IEEE P802.11  
Wireless LANs

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| Rx Procedure Comment Resolution for LB 178 D1.0 | | | | |
| Date: 20 July 2011 | | | | |
| Author(s): | | | | |
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|  |  |  |  |  |

Abstract

This document provides resolutions for CIDs 2934, 3200, 2497, 2499, 2705, 3164, 3688, 3368, 2706, 3165, 3689, 3630, 3652, 2500, 2248, 2707, 3690, 3280, 3691, 2708, 2504, 2502, 2503, 2709, 2710, 2711, 2973, 2974, 2975, 3012

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resn Status** | **Resolution** |
| 2934 | 192.00 | 22.3.21 | L-SIG parity bit is known to exhibit high false-positive rate. The validity of the packet should not be based on this single parity bit. | There are several possible solutions to this problem, 2 of which are mentioned here: 1) Expand the CRC in VHT-SIG-A2 to include the Length field of L-SIG. 2) Defer the checking of the L-SIG parity bit until VHT-SIG-B field is decoded the perform the check by comparing the L-SIG Length with VHT-SIG-B Length. | D | Disagree. With improved RF and better receiver sensitivity, issues with the single parity bit of the L-SIG as in the days of 802.11a are much reduced. Furthermore, even back in the 11n development days, extra information was used to verify L-SIG, such as validity of the L-SIG rate (see 11-06/0868). |

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| 3200 | 192.00 | 22.3.21 | it is stated that if group ID in VHT SIG-A has value of 63 then PHY can choose not to decode the VHT SIG-B. However the PPDU length is indicated in the VHT SIG-B so the packet cannot be received. | Clarify text. | D | Disagree. PPDU length is not indicated in VHT SIG-B. “VHT-SIG-B Length” is indicated in VHT SIG-B, see 22.3.8.2.6.  To receive the packet, the PHY computes the number of symbols based on RXTIME, which is based on L\_LENGTH, see D1.0P192L64. |

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resn Status** | **Resolution** |
| 2497 | 192.29 | 22.3.21 | "Short GI set to 01" raises questions of writing order (MSB first) or transmission order (LSB-first). | Replace by appropriate decimal value. Ditto P193L2 | P | Agree in Principle. Replaced by explicit identifier and values for each bit, as given in 11/0987. |
| 2248 | 193.01 | 22.3.21 | Replace "if Short GI=11b" with if [B0 B1] = 11b in VHT-SIG-A2 |  | P | Agree in Principle. Replaced by explicit identifier and values for each bit, as given in 11/0987. |
| 2707 | 193.02 | 22.3.21 | Where is Short GI defined? | Change 'if Short GI = 11b' to 'if B1 = 0 in VHT-SIG-A1' | P | Agree in Principle. Replaced by explicit identifier and values for each bit, as given in 11/0987. |
| 3690 | 193.02 | 22.3.21 | The notation of Equation (22-92) isn't very clear | Use the same notation for Equation (22-92) as in Equation (22-93), namely, N\_SYM, if B1 = 0 in VHT-SIG-A, etc. | P | Agree in Principle. Replaced by explicit identifier and values for each bit, as given in 11/0987. |

**TGac editor: modify D1.0 P192L29, as follows**

Reserved VHT-SIG-A Indication is defined as a VHT-SIG-A with Reserved bits equal to 0, or NSTS per user for MU set to 5-7, or Short GI with VHT-SIG-A2 B0 set to 0 and VHT-SIG-A2 B1 set 1, or a combination of MCS and NSTS not included in 22.5 (Parameters for VHT MCSs), or any other VHT-SIG-A field bit combinations that do not correspond to modes of PHY operation defined in Clause 22.

