IEEE P802.11
Wireless LANs

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| --- |
| Proposed resolution for comments related to Various CIDs in clause 6 & clause 9 |
| Date: May 3, 2017 |
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Abstract

This submission proposes resolutions for multiple comments received for TGax LB225 (35 CIDs):

8194, 5426, 7469, 7704, 7470, 5427, 7294, 8366, 7706, 3021, 8515, 8516, 8517, 8518, 9368, 5827, 7914, 7915, 7916, 7754, 7277, 9369, 5828, 7332, 6001, 6003, 9649, 7333, 5758, 8521, 8522, 3026, 4741, 7009, 3128

Revisions:

* Rev 0: Initial version of the document.

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.***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Section** | **Pg / Ln** | **Comment** | **Proposed Change** | **Resolution** |
| 8194 | Osama Aboulmagd | 9.3.3.1 | 52.38 | RAPS needs to be added to the abbreviations Clause | as in comment | RevisedAgree with the commentAdded RAPS to clause 3.4TGax editor please make changes as shown in 11-17/0140r0 |
| 5426 | Graham Smith | 6.3.3.3.2 | 11.26 | Why use different description than either HT or VHT? Aso not so sure anything is 'specified' here, it is simply a list. | Change "Specifies the parameters within the HE Capabilities element that are supported by the STA." to "The values from the HE Capabilities element." | RevisedAgree with the comment.Updated the text to be consistent with HT and VHT.TGax editor please make changes as shown in 11-17/0140r0 |
| 7469 | Lei Huang | 6.3.3.3.2 | 11.26 | The description on HE Capabilities is inaccurate and incomplete, which should be similar to VHT Capabilities | Replace the Description on HE Capabilities by"The values from the HE Capabilities element. The parameter is present if dot11HEOptionImplemented is true and an HE Capabilities element was present in the Probe Response or Beacon frame from which the BSSDescription was determined. The parameter is not present otherwise." | RevisedAgree with the comment.Updated the text to be consistent with HT and VHT.TGax editor please make changes as shown in 11-17/0140r0 |
| 7704 | Mark Hamilton | 6.3.3.3.2 | 11.26 | HE Capabilities and HE Operation values are only present if they were present in a matching Probe Reponse or Beacon for the this BSSDesciptor. | Add, in the Description column, similar language to that in 802.11-2016 for HT Capabilities and VHT Capabilities, to both the HE Capabilities and HE Operation rows. | RevisedAgree with the comment.Updated the text to be consistent with HT and VHT.TGax editor please make changes as shown in 11-17/0140r0 |
| 7470 | Lei Huang | 6.3.3.3.2 | 11.35 | The description on HE Operation is inaccurate and incomplete, which should be similar to VHT Operation | Replace the Description on HE Operation by"The values from the HE Operation element. The parameter is present if dot11HEOptionImplemented is true and an HE Operation element was present in the Probe Response or Beacon frame from which the BSSDescription was determined. The parameter is not present otherwise." | RevisedAgree with the comment.Updated the text to be consistent with HT and VHT.TGax editor please make changes as shown in 11-17/0140r0 |
| 5427 | Graham Smith | 6.3.3.32 | 11.35 | Why use different description than either HT or VHT? Aso not so sure anything is 'specified' here, it is simply a list. | Change "Specifies the parameters within the HE Operation element that are supported by theAP." to "The values from the HE Operation element." | RevisedAgree with the comment.Updated the text to be consistent with HT and VHT.TGax editor please make changes as shown in 11-17/0140r0 |
| 7294 | Kwok Shum Au | 6.3.3.3.2 | 11.41 | Is the service primitive "HE Operation" always present? | If "HE Operation" is not present, replace "The parameter is present if dot11HEOptionImplemented is true" with "The parameter is present if dot11HEOptionImplemented is true; otherwise, this parameter is not present". | RevisedAgree with the comment.Updated the text to be consistent with HT and VHT. The updated text covers the case where HE Operations element is not present.TGax editor please make changes as shown in 11-17/0140r0 |
