change to "can be used to transmit 40 MHz PPDU". | Agree in principle. Changed the text accordingly. | MAC |

Discussion

Agree in Principle.

Meaning of “can be used to setup a VHT 40 MHz BSS” is not clear.

**Proposed resolution**:

See the proposed text.

**Editing Instructions**:

***Change the following sentence in Section 3.2 of TGac Draft D1.2:***

***(P4L18)***

**primary 40 MHz channel:** In an 80, 160 or 80+80 MHz very high throughput (VHT) basic service set (BSS)(#2079), the 40 MHz subchannel that includes the primary 20 MHz channel that is used to transmit 40 MHz PPDUs. .

**primary 80 MHz channel:** In a 160 or 80+80 MHz very high throughput (VHT) basic service set (BSS)(#2080), the 80 MHz subchannel that includes the primary 40 MHz channel (and thus the primary 20 MHz channel) that is used to transmit 80 MHz PPDUs.

Comments (CID 2149 – MAC)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2149 | Chu, Liwen | 3.2 | 2 | 36 | T | Why can 0 octet be named EOF pad? | Change to "1 to 3 octets used to pad an A-MPDU to the last octet of the associated PSDU" | Disagree.A 0 octet pad means no pad is present | MAC |

Discussion

Disagree.

A 0 octet pad means no pad is present.

**Proposed resolution**:

Reject.

Comments (CID 3128 – MAC)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3128 | Patil, Sandhya | 3.2 | 2 | 49 | T | Definition of "end of frame (EOF) pad" not clear.  | Rephrase the sentence | Agree in principle. Changed the text accordingly. | MAC |

Discussion

Agree in principle.

The commenter does not specify what is unclear in the definition and does not suggest specific changes to the definition. But an A-MPDU that is not carried in a VHT PPDU does not have an EOF pad, and it should be added to the definition

**Proposed resolution**:

See the proposed text below.

**Editing Instructions**:

***Change the following sentence in Section 3.2 of TGac Draft D1.2: (CID 3128 and CID 2149)***

***(P4L9)***

**end of frame (EOF) pad:** 0 to 3 octets used to pad an aggregate medium access control (MAC) protocol data unit (A-MPDU)(#2078) to the last octet of the associated physical layer convergence procedure (PLCP) service data unit (PSDU)(#2078) when the A-MPDU is carried in a very high throughput (VHT) physical layer convergence procedure (PLCP) protocol data unit (PPDU)

Comments (CID 2550 – MAC)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2550 | Hunter, David | 3.2 | 2 | 50 | T | Add a definition of "Partial AID", as this term is used frequently in the text. | This definition should mention at least one or two uses of this concept. | Agree in principle. Added the definition | MAC |

Discussion

Agree in principle.

**Proposed resolution**:

See the proposed text.

**Editing Instructions**:

***Add the following definition into Section 3.2 of TGac Draft D1.2:***

***(P2Lxx)***

**Partial association identifier (AID)**: Non-unique indication of a STA based on its AID and the BSSID to which the STA is associated. The partial AID is carried in a single user (SU) very high throughput (VHT) physical layer convergence procedure (PLCP) protocol data unit (PPDU) header. The partial AID can be used for power saving at the physical layer. A station (STA) may discard a frame carried in a single user (SU) VHT PPDU that contains a partial AID that does not correspond to its own partial AID.

Comments (CID 2554 – MAC)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2554 | Hunter, David | 3.2 | 3 | 26 | T | Are both conditions, or either condition, required? In addition, the sentence construction is confusing: to what does "where" apply? | Replace the definition with: "Either a BSS established by a VHT AP that includes the VHT Operation element in its transmitted Beacon frames or an IBSS with a dynamic frequency selection (DFS) owner (DO) VHT station (STA) that includes the VHT Operation element in its transmitted Beacon frames." | Agree in principle. Changed the text accordingly. | MAC |

Discussion

Agree in principle.

**Proposed resolution**:

See the proposed text below.