**TGac editor: modify D1.0 P193L2, Eq 22-92, as follows**

if Short GI with VHT-SIG-A2 B0 is 1 and VHT-SIG-A2 B1 is 1

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| 2499 | 192.45 | 22.3.21 | "value of 63" but this is now 0 or 63 according to AP/non-AP. Ditto P192L52 | e.g. "has a value indicating a SU transmission (see xxx)" | A | Agree. See resolution in 11/0987. |
| 2705 | 192.45 | 22.3.21 | Group ID 0 is also SU. | Change 'value of 63' to 'value of 0 or 63' | P | Agree in principle. See resolution in 11/0987. |
| 3164 | 192.45 | 22.3.21 | Group ID = 0 is also SU | change "If the received Group ID in VHT-SIG-A has a value of 0 or 63 (indicating a SU transmission), the PHY entity may choose not to decode VHT-SIG-B." to "If the received Group ID in VHT-SIG-A has a value of 63 (indicating a SU transmission), the PHY entity may choose not to decode VHT-SIG-B." | P | Agree in principle. See resolution in 11/0987. |
| 3688 | 192.45 | 22.3.21 | Missing the value 0 in "If the received Group ID in VHT-SIG-A has a value of 63 (indicating a SU transmission)" | Change to "If the received Group ID in VHT-SIG-A has a value of 0 or 63 (indicating a SU transmission)" | P | Agree in principle. See resolution in 11/0987. |
| 3368 | 192.46 | 22.3.21 | Doesn't 0 also indicate an SU transmission? | Change "63" to "0 or 63" | P | Agree in principle. See resolution in 11/0987. |
| 2706 | 192.51 | 22.3.21 | Group ID 0 is also SU. | Change 'value other than 63' to 'value other than 0 or 63' | P | Agree in principle. See resolution in 11/0987. |
| 3165 | 192.51 | 22.3.21 | Requirement to decode only if STA supports MU-MIMO. In addition, Group ID = 0 is also SU. | change "If Group ID in VHT-SIG-A has a value other than 63 (indicating a MU transmission), the PHY shall decode VHT-SIG-B." to "If the VHT STA supports MU-MIMO and Group ID in VHT-SIG-A has a value other than 0 or 63 (indicating a MU transmission), the PHY shall decode VHT-SIG-B." | P | Agree in principle. See resolution in 11/0987. |
| 3689 | 192.51 | 22.3.21 | Missing the value 0 in "If Group ID in VHT-SIG-A has a value other than 63 (indicating a MU transmission)" | Change to "If Group ID in VHT-SIG-A has a value other than 0 and 63 (indicating a MU transmission)" | P | Agree in principle. See resolution in 11/0987. |

**TGac editor: modify D1.0 P192L44, as follows**

If the received Group ID in VHT-SIG-A has a value indicating a SU transmission (see 8.5.16.3), the PHY entity may choose not to decode VHT-SIG-B.

**TGac editor: modify D1.0 P192L51, as follows**

If Group ID in VHT-SIG-A has a value other than that indicating a SU transmission (see 8.5.16.3), the PHY shall decode VHT-SIG-B. If the VHT-SIG-B indicates an unsupported mode, the PHY shall issue the error condition PHY-RXEND.indication(UnsupportedRate).

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resn Status** | **Resolution** |
| 3630 | 192.62 | 22.3.21 | The PLCP SERVICE and PSDU shall be scrambled and coded together, according to 'Figure 22-21' and 'Figure 22-23' in which the C-PSDU contains the scrambled and coded PLCP SERVICE field and scrambled and coded PSDU | suggest to change to "the coded PSDU (C-PSDU) (which comprises the scrambled and coded PLCP SERVICE field and PSDU) shall be received." | A | Agree. See resolution in 11/0987. |
| 3652 | 192.62 | 22.3.21 | the PLCP SERVICE and PSDU shall be scrabled and coded together,  according to 'Figure 22-21' and 'Figure 22-23' ,the C-PSDU contains the scrambled and coded PLCP SERVICE field and scrambled and coded PSDU | suggest to modify 'the coded PSDU (C-PSDU) (which comprises the coded PLCP SERVICE field and scrambled and coded PSDU) shall be received. ' to 'the C-PSDU (which comprises the scrambled and coded PLCP SERVICE field and scrambled and coded PSDU) shall be received' | P | Agree in principle. See resolution in 11/0987. |
| 2500 | 192.64 | 22.3.21 | C-PSDU includes pad also | "and pad)" | A | Agree. See resolution in 11/0987. |

**TGac editor: modify D1.0 P192L51, as follows**

Following training and signal fields, the coded PSDU (C-PSDU) (which comprises the scrambled and coded PLCP SERVICE field and PSDU and pad) shall be received. The number of symbols in the C-PSDU is determined by Equation (22-92).

