IEEE P802.11
Wireless LANs

|  |
| --- |
| Resolution for CMMG MAC related CIDs 4217,4218, and 4250 |
| Date: 2020-04-03 |
| Author: |
| Name | Affiliation | Address | Phone | Email |
| Shiwen He | Central South University |  |  | shiwen.he.hn@csu.edu.cn |
| Haiming Wang | South East University |  |  | hmwang@seu.edu.cn |
| Dejian Li | HiSilicon |  |  | lidejian@hisilicon.com |
| Jiamin Chen | HiSilicon |  |  | jiamin.chen@hisilicon.com |
| Edward Au | Huawei Technologies |  |  | edward.ks.au@huawei.com |

##### This submission present proposed resolution for CIDs 4217,4218, and 4250. The proposed changes are based on REVmd/D3.0.

##### Revision history:

##### R0 – initial version

##### R1 – update the proposed resolution for CID 4250

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Comments | Proposed Change |
| 4217 |  9.4.2.229.2 | 1442 | 49 | No behaviour is associated with the Antenna Pattern Reciprocity field in the CMMG Capabilities Info field | In Figure 9-754--CMMG Capabilities Info field format change "Antenna Pattern Reciprocity" to "Reserved" and delete the "Antenna Pattern Reciprocity" row in Table 9-313--Subfields of the CMMG Capabilities Info field format |
| 4218 | 9.4.2.229.2 | 1442 | 49 | No behaviour is associated with the Antenna Pattern Reciprocity field in the CMMG Capabilities Info field | Add behaviour modelled on that given for DMG in 10.42.6.4.4 Antenna configuration setting during a beam refinement transaction |

**Discussion:**

This comment is related to Figures 9-753 and 9-754:





It is also related to the last paragraph of subclause 10.42.6.4.4 that the commenter points out:



We agree with the direction the commenter proposes in CID 4218 to add the behavior associated with the Antenna Pattern Reciprocity field.

In addition to this, the Antenna Reciprocity subfield is deleted and the number of bits of the Antenna

Pattern Reciprocity subfield should be updated from 3 to 1.

**10.43.9 CDMG enhanced beam tracking**

The Enhanced Beam Tracking Supported subfield in the CDMG STA Capability Information field of a CDMG STA’s CDMG Capabilities element is set to 1 to indicate that the CDMG STA supports enhanced beam tracking.

**Proposed Resolution for CIDs 4217 and 4218:**

Revised

At page 1442, lines 10-18, Figure 9-753—CMMG Capabilities element format is changed to

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | ElementID | Length | ElementIDExtension | CMMGCapabilitiesInfo | A-MPDUParameters | TransmitBeamformingCapabilities | SupportedCMMGMCS andNSS Set | CMMG APor PCPCapabilityInformation |
| Octets: | 1 | 1 | 1 | 6 | 1 | 4 | 8 | 2 |

At page 1442, lines 29-64, Figure 9-754—CMMG Capabilities Info field format is changed to

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| B0 B1 | B2 | B3 | B4 B5 | B6 | B7 | B8 | B9 |
| MaximumMPDULength | SupportedChannelWidth Set | TxSTBC | RxSTBC | Short GI for540 MHz | Short GI for1080 MHz | SupportedMIMO | Heart beat |
| Bits: 2 | 1 | 1 | 2 | 1 | 1 | 1 | 1 |
| B10 B11 | B12 | B13 | B14 | B15 | B16 | B17 | B18 B23 |
| TPC | Number ofSoundingDimensions CMMG | TXOP PS | ProtectedBlock Ack | CMMG LinkAdaptationCapable | Rx AntennaPatternConsistency | TxAntennaPatternConsistency | Fast LinkAdaptation |
| Bits: 2 | 1 | 1 | 1 | 1 | 1 | 1 | 6 |
| B24  | B25 B26 | B27 | B28 B29 | B30 | B31 | B32 | B33 B39 |
| RXSSLengthS | Color | PSH andInterferenceMitigation | Number ofRx Antennas | SupportsOther\_AID | RXSS TxRateSupported | AntennaPatternReciprocity | TotalNumber ofSectors |
| Bits: 1 | 2 | 1 | 2 | 1 | 1 | 1 | 7 |
| B40 B42 | B43 B44 | B45 | B46 B47 |  |  |  |  |
| HeartbeatElapsedIndication | MCSFeedback | RDResponder | Reserved |  |  |  |  |
| Bits: 3 | 2 | 2 | 1 |  |  |  |  |

Table 9-313—Subfields of the CMMG Capabilities Info field format

|  |  |  |
| --- | --- | --- |
| Subfield | Definition | Encoding |
| …… | …… | …… |
| Number of RX Antennas | Indicates the total number of receive antennas of the STA. | This field ranges from 1 to 4, with the value being equal to the bit representation plus 1. |
| …… | …… | …… |
| ~~DMG Antenna Reciprocity~~ | ~~Indicate that the best transmit antenna of the STA is the same as the best receive antenna of the STA and vice versa.~~ | ~~Set to 1 to indicate that the best transmit antenna of the STA is the same as the best receive antenna of the STA and vice versa. Otherwise, this field is set to 0.~~ |
| …… | …… | …… |

Table 9-316—Subfields of the Transmit Beamforming Capabilities field

|  |  |  |
| --- | --- | --- |
| Subfield | Definition | Encoding |
| …… | …… | …… |
| NOTE—The maximum number of space-time streams for which channel coefficients can be simultaneously estimated using the MCTFs corresponding to the data portion of the packet is limited by the Rx MCS Bitmask subfield of the Supported MCS Set field and by the Rx STBC subfield of the CMMG Capability Info field.Both fields are part of the CMMG Capabilities element. |

At page 2059, after line 47, i.e. after the end of the last paragraph in subclause 10.42.6.4.4 Antenna configuration setting during a beam refinement transaction, insert the following paragraph:

A STA that has the Antenna Pattern Reciprocity subfield within the CMMG STA Capability Information field of the CMMG Capabilities element equal to 1 and that receives a BRP-RX PPDU from a peer STA that also has the Antenna Pattern Reciprocity subfield within the CMMG STA Capability Information field of the peer STA’s CMMG Capabilities element equal to 1 shall use the same AWV that was configured with the BRP-RX PPDU in subsequent transmissions and receptions with the peer STA during the DTI. This allows STAs that use reciprocity to shorten the beamforming training time.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | Clause | Page | Line | Comments | Proposed Change |
| 4250 |  10.39.6.6 | 1983 | 9 | "The actual duration of the time the STA stays in the listening mode is limited by the aCMMGPPMinListeningTime parameter." -- no such parameter | Delete the cited sentence |

**Discussion:**

The following is the paragraph of interest as pointed out by the commenter:



aCMMGPPMinListeningTime parameter is missing from the table summarizing the CMMG PHY characteristics. Its value is the same as that of the aDMGPPMinListeningTime parameter.

**Proposed Resolution:**

Revised

At page 3562, the aCMMGPPMinListeningTime parameter is defined by adding a new line in Table 25-37 (CMMG PHY characteristics) in subclause 25.14.4 (PHY characteristic) as follows:

Table 25-37—CMMG PHY characteristics

|  |  |
| --- | --- |
| PHY parameter | Value |
| …… | ……. |
| aCCATime | 3 μs |
| aCMMGPPMinListeningTime | 150 μs |
| aTxRFDelay | Implementation dependent |
| …… | ……. |