| 8366 | Po-Kai Huang | 6.3.27 | 13.56 | It seems that HE Capabilities is also required in MLME-DLS.confirm because HT and VHT Capabilities are also included in MLME-DLS.confirm | Add HE Capabilities in MLME-DLS.confirm | RevisedAgree with the commentAdded HE Capabilities to MLME-DLS.confirmTGax editor please make changes as shown in 11-17/0140r0 |
| 7706 | Mark Hamilton | 6.3.27 | 13.58 | MLME-DLS.confirm needs HE Capabilities, like MLME-DLS.indication. | Add HE Capabilities parameter and row to MLME-DLS.confirm, similar to the baseline for HT/VHT Capabilities for this primitive. | RevisedAgree with the commentAdded HE Capabilities to MLME-DLS.confirmTGax editor please make changes as shown in 11-17/0140r0 |
| 3021 | Abhishek Patil | 9.3.3.1 | 52.43 | MU EDCA Parameter missing in Beacon frame. Same comment applies to Association Request/Response and Reassociation Request/Response frames. | Add MU-EDCA Parameter to the table 9-27. Same applies to Association Response, Reassociation Response and Probe Response frames. Please add MU-EDCA Parameter to tables 9-30, 9-32 and 9-34. | RevisedAgree with the comment.Added MU EDCA Parameter to Probe Response, Beacon, Association Response and Reassociation Response frames.TGax editor please make changes as shown in 11-17/0140r0 |
| 8515 | Robert Stacey | 9.3.3.1 | 52.26 | The Beacon frame body table (Table 9-27) does not include the MU EDCA Parameter Set element | Add it | RevisedAgree with the comment.Please see resolution to CID 3021 |
| 8516 | Robert Stacey | 9.3.3.5 | 53.15 | The Association Response frame body table (Table 9-30) does not include the MU EDCA Parameter Set element | Add it | RevisedAgree with the comment.Please see resolution to CID 3021 |
| 8517 | Robert Stacey | 9.3.3.8 | 54.09 | The Reassociation Response frame Body table (Table 9-32) does not include the MU EDCA Parameter Set element | Add it | RevisedAgree with the comment.Please see resolution to CID 3021 |
| 8518 | Robert Stacey | 9.3.3.11 | 55.06 | The Probe Response frame Body table (Table 9-34) does not include the MU EDCA Parameter Set element | Add it | RevisedAgree with the comment.Please see resolution to CID 3021 |
| 9368 | Weimin Xing | 9.3.3.5 | 52.65 | The TWT element is optionally present if dot11TWTOptionActivated is true; otherwise it is not present. | Please add the TWT element in Table 9-29 | Reject802.11ah already includes TWT element in Association Req frame (Table 9-29). |
| 5827 | Huizhao Wang | 9.3.3.6 | 53.17 | Why the order of TWT IE is before HE Cap IE in (Re-)Assoc Resp frame? All other mgmt frames, the TWT IE is after HE Op IE | Move the TWT IE after the HE Op IE, as all other mgmt frames | Reject802.11ah includes TWT element in Association Resp frame (Table 9-30), therefore it appear before other elements that are defined by TGax. |
| 7914 | Mark RISON | 9.3.3.6 | 53.17 | The deletion has lost the "otherwise not present" case | Add a para "Otherwise, the TWT element is not present." at the end of the cell | RevisedAgree with the commenterAdded text as suggested by the commenterTGax editor please make changes as shown in 11-17/0140r0 |
| 7915 | Mark RISON | 9.3.3.6 | 53.19 | The change is not compatible with existing implementations that do not include a TWT element in the assoc rsp even though dot11TWT is true and there was a TWT element in the assoc req | Add "optionally" before "present". Ditto Table 9-32 | RejectTWT element was introduced by 802.11ah which precedes TGax. In addition, the behavior defined by 11ax is consistent with 11ah. Therefore, incompatibility with existing implementations shouldn’t occur.  |
