IEEE P802.11
Wireless LANs

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| Spec text for 10.22.2.5 and 3.2 |
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Abstract

This submission proposes the Spec Text for 10.22.2.5 (EDCA channel access in HE BSS) and for 3.2 (Deefinitions of x MHz mask PPDU).

* The proposed change is based on TGax Draft 0.5.

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.***

**Discussion:**

Current TGax Draft 0.5 is missing the EDCA channel access rule in HE BSS.

Also, the definitions of a 20/40/80/160/80+80 MHz mask PPDU are missing an HE PPDU.

This document proposes two missing texts.

Especially, regarding the definitions of a 20/40/80/160/80+80 MHz mask PPDU, the following The TGax SFD (11-15/132r17) sentences are referred.

## 3.4 Transmit spectral mask

The spectral masks for non-OFDMA 20 MHz, 40 MHz, 80 MHz, 160 MHz and 80+80 MHz PPDUs are are defined below.

* The bandwidth of the applied spectrum mask for a (non-OFDMA) PPDU shall be determined by the bandwidth occupied by the pre HE-STF portion of the preamble in this PPDU, regardless of the BSS bandwidth
* The spectral mask requirements do not apply to LO leakage

***TGax editor: change the sub-clause 10.22.2.5 as the following:***

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

…

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:

1. 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 immediatelypreceding the start of the TXOP.
2. 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.
3. Transmit a 40 MHz mask PPDU on the primary 40 MHz channel if the secondary channel was idle during an interval of PIFS for the 5 GHz band and DIFS for an HE STA operating in the 2.4 GHz band immediately preceding the start of the TXOP.
4. Transmit a 20 MHz mask PPDU on the primary 20 MHz channel.
5. 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.
6. 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.
7. 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.
8. Transmit a TVHT\_W mask PPDU on the primary TVHT\_W channel.

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 and an HE STA, an EDCA TXOP is obtained 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 the PIFS interval for the 5 GHz band or DIFS interval for an HE STA operating in the 2.4 GHz band before transmission (see ~~VHT description in~~ 10.3.2 (Procedures common to the DCF and EDCAF)).

***TGax editor: change the sub-clause 3.2 as the following:***

**3.2 Definitions specific to IEEE Std 802.11**

**20 MHz mask physical layer (PHY) protocol data unit (PPDU):** One of the following PPDUs:

…

g) An high efficiency (HE) PPDU with with TXVECTOR parameter CH\_BANDWIDTH equal to CBW20 transmitted using the 20 MHz transmit spectral mask defined in Clause 26 (High Efficiency (HE) PHY specification).

**20 MHz physical layer (PHY) protocol data unit (PPDU):** A Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM applications) PPDU, Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) PPDU (when using 20 MHz channel spacing), Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY specification) PPDU, Clause 18 (Extended Rate PHY (ERP) specification) orthogonal frequency division multiplexing (OFDM) PPDU, Clause 19 (High Throughput (HT) PHY specification) 20 MHz high throughput (HT) PPDU with the TXVECTOR parameter CH\_BANDWIDTH equal to HT\_CBW20, ~~or~~ Clause 21 (Very High Throughput (VHT) PHY specification) 20 MHz very high throughput (VHT) PPDU with the TXVECTOR parameter CH\_BANDWIDTH equal to CBW20, or Clause 26 (High Efficiency (HE) PHY specification) 20 MHz high efficiency (HE) PPDU with the TXVECTOR parameter CH\_BANDWIDTH equal to CBW20.

**40 MHz mask physical layer (PHY) protocol data unit (PPDU):** One of the following PPDUs:

…

j) A 40 MHz high efficiency (HE) PPDU with with TXVECTOR parameter CH\_BANDWIDTH equal to CBW40 transmitted using the 40 MHz transmit spectral mask defined in Clause 26 (High Efficiency (HE) PHY specification).

k) A 40 MHz HT PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to HT\_CBW40) transmitted by a HE STA using the 40 MHz transmit spectral mask defined in Clause 26 (High Efficiency (HE) PHY specification).

l) A 40 MHz VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW40) transmitted by a HE STA using the 40 MHz transmit spectral mask defined in Clause 26 (High Efficiency (HE) PHY specification).

m) A 40 MHz non-HT duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW40) transmitted by a HE (HE) STA using the 40 MHz transmit spectral mask defined in Clause 26 (High Efficiency (HE) PHY specification).

**40 MHz physical layer (PHY) protocol data unit (PPDU):** A 40 MHz high throughput (HT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to HT\_CBW40) or a 40 MHz non-HT duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to NON\_HT\_CBW40 or TXVECTOR parameter CH\_BANDWIDTH equal to CBW40), ~~or~~ a 40 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW40), or Clause 26 (High Efficiency (HE) PHY specification) 40 MHz high efficiency (HE) PPDU with the TXVECTOR parameter CH\_BANDWIDTH equal to CBW40.

