IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| LB272 comments DMG comment 2064 resolution | | | | |
| Date: 2023.05.xx | | | | |
| Author(s): | | | | |
| Name | Company | Address | Phone | email |
| Rui Du | Huawei Technologies | F3, Huawei Base, Shenzhen, Guangdong, China, 518129 |  | Ray.du@huawei.com |
| Narengerile |  |  |
| Mengshi Hu |  |  |
| Zhuqing Tang |  |  |

Abstract

This submission contains the proposed comment resolution for the CID 2064

R0: initial document

# CID 2064

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | Page.  Line | Clause Number | Comment | Proposed Change | Resolution |
| 2064 | 178.50 | 11.55.3 | Polarization sensing should be considered for DMG sensing to enhance the sensing performance. | Commenter will provide a contribution. | Revised.  TGbf Editor make changes specified in 0794r0.  <https://mentor.ieee.org/802.11/dcn/23/11-23-0794-00-00bf-lb272-comments-dmg-comment-2064-resolution.docx> |

Discussion

Based on the contribution 22/1653r0, the PDT of polarization switching in 11bf DMG sensing is proposed. This CR document includes relevant modifications for DMG Sensing Capabilities element, DMG Sensing Beam Descriptor element, DMG Sensing Measurement Session element, DMG Sensing Report element and relevant descriptions in Clause 11 MLME.

Discussion end

***Instructions to the editor: please make the following changes to the Figure 9-1002bg – DMG Sensing Capabilities element format in P80L16 and the Figure 9-1002bh – DMG Sensing Capabilities field format in P80L50 in subclause 9.4.2.322 DMG Sensing Capabilities element as follows:***



Figure 9-1002bg – DMG Sensing Capabilities element format



Figure 9-1002bg – DMG Sensing Capabilties field format

***Instructions to the editor: please insert the following paragraph in P81L56 in subclause 9.4.2.322 DMG Sensing Capabilities element as follows:***

The Polarization Sensing Supported subfield is set to 0 to indicate polarization sensing is not supported in DMG sensing. This subfield is set to 1 to indicate linear polarization sensing is supported in DMG sensing and set to 2 to indicate circular polarization sensing is supported in DMG sensing. Value 3 of this subfield is reserved.

***Instructions to the editor: please make the following changes to the Figure 9-1002bi – DMG Sensing Beam Descriptor element format in P82L12 and the Figure 9-1002bj – Beam Descriptor field format in P82L48 in subclause 9.4.2.323 DMG Sensing Beam Descriptor element as follows:***



Figure 9-1002bi – DMG Sensing Beam Descriptor element format



Figure 9-1002bj – Beam Descriptor field format

***Instructions to the editor: please insert the following paragraph in P82L65 (as a new paragraph) in subclause 9.4.2.323 DMG Sensing Beam Descriptor element as follows:***

Polarization subfield is set to 0 if the Polarization Sensing Supported subfield in DMG Sensing Capabilties field (see 9.4.2.322 (DMG Sensing Capabilities element)) is set to 0. This subfield is set to 1 if the beam contained in this beam descriptor field is Horizontally Polarized (HP), set to 2 if the beam contained in this beam descriptor field is Vertically Polarized (VP), set to 3 if the beam contained in this beam descriptor field is Left Hand Circularly Polarized (LHCP) and set to 4 if the beam contained in this beam descriptor field is Right Hand Circularly Polarized (RHCP). Value 5 to value 7 of this subfield are reserved.

***Instructions to the editor: please make the following changes to the Figure 9-1002bm – DMG Measurement Session element format in P84L23 and Figure 9-1002bn – Measurement Session Control field format in P84L42 in subclause 9.4.2.325 DMG Sensing Measurement Session element as follows:***



Figure 9-1002bm – DMG Sensing Measurement Session element format



Figure 9-1002bn – Measurement Session Control field format

***Instructions to the editor: please insert the following paragraph in P85L20 in subclause 9.4.2.325 DMG Sensing Measurement Setup element as follows:***

The Polarization Sensing subfield is set to 1 to indicate the performing of polarization sensing by sensing responders when Sensing Type subfield is set to coordinated monostatic. It is set to 0 otherwise. The Polarization Sensing subfield is reserved for other sensing types.

