IEEE P802.11  
Wireless LANs

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| Comment Resolution for Clause 35.1 | | | | |
| Date: 2202-09-30 | | | | |
| Author(s): | | | | |
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Abstract

This documents includes proposed resolutions for CIDs 10213, 10363, 10594, 10921, 11025, 11278, 11871, 12453, 12790, 13682, 13766, and 13767

R0: Initial draft

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| **CID** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 10213 | 35.1 | 399.10 | Text says that an EHT STA sets dot11EHTBaseLineFeaturesImplementedOnly to true. Defintion in C.3 indicates that this MIB variable indicates that STA has has not implemented EHT features that are not found in EHT Capabilities element. This defintion makes clear that there are EHT STAs that do not set dot11EHTBaseLineFeaturesImplementedOnly to true. | Change text to read "An EHT STA sets dot11EHTOptionImplemented to true." | Revised  The description that follows the first sentence in Clause 35.1 is sufficient and clear by itself without the need to add the first sentence or replace it with something else.  TGbe Editor: Please make the changes related to CID 10213 |

Discussion:

Agree with the commentor. This MIB variable was introduced by the resolution to the CID 3173, to avoid using language not suitable for IEEE standards such “Release 1”. To say that An EHT STA shall set dot11EHTBaseLineFeaturesImplementedOnly to true only partially describing the EHT STA capabilities. While the commenter proposal is valid Clause 35.1 is just a high-level description of some of the EHT MAC features and doesn’t have to include normative language. The proposal here is to delete the first line in Clause 35.1. This proposal is also inline with Clause 26.1 on HE MAC features.

Proposed Resolution: Revised

***TGbe Editor: Please make the changes shown below:***

An EHT STA supports the MAC and MLME functions defined in Clause 35 (Extremely high throughput (EHT) MAC specification) in addition to the MAC functions defined in Clause 26 (High efficiency (HE) MAC specification) and Clause 10 (MAC sublayer functional description), the MLME functions defined in Clause 11 (MLME), and the security functions defined in Clause 12 (Security) except when the functions in Clause 35 (Extremely high throughput (EHT) MAC specification) supersede the functions in Clause 10 (MAC sublayer functional description), Clause 11 (MLME), Clause 12 (Security), or Clause 26 (High efficiency (HE) MAC specification).

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| **CID** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 10363 | 35.1 | 0.00 | As latency improvement is one of the scope, the MAC needs to be able to measure and report the delay of data delivery of, say, a specific TID, from the time when data unit is passed from the upper layer till successful delivery at the peer MAC (or judge success at the transmitter side by receiving acknowledgements for the corresponding MSDU). This is fundamental to see if there is improvement in delay. | Require the support of transmitting the Transmit Stream/Category Measurement report (especially to report the Average Transmit Delay) to be mandatory at EHT STAs in 35.1. Reflect that also in Annex B. | Rejected  The use of the Transmit Stream/Category Measurements is well-defined in the baseline. No further work is needed. |

Discussion:

The commenter is proposing to make the use of Transmit Stream/Category Measurement (Clause 4.3.11.12) mandatory for an EHT STA. The use of this report is well defined in the baseline and an EHT STA can use it as defined. Additionally, the comment is not specific enough and perhaps the commenter may submit a complete proposal of how to make the use of this report mandatory for low latency traffic.

Proposed Resolution: Rejected

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| **CID** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 11871 | 35.1 | 399.22 | "A reference model for MLO is described in 4.9.5 (Reference model for multi-link operation (MLO))"-seems out of place. Perhaps it is good to provide an overview of the EHT MAC features and when overviewing the MLO feature this sentence will help. . | As in comment. | Revised  The sentence seems to be out of place.  TGbe Editor: Please make the changes below |
| 13767 | 35.1 | 399.22 | This sentence should be under 35.3 | Please move it to 35.3.1 | Revised  The sentence seems to be out of place.  TGbe Editor: Please make the changes below |

Discussion: Agree with both commenters. The sentence appears suddenly with no context and it seems to be out of place.

The proposed resolutions to both comments is Revised.