**80 MHz mask physical layer (PHY) protocol data unit (PPDU):** ~~A PPDU that is transmitted using the 80 MHz transmit spectral mask defined in Clause 21 (Very High Throughput (VHT) PHY specification) and that is o~~One of the following:

a) An 80 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80) using the 80 MHz transmit spectral mask defined in Clause 21 (Very High Throughput (VHT) PHY specification)

b) An 80 MHz non-high throughput (non-HT) duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80) using the 80 MHz transmit spectral mask defined in Clause 21 (Very High Throughput (VHT) PHY specification)

c) A 20 MHz non-HT, high throughput (HT), or VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW20) using the 80 MHz transmit spectral mask defined in Clause 21 (Very High Throughput (VHT) PHY specification)

d) A 40 MHz non-HT duplicate, HT, or VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW40) using the 80 MHz transmit spectral mask defined in Clause 21 (Very High Throughput (VHT) PHY specification)

e) An 80 MHz high efficiency (HE) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80) using the 80 MHz transmit spectral mask defined in Clause 26 (High Efficiency (HE) PHY specification).

f) An 80 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80) using the 80 MHz transmit spectral mask defined in Clause 26 (High Efficiency (HE) PHY specification).

g) An 80 MHz non-high throughput (non-HT) duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80) using the 80 MHz transmit spectral mask defined in Clause 26 (High Efficiency (HE) PHY specification).

**80 MHz physical layer (PHY) protocol data unit (PPDU):** A Clause 21 (Very High Throughput (VHT) PHY specification) 80 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80) ~~or~~, a Clause 21 (Very High Throughput (VHT) PHY specification) 80 MHz non-high throughput (non-HT) duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80), or Clause 26 (High Efficiency (HE) PHY specification) 80 MHz high efficiency (HE) PPDU with the TXVECTOR parameter CH\_BANDWIDTH equal to CBW80.

**160 MHz mask physical layer (PHY) protocol data unit (PPDU):** ~~A PPDU that is transmitted using the 160 MHz transmit spectral mask defined in Clause 21 (Very High Throughput (VHT) PHY specification) and that is o~~One of the following:

a) A 160 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW160) using the 160 MHz transmit spectral mask defined in Clause 21 (Very High Throughput (VHT) PHY specification)

b) A 160 MHz non-high throughput (non-HT) duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW160) using the 160 MHz transmit spectral mask defined in Clause 21 (Very High Throughput (VHT) PHY specification)

c) A 20 MHz non-HT, high throughput (HT), or VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW20) using the 160 MHz transmit spectral mask defined in Clause 21 (Very High Throughput (VHT) PHY specification)

d) A 40 MHz non-HT duplicate, HT, or VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW40) using the 160 MHz transmit spectral mask defined in Clause 21 (Very High Throughput (VHT) PHY specification)

e) An 80 MHz non-HT duplicate or VHT PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80) using the 160 MHz transmit spectral mask defined in Clause 21 (Very High Throughput (VHT) PHY specification)

f) An 160 MHz high efficiency (HE) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW160) using the 160 MHz transmit spectral mask defined in Clause 26 (High Efficiency (HE) PHY specification).

f) An 160 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW160) using the 160 MHz transmit spectral mask defined in Clause 26 (High Efficiency (HE) PHY specification).

g) An 160 MHz non-high throughput (non-HT) duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW160) using the 160 MHz transmit spectral mask defined in Clause 26 (High Efficiency (HE) PHY specification).

**160 MHz physical layer (PHY) protocol data unit (PPDU):** A Clause 21 (Very High Throughput (VHT) PHY specification) 160 MHz very high throughput (VHT) PPDU (TXVECTOR parameter

CH\_BANDWIDTH equal to CBW160) ~~or~~, a Clause 21 (Very High Throughput (VHT) PHY specification)

160 MHz non-high throughput (non-HT) duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW160), or Clause 26 (High Efficiency (HE) PHY specification) 160 MHz high efficiency (HE) PPDU with the (TXVECTOR parameter CH\_BANDWIDTH equal to CBW160).

**80+80 MHz mask physical layer (PHY) protocol data unit (PPDU):** ~~A PPDU that is transmitted using the 80+80 MHz transmit spectral mask defined in Clause 21 (Very High Throughput (VHT) PHY specification) and that is o~~One of the following:

a) An 80+80 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80+80) using the 80+80 MHz transmit spectral mask defined in Clause 21 (Very High Throughput (VHT) PHY specification)

b) An 80+80 MHz non-high throughput (non-HT) duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80+80) using the 80+80 MHz transmit spectral mask defined in Clause 21 (Very High Throughput (VHT) PHY specification)

c) An 80+80 MHz high efficiency (HE) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80+80) using the 80+80 MHz transmit spectral mask defined in Clause 26 (High Efficiency (HE) PHY specification).

d) An 80+80 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80+80) using the 80+80 MHz transmit spectral mask defined in Clause 26 (High Efficiency (HE) PHY specification).

e) An 80+80 MHz non-high throughput (non-HT) duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80+80) using the 80+80 MHz transmit spectral mask defined in Clause 26 (High Efficiency (HE) PHY specification).

**80+80 MHz physical layer (PHY) protocol data unit (PPDU):** A Clause 21 (Very High Throughput (VHT) PHY specification) 80+80 MHz very high throughput (VHT) PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80+80) ~~or~~, a Clause 21 (Very High Throughput (VHT) PHY specification) 80+80 MHz non-high throughput (non-HT) duplicate PPDU (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80+80) ), or Clause 26 (High Efficiency (HE) PHY specification) 80+80 MHz high efficiency (HE) PPDU with the (TXVECTOR parameter CH\_BANDWIDTH equal to CBW80+80).