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| 3280 | 193.44 | 22.3.21 | "Any final bits that cannot be assembled into a complete octet are considered pad bits and should be discarded." why would this not be a requirement rather than a "suggestion"? | Change "should" to "shall". | P | Agree in Principle. Changed “should be” to “are”. See resolution in 11/0987. |
| 3691 | 193.45 | 22.3.21 | The PHY-RXEND.indication(NoError) isn't included. | Add a similar statement as in the HT clause: "A PHY- RXEND.indication(NoError) primitive shall be issued on entry to the RX IDLE state." | A | Agree. See resolution in 11/0987. |
| 2708 | Kim, Youhan | 193.47 | 22.3.21 | REVmb D8.0 19.3.23 also describes a PHY-RXEND.indication(NoError) which is missing in 22.3.21. | A | Agree. See resolution in 11/0987. |

**TGac editor: modify D1.0 P193L41, as follows**

The received PSDU bits are assembled into octets, decoded, and presented to the MAC using a series of PHYDATA.indication(DATA) primitive exchanges. Any final bits that cannot be assembled into a complete octet

are considered pad bits and are discarded. After the reception of the final bit of the last PSDU octet, and possible tail and padding bits, the receiver shall be returned to the RX IDLE state, as shown in Figure 22-24. A PHY-RXEND.indication(NoError) primitive shall be issued on entry to the RX IDLE state.

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resn Status** | **Resolution** |
| 2504 | 194.20 | 22.3.21 | Pathway "A" is associated with formatViolation in the text, but this primitive is not present in the diagram | Add | D | Disagree. “Pathway A” in Fig 22-24 occurs when VHT-SIG-B is decoded and CRC is checked. Figure 22-23 has a note stating “This procedure describes the case where VHT-SIG-A indicates a mode not requiring decoding of VHT-SIG-B.”, so a primitive is not required in the figure. |
| 2502 | 194.27 | 22.3.21 | PMD\_FORMAT.ind is aligned with VHTSIGA1 yet the format indication is likely deferred until the 90deg rotation in VHTSIGA2 (11n hangover?) | Shift PMD\_FORMAT.ind to end of VHTSIGA2 | A | Agree. See resolution in 11/0987. |
| 2503 | 194.27 | 22.3.21 | PMD\_BW\_OFFSET.ind - no text associated with this, and arguably this is subsumed by PMD\_NON\_HT\_CH\_BW.ind. | Delete this arrow, or add text describing its significance | A | Agree. See resolution in 11/0987. |
| 2709 | 194.28 | 22.3.21 | PMD\_FORMAT for a VHT packet can be determined after receiving the VHT-SIG-A Sym 2. | Move the location of the issuance of PMD\_FORMAT to some time after the end of VHT-SIG-A Sym 2. | A | Agree. See resolution in 11/0987. |
| 2710 | 194.28 | 22.3.21 | What is the meaning of PMD\_BW\_OFFSET, and where is it used? |  | P | Agree in principle. See resolution in 11/0987. |
| 2711 | 194.28 | 22.3.21 | PMD\_NON\_HT\_CH\_BANDWIDTH is obtained from the SERVICE field. Hence, the location of the issuance of PMD\_NON\_HT\_CH\_BANDWIDTH should be moved back to some time within the Data symbols. | Move the location of the issuance of PMD\_NON\_HT\_CH\_BANDWIDTH should be moved back to some time within the Data symbols. | P | Agree in principle. See resolution in 11/0987. |

Discussion:

PMD\_BW\_OFFSET is an artifact of 11n. Unlike 11n, CH\_MAT is only measured from NDP packets, which does not apply to Fig 22-23. PMD\_NON\_HT\_CH\_BANDWIDTH comes from BW indication in non-HT RTS/CTS, so it does not apply to VHT packets. As such, all three indications are deleted from Figure 22-23.

On inspection, it was observed that 11acD1.0 has no PMD sublayer or PMD\_SAP at all, this will be added as follows.

**TGac editor: modify D1.0 Figure 22-23, as follows**



**TGac editor: add new clause 22.6, as follows**

**22.6 VHT PMD sublayer**

**22.6.1 Scope and field of application**

The PMD services provided to the PLCP for the Very High Throughput (VHT) PHY are described in 22.6 (VHT PMD sublayer). Also defined in this subclause are the functional, electrical, and RF characteristics required for interoperability of implementations conforming to this specification. The relationship of this specification to the entire VHT PHY is shown in Figure 22-PMD1 (PMD layer reference model).

