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Wireless LANs

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| 11bn PDT PHY UHR PHY Service Interface |
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Abstract

This document contains Proposed Draft Text (PDT) for the subclause 38.2 (UHR PHY Service Interface) of the proposed TGbn (UHR, Ultra High Reliability) amendment to the 802.11 standard.

**Revision information**

The following is a summary of the important changes that occurred within each revision of this document:

|  |  |
| --- | --- |
| **Revision** | **Major changes** |
| 0 | Initial revision |
| 1 | Remove TXVECTOR/RXVECTOR from SP for more time review. |
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**Introduction**

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 TGbn Draft. The abstract, revision information, introduction, explanation of the proposed changes and references sections are not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbn Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

**Explanation of the proposed changes:**

The PHY service interface sub-clause is a composite summary of interface between all UHR PHY features and their MAC counterpart. The proposed changes to the 802.11 TGbn draft within this document are based on approved PHY feature PDTs and the following motions adopted by the TGbn task group:

**Relevant passing motions:**

*T.B.D.*

**Text to be adopted begins here.**

***TGbn editor: Please add the following new subclause 38.xxx Null subcarriers to generate the 802.11bn draft D0.1:***

# Ultra high reliability (UHR) PHY specification

## Introduction

## UHR PHY service interface

###  Introduction

The UHR PHY provides an interface to the UHR MAC through an extension of the generic PHY service interface defined in 8.3.4 (Basic service and options). The interface includes TXVECTOR, RXVECTOR, PHYCONFIG\_VECTOR, and TRIGVECTOR.

The UHR MAC uses the TXVECTOR to supply the UHR PHY with per-PPDU transmit parameters. The UHR PHY uses the RXVECTOR to inform the UHR MAC of the received PPDU parameters. The UHR MAC uses the PHYCONFIG\_VECTOR to configure the UHR PHY for operation that is independent of PPDU transmission or reception. The UHR MAC uses the TRIGVECTOR to configure the UHR PHY to receive UHR TB PPDUs over each assigned RU.

###  TXVECTOR and RXVECTOR parameters

*t.b.d.*

###  TRIGVECTOR parameters

The TRIGVECTOR is carried in a PHY-TRIGGER.request primitive and provides the PHY of the AP with the parameters needed to receive a TB PPDU over each assigned RU. The parameters in [Table 38-2 (TRIGVECTOR parameters)](#_bookmark5) are defined as part of the TRIGVECTOR parameter list in the PHY-TRIGGER.request primitive for receiving an UHR TB PPDU.

Further TRIGVECTOR parameters for receiving an HE or EHT TB PPDU, as determined by the FORMAT and NON\_HT\_MODULATION parameters, are defined in:

* HE PPDU: Table 27-2 (TXVECTOR and RXVECTOR parameters)
* EHT PPDU: Table 36-2 (TRIGVECTOR parameters)