TGbe Editor: Please make the changes below:

An EHT STA supports the MAC and MLME functions defined in Clause 35 (Extremely high throughput (EHT) MAC specification) in addition to the MAC functions defined in Clause 26 (High efficiency (HE) MAC specification) and Clause 10 (MAC sublayer functional description), the MLME functions defined in Clause 11 (MLME), and the security functions defined in Clause 12 (Security) except when the functions in Clause 35 (Extremely high throughput (EHT) MAC specification) supersede the functions in Clause 10 (MAC sublayer functional description), Clause 11 (MLME), Clause 12 (Security), or Clause 26 (High efficiency (HE) MAC specification).

An EHT STA supports multi-link operation defined in Clause 35.3 (Multi-Link Operation). MLO allows an AP MLD and a non-AP MLD to set up multiple links between them. A reference model for MLO is described in 4.9.5 (Reference model for multi-link operation (MLO)).

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| **CID** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 11025 | 35.1 | 513.32 | The sentence is too long and difficult to read. | Considering to split to several sentences | Rejected  While the sentence may look long it includes the conditions for which Equation (35-3) is applicable. The commenter hasn’t identified any technical issues with this sentence. |

Discussion:

The commenter is referring to the sentence;

“If the operating channel width of the STA is greater than 80 MHz, then the maximum number of spatial streams that the STA supports in reception for a given EHT-MCS as a function of the received EHT PPDU bandwidth *BW* at an EHT STA transmitting only an OM Control subfield or an EHT OM Control subfield combined with an OM Control subfield is defined in Equation (35-3).” Which is in Clause 35.10 (not 35.1).

While the sentence may look long it includes the conditions for which Equation (35-3) is applicable. The commenter hasn’t identified any technical issues with this sentence.

Proposed Resolution: Rejected

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| **CID** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 10594 | 35.1 | 399.10 | All new features added post TGbe D2.0 must have the dot11EHTBaseline...Only MIB set to false | As in comment | Revised  Delete the MIB variable dot11EHTBaseLineFeaturesImplementedOnly.  TGbe Editor: Please make changes shown below. |
| 10921 | 35.1 | 399.10 | Are there any new features that require dot11EHTBaseLineFeaturesImplementedOnly equals false? If not, then please delete all related text with the variable. If yes, then add a capability bit to map the variable, e.g. EHT\_Base\_Line\_Feature\_Only in EHT capability. | As in the comment. | Revised  Delete the MIB variable dot11EHTBaseLineFeaturesImplementedOnly.  TGbe Editor: Please make changes shown below. |
| 11278 | 35.1 | 512.59 | "An EHT AP that supports 320 MHz shall set dot11EHTOMIOptionImplemented to true.". Not clear what happens otherwise. Is it optional to set dot11EHTOMIOptionImplemented? | Clarify | Revised  Delete the MIB variable dot11EHTBaseLineFeaturesImplementedOnly.  TGbe Editor: Please make changes shown below. |
| 12453 | 35.1 | 399.10 | The condition for an EHT STA to set dot11EHTBaseLineFeaturesImplementedOnly to true is not clear. | Clarify the condition for EHT STA to set dot11EHTBaseLineFeaturesImplementedOnly to true. | Revised  Delete the MIB variable dot11EHTBaseLineFeaturesImplementedOnly.  TGbe Editor: Please make changes shown below. |
| 12790 | 35.1 | 399.10 | "An EHT STA sets dot11EHTBaseLineFeaturesImplementedOnly to true." Define the mechanism if we want that STAs can set it to false. | as in comment | Revised  Delete the MIB variable dot11EHTBaseLineFeaturesImplementedOnly.  TGbe Editor: Please make changes shown below. |
| 13682 | 35.1 | 399.10 | "An EHT STA sets dot11EHTBaseLineFeaturesImplementedOnly to true." Lack of conditions to set to false? | as in comment. | Revised  Delete the MIB variable dot11EHTBaseLineFeaturesImplementedOnly.  TGbe Editor: Please make changes shown below. |
| 13766 | 35.1 | 399.10 | If the EHT STA shall always set dot11EHTBaseLineFeaturesImplementedOnly to true, who can set it to false? If no STA can set it to false, it seems that there is no need to have this MIB variable | Please clarify | Revised  Delete the MIB variable dot11EHTBaseLineFeaturesImplementedOnly.  TGbe Editor: Please make changes shown below. |