*Insert figure equivalent to 11mbD9.0 19-28, with HT replaced by VHT*

**Figure 22-PMD1—PMD layer reference model**

**22.6.2 Overview of service**

The VHT PMD sublayer accepts PLCP sublayer service primitives and provides the actual means by which data are transmitted or received from the medium. The combined function of the VHT PMD sublayer primitives and parameters for the receive function results in a data stream, timing information, and associated receive signal parameters being delivered to the PLCP sublayer. A similar functionality is provided for data transmission.

**22.6.3 Overview of interactions**

The primitives provided by the VHT PMD fall into two basic categories:

a) Service primitives that support PLCP peer-to-peer interactions

b) Service primitives that have local significance and support sublayer-to-sublayer interactions

**22.6.4 Basic service and options**

**22.6.4.1 Status of service primitives**

All of the service primitives described in 22.6.4 (Basic service and options) are mandatory, unless otherwise

specified.

**22.6.4.2 PMD\_SAP peer-to-peer service primitives**

Table 22-PMD1 (PMD\_SAP peer-to-peer service primitives) indicates the primitives for peer-to-peer

interactions.

*Insert table equivalent to 11mbD9.0 19-26*

**Table 22-PMD1—PMD\_SAP peer-to-peer service primitives**

**22.6.4.3 PMD\_SAP sublayer-to-sublayer service primitives**

Table 22-PMD2 (PMD\_SAP sublayer-to-sublayer service primitives) indicates the primitives for sublayer-to-sublayer interactions.

*Insert table equivalent to 11mbD9.0 19-27, which PDM\_CBW\_OFFSET removed*

**Table 22-PMD2—PMD\_SAP sublayer-to-sublayer service primitives**

**22.6.4.4 PMD\_SAP service primitive parameters**

Table 22-PMD3 (List of parameters for PMD primitives) shows the parameters used by one or more of the PMD\_SAP service primitives.

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| **Parameter** | **Associate primitive** | **Value** |
| TXD\_UNIT | PMD\_DATA.request | One OFDM symbol value, N\_DBPS bits |
| RXD\_UNIT | PMD\_DATA.indication | Bit, either 0 or 1 |
| TXPWR\_LEVEL | PMD\_TXPWRLVL.request | 1 to 128 (maximum of 128 levels) |
| MCS | PMD\_TX\_PARAMETERS.request | 0 to 9, MCS index defined in 22.5 (Parameters for VHT MCSs) |
| NUM\_STS | PMD\_TX\_PARAMETERS.request | Indicates the number of space-time streams  Range 1-8 for SU, 0-4 for MU |
| CH\_BANDWIDTH | PMD\_TX\_PARAMETERS.request | The CH\_BANDWIDTH parameter indicates the channel width of the transmitted packet:  Enumerated type:  VHT\_CBW20 for 20 MHz  VHT\_CBW40 for 40 MHz  VHT\_CBW80 for 80 MHz  VHT\_CBW160 for 160 MHz  VHT\_CBW80+80 for 80+80 MHz |
| STBC | PMD\_TX\_PARAMETERS.request | Set to 0 indicates no STBC (*NSTS*=*NSS*)  Set to 1 indicates *NSTS*=2*NSS* |
| GI\_TYPE | PMD\_TX\_PARAMETERS.request | Set to 0 indicates short GI is not used in the packet  Set to 1 indicates short GI is used in the packet and VHT-SIG-A2 B1 is 0  Set to 2 indicates short GI is used in the packet and VHT-SIG-A2 B1 is 1 |
| FEC\_CODING | PMD\_TX\_PARAMETERS.request | Indicates which FEC encoding is used.  Enumerated type:  BCC\_CODING indicates binary convolutional code.  LDPC\_CODING\_0 indicates low-density parity check code and VHT-SIG-A2 B3 is 0.  LDPC\_CODING\_1 indicates low-density parity check code and VHT-SIG-A2 B3 is 1. |
| GROUP\_ID | PMD\_TX\_PARAMETERS.request | 0-63; value indicates SU or MU (see 8.5.16.3) |
| PARTIAL\_AID | PMD\_TX\_PARAMETERS.request | Provides an abbreviated indication of the intended recipient(s) of the frame (see 9.17a).  Integer: range 0-511. |
| CHAN\_MAT | PMD\_CHAN\_MAT.indication | *NSD* + *NSP* complex matrices of size  *NRX* *NSTS* |
| RSSI | PMD\_RSSI.indication | 0 to 255 |
| RCPI | PMD\_RCPI.indication | 0 to 255; see 19.3.21.6 (Received channel power indicator (RCPI) measurement) for definition of each value. |
| FORMAT | PMD\_FORMAT.indication | Set to 0 for NON\_HT  Set to 1 for HT\_MF  Set to 2 for HT\_GF  Set to 3 for VHT |
| CH\_BANDWIDTH\_IN\_NON\_HT | PMD\_NON\_HT\_CH\_BANDWIDTH.indication | Enumerated type:  CBW20, CBW40, CBW80 and CBW160 |
| DYN\_BANDWIDTH\_IN\_NON\_HT | PMD\_NON\_HT\_CH\_BANDWIDTH.indication | Static and Dynamic |

