IEEE P802.11  
Wireless LANs

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| Resolution for PICS | | | | |
| Date: 2017-09-10 | | | | |
| Author: | | | | |
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##### This submission present a resolution for CIDs 7001, 9597, 7004, 7005, 9335, 9324, 7880, 8313, 7012, 7006, and 7000.

##### Revision history:

##### R0 – initial version

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Comment | Proposed Change |
| 7001 | B.4.3 | 407 | 26 | The orthogonal frequency division multiplexing (OFDM) PHY is not mandatory for STAs that support the CFHT5G PHY nor the CFTVHT PHY. Therefore remove the dependence requirement. | Delete: "CFHT5G:M" and "CFTVHT:M" |

***Discussion:***

As per Clause 28, an HE STA shall be capable of transmitting and receiving PPDUs that are compliant with the mandatory requirements of HT PHY (Clause 19) and VHT PHY (Clause 21). Thus, there is a dependement requirement.

***Proposed resolution:***

***Rejected***

As per Clause 28, an HE STA shall be capable of transmitting and receiving PPDUs that are compliant with the mandatory requirements of HT PHY (Clause 19) and VHT PHY (Clause 21). Thus, there is a dependement requirement.

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| CID | Clause | Page | Line | Comment | Proposed Change |
| 9597 | B.4.3 | 407 | 35 | For CFVHT (Very High Throughput (VHT) Features) item, the STATUS column shall include "CFHEW80:M". Because an HE STA supporting the HEW Operation with capability of 80 MHz or higher channel width shall implement the VHT Features. | As per comment. |

**Proposed resolution:**

***Revised***

***TGax editor: In line 37, page 511, create “CFVHT” from REVmd/D0.3 and add “CFHE80:M” into this entry as follows:***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| \*CFHT | High throughput (HT) PHY | 9.4.2.56 (HT Capabilities element) | O.2  CFVHT:M  CFHE:M | Yes  No  |
| \*CFVHT | Very High Throughput (VHT) features | 9.4.2.158  (VHT  Capabilities  element) | O.2  CFHE80:M | Yes  No  |
| ... |  |  |  |  |

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| CID | Clause | Page | Line | Comment | Proposed Change |
| 7004 | B.4.3 | 407 | 47 | The use of O.6 is not being used correctly. O.6 means one of all the O.6 choices needs to be chosen. e.g. in the baseline specification CFHT:O.6 corresponds to CFHT2G4 and CFHT5. This means that for CFHT PHY at least one of these options must be supported: 2.4 GHz or 5 GHz. The reuse of O.6 in regard to the CFHEW2G4 option for CFHEW does not make any sense as it needs to be a new O.<index> to choose what optional bands are supported. | Replace "CFHEW:O.6" with "CFHE:O.8" or whatever the next available index is. |

***Discussion***

Agree with the commenter’s comment in creating a new O.<index> for HE operation in the 2.4 GHz and 5 GHz bands. Since the HE operation in these bands are dependent on the HT/VHT operations in the same bands, “CFHE:M” should be added to both “CFHT2G4” and “CFHT5G” too.

***Proposed Resolution:***

***Revised***

***TGax editor: In line 47, page 511, change***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CFHE2G4 | HE operation in 2.4 GHz band | Clause 28 | CFHE:O.6 | Yes  No  |
| CFHE5G | HE operation in 5 GHz band | Clause 28 | CFHE:O.6 | Yes  No  |

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| CFHE2G4 | HE operation in 2.4 GHz band | Clause 28 | O.8 | Yes  No  |
| CFHE5G | HE operation in 5 GHz band | Clause 28 | O.8 | Yes  No  |

***Further, create “CFHT2G4” and “CFHT5G” from REVmd/D0.3 and add “CFHE:M” into these two entries as follows:***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CFHT2G4 | HT operation in 2.4 GHz | Clause 19 | CFHT:O.6  CFHE:M | Yes  No  |
| CFHT5G | HT operation in 5 GHz band | Clause 28 | CFHT:O.6  CFVHT:M  CFHE:M | Yes  No  |

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| CID | Clause | Page | Line | Comment | Proposed Change |
| 7005 | B.4.3 | 408 | 27 | The way fragmentation is shown in the table, breaks the current specification, by assigning a new term Static Fragmentation that was not previously defined. Hence all legacy requirements are now broken. To fix this remove the term static fragmentation and simply add Dynamic fragmentation. | Undo the deletions and leave PC6 as it was.  Introduce PC45 Dynamic fragmentation and inside the same box provide PC45.1 Dynamic fragmentations level 0, PC45.2 Dynamic fragmentation level 1, PC45.3 Dynamic fragmentation level 2. With PC45.1 being mandatory for CFHE and the other PC45.x being optional for CFHE. |

***Discussion:***

The comment is valid. As for the proposed change, “PC45.1 being mandatory for CFHE” is not needed because the support for dynamic fragementation levels 1, 2, and 3 is optional.

