IEEE P802.11
Wireless LANs

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| D1.0 comment resolutions on miscellaneous COEX and MAC CIDs |
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Abstract

This document proposes resolutions for CIDs 3106, 3486, 2679, 3084, 2291 (COEX), and 2549, 3127 (MAC). (comments on P802.11ac/D1.0)

Changes in the text refer to: Draft P802.11ac/D1.2 and Draft P802.11REVmb/D11.0

Comments (CID 3106 – COEX)

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| 3106 | Merlin, Simone | 9.7.4.3 | 72 | 65 | T | 9.7.4.3 Rate selection for other group addressed data and management frames. "If the BSSBasicRateSet parameter is empty and the BSSBasicMCSSet parameter is not empty, the frame shall be transmitted in an HT PPDU using one of the MCSs included in the BSSBasicMCSSet parameter." | change to: If the BSSBasicRateSet parameter is empty and the BSSBasicMCSSet parameter is not empty, the frame shallbe transmitted in an HT or VHT PPDU using one of the MCSs included in the BSSBasicMCSSet parameter | Agree in principle. Resolution to CID 3182 (11/1144r8) also resolves this CID. | COEX |

Discussion

Agree in Principle.

Resolution to CID 3182 (11/1144r8) which has been already included in D1.2 also resolves this CID.

See Clause “9.7.5.3 Rate selection for other group addressed data and management frames” in D1.2.

The resolution from 11/1144r8 is as follows:

If the BSSBasicRateSet parameter is empty and the BSSBasicMCSSet parameter is not empty, the frame shall be transmitted in an HT PPDU using one of the MCSs included in the BSSBasicMCSSet parameter.

If the BSSBasicRateSet parameter is empty and the BSSBasicMCSSet parameter is empty and the VHTBSSBasicMCSSet is not empty, the frame shall be transmitted in a VHT PPDU using one of the MCSs included in the VHTBSSBasicMCSSet parameter. If the BSSBasicRateSet parameter, the BSSBasicMCSSet parameter and the VHTBSSBasicMCSSet are empty (e.g., a scanning STA that is not yet associated with a BSS), the frame shall be transmitted in a non-HT PPDU using one of the mandatory PHY rates.

**Proposed resolution**:

See CID 3182 (11/1144r8). No change is necessary to D1.2 text.

Comments (CID 3486, 2679 – COEX)

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| 3486 | Stacey, Robert | 9.7.4.6 | 73 | 17 | T | This statement is not needed. I think what it says is that there can't be multiple CH\_BANDWIDTH parameters with different values when transmitting a MU PPDU. However, the TXVECTOR does not allow for multiple CH\_BANDWIDTH parameters (this parameter is not flaged as 'MU' in the TXVECTOR column) and the PHY doesnt support it. | Remove statement. | Agree. Removed the statement accordingly. | COEX |
| 2679 | Kim, Youhan | 9.7.4.6 | 73 | 17 | T | There is only one CH\_BANDWIDTH parameter (common to all users) in TXVECTOR even in case of MU-MIMO TX. Hence, CH\_BANDWIDTH parameter is inherently the same for all users in a MU-MIMO PPDU. |  | Agree in principle. Removed the statement accordingly. | COEX |

Discussion

Agree.

In Table 22-1 (TXVECTOR and RXVECTOR parameters), there is only one CH\_BANDWIDTH parameter in TXVECTOR even in case of MU-MIMO transmission. Therefore, CH\_BANDWIDTH parameter is the same for all users in MU-MIMO PPDU and the statement is not needed.

**Proposed resolution**:

See the proposed text.

**Editing Instructions**:

***Remove the third bullet from the following sentence in Section 9.7.5.6 of TGac Draft D1.2: (P86L44)***

A data or management frame not identified in 9.7.5.1 (Rate selection for non-STBC Beacon and non-STBC PSMP frames) through 9.7.5.5 (Rate selection for +CF-Ack frames) shall be sent using any data rate or MCS subject to the following constraints:

— A STA shall not transmit a frame using a rate or MCS that is not supported by the receiver STA or STAs, as reported in any Supported Rates element, Extended Supported Rates element, or Supported MCS field in management frames transmitted by the receiver STA.

— A STA shall not transmit a frame using a value for the CH\_BANDWIDTH parameter of the TXVECTOR that is not supported by the receiver STA.

~~— A STA shall not transmit frames with different CH\_BANDWIDTH parameters of the TXVECTOR in an(#2017) MU PPDU~~(#3494).

— A STA shall not initiate transmission of a frame at a data rate higher than the greatest rate in the OperationalRateSet or the HTOperationalMCSset, which are parameters of the MLMEJOIN.request primitive.

Comments (CID 3084 – COEX)

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| 3084 | Merlin, Simone | 9.7.7 | 74 | 45 | T | 9.7.7 Modulation classes Table 9-4—Modulation classes | include VHT modulation class in table 9-4 | Agree in principle. Changed the text accordingly. | COEX |

Discussion

Agree in principle.

VHT modulation class is missing in Table 9-4 and it has to be added.

**Proposed resolution**:

See the proposed text.

**Editing Instructions**:

***Change the following sentence in Section in Section 9.7.8 of 802.11REVmb Draft D11:***

***(P909L61)***

**9.7.8 Modulation classes**

In order to determine the rules for response frames given in 9.7, the following modulation classes are defined in Table 9-4. Each row defines a modulation class. Modulations described within the same row have the same modulation class, while modulations described in different rows have different modulation classes. For Clause 20 and Clause 22PHY transmissions, the modulation class is determined by the FORMAT and NON\_HT\_MODULATION parameters of the TXVECTOR/RXVECTOR. Otherwise, the modulation class is determined by the clause or subclause number defining that modulation.

