IEEE P802.11
Wireless LANs

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| Comment resolutions for 10.22.2.5 |
| Date: 2018-01-05 |
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Abstract

This submission proposes resolutions for multiple comments related to TGax D2.0 with the following CIDs:

* 11156, 11048, 11506, 12128, 12129, 12173, 12174, 12245, 12248, 12252,
* 12255, 13879, 14334 (13 CIDs)

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.***

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| **CID** | **Commenter** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 11156 | Adrian Stephens | 196.11 | "for the 5 GHz band or DIFS for an HE STA operating in the 2.4 GHz band "The addition removes the ability of a HT STA to transmit using this rule, because it is not included in the conditions "5 GHz band" or "HE STA in 2.4 GHz", thereby making existing devices non-compliant.Also, Nothing is being done for, i.e., on behalf of, the 5 GHz band."for" used to establish a condition is usually wrong. REVmc spent a lot of time correcting this. | Reword something like: "was idle during an interval immediately preceding the start of the TXOP of duration 1) DIFS if transmitted by an HE STA operating in the 2.4 GHz band or 2) PIFS otherwise ."You might consider making these conditions an indented sub-list to make the logic clear. | Revised –Agree in principle with the comment. Proposed resolution accounts for the suggested change, although pointing out that this behavioral exemption is not related to the HE STAs but to the operation in the 2.4 GHz band (please refer to 11.16.9 STA CCA sensing in a 20/40 MHz BSS)TGax editor to make the changes shown in 11-18/0044r0 under all headings that include CID 11156. |
| 11048 | Adrian Stephens | 196.55 | The term "for the 5 GHz band or DIFS interval for an HE STA operating in the 2.4 GHz band " excludes the existing behaviour of an HT STA. | Modify the condition, such as "of duration 1) DIFS if transmitted by an HE STA operating in the 2.4 GHz band or 2) PIFS otherwise"(see my related comment at 196.11) | Revised –Agree in principle with the comment. Proposed resolution accounts for the suggested change, although pointing out that this behavioral exemption is not related to the HE STAs but to the operation in the 2.4 GHz band (please refer to 11.16.9 STA CCA sensing in a 20/40 MHz BSS)TGax editor to make the changes shown in 11-18/0044r0 under all headings that include CID 11048. |
| 11506 | Chunyu Hu | 195.56 | per20MHzbitmap is too restrictive. In many case the interference appear as a narrow band signal. Small granularity is more useful for the AP to make correct decision on DL/UL OFDMA operation.Enhance CCA capability to smaller granularity. | as in the comment | Rejected –An AP that wants to use smaller granularity can use HE Souding with CQI-only feedback which is capable of delivering channel quality information for RUs as small as 26-tone RUs.BQR procedure was designed to support preamble puncturing which enables transmission over non-contiguous secondary channels, each of which is 20 Mhz wide. So I higher resolution for this particular purpose is useless.Please refer to the following contributions for more information:<https://mentor.ieee.org/802.11/dcn/16/11-16-1382-01-00ax-mac-support-of-preamble-puncture.pptx><https://mentor.ieee.org/802.11/dcn/16/11-16-1383-01-00ax-spec-text-mac-support-of-preamble-puncture.docx> |
| 12128 | kaiying Lv | 196.39 | When a STA is permitted to begin a TXOP, the STA has completed the backoff procedure on primary 20MHz channel. There is no need to describe the idle status on primary 20MHz channel. Please delete " the primary 20 MHz channel". | as comment | Accepted |
