IEEE P802.11  
Wireless LANs

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| Changes to D1.0 | | | | |
| Date: 2017-02-22 | | | | |
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Abstract

This submission proposes resolutions for comments of TGax Draft 1.0 with the following CIDs: CID 4905

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** | **Clause** | **P.L.** | **Comment** | **Proposed Change** | **Resolution** |
| 4905 | Bo Sun | 28.2 | 227.28 | Similar to VHT PHY part, the support to Non-HT, HT and VHT need to be described in the spec | Add a section to describe the support to Non-HT, HT and VHT | Revised –  As proposed change  TGax editor to make the changes shown in 11-17/0233r0 under all headings that include CID 4905. |

**Proposed change: 28.2.5 Support for NON-HT, HT and VHT formats**

Discussion: This clause is missing in D1.0.

*To the TGax Editor: Add this clause in D1.0.*

**28.2.5 Support for NON-HT, HT and VHT formats**

**28.2.5.1 General**

A HE STA logically contains Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification), Clause 19 (High Throughput (HT) PHY specification), Clause 21 (Very High Throughput (VHT) PHY specification) and Clause 28 (High Efficiency (HE) PHY specification) PHYs. The MAC interfaces to the PHYs via the Clause 28 (High Efficiency (HE) PHY specification) PHY service interface, which in turn interacts with the Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification), Clause 19 (High Throughput (HT) PHY specification) PHY service interfaces and Clause 21 (Very High Throughput (VHT) PHY specification) as shown in Figure 28-1 (PHY interaction on transmit for various PPDU formats), Figure 28-2 (PHY interaction on receive for various PPDU formats), and Figure 28-3 (PHY-CONFIG and CCA interaction with Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification), Clause 19 (High Throughput (HT) PHY specification), Clause 21 (Very High Throughput (VHT) PHY specification)) and Clause 28 (High Efficiency (HE) PHY specification) PHYs.



Figure 28-1 PHY interaction on transmit for various PPDU formats.



Figure 28-2 PHY interaction on receive for various PPDU formats.



Figure 28-3 (PHY-CONFIG and CCA interaction with Clause 17 (Orthogonal frequency division  
multiplexing (OFDM) PHY specification), Clause 19 (High Throughput (HT) PHY specification), Clause 21 (Very High Throughput (VHT) PHY specification)) and Clause 28 (High Efficiency (HE) PHY specification) PHYs.

**28.2.5.2 Support for NON\_HT format when NON\_HT\_MODULATION is OFDM**

When a PHY-TXSTART.request(TXVECTOR) primitive with the FORMAT parameter equal to NON\_HT and the NON\_HT\_MODULATION parameter equal to OFDM is issued, the behavior of the HE PHY is defined in Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) with additional requirements described in the following subclauses:

— 21.3.9.1 (Transmission of 20 MHz NON\_HT PPDUs with more than one transmit chain)  
— 28.3.20.1 (Transmit spectrum mask) instead of 17.3.9.3 (Transmit spectrum mask)  
— 28.3.20.3 (Transmit center frequency leakage) instead of 17.3.9.7.2 (Transmitter center frequency leakage)

Where the Clause 28 (High Efficiency (HE) PHY specification) TXVECTOR parameters in Table 28-1 (TXVECTOR and RXVECTOR parameters) are mapped to Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) TXVECTOR parameters in Table 17-1 (TXVECTOR parameters) according to Table 28-3 (Mapping of the HE PHY parameters for NON\_HT operation). The HE only PHY parameters not listed in the table are not present.

NOTE—When the FORMAT parameter is set to NON\_HT and the NON\_HT\_MODULATION parameter is set to NON\_HT\_DUP\_OFDM in a PHY-TXSTART.request(TXVECTOR) primitive, the behavior of the HE PHY is defined in Clause 28 (High Efficiency (HE) PHY specification).

