IEEE P802.11
Wireless LANs

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| D3.0 Comment Resolution on MAC Miscellaneous |
| Date: 2019-01-08 |
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Abstract

This document proposes resolutions for following CIDs:

9 CIDs: 15210, 15875, 16581, 16582, 16583, 16556, 16558, 15064 and 15065.

* CIDs 15210 and 15875: Clause 9.3.3.3
* CIDs 16581, 16582 and 16583: page 116 (Clause 9.4.1.53)
* CIDs 16556 and 16558: page 168 & 169 (Clause 9.4.2.238)
* CIDs 15064 and 15065: Clause 11.24.7.5

Changes in the text refer to: Draft P802.11ax/D3.3 and 802.11-2016.

**Revision History**

R0

. Initial Version

R1

. R1 Presented on December 6 2018 TGax call. During the conference call,

CID 15038 has been removed from this document since the CID has been already resolved by 18/1867r0 and already passed the motion.

* Resolution to CID 15875 has been changed to Revised.
* Editorial updated to CID 15064.
* Straw poll passed except CIDs 15210 and 16583.

R2

* Changed the editing instructions to refer 802.11ax D3.3 instead of D3.2.
* CID 15210: updated the proposed text.
* CID 16583: changed the resolution.
* CID 15064: changed the proposed text.

. R2 Presented on January 10 2019 TGax call. During the call,

* Proposed text change related to CID 15210 has been modified.
* No objection noted on the resolution to CID 15210 and CID 16583

R3

* CID 15210: updated the proposed text
* CID 15064: modified the proposed text. Resolution to CID 15065 has been changed to Revise since the referenced sentence has been modified by CID 15064.

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

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

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

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| **CID** | **Clause**  | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed****Resolution** |
| 15210 | 9.3.3.3 | 109 | 25 | Are these cumulative requirements, in the sense that dot11QoSOptionImplemented and dot11MeshActivated have to both be false, while both the EDCA Parameter Set element and the MU EDCA Parameter Set element are not set, or would subsets and combinations of these elements being false or unset also cause QoS Capability elements to be present? | Not sure. | Revise.The current wording is not clear about the condition on the presence of QoS Capability.Changed the text accordingly.See the proposed text change in 11-18/1987r3 |

**Discussion on CID 15210**:

In the baseline (802.11-2016), the presence of QoS Capability is specified as follows: (Table 9-27 Beacon frame body)

*“The QoS Capability element is present if dot11QosOptionImplemented is true, and dot11MeshActivated is false, and EDCA Parameter Set element is not present.”*

In 27.2.7 EDCA operation using MU EDCA parameters (802.11ax D3.3), it is stated that *the QoS Capability element is only present in a Beacon frame if the EDCA Parameter Set element and the MU EDCA Parameter Set element are not present*

802.11ax Draft text should clearly describe the above behaviour in the table.

**Proposed text changes**:

***Change the Table 9-34 (Beacon frame body) in Section 9.3.3.3 (Beacon frame format) of TGax Draft D3.3 (P119L14) as follows:***

**Table 9-27—Beacon frame body**

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| **Order** | **Information** | **Notes** |
| 19 | EDCA Parameter Set | The EDCA Parameter Set element is present if dot11QosOptionImplemented is true, ~~and~~ dot11MeshActivated is false, and the QoS Capability element is not present; otherwise it is not present. |
| 20 | QoS Capability | The QoS Capability element is present if dot11QosOptionImplemented is true, ~~and~~ dot11MeshActivated is false, and neither the EDCA Parameter Set element nor the MU EDCA Parameter Set element are ~~is not~~ present; otherwise, it is not present. |
| 82 | MU EDCA Parameter Set | The MU EDCA Parameter element is optionally present if dot11HEOptionImplemented is true and the QoS Capability element is not present; otherwise it is not present. ~~The MU EDCA~~ ~~Parameter element is not present if the QoS Capability element is present.~~ |

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| **CID** | **Clause**  | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed****Resolution** |
| 15875 | 9.3.3.3 | 109 | 63 | An HE STA always has dot11QoSOptionImplemented being 1. So "dot11QosOption-Implemented and" should be removed from he sentence. | As in the comment | Revise.Agree with the commenter.Changed the text accordingly.See the proposed text change in 11-18/1987r3 |

