IEEE P802.11
Wireless LANs

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| Various CIDs in Clause 9 |
| Date: August 25, 2017 |
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Abstract

This submission proposes resolutions for following CID received for TGax LB225 (12):

4927, 6092, 3178, 7775, 4776, 5921, 3260, 3263, 7757, 7010, 6004, 7367

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Updated based on offline feedback
	+ Added missing HE reference to paragraph below Table 9-342 (REVmd D0.1 P1302L47)
	+ Changed “Broadcast TWT element” to “broadcast TWT element” in table 9-325a
	+ Added missing row for HE to Table 9-265
	+ Added missing text related to HE in section 11.1.4.3.4 and 11.47.2.1

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** | **Commenter** | **Pg / Ln** | **Section** | **Comment** | **Proposed Change** | **Resolution** |
| 4927 | Brian Hart | 91.39 | 9.4.2.219 | "The BSS Color field is an unsigned integer whose value is the BSS color of the BSS corresponding to the APwhich transmitted this element, except that a value of 0 in this field indicates that there is no BSS color forthis BSS." - BSS Color is also needed for IBSSs otherwise they get priority over infra BSSs | Actually this para looks like an inferior version of the para at P91L44. So delete lines 39-42. Also generalize "AP" as appropriate at P92L19/28 para, P149L40, P150L10, P197L1-28, etc | RevisedAgree with the comment. Paragraph on lines 39-42 in D1.0 was removed in earlier revisions of the draft and no longer appears in D1.4. No further changes are needed.**TGax editor: No further changes are needed.** |
| 6092 | Jian Yu | 91.39 | 9.4.2.219 | Duplicate description of the BSS color field | Delete the pragraph from Line 39 to 42 | RevisedAgree with the comment. Paragraph on lines 39-42 in D1.0 was removed in earlier revisions of the draft and no longer appears in D1.4. No further changes are needed.**TGax editor: No further changes are needed.** |
| 3178 | Ahmadreza Hedayat | 91.47 | 9.4.2.219 | It is not cear why a setting in HE Opration parameters is related to the intended recepinets of an HE PPDU as in "except that a value of 0 in this field isused if one or more intended recipient STAs of an HE PPDU is not a member of a transmitting STA's BSS" | Either remove the sentence or describe how an AP can change this setting often | RevisedAgree with the comment. The cited text is removed from the paragraph and reference to section 27.11.4 was added (which describes normative text detailing the operations involving BSS Color).**TGax editor: Please make changes as suggested in doc 11-17/1279r1** |
| 7775 | Mark Hamilton | 92.02 | 9.4.2.219 | Redundant text, with behavioral statements, that should not be in clause 9. | Delete this description of behavior (that is already in 11.49.1), and replace with "See 11.49.1." | RevisedAgree with the comment. Removed cited text and made reference to section 27.16.3 which provides normative text detailing how the AID is assigned using bits from BSS Color subfield.**TGax editor: Please make changes as suggested in doc 11-17/1279r1** |
| 4776 | Alfred Asterjadhi | 92.40 | 9.4.2.219 | In one PHY format = in non-HT format. | As in comment. | RevisedAgree with the comment. The cited text no longer appears in D1.4. It was removed as a resolution to another comment. No further changes are required.**TGax editor: No further changes are needed.** |
| 5921 | James Yee | 92.40 | 9.4.2.219 | In "The subfield set to 0, if the HE AP transmits beacons in one PHY format.", it is not clear which PHY format is to be used. | Add text to explain what "one PHY format" means and if any specific format is required. | RevisedAgree with the comment. The cited text no longer appears in D1.4. It was removed as a resolution to another comment. No further changes are required.**TGax editor: No further changes are needed.** |
| 7367 | Kwok Shum Au | 78.41 | 9.4.2.218.2 | There is no subclause 25.4.2. | Replace 25.4.2 with 27.4.2. | RevisedAgree with the comment. The incorrect section number was fixed in an earlier draft and Table 9-262z in draft D1.4 has the correct section reference. No further changes are required.**TGax editor: No further changes are needed.** |
| 7010 | Jouni Malinen | 93.46 | 9.4.2.220 | Figure 9-589cu shows incorrect unit for the size of the subfields within the OCW Range field: they are bits, not octets, i.e., the total size of the OCW Range field is 8 bits = 1 octet; not 8 octets. | In Figure 9-589cu, replace "Octets" with "Bits". | RevisedAgree with the comment. The incorrect label in the figure was fixed an earlier draft. No further changes are required.**TGax editor: No further changes are needed.** |
| 6004 | Jarkko Kneckt | 172.39 | 27.5.6.1 | The RAPS element should be included to association and reassociation response frames | Please allow the RAPS element to be part of the (re) assocation response frame. | RevisedAgree with the comment. RAPS element (now referred to has UORA Parameters element) was added to (Re)Association Response frames in an earlier version of the draft. No further changes are required.**TGax editor: No further changes are needed.** |
| 3260 | Albert Petrick | 67.16 | 9.4.2.1 | HE Capabilities Element clause number incorrect in Table 9-77 Element IDs | Change clause number to "9.4.2.218" | RevisedAgree with the comment. The incorrect section number was fixed in an earlier draft and Table 9-77 in draft D1.4 has the correct section reference. Fixed an incorrect reference in 10.13.2**TGax editor: Please make changes as suggested in doc 11-17/1279r1** |
| 3263 | Albert Petrick | 67.20 | 9.4.2.1 | The HE Operation Element clause number is incorrect in Table 9-77 Element IDs. | Change clause number to "9.4.2.219" | RevisedAgree with the comment. The incorrect section number was fixed in an earlier draft and Table 9-77 in draft D1.4 has the correct section reference. No further changes are required.**TGax editor: No further changes are needed.** |
| 7757 | Mark Hamilton | 67.44 | 9.4.2.3 | Draft 11ak is using values 125 and 124. | Change "125" to "123" | RevisedAgree with the comment. The incorrect value was fixed in Table 9-78 in an earlier draft. No further changes are required.**TGax editor: No further changes are needed.** |