When the HE PHY receives a Clause 28 (High Efficiency (HE) PHY specification) PHY-CONFIG.request(PHYCONFIG\_VECTOR) primitive, the HE PHY shall, for the purposes of OFDM PPDU transmission and reception, behave as if it were a Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) PHY that had received a PHYCONFIG.request(PHYCONFIG\_VECTOR) primitive but with the CHANNEL\_WIDTH, CENTER\_FREQUENCY\_SEGMENT\_0, and CENTER\_FREQUENCY\_SEGMENT\_1 parameters discarded from PHYCONFIG\_VECTOR.

As defined in 28.3.22 (PHY receive procedure), once a PPDU is received and detected as a NON\_HT PPDU, the behavior of the HE PHY is defined in Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification). The RXVECTOR parameters from the Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) PHY-RXSTART.indication primitive are mapped to the 28 (High Efficiency (HE) PHY specification) RXVECTOR parameters as defined in Table 28-3 (Mapping of the HE PHY parameters for NON\_HT operation). The HE only PHY parameters not listed in the table are not present.

**Table 28-3—Mapping of the HE PHY parameters for NON\_HT operation**

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| --- | --- | --- |
| **HE PHY Parameter** | **2.4G/5 GHz operation defined by Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification)** | **Parameter List** |
| L\_LENGTH | LENGTH | TXVECTOR/RXVECTOR |
| L\_DATARATE | DATARATE | TXVECTOR/RXVECTOR |
| TXPWR\_LEVEL\_INDEX | TXPWR\_LEVEL\_INDEX | TXVECTOR |
| RSSI | RSSI | RXVECTOR |
| SERVICE | SERVICE | TXVECTOR/RXVECTOR |
| RCPI | RCPI | RXVECTOR |
| CH\_BANDWIDTH\_IN\_NON\_HT | CH\_BANDWIDTH\_IN\_NON\_HT | TXVECTOR/RXVECTOR |
| DYN\_BANDWIDTH\_IN\_NON\_HT | DYN\_BANDWIDTH\_IN\_NON\_HT | TXVECTOR/RXVECTOR |
| OPERATING\_CHANNEL | OPERATING\_CHANNEL | PHYCONFIG\_VECTOR |
| CHANNEL\_WIDTH | discarded | PHYCONFIG\_VECTOR |
| CENTER\_FREQUENCY\_SEGMENT\_ 0 | discarded | PHYCONFIG\_VECTOR |
| CENTER\_FREQUENCY\_SEGMENT\_ 1 | discarded | PHYCONFIG\_VECTOR |

**28.2.5.3 Support for HT format**

When a PHY-TXSTART.request(TXVECTOR) primitive is received with the TXVECTOR parameter FORMAT equal to HT\_MF or HT\_GF, the behavior of the PHY is defined by Clause 19 (High Throughput (HT) PHY specification) with additional requirements defined in the following subclauses:

— 21.3.9.2 (Transmission of HT PPDUs with more than four transmit chains)  
— 28.3.20.1 (Transmit spectrum mask) instead of 19.3.18.1 (Transmit spectrum mask)  
— 28.3.20.3 (Transmit center frequency leakage) instead of 19.3.18.4 (Transmit center frequency tolerance)

Where the Clause 28 (High Efficiency (HE) PHY specification) TXVECTOR parameters in Table 28-1 (TXVECTOR and RXVECTOR parameters) are mapped directly to Clause 19 (High Throughput (HT) PHY specification) TXVECTOR parameters in Table 19-1 (TXVECTOR and RXVECTOR parameters) and the Clause 19 (High Throughput (HT) PHY specification) PHY-TXSTART.request (TXVECTOR) primitive is issued. The HE only PHY parameters not listed in Table 19-1 are not present. The PHY shall use a value of CH\_OFFSET in the Clause 19 (High Throughput (HT) PHY specification) TXVECTOR that is consistent with Table 28-x (Interpretation of FORMAT, NON\_HT Modulation and CH\_BANDWIDTH parameters).

