IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CID Resolution – Part II, Clause 30.2 | | | | |
| Date: 2018-01-10 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Artyom Lomayev | Intel | Turgeneva 30, Nizhny Novgorod 603024, Russia | +7 (831) 2969444 | artyom.lomayev@intel.com |
| Alexander Maltsev | Intel |  |  | alexander.maltsev@intel.com |
| Claudio da Silva | Intel |  |  | claudio.da.silva@intel.com |
| Carlos Cordeiro | Intel |  |  | carlos.cordeiro@intel.com |
|  |  |  |  |  |

Abstract

This document proposes resolution for CIDs 2040, 1294, 1295, 1296, 1600, 1601, 1683, 1697, 2042, 2340, 1845, 2041, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2060, 2061, 2062, 2063, 1501, 1563, 1013, 1297, 1850, 2066, 2064, [1]. (31)

**CID 2040**

*Comment:*

Basic should have a lower case "b"

*Proposed change:*

Change "Basic" to "basic"

*Resolution:*

Revised.

*Editor: change the text as below, page 218, line 12, [2]*

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

**CID 1294, 2045**

*Comment:*

Add in which cases DCM SQPSK may be applied

For Parameter = DCM\_SQPSK, condition is incomplete

*Proposed change:*

Same as in comment.

Replace Condition with "FORMAT is EDMG, CH\_BANDWIDTH is CBW216+216 or CBW432+432"

*Resolution:*

Revised.

*Editor: change the text as below, page 221, line 1, [2]*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| DCM\_SQPSK | FORMAT is EDMG,  EDMG\_MODULATION is EDMG\_SC\_MODE,  CH\_BANDWIDTH is CBW2.16+2.16 or CBW4.32+4.32,  STBC is 0,  NUM\_STS is 2 | Indicates whether DCM SQPSK modulation is applied.  Enumerated type:  DCM\_SQPSK\_Not\_Applied: indicates that DCM SQPSK is not applied.  DCM\_SQPSK\_Applied: indicates that DCM SQPSK is applied. | Y | Y |
| FORMAT is EDMG,  EDMG\_MODULATION is EDMG\_OFDM\_MODE,  STBC is 0,  NUM\_STS is 2 | Enumerated type:  DCM\_SQPSK\_Not\_Applied: indicates that DCM SQPSK is not applied.  DCM\_SQPSK\_Applied: indicates that DCM SQPSK is applied. | Y | Y |

**CID 1295**

*Comment:*

Add underscores to enumerated type values:

*Proposed change:*

Replace "Beam Tracking Requested or Beam Tracking Not Requested" with "Beam\_Tracking\_Requested or Beam\_Tracking\_Not\_Requested"

*Resolution:*

Accepted.

*Editor: change the text as below, page 224, line 1, [2]*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| EDMG\_BEAM\_TRACKING\_REQUEST | FORMAT is EDMG | This parameter indicates whether beam tracking is requested.  Enumerated type:  Beam\_Tracking\_Requested or Beam\_Tracking\_Not\_Requested | Y | Y |

*Editor: change the text as below, page 226, line 1, [2]*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| NUM\_TX\_CHAINS | FORMAT is EDMG and EDMG\_TRN\_LEN > 0 and EDMG\_BEAM\_TRACKING\_REQUEST is set to Beam\_Tracking\_Requested | The value of this field indicates the number of transmit chains used in the transmission of the PPDU.  Integer: range 1 to 8. | Y | Y |

**CID 1296**

*Comment:*

Add underscores to enumerated type values:

*Proposed change:*

Replace "Analog beam Tracking or Baseband Beam Tracking" with "Analog\_beam\_Tracking or Baseband\_Beam\_Tracking"

*Resolution:*

Accepted.

*Editor: change the text as below, page 225, line 1, [2]*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| EDMG\_BEAM\_TRACKING\_TYPE | FORMAT is EDMG | This parameter indicates if analog beam tracking or baseband beam tracking is requested.  Enumerated type:  Analog\_Beam\_Tracking or Baseband\_Beam\_Tracking | Y | Y |

**CID 1600**

*Comment:*

Condition of NUM\_TX\_CHAINS parameter unclear.