**Table 38-2—TRIGVECTOR parameters**

|  |  |
| --- | --- |
| **Parameter** | **Value** |
| CH\_BANDWIDTH | Indicates the bandwidth in the U-SIG of the expected UHR TB PPDU(s). Enumerated type:CBW20 for 20 MHz. CBW40 for 40 MHz. CBW80 for 80 MHz. CBW160 for 160 MHz.CBW320-1 for 320 MHz, corresponding to 320 MHz-1 defined in[38.3.24.2 (Channelization for 320 MHz channel)](#_bookmark328).CBW320-2 for 320 MHz, corresponding to 320 MHz-2 defined in[38.3.24.2 (Channelization for 320 MHz channel)](#_bookmark328). |
| UL\_LENGTH | Indicates the value of the L-SIG LENGTH field of the expected UHR TB PPDU(s).NOTE—The UL\_LENGTH in TRIGVECTOR is equal to the value of the UL LENGTH subfield in a Trigger frame plus 2. |
| GI\_AND\_UHR\_LTF\_TYPE | Indicates the UHR-LTF type and GI duration combination of the expected UHR TB PPDU(s).Enumerated type:1UHR-LTF + 1.6 µs GI.2UHR-LTF + 1.6 µs GI.4UHR-LTF + 3.2 µs GI. |
| NUM\_UHR\_LTF\_SYMBOLS | Indicates the number of OFDM symbols present in the UHR-LTF field of the expected UHR TB PPDU(s).Set to 0 for 1 OFDM symbol. Set to 1 for 2 OFDM symbols. Set to 2 for 4 OFDM symbols. Set to 3 for 6 OFDM symbols. Set to 4 for 8 OFDM symbols. |
| LDPC\_EXTRA\_SYMBOL | Indicates the status of the LDPC extra symbol segment in the expected UHR TB PPDU(s).Set to 1 if LDPC extra symbol segment is present. Set to 0 otherwise. |
| PRE\_FEC\_PADDING\_FACTOR | Indicates the pre-FEC padding factor for the expected UHR TB PPDU. Value range:Set to 0 to indicate a pre-FEC padding factor of 4. Set to 1 to indicate a pre-FEC padding factor of 1. Set to 2 to indicate a pre-FEC padding factor of 2. Set to 3 to indicate a pre-FEC padding factor of 3. |
| PE\_DISAMBIGUITY | Indicates the PE disambiguity of the expected UHR TB PPDU. Value range:Set to 0 to indicate no PE disambiguity. Set to 1 to indicate PE disambiguity. |
| AID12\_LIST | Each entry of AID12\_LIST is (12-bit) AID of the corresponding UHR TB PPDU.See the AID12 subfield description in 9.3.1.23.5 (UHR variant User Info field) and Table 9-46i (AID12 subfield encoding) for more information of each entry. |

**Table 38-2—TRIGVECTOR parameters *(continued)***

|  |  |
| --- | --- |
| **Parameter** | **Value** |
| RU\_ALLOCATION\_LIST | 9 bits are used per STA to indicate the RU allocated in the whole bandwidth using the same encoding of PS160 (B39) and RU Allocation (B12–B19) subfields in the UHR variant User Info field of a Trigger frame. See the RU Allocation subfield description in 9.3.1.23.5 (UHR variant User Info field) for more information of each entry. |
| FEC\_CODING\_LIST | Each entry of FEC\_CODING\_LIST indicates the coding type of the corresponding UHR TB PPDU from an UHR STA. See the UL FEC Coding Type subfield description in 9.3.1.23.5 (UHR variant User Info field) for more information of each entry |
| UHR\_MCS\_LIST | Each entry of UHR\_MCS\_LIST indicates the UHR-MCS of the corresponding UHR TB PPDU from an UHR STA. See the UL UHR-MCS subfield description in 9.3.1.23.5 (UHR variant User Info field) for more information of each entry. |
| SS\_ALLOCATION\_LIST | Each entry of SS\_ALLOCATION\_LIST indicates the spatial streams of the corresponding UHR TB PPDU from an UHR STA. See the SS Allocation subfield description in 9.3.1.23.5 (UHR variant User Info field) for more information of each entry. |

###  PHYCONFIG\_VECTOR

The PHYCONFIG\_VECTOR carried in a PHY-CONFIG.request primitive for an UHR PHY contains an OPERATING\_CHANNEL parameter, which identifies the operating or primary channel. The PHY shall set dot11CurrentPrimaryChannel to the value of this parameter.

The PHYCONFIG\_VECTOR carried in a PHY-CONFIG.request primitive for an UHR PHY contains a CHANNEL\_WIDTH parameter, which identifies the operating channel width and takes one of the values 20 MHz, 40 MHz, 80 MHz, 160 MHz, and 320 MHz. The PHY shall set dot11UHRCurrentChannelWidth to the value of this parameter.

The PHYCONFIG\_VECTOR carried in a PHY-CONFIG.request primitive for an UHR PHY contains a CENTER\_FREQUENCY\_SEGMENT\_0 parameter, which identifies the center frequency of the channel and takes a value between 1 and 255. The PHY shall set dot11UHRCurrentChannelCenterFrequencyIndex0 to the value of this parameter.

The PHYCONFIG\_VECTOR carried in a PHY-CONFIG.request primitive for an UHR PHY contains a DISABLED\_SUBCHANNEL\_BITMAP parameter, which carries the value of the Disabled Subchannel Bitmap subfield in an UHR Operation element and identifies the 20 MHz subchannels that are punctured in an UHR BSS. The PHY shall set dot11UHRDisabledSubchannelBitmap to the value of this parameter.