***Instructions to the editor: please make the following changes to the Figure 9-110d – TDD Beamforming Information field for the DMG Sensing Poll frame in P44L48 and insert the paragraph to P44L56 in subclause 9.3.1.25.7 DMG Sensing Poll frame as follows:***



Figure 9-110d – TDD Beamforming Information field for the DMG Sensing Poll frame

The Polarization Fusion subfield is set to 1 to indicate the fusion of different polarization sensing results into one by the sensing responder in the DMG Sensing Measurement Report frame, this field is set to 0 to indicate different poalrization sensing results will be reported seperatly in the DMG Sensing Measurement Report frame. This subfield is set to 0 if polarization is not used in the DMG sensing.

***Instructions to the editor: please make the following changes to the Figure 9-1002bz – DMG Sensing Report element format in P91L30 and the Figure 9-1002ca – DMG Sensing Report Control field format in P91L65 in subclause 9.4.2.329.1 General as follows:***



Figure 9-1002bz – DMG Sensing Report element format



Figure 9-1002bw – DMG Sensing Report Control field format

***Instructions to the editor: please insert the following paragraph in P92L13 in subclause 9.4.2.329.1 General as follows:***

The Polarization Mode subfield indicates the polarization mode of the sensing results contained in this DMG Sensing Report element. Possible values for this subfield are defined in Table 9-401x (Polarization Mode subfield definition).

Table 9-401x – Polarization Mode subfield definition

|  |  |
| --- | --- |
| Value | Description |
| 0 | No polarization |
| 1 | HP-HP for linear polarization, LHCP- LHCP for circular polarization. |
| 2 | HP-VP for linear polarization, LHCP- RHCP for circular polarization. |
| 3 | VP-VP for linear polarization, RHCP- RHCP for circular polarization. |
| 4 | VP-HP for linear polarization, RHCP- LHCP for circular polarization. |
| 5 | Fused result |
| 6-7 | Resrved |

The Polarization Mode subfield is set to 0 to indicate the sensing results contained in the DMG Sensing Report element has no polarization. For linear polarization, this subfield is set to 1,2,3,4 to indicate the sensing results contained in the DMG Sensing Report element is transmitted by horizontal polarization and received by horizontal polarization, transmitted by horizontal polarization and received by vertical polarization, transmitted by vertical polarization and received by vertical polarization, transmitted by vertical polarization and received by horizontal polarization, respectively. For circurlar polarization, this subfield is set to 1,2,3,4 for different transmitting and receiving circualar polarization combinations. This field is set to 5 to indicate the sensing results contained in the DMG Sensing Report element is the fused result based on different polarization results.

***Instructions to the editor: please insert the following paragraph in P162L61 in subclause 11.55.3.4 DMG Sensing Measurement Setup as follows:***

With the polarization information contained in the Beam Descriptor field of DMG Sensing Beam Descriptor element (9.4.2.323 DMG Sensing Beam Descriptor element), sensing initator could setup polarization sensing by properly setting the beam indices in TX Beam List subelement and TX Beam List subelement to get the co-polarization (e.g. H-H and V-V when linear polarization is adopted) and cross- polarization (e.g. H-V and V-H when linear polarizaiton is adopted) sensing results for DMG sensing types: bistatic, coordinated bistatic and multistatic. When DMG sensing type is set to coordianted monostatic, only TX Beam List subelement is present in the DMG Sensing Measurement Setup element (9.4.2.325 DMG Sensing Measurement Setup element). Sensing initiator could realize the polarization sensing by setting the Polarization Sensing subfield in Measurement Setup Control field of DMG Sensing Measurement Setup element to 1 to indicate the performing of polarization sensing by sensing responder(s).