| 7916 | Mark RISON | 9.3.3.6 | 53.19 | The change is not compatible with existing implementations that do not include a TWT element in the assoc rsp even though dot11TWT is true and there was a TWT element in the assoc req | Do not make any change in this cell. Ditto Table 9-32 | RejectTWT element was introduced by 802.11ah which precedes TGax. In addition, the behavior defined by 11ax is consistent with 11ah. Therefore, incompatibility with existing implementations shouldn’t occur. |
| 7754 | Mark Hamilton | 9.3.3.6 | 53.20 | Association Request doesn't have a TWT element, according to 9.3.3.5. | Either remove this condition from Association Response, or add TWT element to Assocation Request. Same thing for Reassociation Request/Response. | Reject802.11ah includes TWT element in Association Req frame (Table 9-29), Reassociation Req frame (Table 9-31) and Reassociation Resp frame (Table 9-32). |
| 7277 | Kwok Shum Au | 9.3.3.6 | 53.24 | There is no "TWT Requester Supported field". | In 53.24 and 54.18, replace "TWT Requester Supported field" with "TWT Requester Support field". | RevisedAgree with the commentFixed the field nameTGax editor please make changes as shown in 11-17/0140r0 |
| 9369 | Weimin Xing | 9.3.3.7 | 53.58 | The TWT element is optionally present if dot11TWTOptionActivated is true; otherwise it is not present. | Please add the TWT element in Table 9-31 | Reject802.11ah already includes TWT element in Association Resp frame (Table 9-31). |
| 5828 | Huizhao Wang | 9.3.3.8 | 54.11 | why the order of TWT IE is before HE Cap IE in (Re-)Assoc Resp frame? All other mgmt frames, the TWT IE is after HE Op IE | move the TWT IE after the HE Op IE, as all other mgmt frames | Reject802.11ah includes TWT element in Association Resp frame (Table 9-32), therefore it appear before other elements that are defined by TGax. |
| 7332 | Kwok Shum Au | 9.3.3.8 | 54.19 | The description is about Reassociation Response frame, rather than Association Response frame. | Replace "Association Response frame" with "Reassociation Response frame". | RevisedAgree with the commentFixed the frame name as suggested by the commenterTGax editor please make changes as shown in 11-17/0140r0 |
| 6001 | Jarkko Kneckt | 9.3.3.6 | 53.36 | The RAPS information (OCWMIn and OCWMAx) should be present in the (re)association response. This allows the UL OFDMA random access immediately after the association. | Please add the RAPS information part of the HE Operation parameters, or add the RAPS element to the Association Response frame body. | RevisedAdded RAPS element to Association Response frameTGax editor please make changes as shown in 11-17/0140r0 |
| 6003 | Jarkko Kneckt | 9.3.3.8 | 54.31 | The RAPS information (OCWMIn and OCWMAx) should be present in the (re)association response. This allows the UL OFDMA random access use | Please add the RAPS information part of the HE Operation parameters, or add the RAPS element to the Re-Association Response fare body. | RevisedAdded RAPS element to Re-association Response frameTGax editor please make changes as shown in 11-17/0140r0 |
| 9649 | Yongho Seok | 9.3.3.11 | 55.17 | "The TWT element is optionally present when dot11TWTOptionActivated and dot11HEOptionImplemented is true; otherwise it is not present."From 27.7.3.1 (General), the broadcast TWT element is present if it is included in only a broadcast Probe Response frame.Because a broadcast Probe Response frame is allowed only when dot11FILSOmitReplicateProbeResponses is true, change it as the following:"The TWT element is optionally present within broadcast Probe Response frames when dot11TWTOptionActivated, dot11HEOptionImplemented and dot11FILSOmitReplicateProbeResponses are true and ; otherwise it is not present." | As per comment. | RevisedAgree with the comment. Removed text pointing to a directed probe response and added new text to cover the case of broadcast probe response when the relevant MIB variables are true.TGax editor please make changes as shown in 11-17/0140r0  |