The PHYCONFIG\_VECTOR carried in a PHY-CONFIG.request primitive for an UHR PHY contains a NPCA\_PRIMARY\_CHANNEL parameter, which identifies the NPCA primary channel and indicates whether operating on the NPCA primary channel or not. The PHY shall set dot11NPCAPrimaryChannel to the value of this parameter.

###  Effect of CH\_BANDWIDTH parameter on PPDU format

[Table 38-3 (Interpretation of FORMAT, NON\_HT\_MODULATION, and CH\_BANDWIDTH parameters)](#_bookmark7) shows the valid combinations of the FORMAT, NON\_HT\_MODULATION, and CH\_BANDWIDTH parameters and the corresponding PPDU format. Other combinations are reserved.

**Table 38-3—Interpretation of FORMAT, NON\_HT\_MODULATION, and CH\_BANDWIDTH parameters**

|  |  |  |  |
| --- | --- | --- | --- |
| **FORMAT** | **NON\_HT\_ MODULATION** | **CH\_BANDWIDTH** | **PPDU format** |
| UHR\_MU, UHR\_ELR, UHR\_TB | N/A | CBW20 | The STA transmits an UHR PPDU of 20 MHz bandwidth. If the BSS bandwidth is wider than20 MHz, then the transmission shall use the primary 20 MHz channel. |
| UHR\_MU, UHR\_ELR, UHR\_TB | N/A | CBW40 | The STA transmits an UHR PPDU of 40 MHz bandwidth. If the BSS bandwidth is wider than40 MHz, then the transmission shall use the primary 40 MHz channel. |
| UHR\_MU, UHR\_ELR, UHR\_TB | N/A | CBW80 | The STA transmits an UHR PPDU of 80 MHz bandwidth. If the BSS bandwidth is wider than80 MHz, then the transmission shall use the primary 80 MHz channel. |
| UHR\_MU, UHR\_ELR, UHR\_TB | N/A | CBW160 | The STA transmits an UHR PPDU of 160 MHz bandwidth. If the BSS bandwidth is wider than 160 MHz, then the transmission shall use the primary 160 MHz channel. |
| UHR\_MU, UHR\_ELR, UHR\_TB | N/A | CBW320-1 CBW320-2 | The STA transmits an UHR PPDU of 320 MHz bandwidth.NOTE—The CH\_BANDWIDTH of CBW320-1and CBW320-2 is interpreted as 320 MHz bandwidth for the transmission of an UHR PPDU of 320 MHz bandwidth. |
| NON\_HT | OFDM | CBW20 | See Table 21-2 (Interpretation of FORMAT, NON\_HT\_MODULATION, CH\_BANDWIDTH,and CH\_OFFSET parameters). |
| NON\_HT | NON\_HT\_DUP\_ OFDM | CBW40 | See Table 21-2 (Interpretation of FORMAT, NON\_HT\_MODULATION, CH\_BANDWIDTH,and CH\_OFFSET parameters). |
| NON\_HT | NON\_HT\_DUP\_ OFDM | CBW80 | If INACTIVE\_SUBCHANNELS is not present, see Table 21-2 (Interpretation of FORMAT, NON\_HT\_MODULATION, CH\_BANDWIDTH,and CH\_OFFSET parameters).If INACTIVE\_SUBCHANNELS is present (see35.11.5 (INACTIVE\_SUBCHANNELS) and26.11.7 (INACTIVE\_SUBCHANNELS andRU\_ALLOCATION)), the STA transmits a punctured NON-HT PPDU of 80 MHz bandwidth. If the BSS bandwidth is wider than 80 MHz, then the transmission shall use the primary 80 MHz channel. Primary 20 MHz is not punctured. |