**Table 22-PMD3—List of parameters for PMD primitives**

**22.6.5 PMD\_SAP detailed service specification**

**22.6.5.1 Introduction to PMD\_SAP service specification**

Subclauses 22.6.5.2 (PMD\_DATA.request) through 22.6.5.13 (PMD\_FORMAT.indication) describe the services provided by each PMD primitive.

**22.6.5.2 PMD\_DATA.request**

**22.6.5.2.1 Function**

This primitive defines the transfer of data from the PLCP sublayer to the PMD entity.

**22.6.5.2.2 Semantics of the service primitive**

This primitive shall provide the following parameters: PMD\_DATA.request (TXD\_UNIT)

The TXD\_UNIT parameter shall be the *n*-bit combination of 0 and 1 for one symbol of OFDM modulation. If the length of a coded PSDU (C-PSDU) is shorter than *n* bits, 0 bits are added to form an OFDM symbol. This parameter represents a single block of data that, in turn, shall be used by the PHY to be encoded into an

OFDM transmitted symbol.

**22.6.5.2.3 When generated**

This primitive shall be generated by the PLCP sublayer to request transmission of one OFDM symbol.

**22.6.5.2.4 Effect of receipt**

The PMD performs transmission of the data.

**22.6.5.3 PMD\_DATA.indication**

**22.6.5.3.1 Function**

This primitive defines the transfer of data from the PMD entity to the PLCP sublayer.

**22.6.5.3.2 Semantics of the service primitive**

This primitive shall provide the following parameter: PMD\_DATA.indication(RXD\_UNIT)

The RXD\_UNIT parameter shall be 0 or 1 and shall represent either a SIGNAL field bit or a data field bit after the decoding of the FEC by the PMD entity.

**22.6.5.3.3 When generated**

This primitive, generated by the PMD entity, forwards received data to the PLCP sublayer.

**22.6.5.3.4 Effect of receipt**

The PLCP sublayer decodes the bits that it receives from the PMD and either interprets them as part of its own signaling or passes them to the MAC sublayer as part of the PSDU after any necessary additional processing (e.g., descrambling).

**22.6.5.4 PMD\_TXSTART.request**

**22.6.5.4.1 Function**

This primitive, generated by the PHY PLCP sublayer, initiates PPDU transmission by the PMD layer.

**22.6.5.4.2 Semantics of the service primitive**

This primitive has no parameters.

**22.6.5.4.3 When generated**

This primitive shall be generated by the PLCP sublayer to initiate the PMD layer transmission of the PPDU.

The PHY-TXSTART.request primitive shall be provided to the PLCP sublayer prior to issuing the PMD\_TXSTART command.

**22.6.5.4.4 Effect of receipt**

PMD\_TXSTART initiates transmission of a PPDU by the PMD sublayer.

**22.6.5.5 PMD\_TXEND.request**

**22.6.5.5.1 Function**

This primitive, generated by the PHY PLCP sublayer, ends PPDU transmission by the PMD layer.

**22.6.5.5.2 Semantics of the service primitive**

This primitive has no parameters.