Discussion

The set of CIDs given in the above table are all related to the MIB variable dot11EHTBaseLineFeaturesImplementedOnly. This MIB variable was introduced by the resolution of CID 3173 to avoid the use of Release I and Release II language in a standard document. There are a number of factors that need to be considered:

* It doesn’t seem that R2 is going to materialize. Features such as multi-AP and 16 SS are now being considered for the next iteration (UHR SG). For example, a SP conducted in the TG indicated that TG desire not to include 16 SS for 11be.
* EHT STA capabilities should be reflected in the EHT Capabilities element rather that a MIB variable.
* At the end only one amendment document would be published and one EHT STA is defined. STAs with different capabilities may exist but different capabilities should be reflected in Capabilities element.

The proposed resolutions to all the above CIDs are Revised and delete the MIB variable dot11EHTBaseLineFeaturesImplementedOnly from the draft. There are 50 occurrences in the draft.

***TGbe Editor: Please makes the changes shown below:***

***Reference is draft D2.0.***

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| **Location** | **Proposed Change** |
| P125 L43 | An EHT STA does not set Rx NSS Exten­sion subfield in EHT OM Control subfield to 1. |
| P127 L17 | An EHT STA does not set Tx NSTS Extension subfield in EHT OM Control subfield to 1. |
| P144 L44 | NOTE 1—A non-AP EHT STA does not respond with a TB PPDU to a Trigger frame that does not follow the combinations listed in this table (see 35.5.2.3.4 (Conditions for not responding with a TB PPDU)). |
| P144 L52 | An EHT AP does not set [B54:B55] in the Common Info field to the value “10” in a Trigger frame. If the bandwidth of a solicited EHT TB PPDU is less than 320 MHz, then B39 of the corresponding EHT variant User Info field in the Trigger frame is set to 0. |
| P281 L65 | NOTE—Nonpunctured nonprimary 20 MHz subchannels are based on the value indicated in the most recently exchanged Disabled Subchannel Bitmap field in the EHT Operation element for that BSS if an EHT STA is addressed by the RTS frame. |
| P399 L10 | See resolution to CID 10213 |
| P399 L50 | NOTE—In an EHT BSS set up by an EHT AP that has included the Disabled Subchannel Bitmap field in the EHT Operation element, both an EHT STA transmitting a Control frame in non-HT duplicate format with a bandwidth signaling TA and an EHT STA responding a Control frame in non-HT duplicate format sets the TXVECTOR parameter INACTIVE\_SUBCHANNELS of an non-HT duplicate PPDU based on the value indicated in the most recently exchanged Disabled Subchannel Bitmap field in the EHT Operation element for that BSS. |
| P400 L21 | The MU-RTS TXS Trigger frame, if transmitted by an AP shall have one User Info field that is not a Special User Info field. The User Info field shall be addressed to an associated non-AP STA (i.e., AID12 subfield is set to a value between 1 and 2006). The MU-RTS TXS Trigger frame may contain a Special User Info field as defined in 9.3.1.22.9 (MU-RTS Trigger frame format). |
| P400 L31 | The number of User Info fields that is addressed to a non-AP EHT STA in an MU-RTS TXS Trigger frame transmitted by an EHT AP shall be 1. |
| P404 L15 | An EHT AP that transmits a PPDU carrying an MU-RTS Trigger frame shall not puncture other subchannels in addition to those indicated in the Disabled Subchannel Bitmap field in the EHT Operation element. |
| P499 L4 | Otherwise, an MLD shall not transmit an individually addressed MMPDU that is intended for one or more STA(s) affiliated with the associated MLD with setup link(s) to another STA (other than the intended STA(s)) affiliated with the associated MLD with a setup link. |