**Table 38-3—Interpretation of FORMAT, NON\_HT\_MODULATION, and CH\_BANDWIDTH parameters *(continued)***

|  |  |  |  |
| --- | --- | --- | --- |
| **FORMAT** | **NON\_HT\_ MODULATION** | **CH\_BANDWIDTH** | **PPDU format** |
| NON\_HT | NON\_HT\_DUP\_ OFDM | CBW160 | If INACTIVE\_SUBCHANNELS is not present, see Table 21-2 (Interpretation of FORMAT, NON\_HT\_MODULATION, CH\_BANDWIDTH,and CH\_OFFSET parameters).If INACTIVE\_SUBCHANNELS is present (see35.11.5 (INACTIVE\_SUBCHANNELS) and26.11.7 (INACTIVE\_SUBCHANNELS andRU\_ALLOCATION)), the STA transmits a punctured NON-HT PPDU of 160 MHz bandwidth. If the BSS bandwidth is wider than 160 MHz, then the transmission shall use the primary 160 MHz channel. Primary 20 MHz is not punctured. |
| NON\_HT | NON\_HT\_DUP\_ OFDM | CBW320 | If INACTIVE\_SUBCHANNELS is not present, the STA transmits a NON-HT PPDU of 320 MHz bandwidth using sixteen adjacent 20 MHz channels as defined in [36.3.15 (Non-HT duplicate](#_bookmark264) [transmission)](#_bookmark264).If INACTIVE\_SUBCHANNELS is present (see35.11.5 (INACTIVE\_SUBCHANNELS)), the STAtransmits a punctured NON-HT PPDU of 320 MHz bandwidth. Primary 20 MHz is not punctured. |
| HT\_MF, HT\_GF, VHT, HE\_SU, HE\_MU, HE\_ER\_SU, HE\_TBEHT\_MUEHT\_TB | See Table 27-4 (Interpretation of FORMAT, NON\_HT\_MODULATION, CH\_BANDWIDTH, and CH\_OFFSET parameters), Table 21-2 (Interpretation of FORMAT, NON\_HT\_MODULATION, CH\_BANDWIDTH, and CH\_OFFSET parameters), and Table 19-2 (Interpretation of FORMAT, CH\_BANDWIDTH, and CH\_OFFSET parameters). |

###  Support for non-HT, HT, VHT, HE and EHT formats

####  General

When an UHR STA is working on a frequency band that is applicable to a PHY clause, the UHR STA logically contains Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM applications), Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY specification), Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification), Clause 18 (Extended Rate PHY (ERP) specification), Clause 19 (High Throughput (HT) PHY specification), Clause 21 (Very High Throughput (VHT) PHY specification), Clause 27 (High Efficiency (HE) PHY specification), [Clause 36 (Extremely high throughput (EHT) PHY specification)](#_bookmark0) and Clause 38 (Ultra High Reliability (UHR) PHY specification) PHYs. The MAC interacts with the PHYs via the [Clause 38 (Ultra High Reliability (UHR) PHY specification)](#_bookmark0) PHY service interface, which in turn interacts with the Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM applications), Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY specification), Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification), Clause 18 (Extended Rate PHY (ERP) specification), Clause 19 (High Throughput (HT) PHY specification), Clause 21 (Very High Throughput (VHT) PHY specification), Clause 27 (High Efficiency (HE) PHY specification) and [Clause 36 (Extremely high throughput (EHT) PHY specification)](#_bookmark0) PHY service interfaces when applicable as shown in [Figure 38-1 (PHY interaction on transmit for various PPDU](#_bookmark9) [formats)](#_bookmark9), [Figure 38-2 (PHY interaction on receive for various PPDU formats)](#_bookmark10), and [Figure 38-3 (PHY-](#_bookmark11) [CONFIG and CCA interaction with various PPDU formats)](#_bookmark11).

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**Figure 38-1—PHY interaction on transmit for various PPDU formats**



**Figure 38-2—PHY interaction on receive for various PPDU formats**



**Figure 38-3—PHY-CONFIG and CCA interaction with various PPDU formats**

NOTE—[Figure 38-1 (PHY interaction on transmit for various PPDU formats)](#_bookmark9), [Figure 38-2 (PHY interaction on receive](#_bookmark10) [for various PPDU formats)](#_bookmark10), and [Figure 38-3 (PHY-CONFIG and CCA interaction with various PPDU formats)](#_bookmark11) show all possible PHY clauses, not all of which are applicable to any given band.