**Proposed text changes**:

***Change the Table 9-34 (Beacon frame body) in Section 9.3.3.3 (Beacon frame format) of TGax Draft D3.3 (P119L58) as follows:***

**Table 9-34—Beacon frame body**

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| **Order** | **Information** | **Notes** |
| 85 | HE BSS Load | The HE BSS Load element is optionally present if ~~dot11QosOptionImplemented,~~(#15623) dot11QBSSLoadImplemented and dot11HEOptionImplemented are true. |

***Change the Table 9-41 (Probe Response frame body) in Section 9.3.3.11 (Probe Response frame format) of TGax Draft D3.3 (P125L10) as follows:***

**Table 9-41—Probe Response frame body**

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| **Order** | **Information** | **Notes** |
| 100 | HE BSS Load | The HE BSS Load element is optionally present if ~~dot11QosOptionImplemented,~~(#15623) dot11QBSSLoadImplemented and dot11HEOptionImplemented are true. |

***Change the BSSDescriptionSet table in Section 6.3.3.3 (MLME-SCAN.confirm) of TGax Draft D3.3 (P48L1) as follows:***

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| HE BSS Load | As defined in frame format | As defined in 9.4.2.252 (HE BSS Load element) | The value from HE BSS Load element. The parameter is optionally present if ~~dot11QosOptionImplemented and~~ dot11QBSSLoadImplemented and dot11HEOptionImplemented are true and an HE BSS Load element was present in the Probe Response or Beacon frame from which the BSSDescriptionSet was determined. Otherwise, the parameter is not present. | Do not adopt |

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| **CID** | **Clause**  | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed****Resolution** |
| 16581 | 9.4.1.53 | 116 |  | Incorrect reference to the Table 9-75 that indicates Setting of the Channel Width subfield | Change "Table 9-75" to "Table 9-81". | Reject.The description that references Table 9-75 is from the baseline. It is out of scope of TGax to modify it. |
| 16582 | 9.4.1.53 | 116 |  | Incorrect reference to the Table 9-75 that indicates Setting of the Channel Width subfield | Change "Table 9-75" to "Table 9-81". | Reject.The description that references Table 9-75 is from the baseline. It is out of scope of TGax to modify it. |
| 16583 | 9.4.1.53 | 116 |  | HE STA is required to support LDPC if it supports certain features such as transmitting and receiving bandwidth > 20 MHz, no. of spatial streams is > 4 etc... | Add to the description of the No LDPC subfield: "Set to 0 for an HE STA that supports any of the following: - bandwidth > 20 Mhz - transmitting and receiving more than 4 spatial streams - transmitting and receiving HE MCS 10 and 11" | Reject.The No LDPC is an operation bit and not a capability bit. This is the same as the UL MU Disable, NSS, BW restrictions in OMI.An HE STA that supports LDPC might still prefer not to receive LDPC for some reasons such as power saving. The HE STA might still want to set this bit to 1 so that HT and VHT PPDUs are not sent with LDPC.  |

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| 16556 | 9.4.2.238 | 168 |  | Contradictory statements in the same paragraph. | The second statement of this paragraph contradicts with the first statement. Remove the second statement. It should read:"The VHT Operation Information Present subfield is set to 1 to indicate that the VHT Operation Informationfield is present in the HE Operation element and set to 0 otherwise." | Reject.The second statement is about how to set the field when the VHT Operation element (which is not VHT Operation Information field) is contained in the frame and it is not a contradiction. In D3.3, the second statement has been removed and the paragraph references clause 27.17. It is not necessary to change the current text in D3.3. |

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| **CID** | **Clause**  | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed****Resolution** |
| 16558 | 9.4.2.238 | 169 |  | Almost identical paragraphs appear in different places, here and on page 354, lines 49-54. It's not relevant for this paragraph to be placed in this section. | Remove this paragraph (An HE STA that transmits ..... BSS Color subfield) | Revise.Agree with the commenter in principle.Changed the text accordingly.See the proposed text change in 11-18/1987r3 |