*Proposed change:*

Why is EDMG\_BEAM\_TRACKING\_REQUESTED required? TRNs may be appended w/o setting of this parameter. Please clarify/ revise

*Resolution:*

Revised.

*Discussion:*

Transmission of PPDU with multiple transmit chains is possible for NON\_EDMG mode. So, condition on FORMAT = EDMG is not needed.

The entire PPDU is transmitted using NUM\_TX\_CHAINS, not TRN field only. The condition EDMG\_TRN\_LEN > 0 is not needed. The same is true for beam tracking request.

*Editor: change the text as below, page 226, line 1, [2]*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| NUM\_TX\_CHAINS |  | The value of this field indicates the number of transmit chains used in the transmission of the PPDU.  Integer: range 1 to 8. | Y | Y |

**CID 1601**

*Comment:*

It is not clear what channel estimation smoothening is. It should be defined. Also description differs from what is in header

*Proposed change:*

Please clarify/ revise

*Resolution:*

Revised.

*Editor: change the text as below, page 228, line 1, [2]*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| BEAMFORMED | FORMAT is EDMG | Enumerated Type:  Beamformed  Not\_Beamformed  If set to Beamformed, indicates that digital baseband beamforming was applied. Set to Not\_Beamformed otherwise. | Y | Y |

*Editor: change the text as below, page 248, line 1, [2]*

|  |  |  |  |
| --- | --- | --- | --- |
| Beamformed | 1 | 13 | Corresponds to the TXVECTOR parameter BEAMFORMED. Set to 1 to indicate that digital baseband beamforming is applied. Set to 0 otherwise. |

**CID 1683, 1697, 2042, 2340**

*Comment:*

Need to add all DMG parameters from Table 20-1 in-Table 27

The editor's note indicates that the table is incomplete

Please provide all the EDMG parameters per the Editor's Note.

*Proposed change:*

Add all DMG parameters from Table 20-1

Complete the table

Please provide all the EDMG parameters per the Editor's Note included in Column 1, row 6 of Table 27.

*Resolution:*

Revised.

Add DMG fields.

*Editor: change the text as below, page 219, line 1, [2]*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| L\_LENGTH | FORMAT is NON\_EDMG | See LENGTH entry in Table 20-1, Clause 20. | Y | Y |
| L\_MCS | FORMAT is NON\_EDMG | See MCS entry in Table 20-1, Clause 20. | Y | Y |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| L\_ADD\_PPDU | FORMAT is NON\_EDMG | See ADD-PPDU entry in Table 20-1, Clause 20. | Y | Y |
| L\_PACKET\_TYPE | FORMAT is NON\_EDMG | See PACKET-TYPE entry in Table 20-1, Clause 20. | Y | Y |
| L\_TRN\_LEN | FORMAT is NON\_EDMG | See TRN-LEN entry in Table 20-1, Clause 20. | Y | Y |
| L\_ AGGREGATION | FORMAT is NON\_EDMG | See AGGREGATION entry in Table 20-1, Clause 20. | Y | Y |
| L\_ RSSI | FORMAT is NON\_EDMG | See RSSI entry in Table 20-1, Clause 20. | N | Y |
| L\_ SNR | FORMAT is NON\_EDMG | See SNR entry in Table 20-1, Clause 20. | N | Y |
| L\_ RCPI | FORMAT is NON\_EDMG | See RCPI entry in Table 20-1, Clause 20. | N | Y |
| L\_ ANT\_CONFIG | FORMAT is NON\_EDMG | See ANT\_CONFIG entry in Table 20-1, Clause 20. | Y | N |
| L\_ CHAN\_MEASUREMENT | FORMAT is NON\_EDMG | See CHAN\_MEASUREMENT entry in Table 20-1, Clause 20. | N | Y |
| L\_BEAM\_TRACKING\_REQUEST | FORMAT is NON\_EDMG | See BEAM\_TRACKING\_REQUEST entry in Table 20-1, Clause 20. | Y | Y |
| L\_LAST\_RSSI | FORMAT is NON\_EDMG | See LAST\_RSSI entry in Table 20-1, Clause 20. | Y | Y |
| L\_TURNAROUND | FORMAT is NON\_EDMG | See Turnaround entry in Table 20-1, Clause 20. | Y | Y |
| RX\_START\_OF\_FRAME\_OFFSET |  | 0 to 232–1. An estimate of the offset (in 10 nanosecond units) from the point in time at which the start of the preamble corresponding to the incoming frame arrived at the receive antenna connector to the point in time at which this primitive is issued to the MAC. | N | See NOTE |
| NOTE - “Y” if dot11TimingMsmtActivated is true, otherwise “N”. | | | | |

NOTE 1: DTP\_TYPE and DTP\_INDICATOR are not included, since they will be removed in the future revisions of the standard draft.