####  Support for non-HT format

The behavior of the UHR PHY on receipt of a PHY-TXSTART.request(TXVECTOR) primitive with the FORMAT parameter equal to NON\_HT and the NON\_HT\_MODULATION parameter not equal to NON\_HT\_DUP\_OFDM is defined in Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM applications), Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY specification), Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification), and Clause 18 (Extended Rate PHY (ERP) specification) and depends on the parameter NON\_HT\_MODULATION. If the parameter NON\_HT\_MODULATION is OFDM or NON\_HT\_DUP\_OFDM, then the following additional requirements apply:

* The requirements in 21.3.9.1 (Transmission of 20 MHz non-HT PPDUs with more than one transmit chain)
* The requirements in 21.3.17.1 (Transmit spectrum mask) and [38.3.20.1 (Transmit spectral mask)](#_bookmark276) instead of the requirements in 17.3.9.3 (Transmit spectrum mask)
* The requirements in [38.3.20.3 (Transmit center frequency and symbol clock frequency tolerance)](#_bookmark298) instead of the requirements in 17.3.9.5 (Transmit center frequency tolerance) and 17.3.9.6 (Symbol clock frequency tolerance)
* The requirements in [38.3.20.4.2 (Transmit center frequency leakage)](#_bookmark300) instead of the requirements in

17.3.9.7.2 (Transmitter center frequency leakage)

* The requirements in [38.3.20.2 (Spectral flatness)](#_bookmark295) and the requirements in 17.3.9.7.3 (Transmitter spectral flatness)
* The requirements in [38.3.20.1.3 (Additional restrictions of preamble puncturing for non-HT](#_bookmark290) [duplicate PPDU)](#_bookmark290)

The modulation equation for non-HT duplicate transmission is defined in [38.3.15 (Non-HT duplicate](#_bookmark264) [transmission)](#_bookmark264).

When the TXVECTOR parameter FORMAT equals to HT\_MF or HT\_GF, the Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM applications) TXVECTOR parameters defined in Table 15-, the Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY specification) TXVECTOR parameters defined in Table, the Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) TXVECTOR parameters defined in Table () , and the Clause 18 (Extended Rate PHY (ERP) specification) TXVECTOR parameters are directly used, depending on the parameter NON\_HT\_MODULATION. The TXVECTOR parameters not listed in those tables are not present.

The behavior of the UHR PHY on receipt of a PHY-TXSTART.request(TXVECTOR) primitive with the FORMAT parameter equal to NON\_HT and the NON\_HT\_MODULATION parameter equal to NON\_HT\_DUP\_OFDM is defined in [38.3.15 (Non-HT duplicate transmission)](#_bookmark264).

On receipt of a PHY-CONFIG.request(PHYCONFIG\_VECTOR) primitive, the UHR PHY behaves as if it were a Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM applications), Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY specification), Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification), or Clause 18 (Extended Rate PHY (ERP) specification) PHY that had received a PHY-CONFIG.request(PHYCONFIG\_VECTOR) primitive but without the PHYCONFIG\_VECTOR parameters CHANNEL\_WIDTH, CENTER\_FREQUENCY\_SEGMENT\_0, and DISABLED\_SUBCHANNEL\_BITMAP.

As defined in [38.3.23 (UHR receive procedure)](#_bookmark322), once a PPDU is received and detected as a non-HT PPDU, the behavior of the UHR PHY is defined in Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM applications), Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY specification), Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification), or Clause 18 (Extended Rate PHY (ERP) specification) depending on the PPDU format. The RXVECTOR parameters from the Clause 15 (DSSS PHY specification for the 2.4 GHz band designated for ISM applications), Clause 16 (High rate direct sequence spread spectrum (HR/DSSS) PHY specification), Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification), and Clause 18 (Extended Rate PHY (ERP) specification) are directly used, and the PHY parameters not listed in the table are not present.

####  Support for HT format

The behavior of a UHR PHY on receipt of a PHY-TXSTART.request(TXVECTOR) primitive with the TXVECTOR parameter FORMAT equal to HT\_MF or HT\_GF is defined in Clause 19 (High Throughput (HT) PHY specification) with the following additional requirements:

* The requirements in 21.3.9.2 (Transmission of HT PPDUs with more than four transmit chains)
* The requirements in [38.3.20.3 (Transmit center frequency and symbol clock frequency tolerance)](#_bookmark298) instead of the requirements in 19.3.18.4 (Transmit center frequency tolerance)

When the TXVECTOR parameter FORMAT equals to HT\_MF or HT\_GF, the the Clause 19 (High Throughput (HT) PHY specification) TXVECTOR parameters in [Table 19-1 (TXVECTOR and RXVECTOR parameters)](#_bookmark4) are directly used, and the TXVECTOR parameters not listed in Table 19- 1 (TXVECTOR and RXVECTOR parameters) 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 38-3](#_bookmark7) [(Interpretation of FORMAT, NON\_HT\_MODULATION, and CH\_BANDWIDTH parameters)](#_bookmark7). A 20 MHz- only non-AP UHR STA supports HT transmission only on 20 MHz channel width.