***Proposed Resolution:***

***Revised***

***TGax editor: In line 11, page 512, delete the following entries:***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| PC6.1 | Static fragmentation | 10.3 (DCF), 10.5 (Fragmentation) | M | Yes  No  |
| PC6.1 | Dynamic fragmentation | 10.3 (DCF), 10.5 (Fragmentation) |  |  |
| PC6.2.1 | Dynamic fragmentation level 0 |  | CFHE:M | Yes  No  |
| PC6.2.2 | Dynamic fragmentation level 1 | 27.3.2.2 (Level 1 dynamic fragmentation) | CFHE:O | Yes  No  |
| PC6.2.3 | Dynamic fragmentation level 2 | 27.3.2.3 (Level 2 dynamic fragmentation) | CFHE:O | Yes  No  |
| PC6.2.4 | Dynamic fragmentation level 3 | 27.3.2.4 (Level 3 dynamic fragmentation) | CFHE:O | Yes  No  |

***TGax editor: In line 11, page 512, change the entry of PC6 by undeleting “M” and “Yes*** ***No*** ***” as follows:***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| PC6 | Fragmentation | 10.3 (DCF), 10.5 (Fragmentation) | M | Yes  No  |

***TGax editor: In B.4.4.1, add the following entries:***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| PC45 | Dynamic fragmentation | 10.3 (DCF), 10.5 (Fragmentation) | O |  |
| PC45.1 | Dynamic fragmentation level 1 | 27.3.2.2 (Level 1 dynamic fragmentation) | CFHE:O | Yes  No  |
| PC45.2 | Dynamic fragmentation level 2 | 27.3.2.3 (Level 2 dynamic fragmentation) | CFHE:O | Yes  No  |
| PC45.3 | Dynamic fragmentation level 3 | 27.3.2.4 (Level 3 dynamic fragmentation) | CFHE:O | Yes  No  |

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| CID | Clause | Page | Line | Comment | Proposed Change |
| 9335 | B.4.4.2 | 409 | 28 | The References column is not filled in for the Trigger frame. As most of the other examples have "9" here, just filling in "9" seems to be enough. | Add "9" to the References column for FT43. |

***Discussion:***

The reference for FT43 in B.4.4.2 (MAC frames) is missing. Clause 9 is the appropriate reference.

***Proposed Resolution:***

***Accept***

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| CID | Clause | Page | Line | Comment | Proposed Change |
| 9324 | B.4.10 | 410 | 21 | B.4.10 is for functionality, so dividing into transmission and reception for Multi-STA BlockAck is not necessary here. (If such division is necessary, the place will be B.4.4.2. However, referring to other examples, it is not required up to that level.) | Delete the rows for OB4.5.1 and OB4.5.2.  Add "CFHE:M" (or "CFHEW:M", see the other comment relating to B.4) in the Status column for OB4.5 and fill in its Support column. |

***Proposed Resolution:***

***Revised***

***TGax editor: In line 21, page 514 of IEEE 802.11ax/D1.4, delete the following entries:***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| QB4.5.1 | Transmission of Multi-STA BlockAck | 9.3.1.9.7 (Multi-STA BlockAck variant) | CFAP and CFHE:M | Yes  No  N/A  |
| QB4,5,2 | Reception of Multi-STA BlockAck | 9.3.1.9.7 (Multi-STA BlockAck variant) | CFIndepSTA(#7837) and CFHE:M | Yes  No  N/A  |

***TGax editor: In line 17, page 514 of IEEE 802.11ax/D1.4, update the columns “Status” and “Support” of the entry “QB4.5” as follows:***

|  |  |  |  |  |
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| QB4.5 | Multi-STA BlockAck | 9.3.1.9.7 (Multi-STA BlockAck variant) | CFHE:M | Yes  No  N/A  |

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| CID | Clause | Page | Line | Comment | Proposed Change |
| 7880 | B.4 | 411 | 29 | BQR and RDP A-Controls are missing | Add rows HEWM4.6/7 for them |

***Proposed Resolution:***

***Revised***

***TGax editor: In line 53, page 515 of IEEE 802.11ax/D1.4, add the following two entries after HEM4.5:***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| HEM4.6 | BQR Control | 9.2.4.6.4.7 | CFHE:O | Yes  No  N/A  |
| HEM4.7 | CAS Control | 9.2.4.6.4.8 | CFHE:O | Yes  No  N/A  |

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| CID | Clause | Page | Line | Comment | Proposed Change |
| 8313 | B.4.27.1 | 413 | 16 | HE MAC PICS missing Quieting Action frame, and it's use is necessary in radar bands so that DFS in-service monitoring requirments can be met. | Add mandatory reception of Quiet Time Period Action frame when some channels are in radar bands. Transmission can be optional like MU-RTS transmission is. |

***Proposed Resolution:***

***Revised***

***TGax editor: At the end of B.4.27.1, add the following two entries after “HEM10”:***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| HEM11 | Quiet time period |  |  |  |
| HEM11.1 | Transmission of Quiet Time Period Request frame | 27.16.4 | CFHE:O | Yes  No  N/A  |
| HEM11.2 | Reception of Quiet Time Period Response frame | 27.16.4 | CFHE:M | Yes  No  N/A  |