NOTE 2: Field TIME\_OF\_DEPARTUE\_REQUESTED is common for both NON\_EDMG and EDMG formats. Field RX\_START\_OF\_FRAME\_OFFSET is common for both NON\_EDMG and EDMG formats.

**CID 1845**

*Comment:*

Spelling error in Table 27

*Proposed change:*

Change "EMDG" to "EDMG" in the DMG\_TRN parameter in Table 27

*Resolution:*

Accepted.

*Editor: change the text as below, page 226, line 1, [2]*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| DMG\_TRN | FORMAT is EDMG | Indicates the configuration of the DMG TRN field (see Table 36). Possible values are 0 and 1.  When set to 1, indicates that the TRN field appended to this PPDU has the structure of a DMG TRN field as defined in 20.10.2.2.2. In this case, the RX\_TRN\_PER\_TX\_TRN, EDMG\_TRN\_P, EDMG\_TRN\_M, EDMG\_TRN\_N and TRN\_SEQ\_LENGTH parameters are reserved. The EDMG\_TRN\_LEN parameter has a value greater than 0 and less than 32. | Y | Y |

**CID 2041**

*Comment:*

Fix an awkward sentence

*Proposed change:*

Change "that the N\_CB parameter takes in the EDMG PHY ..." to "of the N\_CB parameter in the EDMG PHY ..."

*Resolution:*

Accepted.

*Editor: change the text as below, page 218, line23, [2]*

The value of the CH\_BANDWIDTH parameter in the TXVECTOR and RXVECTOR defines the value of the *NCB* parameter in the EDMG PHY definition throughout this clause.

**CID 2043, 2044**

*Comment:*

Replace 2^22-1 to be consistent with other text throughout draft

For Parameter = EDMG\_LENGTH, PSDU octet range is missing for Control PHY

*Proposed change:*

Replace 2^22-1 with 4194303

Replace Value with "Indicates the length of an SC or OFDM PSDU in octets in the range of 1 to 4194303 and the length of a Control PSDU in octets in the range of 14 to 1023. This value is used by the PHY to determine the number of octet transfers that occur between the MAC and the PHY

*Resolution:*

Accepted.

*Editor: change the text as below, page 220, line 1, [2]*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| EDMG\_LENGTH | FORMAT is EDMG | Indicates the length of the PSDU in octets in the range of 14 to 1023 for Control mode and of 1 to 4194303 for SC and OFDM mode. This value is used by the PHY to determine the number of octet transfers that occur between the MAC and the PHY. | MU | Y |

**CID 2046**

*Comment:*

For Parameter = PSK\_APPLIED, condition is incomplete

*Proposed change:*

Replace Condition with "FORMAT is EDMG, EDMG\_MODULATION is EDMG\_SC\_MODE"

*Resolution:*

Accepted.

*Editor: change the text as below, page 221, line 1, [2]*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| PSK\_APPLIED | FORMAT is EDMG,  EDMG\_MODULATION is EDMG\_SC\_MODE | Indicates if π/2-8-PSK is applied for MCS 12 or MCS 13.  Enumerated Type:  Psk\_Applied: indicates that π/2-8-PSK is applied.  Psk\_Not\_Applied: indicates that π/2-8-PSK is not applied. | Y | Y |

**CID 2047**

*Comment:*

For Parameter = PHASE\_HOPPING, condition is incomplete

*Proposed change:*

Replace Condition with "FORMAT is EDMG, EDMG\_MODULATION is EDMG\_OFDM\_MODE"

*Resolution:*

Revised.