| 7333 | Kwok Shum Au | 9.3.3.11 | 55.18 | Why is "dot11HEOptionImplemented" required for the TWT element to be optionally present in Probe Response frame? | Delete "and dot11HEOptionImplemented is true". | RejectThe text is required since only an HE AP’s probe response may contain TWT element. |
| 5758 | Guoqing Li | 9.3.1.1 | 55.22 | Why RAPS is only in probe response, should it be also in (Re)Association response? | Include RAPS in (Re)Association response frame format | RevisedAdded RAPS element to (Re)Association Response frameTGax editor please make changes as shown in 11-17/0140r0 |
| 8521 | Robert Stacey | 9.4.2.1 | 67.15 | A WG motion is required to allocate an element ID for the HE Capabilities element. It can't be justified and I doubt it would be approved. | Change to Element ID Extension and update format accordingly | RevisedAgree with the commentTGax editor incorporated the necessary changes in D1.2. No further changes are required. |
| 8522 | Robert Stacey | 9.4.2.1 | 67.19 | A WG motion is required to allocate an element ID for the HE Operation element. It can't be justified and I doubt it would be approved. | Change to Element ID Extension and update format accordingly | RevisedAgree with the comment TGax editor incorporated the necessary changes in D1.2. No further changes are required. |
| 3026 | Abhishek Patil | 9.4.2.1 | 67.29 | Add missing elements to table 9-77 | Add BSS Color Change Announcement and Quiet time elements to table 9-77. Enter 'yes' under Extensible column for these entries | AcceptAgree with the commentAdded entry to Table 9-77 for BSS Color Change Announcement.TGax editor please make changes as shown in 11-17/0140r0 |
| 4741 | Alfred Asterjadhi | 9.4.2.1 | 67.10 | There are a couple of elements missing in this list: BSS Color Change Announcement, Quiet Time Period Setup element, its request and its response (which by the way is it needed to have 3 elements for the same procedure? Why not simply have a bit or smth in one element that makes this differentiation> See my other comment in the same logic. | Add the missing rows for those elements that are defined. | RevisedAgree with the commentAdded entry to Table 9-77 for BSS Color Change Announcement and a single entry for Quiet Time Period Setup element.TGax editor please make changes as shown in 11-17/0140r0Note, this document defines only 1 Quiet Time Period element so that it is consistent with document 11-17/693, which was approved during the May IEEE meetings has consolidated the three elements into one element for Quiet Time Period. |
| 7009 | Jouni Malinen | 9.4.2.1 | 67.29 | P802.11ax/D1.0 defines multiple new elements. Only half of those have been added into Table 9-77. | Add the following Element ID 255, Element ID Extension <ANA> elements into Table 9-77:BSS Color Change Announcement element,Quiet Time Period Setup element,Quiet Time Period Request element,Quiet Time Period Response element. | RevisedAgree with the commentAdded entry to Table 9-77 for BSS Color Change Announcement and a single entry for Quiet Time Period Setup element.TGax editor please make changes as shown in 11-17/0140r0Note, this document defines only 1 Quiet Time Period element so that it is consistent with document 11-17/693, which was approved during the May IEEE meetings has consolidated the three elements into one element for Quiet Time Period. |
| 3128 | Adrian Stephens |  | 67.30 | There are no element ID definitions in Table 9-77 for the BSS Color Change ... element and the three Quite Time elements. | Add them. | RevisedAgree with the commentAdded entry to Table 9-77 for BSS Color Change Announcement and a single entry for Quiet Time Period Setup element.TGax editor please make changes as shown in 11-17/0140r0Note, this document defines only 1 Quiet Time Period element so that it is consistent with document 11-17/693, which was approved during the May IEEE meetings has consolidated the three elements into one element for Quiet Time Period. |