*
* HE Operation element

TGax Editor: Please make the following changes to the 4th paragraph in this section (D1.4 P137L37):

The BSS Color subfield is an unsigned integer whose value is the BSS Color of the BSS corresponding to the AP, IBSS STA, mesh STA or TDLS STA that transmitted this element and is set as defined in 27.11.4 (BSS\_COLOR).[3178]

TGax Editor: Please make the following changes to the 8th paragraph in this section (D1.4 P137L61):

The Partial BSS Color subfield is set to 1 to indicate that the BSS applies an AID assignment rule based on the BSS color as defined in 27.16.3 (AID assignment rule); Otherwise is set to 0.[7775]

TGax Editor: Please make the following changes to the 10th paragraph in this section (D1.4 P138L6):

The Multiple BSSID AP field is set to 1 to indicate that the AP transmitting this element belongs to a Multiple BSSID set and is set to 0 otherwise. A TDLS STA, an IBSS STA or a mesh STA transmitting this element sets the field to 0.

* BSS\_COLOR

TGax Editor: Please make the following changes to the paragraph in this section (D1.4 P275L1):

When the value of TXVECTOR parameter PARTIAL\_AID [5:8] in the transmitting VHT PPDU with the TXVECTOR parameter GROUP\_ID equal to 63 is not the same as the partial BSS color announced by an HE AP, the HE AP shall set the Partial BSS Color field in the HE Operation element to 0. Otherwise, the HE AP may set the Partial BSS Color subfield in the HE Operation element to 1 (also see 27.16.3 (AID assignment rule)).