*Editor: change the text as below, page 221, line 1, [2]*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| PHASE\_HOPPING | FORMAT is EDMG,  EDMG\_MODULATION is EDMG\_OFDM\_MODE | Indicates whether phase hopping modulation is applied.  Enumerated type:  Phase\_Hopping\_Not\_Applied: indicates that phase hopping modulation is not applied.  Phase\_Hopping\_Applied: indicates that phase hopping modulation is applied. | Y | Y |

**CID 2048**

*Comment:*

For Parameter = EDMG\_TONE\_PAIRING, condition is incomplete

*Proposed change:*

Replace Condition with "FORMAT is EDMG, EDMG\_MODULATION is EDMG\_OFDM\_MODE"

*Resolution:*

Accepted.

*Editor: change the text as below, page 221, line 1, [2]*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| EDMG\_TONE\_PAIRING | FORMAT is EDMG,  EDMG\_MODULATION is EDMG\_OFDM\_MODE | Used to differentiate between Static and Dynamic Tone Pairing.  Enumerated Type:  STATIC: indicates Static Tone Pairing  DYNAMIC: indicates Dynamic Tone Pairing | Y | Y |

**CID 2049**

*Comment:*

For Parameter = OPEN\_LOOP\_PC, condition is incomplete

*Proposed change:*

Replace Condition with "FORMAT is EDMG, EDMG\_MODULATION is EDMG\_OFDM\_MODE"

*Resolution:*

Revised.

*Editor: change the text as below, page 221, line 1, [2]*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| OPEN\_LOOP\_PC | FORMAT is EDMG,  EDMG\_MODULATION is EDMG\_OFDM\_MODE | Indicates whether open loop precoding is applied.  Enumerated type:  Open\_Loop\_Precoding\_Not\_Applied: indicates that open loop precoding is not applied.  Open\_Loop\_Precoding\_Applied: indicates that open loop precoding is applied. | Y | Y |

**CID 2050**

*Comment:*

Incorrect word

*Proposed change:*

Replace "The addition of ..." with "The sum of ..."

*Resolution:*

Accepted.

*Editor: change the text as below, page 222, line 1, [2]*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| NUM\_STS | FORMAT is EDMG | Indicates the number of space-time streams.  Value is an integer in the range 1 to 8 for an SU PPDU. For an MU PPDU, values are integers in the range 1 to 2 per user in the TXVECTOR, and 0 to 2 per user in the RXVECTOR.  The sum of NUM\_STS over all users is in the range of 1 to 8. | MU | Y |

**CID 2060**

*Comment:*

For Parameter = CH\_BANDWIDTH and Condition = FORMAT is NON\_EDMG, Value is missing CBW216

*Proposed change:*

Add CBW216 before CBW432

*Resolution:*

Accepted.

*Editor: change the text as below, page 225, line 1, [2]*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CH\_BANDWIDTH | FORMAT is EDMG | In the TXVECTOR, indicates the channel width of the transmitted PPDU. In the RXVECTOR, indicates the channel width of the received PPDU.  Enumerated type:  CBW216 for 2.16 GHz  CBW432 for 4.32 GHz  CBW648 for 6.48 GHz  CBW864 for 8.64 GHz  CBW216+216 for 2.16+2.16 GHz  CBW432+432 for 4.32+4.32 GHz | Y | Y |
| FORMAT is NON\_EDMG | In TXVECTOR, indicates the channel width of the transmitted PPDU.  In RXVECTOR, indicates the estimated channel width of the received PPDU.  Enumerated type:  CBW216, CBW432, CBW648, CBW864, CBW216+216, or CBW432+432 | Y | Y |

**CID 2061**

*Comment:*

Text is awkward for Parameter = CH\_BANDWIDTH\_IN\_NON\_EDMG

*Proposed change:*

Change Value "In the TXVECTOR, if present, indicates ..." to "If present in the TXVECTOR, it indicates ..."

*Resolution:*

Revised.

*Editor: change the text as below, page 226, line 1, [2]*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CH\_BANDWIDTH\_IN\_NON\_EDMG | FORMAT is NON\_EDMG,  NON\_EDMG\_MODULATION is NON\_EDMG\_DUP\_C\_MODE | If present in the TXVECTOR, it indicates the channel width of the PPDU transmitted with DMG Control modulation class in duplicated mode, which is signaled via the scrambling sequence or in the control trailer.  If present in the RXVECTOR, it indicates the channel width of the received PPDU, which is signaled via the scrambling sequence or in the control trailer.  Enumerated type: CBW216, CBW432, CBW648, CBW864, CBW216+216, or CBW432+432 | O | Y |

**CID 2062**

*Comment:*

Improve word choice

*Proposed change:*

Replace "contains" with "encompasses"

*Resolution:*

Accepted.