* Abbreviations and acronyms

TGax Editor: Please make the following addition to this section:

***Insert the following acronym definitions (maintaining alphabetical order):***

A-Control Aggregated control

BQR Bandwidth query report

BSR Buffer status report

CCDF Complementary cumulative distribution function

DCM Dual carrier modulation

DL Downlink

DL MU Downlink multi-user

DL OFDMA Downlink orthogonal frequency division multiple access

HE High efficiency

LA Link adaptation

MU-RTS Multi-user request to send

MUEDCATimer Multi-user EDCA timer

OBO Orthogonal frequency division multiple access (OFDMA) backoff

OCW Orthogonal frequency division multiple access (OFDMA) contention window

OFDMA Orthogonal frequency-division multiple access

OMI Operating mode indication

PPE PHY padding extension

RAPS Random Access Parameter Set[8194]

RDP Reverse direction protocol

RU Resource unit

SF Scaling factor

SR Spatial reuse

SRG Spatial reuse group

UL Uplink

UL MU Uplink multi-user

UL OFDMA Uplink orthogonal frequency division multiple access

UMRS Uplink multi-user response scheduling

UORA Uplink orthogonal frequency division multiple access (OFDMA) based random access

UPH Uplink power headroom

* **MLME SAP interface**
* **Scan**
* **MLME-SCAN.confirm**
* **Semantics of the service primitive**

TGax Editor: Please make the following changes to the table on pg 9, line 22 of D1.2:

***Insert the following rows at the end of the BSSDescription table:***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Type** | **Valid range** | **Description** | **IBSS adoption** |
| HE Capabilities | As defined in frame format | As defined in 9.4.2.218 (HE Capabilities element) | [5426, 7469, 7704]~~Specifies the parameters within the~~ The value from HE Capabilities element. ~~that are supported by the STA~~ The parameter is present if dot11HEOptionImplemented is true and HE Capabilities element was present in the Probe Response or Beacon frame from which the BSSDescription was determined. The parameter is ~~present if dot11HEOptionImplemented is true; otherwise, this parameter is~~ not present otherwise. | Do not adopt |
| HE Operation | As defined in frame format | As defined in 9.4.2.219 (HE Operation element) | [7704, 5427, 7470, 7294]The value from HE Operation element. ~~Specifies the parameters within the HE Operation element that are supported by the AP.~~ The parameter is present if dot11HEOptionImplemented is true and a HE Operation element was present in the Probe Response or Beacon frame from which the BSSDescription was determined. The parameter is not present otherwise. | Adopt |

* Management of direct links

TGax Editor: Please add MLME-DLS.confirm with the following modifications:

**6.3.27.3 MLME-DLS.confirm**

**6.3.27.3.2 Semantics of the service primitive**

TGax Editor: Please add parameters as follows (not all existing parameters in the baseline are shown):

MLME-DLS.confirm(

...,

HE Capabilities,

VendorSpecificInfo

)

TGax Editor: Please insert the following entry to the unnumbered table in this subclause:

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Type | Valid range | Description |
| HE Capabilities | As defined in HE Capabilities element. | As defined in 9.4.2.218 (HE Capabilities element) | [8366, 7706]Specifies the parameters within the HE Capabilities element that are supported by the MAC entity. The parameter is optionally present if dot11HEOptionImplemented is true; otherwise, it is not present. |

TGax Editor: Please delete duplicate text in section 6.3.27 on pg 12 of D1.2 as shown below:

* ~~6.3.27.4~~ MLME-DLS.indication
* ~~6.3.27.4.2~~ Semantics of the service primitive
* **Management frames**
* **Beacon frame format**
* ***Order: 11ai adds 66-69, 11ah adds none, 11aq adds 70-71, 11ak adds 67 (appears to be out of date), 11aj adds none.***

***Insert the following new rows (header row shown for convenience) into Table 9-27 (Beacon frame body):***

TGax Editor: Please modify Table 9-27 (pg 52, line 21 in D1.2) as follows:

|  |
| --- |
| * **Beacon frame body**
 |
| **Order** | **Information** | **Notes** |
| 73 | HE Capabilities | The HE Capabilities element is present when dot11HEOptionImplemented is true; otherwise it is not present. |
| 74 | HE Operation | The HE Operation element is present when dot11HEOptionImplemented is true; otherwise it is not present. |
| 75 | TWT | The TWT element is optionally present when dot11TWTOptionActivated is true; otherwise it is not present. |
| 76 | RAPS | The RAPS element is optionally present when dot11OFDMARandomAccessOptionImlemented is true; otherwise it is not present. |
| 77 | BSS Color Change Announcement | The BSS Color Change Announcement element is optionally present when dot11HEOptionImplemented is true; otherwise it is not pre-sent. |
| 78 | Spatial Reuse Parameter Set | The Spatial Reuse Parameter Set element is optionally present if dot11HighEfficiencyOptionImplemented is true; otherwise it is not present. |
| <ANA> | MU EDCA Parameter | The MU EDCA Parameter element is optionally present if dot11HighEfficiencyOptionImplemented is true; otherwise it is not present.[3021, 8515] |

* **Association Response frame format**
* ***Order: 11ai adds 31-36, 11ah adds 37-49, 11aq adds none, 11ak adds 30-31 (appears to be out of date), 11aj adds three (numbers unassigned)***

***Change Table 9-30 (Association Response frame body) as follows maintaining numeric order (only rows with changes are shown):***

TGax Editor: Please modify Table 9-30 (pg 53, line 12 in D1.2) as follows:

|  |
| --- |
| * **Association Response frame body**
 |
| **Order** | **Information** | **Notes** |
| 29 | TWT | The TWT element is present if dot11TWTOptionActivated is true and the TWT element is present in the Association Request frame that elicited this Association Response frame.The TWT element is optionally present if dot11TWTOptionActivated is true and the TWT Requester Support~~ed~~[7277] field in the HE Capabilities in the Association Request frame that elicited this Association Response frame is 1~~one~~.Otherwise, the TWT element is not present.[7914] |
| 54 | HE Capabilities | The HE Capabilities element is present when dot11HEOptionImplemented is true; otherwise it is not present. |
| 55 | HE Operation | The HE Operation element is present when dot11HEOptionImplemented is true; otherwise it is not present. |
| 56 | BSS Color Change Announcement | The BSS Color Change Announcement element is optionally present when dot11HEOptionImplemented is true; otherwise it is not present. |
| 57 | Spatial Reuse Parameter Set | The Spatial Reuse Parameter Set element is optionally present if dot11HighEfficiencyOptionImplemented is true; otherwise, it is not present. |
| <ANA> | MU EDCA Parameter | The MU EDCA Parameter element is optionally present if dot11HighEfficiencyOptionImplemented is true; otherwise, it is not present.[3021, 8516] |
| <ANA> | RAPS | The RAPS Parameter element is optionally present if dot11HighEfficiencyOptionImplemented is true; otherwise, it is not present.[6003, 5758] |

* **Reassociation Response frame format**
* ***Order: 11ai adds 35-49, 11ah adds 41-52, 11aq adds none, 11ak adds 34 and 30 (appears to be an error), 11aj adds three (numbers unassigned)***

***Change Table 9-32 (Reassociation Response frame body) as follows maintaining numeric order (only rows with changes are shown):***

TGax Editor: Please modify Table 9-32 (pg 54, line 12 in D1.2) as follows:

|  |
| --- |
| * **Reassociation Response frame body**
 |
| **Order** | **Information** | **Notes** |
| 42 | TWT | The TWT element is present if dot11TWTOptionActivated is true and the TWT element is present in the Reassociation Request frame that elicited this Reassociation Response frame.The TWT element is optionally present if dot11TWTOptionActivated is true and the TWT Requester Support~~ed~~[7277] field in the HE Capabilities in the Reassociation Request frame that elicited this [7332]~~A~~Reassociation Response frame is 1~~one~~.Otherwise, the TWT element is not present.[7914] |
| 55 | HE Capabilities | The HE Capabilities element is present when dot11HEOptionImplemented is true; otherwise it is not present. |
| 56 | HE Operation | The HE Operation element is present when dot11HEOptionImplemented is true; otherwise it is not present. |
| 57 | BSS Color Change Announcement | The BSS Color Change Announcement element is optionally present when dot11HEOptionImplemented is true; otherwise it is not present. |
| 58 | Spatial Reuse Parameter Set | The Spatial Reuse Parameter Set element is optionally present if dot11HighEfficiencyOptionImplemented is true; otherwise, it is not present. |
| <ANA> | MU EDCA Parameter | The MU EDCA Parameter element is optionally present if dot11HighEfficiencyOptionImplemented is true; otherwise, it is not present.[3021, 8517] |
| <ANA> | RAPS | The RAPS Parameter element is optionally present if dot11HighEfficiencyOptionImplemented is true; otherwise, it is not present.[6003, 5758] |