When the HE PHY receives a Clause 28 (High Efficiency (HE) PHY specification) PHY-CONFIG.request(PHYCONFIG\_VECTOR) primitive, the HE PHY shall, for the purposes of HT PPDU transmission and reception, behave as if it were a Clause 19 (High Throughput (HT) PHY specification) PHY that had received PHY-CONFIG.request(PHYCONFIG\_VECTOR) primitive but with the CHANNEL\_WIDTH, CENTER\_FREQUENCY\_SEGMENT\_0, and CENTER\_FREQUENCY\_SEGMENT\_1 parameters discarded from the PHYCONFIG\_VECTOR and the SECONDARY\_CHANNEL\_OFFSET parameter set to SECONDARY\_CHANNEL\_NONE if dot11CurrentChannelWidth indicates 20 MHz, to SECONDARY\_CHANNEL\_ABOVE if , or to SECONDARY\_CHANNEL\_BELOW otherwise.

As defined in 28.3.22 (PHY receive procedure), once a PPDU is received and detected as an HT PPDU, the  
behavior of the HE PHY is defined in Clause 19 (High Throughput (HT) PHY specification). The  
RXVECTOR parameters in Table 19-1 (TXVECTOR and RXVECTOR parameters) from the Clause 19  
(High Throughput (HT) PHY specification) PHY-RXSTART.indication primitive are mapped directly to the  
RXVECTOR parameters in Table 28-1 (TXVECTOR and RXVECTOR parameters) and a Clause 28 (High Efficiency (HE) PHY specification) PHY-RXSTART.indication primitive is issued. The HE only PHY parameters not listed in Table 19-1 are not present.

**28.2.5.4 Support for VHT format**

When a PHY-TXSTART.request(TXVECTOR) primitive is received with the TXVECTOR parameter FORMAT equal to VHT, the behavior of the PHY is defined by Clause 21 (Very High Throughput (VHT) PHY specification) with additional requirements defined in the following subclauses:

— 28.3.20.1 (Transmit spectrum mask) instead of 21.3.17.1 (Transmit spectrum mask)  
— 28.3.20.3 (Transmit center frequency leakage) instead of 21.3.17.4.2 (Transmit center frequency tolerance)

Where the Clause 28 (High Efficiency (HE) PHY specification) TXVECTOR parameters in Table 28-1 (TXVECTOR and RXVECTOR parameters) are mapped directly to Clause 21 (Very High Throughput (VHT) PHY specification) TXVECTOR parameters in Table 21-1 (TXVECTOR and RXVECTOR parameters) and the Clause 21 (Very High Throughput (VHT) PHY specification) PHY-TXSTART.request (TXVECTOR) primitive is issued. The HE only PHY parameters not listed in Table 21-1 are not present.

When the HE PHY receives a Clause 28 (High Efficiency (HE) PHY specification) PHY-CONFIG.request(PHYCONFIG\_VECTOR) primitive, the HE PHY shall, for the purposes of VHT PPDU transmission and reception, behave as if it were a Clause 21 (Very High Throughput (VHT) PHY specification) PHY that had received PHY-CONFIG.request(PHYCONFIG\_VECTOR) primitive .

As defined in 28.3.22 (PHY receive procedure), once a PPDU is received and detected as an VHT PPDU, the  
behavior of the HE PHY is defined in Clause 21 (Very High Throughput (VHT) PHY specification). The  
RXVECTOR parameters in Table 21-1 (TXVECTOR and RXVECTOR parameters) from the Clause 21  
(High Throughput (HT) PHY specification) PHY-RXSTART.indication primitive are mapped directly to the  
RXVECTOR parameters in Table 28-1 (TXVECTOR and RXVECTOR parameters) and a Clause 28 (High Efficiency (HE) PHY specification) PHY-RXSTART.indication primitive is issued. The HE only PHY parameters not listed in Table 21-1 are not present.