Comments (CID 3695, 3541, 2606, and 2718 – MAC)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3695 | Varshney, Prabodh | 3.2 | 3 | 26 | T | The Mesh BSS should be one alternative for VHT BSS. Currently only infrastructure and IBSS are defined to be VHT BSS. | Enable Mesh BSS to be VHT BSS. | Agree in principle. Changed the text accordingly. | MAC |
| 3541 | Stephens, Adrian | 3.2 | 3 | 26 | T | "A BSS established by a VHT AP or an IBSS" - this excludes mesh. Is this deliberate? | Add mesh to this definition, or justify its exclusion. | Agree in principle. Changed the text accordingly. | MAC |
| 2606 | Kafle, Padam | 3.2 | 3 | 26 | T | The Mesh BSS should be considered as another alternative for VHT BSS. Only infrastructure and IBSS are defined to be VHT BSS. | Consider Mesh BSS to be VHT BSS. | Agree in principle. Changed the text accordingly. | MAC |
| 2718 | Kneckt, Jarkko | 3.2 | 3 | 26 | T | The Mesh BSS should be one alternative for VHT BSS. Currently only infrastructure and IBSS are defined to be VHT BSS. | Enable Mesh BSS to be VHT BSS. | See CID #3695 | MAC |

Discussion

Agree in principle.

In current TGac Draft D1.2, Mesh BSS is not included in the definition of VHT BSS, but this is not deliberate, because Mesh BSS is already being considered during the discussion in the TGac.

For example, mesh STA is considered in 9.7.4 Basic Rate Set and Basic MCS Set for mesh STA, 13.2.4 Mesh STA configuration, 13.2.7 Candidate peer mesh STA, 9.12.4 A-MPDU aggregation of group addressed data frame, 13. MLME mesh procedure, 10.8 TPC procedures, 10.9 DFS procedures, and etc.

There is no reason to exclude the Mesh BSS in the 11ac Draft.

So, the definition of VHT BSS should include Mesh BSS.

To enable a Mesh BSS to be a VHT BSS, some minor changes to the current draft are necessary.

A mesh STA does not become associated as there is no central entity in a mesh BSS (MBSS). Instead a mesh STA peers with other mesh STAs and thereby they form the MBSS. So, Association Request/Association Response and Reassociation Request/Reassociation Response frames cannot be used in MBSS.

After mesh discovery, two neighbor mesh STAs agree to establish a mesh peering to each other, and, after successfully establishing the mesh peering, they become peer mesh STAs. The mesh peering management (MPM) facilitates the mesh peering establishment and closure of the mesh peerings.

But, in current Draft, VHT Capabilities element and VHT Operation element are not included in the Mesh Peering Management frames (Mesh Peering Open frame and Mesh Peering Confirm frame), so Mesh BSS cannot be Mesh BSS. Therefore, these elements should be added to the Mesh Peering Open frame and Mesh Peering Confirm frame.

In 11ac Draft, Channel Switch Announcement frame has been extended to provide wide bandwidth channel switch, and “Wide Bandwidth Channel Switch element” has been added to the existing Channel Switch Announcement frame.

But, in 11s, Channel Switch Announcement frame has been also extended to support Mesh BSS, and “Mesh Channel Switch Parameters element” has been added to the existing channel Switch Announcement frame, and the extended frame format has been incorporated into REVmb D11.0 as follows:



**Figure 8-436—Channel Switch Announcement frame Action field format**

So, this change should be reflected to current TGac D1.2 draft to enable Wide Bandwidth Mesh Channel Switch.

Some paragraphs of TGac D1.2 draft should be changed to enable Mesh BSS.

**Proposed resolution**:

See the proposed text.

**Editing Instructions**:

***Change the following sentence in Section 3.2 of TGac Draft D1.2: (P5L1)***

**very high throughput (VHT) basic service set (BSS)**: VHT BSS is one of the followings:

1. A BSS established by a VHT AP that includes the VHT Operation element in its transmitted Beacon frames.
2. An IBSS with a dynamic frequency selection (DFS) owner (DO) station (STA) that is a VHT STA and includes the VHT Operation element in its transmitted Beacon frames.
3. An MBSS (Mesh basic service set) established by a VHT STA that includes the VHT Operation element in its transmitted Beacon frames.