| 12129 | kaiying Lv | 196.45 | When a STA is permitted to begin a TXOP, the STA has completed the backoff procedure on primary 20MHz channel. There is no need to describe the idle status on primary 20MHz channel. Please delete " the primary 20 MHz channel". | as comment | Accepted |
| 12173 | kaiying Lv | 196.29 | When a STA is permitted to begin a TXOP, the STA has completed the backoff procedure on primary 20MHz channel. There is no need to describe the idle status on primary 20MHz channel. Please delete " the primary 20 MHz channel". | as comment | Accepted |
| 12174 | kaiying Lv | 196.33 | When a STA is permitted to begin a TXOP, the STA has completed the backoff procedure on primary 20MHz channel. There is no need to describe the idle status on primary 20MHz channel. Please delete " the primary 20 MHz channel". | as comment | Accepted |
| 12245 | kaiying Lv | 196.29 | When a STA is permitted to begin a TXOP, the STA has completed the backoff procedure on primary 20MHz channel. There is no need to describe the idle status on primary 20MHz channel. Please delete " the primary 20 MHz channel". | as comment | Accepted |
| 12248 | kaiying Lv | 196.33 | When a STA is permitted to begin a TXOP, the STA has completed the backoff procedure on primary 20MHz channel. There is no need to describe the idle status on primary 20MHz channel. Please delete " the primary 20 MHz channel". | as comment | Accepted |
| 12252 | kaiying Lv | 196.39 | When a STA is permitted to begin a TXOP, the STA has completed the backoff procedure on primary 20MHz channel. There is no need to describe the idle status on primary 20MHz channel. Please delete " the primary 20 MHz channel". | as comment | Accepted |
| 12255 | kaiying Lv | 196.45 | When a STA is permitted to begin a TXOP, the STA has completed the backoff procedure on primary 20MHz channel. There is no need to describe the idle status on primary 20MHz channel. Please delete " the primary 20 MHz channel". | as comment | Accepted |
| 13879 | Yongho Seok | 195.54 | Controlling mechanism of the MIB variable for enabling and disabling the per20MHz bitmap is necessary. | Insert the following sentence:"An STA that sets dot11HEOptionImplemented to true shall set the dot11HECCAIndicationMode to 0, except when the STA is an AP STA and dot11HEPuncturedPreambleTxActivated of the STA indicates an activation of a punctured preamble transmission. In which case, the STA shall set the dot11HECCAIndicationMode to 1." | Revised –Agree in principle with the comment. However, the parameter is related in general to the BQR operation and its functionality is described in 27.5.2. Proposed resolution is to specify that the parameter is present if BQR operation is supported, and not present otherwise.TGax editor to make the changes shown in 11-18/0044r0 under all headings that include CID 13879. |
| 14334 | Zhou Lan | 195.56 | per20MHzbitmap is too restrictive. In many case the interference appear as a narrow band signal. Small granularity is more useful for the AP to make correct decision on DL/UL OFDMA operation.Enhance CCA capability to smaller granularity. | as in the comment | Rejected –An AP that wants to use smaller granularity can use HE Souding with CQI-only feedback which is capable of delivering channel quality information for RUs as small as 26-tone RUs.BQR procedure was designed to support preamble puncturing which enables transmission over non-contiguous secondary channels, each of which is 20 Mhz wide. So I higher resolution for this particular purpose is useless.Please refer to the following contributions for more information:<https://mentor.ieee.org/802.11/dcn/16/11-16-1382-01-00ax-mac-support-of-preamble-puncture.pptx><https://mentor.ieee.org/802.11/dcn/16/11-16-1383-01-00ax-spec-text-mac-support-of-preamble-puncture.docx> |