* **A-MPDU length limit rules**

TGax Editor: Please make the following changes to the paragraph in this section (D1.4 P174L53):

***Change as follows:***

A STA indicates in the Maximum A‑MPDU Length Exponent field in its HT Capabilities element the maximum A‑MPDU length that it can receive in an HT PPDU. A STA indicates in the Maximum A-MPDU Length Exponent field in its VHT Capabilities element the maximum length of the A-MPDU pre-EOF padding that it can receive in a VHT PPDU. A DMG STA indicates in the Maximum A-MPDU Length Exponent field in its DMG Capabilities element the maximum A-MPDU length that it can receive. A STA indicates in the Maximum A-MPDU Length Exponent field in its HT Capabilities, VHT Capabilities and HE Capabilities elements the maximum length of the A-MPDU pre-EOF padding that it can receive in an HE PPDU. The encoding of these fields is defined in Table 9-163 (Subfields of the A-MPDU Parameters field) for an HT PPDU and HE PPDU, in Table 9-249 (Subfields of the VHT Capabilities Information field) for a VHT PPDU and HE PPDU, ~~and~~ in Table 9-229 (Subfields of the A-MPDU Parameters subfield) for a DMG STA, and in 9.4.2.237 (HE Capabilities element).[3260]

**9.6.8.36 FILS Discovery frame format**

TGax Editor: Please make the following change in Table 9-325a (D1.4 P147L62):

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| --- |
| * FILS Discovery frame format
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| Order | Information | Notes |
| ~~6~~ | ~~Vendor Specific element~~ | ~~One or more Vendor Specific elements are optionally~~~~present.~~ |
| 7 | TIM element | The TIM element is optionally present when dot11HEOptionImplemented is true, otherwise it is not present. |
| 8 | broadcast TWT element | The broadcast TWT element is optionally present when dot11HEOptionImplemented is true, otherwise it is not present. |

**The following additions are intended to include missing text in section 9.6.8.36 (FD frame format).**

TGax Editor: Please make the following changes to Table 9-337 (REVmd D0.1 P1299L40):

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| * BSS Operating Channel Width
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| BSS Operating Channel Width field | HR/DSSS, OFDM, ERP, HT, VHT or HE BSS operating channel width | TVHT BSS operating channel width  |
| 0 | 20 MHz or 22 MHz | TVHT\_W |
| 1 | 40 MHz | TVHT\_W+W |
| 2 | 80 MHz | TVHT\_2W |
| 3 | 160 MHz or 80+80 MHz | TVHT\_4W or TVHT\_2W+2W |
| 4–7 | Reserved | Reserved  |

TGax Editor: Please make the following changes to Table 9-339 (REVmd D0.1 P1300L24):

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| * PHY Index subfield
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|  PHY Index subfield  |  PHY |
| 0 | HR/DSSS (see Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY -specification)) |
| 1 | ERP-OFDM (see Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) and Clause 18 (Extended Rate PHY (ERP) specification))  |
| 2 | HT (see Clause 19 (High-throughput (HT) PHY specification)) |
| 3 | VHT (see Clause 21 (Very high throughput (VHT) PHY specification)) Or TVHT (see Clause 22 (Television very high throughput (TVHT) PHY specification))  |
| 4 | HE (see Clause 28 (High Efficiency (HE) PHY specification)) |
| 5–7 | Reserved |

TGax Editor: Please make the following changes to Table 9-340 (REVmd D0.1 P1300L55):

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| * FILS Minimum Rate
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| FILS Minimum Rate subfield | PHY Index subfield is 0 (HR/DSSS) |  PHY Index subfield is 1 (ERP-OFDM) |  PHY Index subfield is 2 (HT) |  PHY Index subfield is 3 (VHT or TVHT) | PHY Index subfield is 4 (HE) |
| 0 | 1 Mbps | 6 Mbps | MCS 0  | MCS 0 | MCS 0 |
| 1 | 2 Mbps | 9 Mbps | MCS 1 | MCS 1 | MCS 1 |
| 2 | 5.5 Mbps | 12 Mbps | MCS 2 | MCS 2 | MCS 2 |
| 3 | 11 Mbps | 18 Mbps | MCS 3 | MCS 3 | MCS 3 |
| 4 | Reserved | 24 Mbps | MCS 4 | MCS 4 | MCS 4 |
| 5–7  | Reserved | Reserved | Reserved | Reserved | Reserved |