***Change the Table 8-262 in Section 8.5.16.2.2 of 802.11REVmb Draft D11.0: (P848L25)***

**8.5.16.2.2 Mesh Peering Open frame details**

**Table 8-262—Mesh Peering Open frame Action field format**

|  |  |  |
| --- | --- | --- |
| **Order** | **Information** | **Notes** |
| ….. | ….. | ….. |
| 14 | HT Capabilities | The HT Capabilities element is present whendot11HighThroughputOptionImplemented is true. |
| 15 | HT Operation | The HT Operation element is included whendot11HighThroughputOptionImplemented is true. |
| 16 | 20/40 BSS CoexistenceElement | The 20/40 BSS Coexistence element is optionally present when thedot112040BSSCoexistenceManagementSupport is true. |
| 17 | Extended CapabilitiesElement | The Extended Capabilities element is optionally present if any of the fields in this element are nonzero. |
| 18 | Interworking | The Interworking element is present if dot11InterworkingServiceActivated is true. |
| 19 | VHT Capabilities |  The VHT Capabilities element is present when dot11VHTOptionImplemented is true |
| 20 | VHT Operation | The VHT Operation element is present when dot11VHTOptionImplemented is true |
| Last – 2 | Vendor Specific | One or more vendor-specific elements are optionally present. These elements follow all other elements except MIC element and Authenticated Mesh Peering Exchange element. |
| Last – 1 | MIC element | MIC element is present when dot11MeshSecurityActivated is true and a PMK exists between the sender and recipient of this frame. |
| Last | Authenticated Mesh PeeringExchange | The Authenticated Mesh Peering Exchange element is present when dot11MeshSecurityActivated is true and a PMK exists between the sender and recipient of this frame. |

***Change the Table 8-263 in Section 8.5.16.3.2 of 802.11REVmb Draft D11.0: (P849L42)***

**8.5.16.3.2 Mesh Peering Confirm frame details**

**Table 8-263—Mesh Peering Confirm frame Action field format**

|  |  |  |
| --- | --- | --- |
| **Order** | **Information** | **Notes** |
| ….. | ….. | ….. |
| 11 | HT Capabilities | The HT Capabilities element is present whendot11HighThroughputOptionImplemented is true. |
| 12 | HT Operation | The HT Operation element is included whendot11HighThroughputOptionImplemented is true. |
| 13 | 20/40 BSS Coexistenceelement | The 20/40 BSS Coexistence element is optionally present when thedot112040BSSCoexistenceManagementSupport is true. |
| 14 | Extended Capabilitieselement | The Extended Capabilities element is optionally present if any of the fields in this element are nonzero. |
| 15 | VHT Capabilities | The VHT Capabilities element is present whendot11VHTOptionImplemented is true |
| 16 | VHT Operation | The VHT Operation element is present whendot11VHTOptionImplemented is true |
| Last – 2 | Vendor Specific | One or more vendor-specific elements are optionally present. These elements follow all other elements except MIC element and Authenticated Mesh Peering Exchange element. |
| Last – 1 | MIC element | MIC element is present when dot11MeshSecurityActivated is true and a PMK exists between the sender and recipient of this frame. |
| Last | Authenticated Mesh PeeringExchange | The Authenticated Mesh Peering Exchange element is present when dot11MeshSecurityActivated is true and a PMK exists between the sender and recipient of this frame. |

***Change the Figure 8-385 in Section 8.5.2.6 of TGac Draft D1.2: (P71L17)***

***(The text with yellow mark is copied from 802.11REVmb D11.0)***

**8.5.2.6 Channel Switch Announcement frame format**



**Figure 8-436—Channel Switch Announcement frame Action field format**

The Mesh Channel Switch Parameters element is defined in 8.4.2.105. This element is present when a mesh STA performs an MBSS channel switch. Otherwise, the Mesh Channel Switch Parameters element is not present..

***Change the Sentence in Section 10.8.4 of TGac Draft D1.2: (P117L53)***

— Any local maximum transmit power received in the combination of a VHT Transmit Power Envelope

element and an Extended Power Constraint element from the AP in its BSS or another STA in

its IBSS, or a neighbor peer mesh STA in its MBSS and