On receipt of a PHY-CONFIG.request(PHYCONFIG\_VECTOR) primitive, the UHR PHY behaves, for the purposes of HT PPDU transmission and reception, as if it were a Clause 19 (High Throughput (HT) PHY specification) PHY that had received PHY-CONFIG.request (PHYCONFIG\_VECTOR) primitive but without the PHYCONFIG\_VECTOR parameters CHANNEL\_WIDTH, CENTER\_FREQUENCY\_SEGMENT\_0, and DISABLED\_SUBCHANNEL\_BITMAP, and with the PHYCONFIG\_VECTOR parameter SECONDARY\_CHANNEL\_OFFSET set to SECONDARY\_CHANNEL\_NONE if dot11CurrentChannelWidth indicates 20 MHz, to SECONDARY\_CHANNEL\_ABOVE if fP20,idx < fS20,idex, or to SECONDARY\_CHANNEL\_BELOW otherwise.

As defined in [38.3.23 (UHR receive procedure)](#_bookmark322), once a PPDU is received and detected as an HT PPDU, the behavior of the UHR PHY is defined in Clause 19 (High Throughput (HT) PHY specification). The RXVECTOR parameters in Table 19-1 (TXVECTOR and RXVECTOR parameters) are directly used, and the RXVECTOR parameters not listed in Table 19-1 (TXVECTOR and RXVECTOR parameters) are not present. A 20 MHz-only non-AP UHR STA supports HT reception only on 20 MHz channel width.

####  Support for VHT format

The behavior of a UHR PHY on receipt of a PHY-TXSTART.request(TXVECTOR) primitive with the TXVECTOR parameter FORMAT equal to VHT is defined in Clause 21 (Very High Throughput (VHT) PHY specification) except that the requirements in [38.3.20.3 (Transmit center frequency and symbol clock](#_bookmark298) [frequency tolerance)](#_bookmark298) apply instead of the requirements in 21.3.17.3 (Transmit center frequency and symbol clock frequency tolerance).

When the TXVECTOR parameter FORMAT equals to VHT, the Clause 21 (Very High Throughput (VHT) PHY specification) TXVECTOR parameters in Table 21-1 (TXVECTOR and RXVECTOR parameters) are directly used, and the TXVECTOR parameters not listed in Table 21- 1 (TXVECTOR and RXVECTOR parameters) are not present. The 20 MHz-only non-AP UHR STA supports VHT transmission only on 20 MHz channel width.

On receipt of a PHY-CONFIG.request(PHYCONFIG\_VECTOR) primitive, the UHR PHY behaves, for the purposes of VHT PPDU transmission and reception, as if it were a Clause 21 (Very High Throughput (VHT) PHY specification) PHY that received the PHY-CONFIG.request(PHYCONFIG\_VECTOR) primitive except that:

* the PHYCONFIG\_VECTOR parameter DISABLED\_SUBCHANNEL\_BITMAP is ignored
* the CHANNEL\_WIDTH parameter, if it is equal to 320 MHz, is replaced by 160 MHz
* the CENTER\_FREQUENCY\_SEGMENT\_0 parameter, if the CHANNEL\_WIDTH parameter is equal to 320 MHz, is replaced by the center of the primary 160 MHz channel.

As defined in [38.3.23 (UHR receive procedure)](#_bookmark322), once a PPDU is received and detected as an VHT PPDU, the behavior of the UHR PHY is defined in Clause 21 (Very High Throughput (VHT) PHY specification). The RXVECTOR parameters in Table 21-1 (TXVECTOR and RXVECTOR parameters) are directly used, and the UHR PHY parameters not listed in Table 21-1 (TXVECTOR and RXVECTOR parameters) are not present. A 20 MHz-only non-AP UHR STA supports VHT reception only on 20 MHz channel width.