*Editor: change the text as below, page 233, line 17, [2]*

An EDMG STA logically encompasses Clause 20 and Clause 30 PHYs. The MAC interfaces to the PHY via the Clause 30 PHY service interface, which in turn interacts with Clause 20 PHY service interface. The EDMG PHY TXVECTOR and RXVECTOR defined in 30.2.2 structurally include all fields of the DMG TXVECTOR and RXVECTOR accordingly defined in 20.2.2. The EDMG PHY TXSTATUS vector is identical to the TXSTATUS vector defined for DMG PHY in 20.2.3. The EDMG PHYCONFIG\_VECTOR defined in 30.2.3 structurally includes all fields of the DMG PHYCONFIG\_VECTOR.

**CID 2063, 1501, 1563**

*Comment:*

Incorrect reference

*Proposed change:*

NON\_EDMG\_SC\_MODE should reference Clause 30.5.10.3 not 30.5.9.3

*Resolution:*

Accepted.

*Editor: change the text as below, page 234, line 1, Figure 114, [2]*



Figure 114— EDMG STA PHY interaction on transmit for various PPDU formats

**CID 1013, 1297**

*Comment:*

Typo: PHY-CCA.indication (BUST, channel-list)

Wrong spelling of "BUSY" in figure

*Proposed change:*

Change BUST to BUSY.

Repalce "PHY-CCA.indication(BUST," with "PHY-CCA.indication(BUSY,"

*Resolution:*

Accepted.

*Editor: change the text as below, page 235, line 7, Figure 115, [2]*



Figure 115— EDMG STA PHY interaction on receive for various PPDU formats

**CID 1850**

*Comment:*

Figure 115 missing interface to PHY Service Access Point (SAP) - (Clause 30) block. Figure 115 (Receiver PPDU) should be similar to Figure 114 (Transmit PPDU)

*Proposed change:*

Add bi-directional arrow and text "Interaction with MAC"

*Resolution:*

Accepted.

*Editor: change the text as below, page 235, line 7, Figure 115, 116, [2]*



Figure 115— EDMG STA PHY interaction on receive for various PPDU formats



Figure 116— EDMG STA PHY interaction on channel bandwidth configuration for Clause 30 and Clause 20 PHYs

**CID 2066**

*Comment:*

Figures 115 and 116 are essentially the same

*Proposed change:*

Combine Figures 115 and 116 together and use only a single figure. Update references accordingly

*Resolution:*

Rejected.

*Discussion:*

These figures are not essentially the same. Figure 115 shows the primitives exchange between PHY entity and MAC entity through SAP interface in case of PPDU reception. The Figure 116 shows the primitives exchange for bandwidth configuration using PHY-CONFIG primitive. The used primitives are completely different.

**CID 2064**

*Comment:*

Mapping of bits for Control Mode is incorrect

*Proposed change:*

EDMG Control Mode is indicate by B0 = 0 and B1 = 1

*Resolution:*

Accepted.

*Editor: change the text as below, page 236, line 2, [2]*

The selection of the PHY type at the reception is based on the FORMAT detection. For a control mode PPDU, if bits 22 and 23 of the L-Header are both set to 1, the Scrambler Initialization field B0 is set to 0, B1 is set to 1, B2 and B3 are reserved, and Turnaround field is set to 0 (see Table 29), then the FORMAT parameter is set to the EDMG. Otherwise, the FORMAT parameter is set to the NON\_EDMG.

**SP:**

Do you agree to accept the proposed resolution for CIDs 2040, 1294, 1295, 1296, 1600, 1601, 1683, 1697, 2042, 2340, 1845, 2041, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2060, 2061, 2062, 2063, 1501, 1563, 1013, 1297, 1850, 2066, 2064 defined in (11-18-0189-00-00ay CID Resolution - Part II)?

**References:**

1. 11-18-0067-01-00ay-11ay-d1-0-comment-database
2. Draft P802.11ay\_D1.0