* **Probe Response frame format**
* ***Order: 11ai adds 70-73, 11ah adds 74-84, 11aq adds 85-86, 11ak adds 70 (appears to be out of date), 11aj adds four (numbers unassigned)***

***Insert the following new rows into Table 9-34 (Probe Response frame body) (header shown for convenience):***

TGax Editor: Please modify Table 9-34 (pg 55, line 12 in D1.2) as follows:

|  |
| --- |
| * **Probe Response frame body**
 |
| **Order** | **Information** | **Notes** |
| 92 | HE Capabilities | The HE Capabilities element is present when dot11HEOptionImplemented is true; otherwise it is not present. |
| 93 | HE Operation | The HE Operation element is present when dot11HEOptionImplemented is true; otherwise it is not present. |
| 94 | TWT | ~~The TWT element is optionally present when dot11TWTOptionActivated and dot11HEOptionImplemented is true; otherwise it is not present.~~The TWT element is optionally present within broadcast Probe Response frames when dot11TWTOptionActivated, dot11HEOptionImplemented and dot11FILSOmitReplicateProbeResponses are true; otherwise it is not present.[9649] |
| 95 | RAPS | The RAPS element is optionally present when dot11OFDMARandomAccessOptionImlemented is true; otherwise it is not present. |
| 96 | BSS Color Change Announcement | The BSS Color Change Announcement element is optionally present when dot11HEOptionImplemented is true; otherwise it is not present. |
| 97 | Spatial Reuse Parameter Set | The Spatial Reuse Parameter Set element is optionally present if dot11HighEfficiencyOptionImplemented is true; otherwise it is not present. |
| <ANA> | MU EDCA Parameter | The MU EDCA Parameter element is optionally present if dot11HighEfficiencyOptionImplemented is true; otherwise, it is not present.[3021, 8518] |

* **Elements**
* **General**

***Insert the following new rows into Table 9-77 (Element IDs) (header row shown for convenience):***

TGax Editor: Please modify Table 9-77 (pg 68, line 9 in D1.2) as follows:

|  |
| --- |
| * **Element IDs**
 |
| **Element** | **Element ID** | **Element ID Extension** | **Extensible** |
| HE Capabilities (see 9.4.2.213 (HE Capabilities element)) | 255 | 35 | Yes |
| HE Operation (see 9.4.2.214 (HE Operation element)) | 255 | 36 | Yes |
| RAPS element (see 9.4.2.220 (OFDMA-based Random Access Parameter Set (RAPS) element)) | 255 | 37 | Yes |
| MU EDCA Parameter Set (see 9.4.2.221 (MU EDCA Parameter Set element)) | 255 | 38 | Yes |
| BSS Color Change Announcement (see 9.4.2.222 (BSS Color Change Announcement element))[3026, 4741, 7009, 3128] | 255 | <ANA> | Yes |
| Quiet Time Period Setup (see 9.4.2.223 (Quiet Time Period Setup element))[4741, 7009, 3128] | 255 | <ANA> | Yes |
| Spatial Reuse Parameter Set element (see 9.4.2.x Spatial reuse parameter set element) | 255 | 39 | Yes |

TGax Editor: Please change Octets to Bits in Figure 9-589cu on pg 96 line 31 in D1.2 section 9.4.2.220:

|  |  |  |  |
| --- | --- | --- | --- |
|  | B0             B2 | B3            B5 | B6         B7 |
|  | EOCWmin | EOCWmax | Reserved |
| ~~Octets~~Bits: | 3 | 3 | 2 |
| * OCW Range field format
 |