**Proposed text changes**:

***Change the following paragraph in Section 9.4.2.243 (HE Operation element) of TGax Draft D3.3 (P186L36) as follows:***

~~An HE STA that transmits an HE Operation element sets the BSS Color Disabled subfield to 1 if the HE STA decides to temporarily disable the use of color for the BSS to which it belongs, for example, after detecting a BSS Color overlap in the neighborhood as described in 27.11.4 (BSS\_COLOR); otherwise the HE STA sets the BSS Color Disabled subfield to 0.NOTE—While the BSS Color Disabled subfield is set to 1, an HE STA continues to advertise a nonzero value in the BSS Color subfield.~~

The BSS Color Disabled subfield is set to 1 to temporarily disable the use of color for the BSS as described in 27.11.4 (BSS\_COLOR); otherwise it is set to 0.

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| **CID** | **Clause**  | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed****Resolution** |
| 15064 | 11.24.7.5 | 244 | 28 | Change to normative text | Update the first paragraph of this section to remove any declarative text. | Revise.Normative text should be included in the Clause.Changed the text accordingly.See the proposed text change in 11-18/1987r3 |
| 15065 | 11.24.7.5 | 244 | 33 | The second paragraph is making reference to fields within ESS Report element without explicitly mentioning ESS Report element. | Change the second paragraph to: "The Planned ESS subfield in the ESS Information field of the ESS Report element indicates ..." | Revise.Changed the text accordingly.See the proposed text change in 11-18/1987r3 |

**Proposed text changes**:

***Change the following two paragraphs in the Section 11.24.7.5 (Planned ESS) of TGax Draft D3.3 (P274L50 and P274L55) as follows:***

**11.24.7.5 Planned ESS**

The AP ~~can~~may indicate whether~~that~~ it is in a planned ESS to assist associated STAs' roaming, by transmitting an ESS Report element (see 9.4.2.250). If it ~~does~~indicates that it is in a planned ESS, it indicates whether it is at the physical edge of the ESS, and can provide a recommendation on the RSSI level to consider for BSS transition.

If AP transmits an ESS Report element, it shall set t~~T~~he Planned ESS subfield in the ESS Information field to 1  ~~indicates whether the AP~~ if it is part of an ESS which is planned with several BSSs in overlapping configuration, whereby an associated STA may adjust its BSS transition algorithms accordingly. Otherwise, it shall set the Planned ESS subfield to 0.

NOTE 1—In a planned ESS ~~the~~a non-AP STA could use the Recommended BSS Transition Threshold Within The ESS subfield to modify when it starts scanning for a new BSS. However, how the non-AP STA adjusts its BSS transition algorithms is implementation specific and beyond the scope of this standard.

If the Planned ESS subfield is set to 1, the AP shall set t~~T~~he Edge Of ESS subfield in the ESS Information field of the ESS Report element to 1 if the ~~indicates to the non-AP STA that it is associated with a~~ AP’s BSS is at the edge of ~~an~~the ESS (e.g., exit of a building). Otherwise, it shall set the Edge Of ESS subfield to 0.

NOTE 2—A~~The~~ non-AP STA ~~can~~could then prepare for more aggressive roaming or the device the non-AP STA is in ~~can~~could then prepare for switching to a different system. However, how the non-AP STA uses the edge of ~~an~~the ESS information is implementation specific and beyond the scope of this standard.

If the Planned ESS subfield is set to 1, the AP shall set t~~T~~he Recommended BSS Transition Threshold Within ESS subfield in the ESS Information field of the ESS Report element to indicate~~s to the non-AP STA~~ the Beacon RSSI below which ~~it~~an associated STA should initiate a BSS transition. Otherwise, it shall set the Recommended BSS Transition Threshold Within ESS subfield to 0.

The value of the Edge Of ESS subfield and the Recommended BSS Transition Threshold Within ESS subfield may be changed by the AP ~~STA~~ if conditions in the ESS change. An ~~HE~~ AP shall not change the value of the Planned ESS subfield within the lifetime of the BSS.