TGax Editor: Please make the following change to the paragraph below Table 9-342 (REVmd D0.1 P1302L47):

Channel Center Frequency Segment 1 subfield is set to the index of the channel center frequency of the frequency segment 1 for an 80+80 MHz VHT or HE BSS, if the FILS Discovery frame is transmitted as a non-HT duplicate PPDUs at an 80+80 MHz channel bandwidth; otherwise, the subfield is not present.

**The following additions are intended to insert missing text in Table 9-265 (REVmd D0.1 P1193L44).**

* FILS Request Parameters element

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| * PHY Support Criterion subfield(11ai)
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| Value  | Explanation |
| 0 | Indicates that PHY Support Criterion is not in use. |
| 1 | Indicates that a responding FILS STA is HT capable.  |
| 2 | Indicates that a responding FILS STA is VHT capable. |
| 3 | Indicates that a responding FILS STA is HE capable. |
| 4–7 | Reserved  |

**The following additions are intended to insert missing text in Section 11.1.4.3.4 (REVmd D0.1).**

**11.1.4.3.4 Criteria for sending a response**

TGax Editor: Please insert a new bullet after the 3rd bullet (REVmd D0.1 P1710L20) as shown below:

A FILS STA shall not respond to a Probe Request frame if any of the following criteria is met for a FILS Request Parameters element contained in the Probe Request frame(11ai):

* If the FILS Criteria field is present in the FILS Requests Parameters element and the Max Delay Limit field of the FILS Request Parameters indicates a delay shorter than the selected average access delay of the responding STA. The BSS Delay Criterion field of the FILS Criteria field of the FILS Request Parameters element indicates the selected average access delay for the comparison as defined in Table 9-264 (BSS Delay Criterion subfield(11ai)). The Max Delay Limit field indicates the maximum value of the selected average access delay. If the compared Average Access Delay indicates Measurement not available, the STA shall respond and the response shall include a BSS AC Access Delay element as described in 9.4.2.44 (BSS AC Access Delay element) and Average Access Delay as described in 9.4.2.39 (BSS Average Access Delay element) or Average Access Delay as described in 9.4.2.39 (BSS Average Access Delay element) that was requested in the Probe Request frame. If the compared Average Access Delay indicates Service unable to access channel, the response shall not be transmitted.
* If the FILS Criteria field is present in the FILS Requests Parameters element and the PHY Support Criterion of the FILS Criteria field of the FILS Request Parameters element is 1 and the responding STA is not HT capable.
* If the FILS Criteria field is present in the FILS Requests Parameters element and the PHY Support Criterion of the FILS Criteria field of the FILS Request Parameters element is 2 and the responding STA is not VHT capable.
* If the FILS Criteria field is present in the FILS Requests Parameters element and the PHY Support Criterion of the FILS Criteria field of the FILS Request Parameters element is 3 and the responding STA is not HE capable.

TGax Editor: please increment the bullet numbers by 1 for subsequent bullets after the new bullet

**The following additions are intended to insert missing text in Section 11.47.2.1.**

* **FILS Discovery frame transmission**

TGax Editor: Please modify the 3rd paragraph (REVmd D0.1 P2050L41) as shown below.

If an AP transmits a FILS Discovery frame as a non-HT duplicate PPDU in an 80+80 MHz channel bandwidth, the Channel Center Frequency Segment 1 field shall be present in the FILS Discovery frame and shall be set to the channel center frequency of the frequency segment 1 for an 80+80 MHz VHT or HE operating channel.