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| CID | Clause | Page | Line | Comment | Proposed Change |
| 7012 | B.4.27.2 | 414 | 19 | Number of PICS items that are being referenced in a predicate are missing the asterisk in the Item column to indicate this. | Add asterisk into the Item column for the following PICS items: CFHEW2G4, CFHEW5G, CFHEW20, CFHEW80, HEWM6.1, HEWM6.2, HEWM6.4, HEWM6.5, HEWM6.7, HEWP2.1, HEWP3.1, HEWP3.2, HEWP3.3, HEWP3.4, HEWP3.5, HEWP6.1, HEWP6.2, HEWP6.3, HEWP6.4, HEWP6.5, HEWP6.6, HEWP6.7, HEWP12.1.1, HEWP12.1.2, HEWP12.1.4, HEWP12.1.5, HEWP12.1.7, HEWP12.1.8, HEWP12.1.10, HEWP12.1.11, HEWP12.1.13, HEWP12.1.14, HEWP12.1.16, HEWP12.1.17, HEWP12.1.19, EWP12.1.20, HEWP12.1.22, HEWP12.1.23, HEWP12.2.1, HEWP12.2.3, HEWP12.2.5, HEWP12.2.7, HEWP12.2.9, HEWP12.2.11, HEWP12.2.13, HEWP12.2.15. |

***Proposed Resolution:***

***Revised***

***TGax editor: Add asterisk into the Item column for the following PICS items, namely, CFHE2G4, CFHE5G, CFHE20, CFHE80, HEM6.1, HEM6.2, HEM6.4, HEM6.5, HEM6.7, HEP2.1, HEP3.1, HEP3.2, HEP3.3, HEP3.4, HEP3.5, HEP6.1, HEP6.2, HEP6.3, HEP6.4, HEP6.5, HEP6.6, HEP6.7, HEP12.1.1, HEP12.1.2, HEP12.1.4, HEP12.1.5, HEP12.1.7, HEP12.1.8, HEP12.1.10, HEP12.1.11, HEP12.1.13, HEP12.1.14, HEP12.1.16, HEP12.1.17, HEP12.1.19, HEP12.1.20, HEP12.1.22, HEP12.1.23, HEP12.2.1, HEP12.2.3, HEP12.2.5, HEP12.2.7, HEP12.2.9, HEP12.2.11, HEP12.2.13, HEP12.2.15.***

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| CID | Clause | Page | Line | Comment | Proposed Change |
| 7006 | B.4.27.2 | 414 | 23 | HEWP4.\* items in PICS have self-referential preficate in the Status column. That does not make much sense ("item is mandatory if the item is supported.."). When are these items supposed to be mandatory? | Fix the predicate in HEWP4.1 .. HEWP4.5 items Status column. |

***Discussion:***

The comment is valid. For “Values in 160 MHz channel” and “Values in 80+80 MHz channel”, there are dependent requirements on HEP3.4 and HEP3.5, respectively:



***Proposed Resolution:***

***Revised***

***TGax editor: In line 31, page 518, change***

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| --- | --- | --- | --- | --- |
| HEP4 | PHY timing information |  |  |  |
| HEP4.1 | Values in 20 MHz channel | 28.3.8 (Timing-related parameters) | HEP4.1:M | Yes  No  N/A  |
| HEP4.2 | Values in 40 MHz channel | 28.3.8 (Timing-related parameters) | HEP4.2:M | Yes  No  N/A  |
| HEP4.3 | Values in 80 MHz channel | 28.3.8 (Timing-related parameters) | HEP4.3:M | Yes  No  N/A  |
| HEP4.4 | Values in 160 MHz channel | 28.3.8 (Timing-related parameters) | HEP4.4:M | Yes  No  N/A  |
| HEP4.5 | Values in 80+80 MHz channel | 28.3.8 (Timing-related parameters) | HEP4.5:M | Yes  No  N/A  |

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| --- | --- | --- | --- | --- |
| HEP4 | PHY timing information |  |  |  |
| HEP4.1 | Values in 20 MHz channel | 28.3.8 (Timing-related parameters) | CFHE:M | Yes  No  N/A  |
| HEP4.2 | Values in 40 MHz channel | 28.3.8 (Timing-related parameters) | CFHE:M | Yes  No  N/A  |
| HEP4.3 | Values in 80 MHz channel | 28.3.8 (Timing-related parameters) | CFHE:M | Yes  No  N/A  |
| HEP4.4 | Values in 160 MHz channel | 28.3.8 (Timing-related parameters) | HEP3.4:M | Yes  No  N/A  |
| HEP4.5 | Values in 80+80 MHz channel | 28.3.8 (Timing-related parameters) | HEP3.5:M | Yes  No  N/A  |

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| CID | Clause | Page | Line | Comment | Proposed Change |
| 7000 | Annex B |  |  | Annex B needs significant work as it seems to have many errors in it. | Correct the PICS so that it is clear which features are optional and which are mandatory. Also, correct the dependence of the various features. |

***Proposed Resolution:***

***Rejected***

The proposed resolution does not provide specific changes that would address the comment.