| P450 L12 | Between an AP MLD and a non-AP MLD associated with the AP MLD, a TWT Setup frame that includes a Link ID Bitmap subfield in its TWT element shall not include a Multi-Link Link Information element. Only one bit in the Link ID bitmap subfield of the Multi-Link Link Information element shall be set to 1. |
| P452 L29 | An NSTR mobile AP MLD shall set the Maximum Number of Simultaneous Links subfield of the Basic Multi-Link element carried in transmitted Management frames to 1. |
| P468 L31 | An NSTR mobile AP MLD shall be an AP MLD which sets dot11EHTNSTRMobileAPMLDImplemented to true. An NSTR mobile AP MLD shall have one NSTR pair of links and shall follow with the restrictions below: |
| P471 L1 | When the frames that are exchanged during TDLS discovery or setup do not include a TDLS Multi-Link element or include a TDLS Multi-Link element containing only the Common Info field carrying only the AP MLD MAC Address, then the TDLS direct link discovery or setup respectively, is for a single link. A TDLS STA affiliated with a non-AP MLD shall only negotiate TDLS over a single link. |
| P483 L44 | An EHT AP shall not allocate an RU or MRU on the secondary 160 MHz in a 320 MHz EHT MU PPDU or EHT TB PPDU to a 160 MHz operating non-AP EHT STA. |
| P484 L47 | An EHT AP shall not transmit an HE PPDU that carries a Trigger frame soliciting an EHT TB PPDU. |
| P484 L51 | An EHT AP shall not transmit an EHT PPDU that carries a Trigger frame soliciting an HE TB PPDU |
| P486 L9 and L11 | An EHT AP that includes the Special User Info field in a Trigger frame shall set all bits of the Disregard In U-SIG-1 subfield and the four LSBs of the Disregard In U-SIG-2 subfield to 1. The MSB of the Disregard In U-SIG-2 subfield is implementation specific and should be set to 0. |
| P486 L14 | An EHT AP shall not transmit a Trigger frame that solicits both an HE TB PPDU and an EHT TB PPDU. The EHT AP shall not transmit a Trigger frame that contains a User Info field whose AID12 subfield is equal to 0 or 2045 unless both B54 and B55 in the Common Info field of the Trigger frame are equal to 1. |
| P602 L64 | NOTE—As defined in 35.5.1.2 (RU allocation in an EHT MU PPDU), an EHT AP can allocate an RU or MRU only on the primary 160 MHz in a 320 MHz EHT MU or EHT TB PPDU, to a 160 MHz operating non-AP EHT STA |
| P642 L30 | The length of the U-SIG field for EHT MU PPDU and EHT TB PPDU is two OFDM symbols. For forward compatibility, EHT also defines the U-SIG field of an ER preamble An EHT STA shall be able to decode and interpret the version independent content in the U-SIG field of an ER preamble that may be introduced in IEEE 802.11 PHY clauses that are defined for 2.4, 5, and 6 GHz spectrum from Clause 36 (Extremely high throughput (EHT) PHY specification) onwards. Regardless of the value of the PHY Version Identifier field in U-SIG field, an EHT STA shall defer for the duration of the PPDU as defined in 36.3.22 (EHT receive procedure), report the information from the version independent fields within the RXVECTOR, and terminate the reception of the PPDU. The length of the U-SIG field for an ER preamble is four OFDM symbols. |
| P642 L59 |  |
| P643 L5 | For a 40 MHz EHT PPDU or ER preamble, the U-SIG field content shall be identical in both 20 MHz subchannels. For an 80 MHz EHT PPDU or ER preamble, the U-SIG field content shall be identical in all nonpunctured 20 MHz subchannels. For a 160/320 MHz EHT MU PPDU or ER preamble, the U-SIG field content shall be identical in all nonpunctured 20 MHz subchannels within each 80 MHz frequency subblock, and the U-SIG field content in different 80 MHz frequency subblocks may be different. For a 160/320 MHz EHT TB PPDU, the U-SIG content shall be identical in all nonpunctured 20 MHz subchannels within the PPDU bandwidth. |