**22.6.5.5.3 When generated**

This primitive shall be generated by the PLCP sublayer to terminate the PMD layer transmission of the PPDU.

**22.6.5.5.4 Effect of receipt**

PMD\_TXEND terminates transmission of a PPDU by the PMD sublayer.

**22.6.5.6 PMD\_TXEND.confirm**

**22.6.5.6.1 Function**

This primitive, generated by the PMD entity, indicates the end of PPDU transmission by the PMD layer. It is generated at the 4 μs boundary following the trailing boundary of the last symbol transmitted.

**22.6.5.6.2 Semantics of the service primitive**

This primitive has no parameters.

**22.6.5.6.3 When generated**

This primitive shall be generated by the PMD entity at the 4 μs boundary following the trailing boundary of

the last symbol transmitted.

**22.6.5.6.4 Effect of receipt**

The PLCP sublayer determines that transmission of the last symbol of the PPDU is complete. This

completion is used as a timing reference in the PLCP state machines. See 22.3.20 (PLCP transmit procedure).

**22.6.5.7 PMD\_TXPWRLVL.request**

**22.6.5.7.1 Function**

This primitive, generated by the PHY PLCP sublayer, selects the power level used by the PHY for transmission.

**22.6.5.7.2 Semantics of the service primitive**

This primitive shall provide the following parameter: PMD\_TXPWRLVL.request (TXPWR\_LEVEL)

TXPWR\_LEVEL selects which of the transmit power levels should be used for the current packet transmission. The number of available power levels shall be determined by the MIB parameter aNumberSupportedPowerLevels. See 19.3.20.3 (Transmit power) for further information on the OFDM PHY power level control capabilities.

**22.6.5.7.3 When generated**

This primitive shall be generated by the PLCP sublayer to select a specific transmit power. This primitive shall be applied prior to setting PMD\_TXSTART into the transmit state.

**22.6.5.7.4 Effect of receipt**

PMD\_TXPWRLVL immediately sets the transmit power level to the level given by TXPWR\_LEVEL.

**22.6.5.8 PMD\_RSSI.indication**

**22.6.5.8.1 Function**

This primitive, generated by the PMD sublayer, provides the receive signal strength to the PLCP and MAC entity.

**22.6.5.8.2 Semantics of the service primitive**

This primitive shall provide the following parameter: PMD\_RSSI.indication (RSSI)

The RSSI shall be a measure of the RF energy received by the VHT PHY. RSSI indications of up to 8 bits (256

levels) are supported.

**22.6.5.8.3 When generated**

This primitive shall be generated by the PMD after the reception of the VHT training fields.

**22.6.5.8.4 Effect of receipt**

This parameter shall be provided to the PLCP layer for information only. The RSSI may be used as part of a CCA scheme.

**22.6.5.9 PMD\_RCPI.indication**

**22.6.5.9.1 Function**

This primitive, generated by the PMD sublayer, provides the received channel power indicator to the PLCP

and MAC entity.

**22.6.5.9.2 Semantics of the service primitive**

The primitive shall provide the following parameter: PMD\_RCPI.indication(RCPI).

The RCPI is a measure of the channel power received by the OFDM PHY. RCPI measurement and parameter values are defined in 19.3.21.6 (Received channel power indicator (RCPI) measurement).

**22.6.5.9.3 When generated**

This primitive shall be generated by the PMD when the OFDM PHY is in the receive state. It is generated at

the end of the last received symbol.

**22.6.5.9.4 Effect of receipt**

This parameter shall be provided to the PLCP layer for information only. The RCPI may be used in

conjunction with RSSI to measure input signal quality.

**22.6.5.10 PMD\_TX\_PARAMETERS.request**

**22.6.5.10.1 Function**

This primitive, generated by the PHY PLCP sublayer, selects the related parameters used by the PHY for transmission.

**22.6.5.10.2 Semantics of the service primitive**

This primitive shall provide the following parameters:

PMD\_TX\_PARAMETERS.request (MCS, NUM\_STS, CH\_BANDWIDTH, STBC, GI\_TYPE, FEC\_CODING, GROUP\_ID, PARTIAL\_AID)

**22.6.5.10.3 When generated**

This primitive shall be generated by the PLCP sublayer to select a specific transmit parameter. This primitive shall be applied prior to setting PMD\_TXSTART into the transmit state.