####  Support for HE format

The behavior of a UHR PHY on receipt of a PHY-TXSTART.request(TXVECTOR) primitive with the TXVECTOR parameter FORMAT equal to HE\_SU, HE\_ER\_SU, HE\_MU, or HE\_TB is defined in Clause 27 (High Efficiency (HE) PHY specification) except that the requirements in [38.3.20.3 (Transmit](#_bookmark298) [center frequency and symbol clock frequency tolerance)](#_bookmark298) apply instead of the requirements in 27.3.21.3 (Transmit center frequency and symbol clock frequency tolerance).

When the TXVECTOR parameter FORMAT equals to VHT, the Clause 27 (High Efficiency (HE) PHY specification) TXVECTOR parameters in Table 27- 1 (TXVECTOR and RXVECTOR parameters) are directly used. The TXVECTOR parameters not listed in Table 27- 1 (TXVECTOR and RXVECTOR parameters) are not present.

On receipt of a PHY-CONFIG.request(PHYCONFIG\_VECTOR) primitive, the UHR PHY behaves, for the purposes of HE PPDU transmission and reception, as if it were a Clause 27 (High Efficiency (HE) PHY specification) PHY that received the PHY-CONFIG.request(PHYCONFIG\_VECTOR) primitive except that:

* the PHYCONFIG\_VECTOR parameter DISABLED\_SUBCHANNEL\_BITMAP is ignored
* the CHANNEL\_WIDTH parameter, if it is equal to 320 MHz, is replaced by 160 MHz
* the CENTER\_FREQUENCY\_SEGMENT\_0 parameter, if the CHANNEL\_WIDTH parameter is equal to 320 MHz, is replaced by the center of the primary 160 MHz channel.

As defined in [38.3.23 (UHR receive procedure)](#_bookmark322), once a PPDU is received and detected as an HE PPDU, the behavior of the UHR PHY is defined in Clause 27 (High Efficiency (HE) PHY specification). The RXVECTOR parameters in Table 27-1 (TXVECTOR and RXVECTOR parameters) are directly used, and the RXVECTOR parameters not listed in Table 27-1 (TXVECTOR and RXVECTOR parameters) are not present.

####  Support for EHT format

The behavior of a UHR PHY on receipt of a PHY-TXSTART.request(TXVECTOR) primitive with the TXVECTOR parameter FORMAT equal to EHT\_MU or EHT\_TB is defined in Clause 36 (Extremely high throughput (EHT) PHY specification) except that the requirements in [38.3.20.3 (Transmit](#_bookmark298) [center frequency and symbol clock frequency tolerance)](#_bookmark298) apply instead of the requirements in 36.3.20.3 (Transmit center frequency and symbol clock frequency tolerance).

When the TXVECTOR parameter FORMAT equals to VHT, the Clause 36 (Extremely high throughput (EHT) PHY specification) TXVECTOR parameters in Table 36-1 (TXVECTOR and RXVECTOR parameters) are directly used. The TXVECTOR parameters not listed in Table 36-1 (TXVECTOR and RXVECTOR parameters) are not present.

On receipt of a PHY-CONFIG.request(PHYCONFIG\_VECTOR) primitive, the UHR PHY behaves, for the purposes of EHT PPDU transmission and reception, as if it were a Clause 36 (Extremely high throughput (EHT) PHY specification) PHY that received the PHY-CONFIG.request(PHYCONFIG\_VECTOR) primitive.

As defined in [38.3.23 (UHR receive procedure)](#_bookmark322), once a PPDU is received and detected as an EHT PPDU, the behavior of the UHR PHY is defined in Clause 36 (Extremely high throughput (EHT) PHY specification). The RXVECTOR parameters in Table 36-1 (TXVECTOR and RXVECTOR parameters) are directly used, and the RXVECTOR parameters not listed in Table 36-1 (TXVECTOR and RXVECTOR parameters) are not present.

**Text to be adopted ends here.**

**References:**

1. [11-24-0171r21](https://mentor.ieee.org/802.11/dcn/24/11-24-0171-21-00bn-tgbn-motions-list-part-1.pptx): 11-24-0171-21-00bn-tgbn-motions-list-part-1, Alfred Asterjadhi (Qualcomm Inc.)