| P661 L42 | Indicate the number of EHT-LTF symbols:Set to 0 to indicate 1 EHT-LTF symbol.  Set to 1 to indicate 2 EHT-LTF symbols.  Set to 2 to indicate 4 EHT-LTF symbols.  Set to 3 to indicate 6 EHT-LTF symbols.  Set to 4 to indicate 8 EHT-LTF symbols.  . |
| P662 L9 | Set to all 1s. |
| P672 L41 | Indicate the number of EHT-LTF symbols:  Set to 0 to indicate 1 EHT-LTF symbol.  Set to 1 to indicate 2 EHT-LTF symbols.  Set to 2 to indicate 4 EHT-LTF symbols.  Set to 3 to indicate 6 EHT-LTF symbols.  Set to 4 to indicate 8 EHT-LTF symbols. |
| P673 L11 | Set to all 1s. |
| P673 L20 | Indicates the total number of non-OFDMA users. Set to *n* to indicate *n*+1 non-OFDMA users. Set to 0 for non-OFDMA transmission to a single user and set to a value larger than 0 for non-OFDMA transmission to multiple users. |
| P674 L27 | Indicates the GI duration and EHT-LTF size:  Set to 0 to indicate 2x LTF + 0.8 μs GI.  Set to 1 to indicate 2x LTF + 1.6 μs GI.  Set to 3 to indicate 4x LTF + 3.2 μs GI. |
| P674 L39 | Indicate the number of EHT-LTF symbols:  Set to 0 to indicate 1 EHT-LTF symbol.  Set to 1 to indicate 2 EHT-LTF symbols.  Set to 2 to indicate 4 EHT-LTF symbols.  Set to 3 to indicate 6 EHT-LTF symbols.  Set to 4 to indicate 8 EHT-LTF symbols. |
| P674 L47 | Indicates the number of spatial streams of the EHT sounding NDP:  Set to the number of spatial streams minus 1 for up to 8 spatial streams. |
| P675 L8 | Set to both 1s. |
| P678 L24 | If the STA-ID subfield is not equal to 2046, this subfield indicates the following modulation and coding scheme:  Set to *n* for EHT-MCS *n*, where …. .  Set to an arbitrary value if the STA-ID subfield is equal to 2046.  If the value of STA-ID subfield matches the user’s STA-ID the value of EHT-MCS 14 or EHT-MCS 15 is Validate if the condition described in 36.1.1 (Introduction to the EHT PHY) is not met. If the value of STA-ID subfield does not match the user’s STA-ID |
| P678 L35 | Reserved and set to 1.  If the value of STA-ID subfield matches the user’s STA- the Reserved subfield is Validate. If the value of STA-ID subfield does not match the user’s STA-ID the Reserved subfield is Disregard. |
| P679 L18 | If the value of STA-ID subfield matches the user’s STA-ID other values are Validate. If the value of STA-ID subfield does not match the user’s STA-ID all values are Disregard. |
| P679 L43 | If the value of STA-ID subfield does not match the user’s STA-ID all values are Disregard. |
| P680 L25 | If the value of STA-ID subfield matches the user’s STA-ID other values are Validate. If the value of STA-ID subfield does not match the user’s STA- all values are Disregard. |
| P680 L44 | If the value of STA-ID subfield matches the user’s STA-ID the Reserved subfield is Validate. If the value of STA-ID subfield does not match the user’s STA-ID the Reserved subfield is Disregard. |
| P680 L57 | If STA-ID matches, the values that are reserved or do not exist in Table 36-42 (Spatial Configuration subfield encoding) are Validate. If STA-ID does not match, all values are Disregard |
| P729 L41 | equals 2 for any EHT PPDU transmitted by an EHT STA. |
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**P821 L60**

dot11BSSMaxIdlePeriodIndicationByNonAPSTA, TruthValue,

dot11EHTOptionImplemented, TruthValue,

,

dot11EHTTXOPSharingTFOptionImplemented TruthValue,

dot11EHTNSTRMobileAPMLDImplemented TruthValue,

dot11RestrictedTWTOptionImplemented TruthValue

**P822 L15-30**

1. dot11EHTOptionImplemented OBJECT-TYPE
2. SYNTAX TruthValue
3. MAX-ACCESS read-only
4. STATUS current
5. DESCRIPTION
6. "This is a capability variable.
7. Its value is determined by device capabilities.

11

1. This attribute indicates whether the entity is EHT capable."
2. ::= { dot11StationConfigEntry 205 }

14

**References:**