**22.6.5.10.4 Effect of receipt**

PMD\_TX\_PARAMETERS immediately sets the transmit parameters. The receipt of these parameters selects the values that shall be used for all subsequent PPDU transmissions

**22.6.5.12 PMD\_CHAN\_MAT.indication**

**22.6.5.12.1 Function**

This primitive, generated by the PMD sublayer, provides the channel response matrices to the PLCP and MAC entity.

**22.6.5.12.2 Semantics of the service primitive**

This primitive shall provide the following parameter: PMD\_CHAN\_MAT.indication (CHAN\_MAT)

The CHAN\_MAT parameter contains the channel response matrices that were measured during the reception of the current frame.

**22.6.5.12.3 When generated**

This primitive shall be generated by the PMD when the OFDM PHY is in the receive state. ~~It shall be available continuously to the PLCP that, in turn, shall provide the parameter to the MAC entity.~~

**22.6.5.12.4 Effect of receipt**

The PLCP sublayer passes the data to the MAC sublayer as part of the RXVECTOR.

**22.6.5.13 PMD\_FORMAT.indication**

**22.6.5.13.1 Function**

This primitive, generated by the PMD sublayer, provides the format of the received frame to the PLCP and

MAC entity.

**22.6.5.13.2 Semantics of the service primitive**

This primitive shall provide the following parameter: PMD\_FORMAT.indication (FORMAT).

The format indicates one of the PPDU formats: non HT, HT-mixed format, HT-greenfield format, or VHT format.

**22.6.5.13.3 When generated**

This primitive shall be generated by the PMD after the reception of the VHT training fields.

**22.6.5.13.4 Effect of receipt**

The PLCP sublayer passes the data to the MAC sublayer as part of the RXVECTOR.

**22.6.5.12 PMD\_NON\_HT\_CH\_BANDWIDTH.indication**

**22.6.5.12.1 Function**

This primitive, generated by the PMD sublayer, provides information regarding channel bandwidth and static or dynamic bandwidth operation.

**22.6.5.12.2 Semantics of the service primitive**

This primitive shall provide the following parameter: PMD\_NON\_HT\_CH\_BANDWIDTH.indication (CH\_BANDWIDTH\_IN\_NON\_HT, DYN\_BANDWIDTH\_IN\_NON\_HT)

**22.6.5.12.3 When generated**

This primitive shall be generated by the PMD when the OFDM PHY is in the receive state.

**22.6.5.12.4 Effect of receipt**

The PLCP sublayer passes the data to the MAC sublayer as part of the RXVECTOR.

**TGac editor: modify D1.0 P117L4, as follows**

The NON\_HT\_DUP\_OFDM and CH\_BANDWIDTH parameters in the RXVECTOR can be set by the PMD\_NON\_HT\_CH\_BANDWIDTH primitive as in 22.6.

|  |  |  |  |  |  |  |
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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resn Status** | **Resolution** |
| 2973 | 195.50 | 22.3.21 | NDP receive operation cannot follow the current procedure in Figure 22-24. | Need to describe how to receive NDP and modify the flow path of Figure 22-24. | D | Disagree. The NOTE in Figure 22-24 states that “This state machine does not describe the operation of optional features…”, of which NDP is an optional feature. |
| 2974 | 195.51 | 22.3.21 | In Figure 22-22 and Figure 22-24, there are different methods used to denote the number of data symbols, including "Symbol Count" and "N\_symbols" , respectively. | Use a uniformed notation throughout this draft. | D | Disagree. The process of transmit and receive are different, with each state machine having self consistent notation. Having the same notation may actually confuse people into thinking that these are the same parameters. |
| 2975 | 195.51 | 22.3.21 | Figure 22-24 does not give the initial value of "N\_symbols" (the number of data symbols), while Figure 22-22 does. | Provide the initial value of "N\_symbols" | A | Agree. See resolution in 11/0987. |
| 3012 | 195.51 | 22.3.21 | Figure 22-24 does not give the initial value of "N\_symbols" (the number of data symbols), while Figure 22-22 does. | Give the initial value of "N\_symbols" | A | Agree. See resolution in 11/0987. |

**TGac editor: modify D1.0 Figure 22-24, as follows**