***Instructions to the editor: please make the following changes to paragraph from P167L44 to P168L2 in subclause 11.55.3.6.2.1 General as follows:***

A coordinated monostatic DMG sensing instance is initiated by the sensing initiator with the transmission of DMG Sensing Request frame(s) and the reception of DMG Sensing Response frame(s) from sensing responders. It is then followed by the sounding phase in which DMG monostatic sensing PPDUs are transmitted and received by the sensing responder(s). The measurement covers the number of transmit AWVs indicated by the Number TX Beams Per Instance field within the DMG Sensing Scheduling subelement of the DMG Sensing Measurement Setup element (see 9.4.2.325 (DMG Sensing Measurement Setup element)). The sensing initiator shall determine the parameters of the DMG monostatic sensing PPDUs transmitted and received by the sensing responders in a way which is compatible with the sensing responders’ capabilities and covers all the desired transmit beams indicated in TX Beam List subelement (see 9.4.2.325.1 (TX Beam List subelement)). The first beam used by the sensing responders to transmit and receive DMG monostatic sensing PPDUs in a DMG sensing instance is indicated by the First Beam Index field. The sensing responders will cycle through the Num TX Beams Per Instance beams to transmit and receive the DMG monostatic sensing PPDUs. If If the Repeat Per Instance field of the DMG Sensing Scheduling subelement (NRI) is greater than 1, the sensing responder will repeat the Num TX beams Per Instance Beams in DMG sensing instances *NRI* times. If the Polarization Sensing subfield within Measurement Setup Control field in DMG Sensing Measurement Setup element is set to 1, the sensing responders will transmit and receive the DMG monostatic sensing PPDUs with different transmiting and receiving polarizations to realize the polarization sensing. All the DMG monostatic sensing PPDUs transmitted and received by the sensing responders shall be separated by SBIFS. If a report is configured in the DMG sensing instance, sensing responders shall report no longer than SIFS after their last DMG monostatic sensing PPDU or after the polling by sensing initiator. The report may be based on Channel Measurement Feedback elements or DMG Sensing Report elements. The presence and type of the report is indicated by the DMG Sensing Report Control field of the DMG Sensing Report Control element.

***Instructions to the editor: please insert the following paragraph in P177L41 in subclause 11.55.3.7 DMG sensing measurement reporting as follows:***

If the polarization sensing is performed and Polarization Fusion subfield within TDD Beamforming Information field of the DMG Sensing Poll (see 9.3.1.25.7 DMG Sensing Poll) is set to 0, DMG sensing responder shall report sensing results with different transmitting/receiving polarization combinations separately in DMG Sensing Report element(s). If the polarization sensing is performed and Polarization Fusion subfield within TDD Beamforming Information field of the DMG Sensing Poll (see 9.3.1.25.7 DMG Sensing Poll) is set to 1, DMG sensing responder shall report fused sensing results in DMG Sensing Report element(s). The Polarization Mode subfield within DMG Sensing Report Control field of the DMG Sensing Report element(s) shall be set to 9 and the fusion method is implementation specific.

***Instructions to the editor: please make the following changes to Table 28-13 in P188L46 in subclause 28.3.3.3.2.3 Definition for EDMG SC mode and EDMG OFDM mode PPDUs as follows:***

**Table 28-13 – EDMG-MCS field definition when the Number of SS field is 0**

|  |  |  |  |
| --- | --- | --- | --- |
| **Subfield** | **Number of bits** | **Start bit** | **Description** |
| Dual Polarization TRN Training | 1 | 6 | Corresponds to the TXVECTOR parameter DUAL\_POL\_TRAINING. If set to 1, indicates that the TRN subfields appended to this PPDU have different polarization for the same AWV (see 28.9.2.2.5). If set to 0, indicates that the TRN field appended to this PPDU does not change polarization.  When PPDU is transmitted in DMG sensing procedure, if set to 1, indicates that the TRN subfields appended to this PPDU use same polarization within an AWV and change polarization across different AWVs. If set to 0, indicates that the TRN field appended to this PPDU does not change polarization. |

# SP

Do you support resolution to the following CID and incorporate the text changes into the latest TGbf draft: 2064 in 11-23/0794r0?

Y/N/A