**Discussion: *…***

Change the title of subclause 10.22.2.5 as follows:

* EDCA channel access in a VHT, HE or TVHT BSS

**TGax Editor: *Change the table below of this subclause as follows (#CID 13879):***

Change Table 10-10 as follows:

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| * Channels indicated idle by the channel-list parameter
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| PHY-CCA.indication primitive channel-list element | Idle channels |
| primary | None |
| secondary | Primary 20 MHz channel |
| secondary40 | Primary 20 MHz channel and secondary 20 MHz channel |
| secondary80 | Primary 20 MHz channel, secondary 20 MHz channel, and secondary 40 MHz channel |
| per20MHzbitmap | This parameter is present if BQR operation is supported (see (27.5.2 HE bandwidth query report operation for MU)); otherwise it is not present. *(#13879)*Each bit of the per20MHzbitmap that is equal to 0 indicates an idle channel (see 28.3.17.6.5 (Per-20MHz CCA sensitivity)) (#7667) |

**TGax Editor: *Change the paragraph below of this subclause as follows (#CID 11156, 11048, 12245, 12173, 12128, 12174, 12248, 12252, 12129, 12255):***

If a STA is permitted to begin a TXOP (as defined in 10.22.2.4 (Obtaining an EDCA TXOP)) and the STA has at least one MSDU pending for transmission for the AC of the permitted TXOP, the STA shall perform exactly one of the following actions:

* Transmit a 160 MHz or 80+80 MHz mask PPDU if the secondary channel, the secondary 40 MHz channel, and the secondary 80 MHz channel were idle during an interval of PIFS immediately preceding the start of the TXOP.
* Transmit an 80 MHz mask PPDU on the primary 80 MHz channel if both the secondary channel and the secondary 40 MHz channel were idle during an interval of PIFS immediately preceding the start of the TXOP.
* Transmit a 40 MHz mask PPDU on the primary 40 MHz channel if the secondary channel was idle during an interval of duration 1) (#9376)DIFS if the PPDU is transmitted in the 2.4 GHz band or 2) PIFS otherwise, immediately preceding the start of the TXOP.*(#11156, 11048)*
* Transmit a 20 MHz mask PPDU on the primary 20 MHz channel.
* Restart the channel access attempt by invoking the backoff procedure as specified in 10.22.2 (HCF contention based channel access (EDCA)) as though the medium is busy on the primary channel as indicated by either physical or virtual CS and the backoff timer has a value of 0.
* Transmit a TVHT\_4W or TVHT\_2W+2W mask PPDU if the secondary TVHT\_W channel and the secondary TVHT\_2W channel were idle during an interval of PIFS immediately preceding the start of the TXOP.
* Transmit a TVHT\_2W or TVHT\_W+W mask PPDU if the secondary TVHT\_W channel was idle during an interval of PIFS immediately preceding the start of the TXOP.
* Transmit a TVHT\_W mask PPDU on the primary TVHT\_W channel.
* Transmit an HE MU PPDU with preamble puncturing in 80 MHz where in the preamble only the secondary 20 MHz is punctured if the secondary 40MHz channel was idle during an interval of PIFS immediately preceding the start of the TXOP.*(#12245, 12173)*
* Transmit an HE MU PPDU with preamble puncturing in 80 MHz where in the preamble only one of the two 20 MHz subchannels in the secondary 40 MHz is punctured if the secondary 20 MHz channel, and one of the two 20 MHz subchannels of the secondary 40 MHz were idle during an interval of PIFS immediately preceding the start of the TXOP.*(#12128, 12174, 12248)*
* Transmit an HE MU PPDU with preamble puncturing in 160 MHz or 80+80 MHz where in the primary 80 MHz of the preamble only the secondary 20 MHz is punctured if the secondary 40 MHz channel, and at least one of the four 20 MHz subchannels in the secondary 80 MHz channel were idle during an interval of PIFS immediately preceding the start of the TXOP. *(#12252)*
* Transmit an HE MU PPDU with preamble puncturing in 160 MHz or 80+80 MHz where in the primary 80 MHz of the preamble only the primary 40 MHz is present if the secondary 20 MHz channel, and at least one of the four 20 MHz subchannels in the secondary 80 MHz channel were idle during an interval of PIFS immediately preceding the start of the TXOP.(#7667)*(#12129, 12255)*

NOTE 1—In the case of rule e), the STA selects a new random number using the current value of CW[AC], and the retry counters are not updated (as described in 10.22.2.7 (Multiple frame transmission in an EDCA TXOP); backoff procedure invoked for event a)).

NOTE 2—~~For both an HT, and a VHT STA, an EDCA TXOP is obtained~~ An HT, VHT or HE STA obtains an EDCA TXOP(#6528) based on activity on the primary channel (see 10.22.2.4 (Obtaining an EDCA TXOP)). The width of transmission is determined by the CCA status of the nonprimary channels during an interval of duration 1) DIFS when transmitting in the 2.4 GHz band or 2) PIFS otherwise,before transmission (see ~~VHT description in~~ 10.3.2 (Procedures common to the DCF and EDCAF)).*(#11156, 11048)*

NOTE 3—In the case of rule j), there is only one idle 20 MHz subchannel in the secondary 40 MHz channel and the other 20 MHz subchannel in the secondary 40 MHz is preamble punctured.(#7667)