**Table 9-4—Modulation classes**

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| **Modulation****class** | **Description of modulation** | **Condition that selects this modulation class** |
| **Clause 14, Clause 16,****Clause 15, Clause 18,****Clause 17, and****Clause 19 PHYs** | **Clause 20 PHY** | **Clause 22 PHY** |
| 1 | Infrared (IR) | Clause 15 transmission | N/A | N/A |
| 2 | Frequency-hopping spreadspectrum (FHSS) | Clause 14 transmission | N/A | N/A |
| 3 | DSSS and HR/DSSS | Clause 16 or Clause 17transmission | FORMAT is NON\_HT.NON\_HT\_MODULATION is ERP-DSSSor ERP-CCK. | N/A |
| 4 | ERP-PBCC | 19.6 transmission | FORMAT is NON\_HT.NON\_HT\_MODULATION is ERP-PBCC. | N/A |
| 5 | DSSS-OFDMThe use of the DSSS-OFDM option is deprecated, and this option may be removed in a later revision of the standard. | 19.7 transmission | FORMAT is NON\_HT.NON\_HT\_MODULATION is DSSS-OFDM. | N/A |
| 6 | ERP-OFDM | 19.5 transmission | FORMAT is NON\_HT.NON\_HT\_MODULATION is ERP-OFDM. | N/A |
| 7 | OFDM | Clause 18 transmission | FORMAT is NON\_HT.NON\_HT\_MODULATION is OFDMor NON\_HT\_DUP\_OFDM. | FORMAT is NON\_HT.NON\_HT\_MODULATION is OFDMor NON\_HT\_DUP\_OFDM. |
| 8 | HT | N/A | FORMAT is HT\_MF or HT\_GF. | FORMAT is HT\_MF or HT\_GF. |
| 9 | VHT | N/A | N/A | FORMAT is VHT. |

Comments (CID 2291 – COEX)

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| 2291 | Fischer, Matthew | 9.7.5.6 | 74 | 25 | T | Are the non-HT frames with xN copies where N>2 also called "duplicate"? Shouldn't they be called "non-HT quadlicate" when N=4 and "non-HT octlicate" when N=8? | Consider creating new names for x4 and x8 non-HT N-licates. | Agree in principle. Changed the text accordingly. | COEX |

Discussion

Agree in principle.

Current definition of ‘non-HT duplicate’ is somewhat vague, since several types of non-HT duplicate frame are used in 11ac, such as 80 MHz non-HT duplicate, 160 MHz non-HT duplicate, and etc...

But, if we use new terms such as non-HT quadruplicate or octuplicate, then it is necessary to modify numerous parts of the current spec, so we propose to just define subtypes of the non-HT duplicate such as 40 MHz non-HT duplicate, 80 MHz non-HT duplicate, 160 MHz non-HT duplicate, and 80\_80 MHz non-HT duplicate in the definition section, and use the specific name of the subtype only when it is ambiguous if we just use the term ‘non-HT duplicate’ in some part of the spec.

The term ’80 MHz non-HT duplicate’, ‘160 MHz non-HT duplicate’ and etc.. are already being used in the spec so editorial changes to the current spec will be minimal.

**Proposed resolution**:

See the proposed text at the end of this document.

Comments (CID 2549 – MAC)

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| 2549 | Hunter, David | 3.2 | 2 | 37 | T | Replacing "adjacent" here changes the requirements for legacy (pre-VHT) devices.  | Shouldn't this definition be split into two parts -- one for pre-VHT and the other for VHT devices? | Agree in principle. Changed the text accordingly. | MAC |

Discussion

Agree in principle.

More detailed definition is necessary to distinguish between ‘adjacent’ and ‘nonadjacent’ cases.

**Proposed resolution**:

See the proposed text at the end of this document.

Comments (CID 2549 – MAC)

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| 3127 | Patil, Sandhya | 3.1 | 2 | 39 | T | In the definition of non-high-throughput (non-HT) duplicate, is it necessary to say non-HT in "non-HT basic service set (BSS) on any one 20 MHz channel to receive the transmission" as it is for all the stations on any 20MHz channel on which it is duplicated. | Remove word non-HT | Agree. Changed the text accordingly. | MAC |

Discussion

Agree.

Not only non-HT STAs, but also HT or VHT STA on any 20 MHz channel may receive the non-HT duplicate frames, so it is better to remove the word ‘non-HT’ in the definition.

**Proposed resolution**:

See the proposed text at the end of this document.

**Editing Instructions**:

***Change the following sentence in Section 3.2 of TGac Draft D1.2: (P3L17)***

**non-high-throughput (non-HT) duplicate**: A transmission format of the physical layer (PHY) that duplicates a 20 MHz non-HT transmission in two ~~adjacent~~or more 20 MHz channels and allows a station (STA) in a basic service set (BSS) on ~~either~~any one 20 MHz channel to receive the transmission. A non-HT duplicate format is one of the following:

1. 40 MHz non-HT duplicate: A transmission format of the physical layer (PHY) that duplicates a 20 MHz non-HT transmission in two adjacent 20 MHz channels.
2. 80 MHz non-HT duplicate: A transmission format of the physical layer (PHY) that quadruplicates a 20 MHz non-HT transmission in four adjacent 20 MHz channels.
3. 160 MHz non-HT duplicate: A transmission format of the physical layer (PHY) that octuplicates a 20 MHz non-HT transmission in eight adjacent 20 MHz channels.
4. 80+80 MHz non-HT duplicate: A transmission format of the physical layer (PHY) that octuplicates a 20 MHz non-HT transmission in two sets of four adjacent 20 MHz channels where the two sets of channels are not adjacent.