IEEE P802.11
Wireless LANs

|  |
| --- |
| Resolution of LB239 CID 4474, 4475, 4476 |
| Date: 2019-04-30 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Solomon Trainin | Qualcomm |  |  | strainin@qti,qualcomm.com |
| Alecsander Eitan | Qualcomm |  |  | eitana@qti,qualcomm.com |
| Assaf Kasher | Qualcomm |  |  | akasher@qti,qualcomm.com |
| Carlos Cordeiro  | Intel |  |  | carlos.cordeiro@intel.com |

Abstract

Resolution of CIDs 4474, 4475, 4476

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Comment Group** | **Proposal** |
| 4474 | 193.21 | 9.6.2.11 | Defined the 4 new MIMO BF action frames under both the Unprotetced DMG category and the Protected Dual of Unprotetced DMG category is unnecessary. Instead, define them under the DMG category, which is a robust category. The existing rules for robust action frames are sufficient in defining when they are protected and when they are not during a transmission. | Move 9.6.21.4 to 9.6.21.7 to be under 9.6.19 (DMG Action). Delete the 4 MIMO BF action frames from the table on P193L21. And delete the 4 Protected MIMO BF action frames from the table on P199L1. | Security | **Reject**The Unprotected DMG category enables the frames as Class 1 frames. Moving the frames to the DMG category disables the frames from the Class 1. |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Comment Group** | **Proposal** |
| 4475 | 198.21 | 9.6.31 | Creating a new Protected Dual of Unprotected DMG Action category is done incorrectly and unnecessary. To create a Protected Dual of XXX category, Action field values need to match one-to-one with those in the corresponding unprotected XXX category, which isn't the case between the table under 9.6.31 and Table 9-457 under 9.6.21. Instead of the new category, a better alternative is to 1) add the 4 MIMO action frames under the DMG category, which allows protected and unprotected transmissions; 2) add a Protected Announce frame and a Protected BRP frame under the DMG category, with the restriction that they are sent with protection if PMF is negotiated, and not used if PMF isn't negotiated; 3) for the 2 Protected Link Measurement Req/Resp frames, would it be sufficient to delete NOTE 1 under Table 9-53 (NOTE 1--Radio Measurement frames are robust, except for Link Measurement Request and Link Measurement Report frames in a DMG BSS.). If the answer is no, then add these 2 Protected Link Measurement Req/Resp frames under the DMG category, with the restriction that they are sent with protection if PMF is negotiated, and not used if PMF isn't negotiated. | Delete 9.6.31. Move 9.6.21.4 to 9.6.21.7 (i.e. the 4 new MIMO BF action frames) to be under 9.6.19 (DMG Action). Delete the 4 MIMO BF action frames from the table on P193L21. Add a Protected Announce frame, a Protected BRP frame, a Protected Link Measurement Request frame, and a Protected Link Measurement Response frame under the DMG category, with the description that they have the same format as their corresponding unprotected counterparts, and with the restriction that they are sent with protection if PMF is negotiated, and not used if PMF isn't negotiated. | Security | **Revised** See the discussion and resolution in the text below |

Discussion:

* The “dual” definition of the discussed frames allows to use the frames as the Class 1 and Class 3 frames depending on the category. The commenter is true that keeping the Action field values equal between the two categories is important when the “dual” category is defined, the Public and Protected Dual of Public categories is a good example of such approach. Propose to change the Table 38 — Action field values for Protected Dual of Unprotected DMG Action frames and the Table 9-457 Unprotected DMG Action field values to unify the Action filed values. The proposed change resolves the issue.
* The MIMO BF frames are of the Unprotected DMG category that enables to use the frames as the Class 1 frames. Moving the frames to the DMG category as proposed by the commenter disables the frames from the Class 1. It is the reason to reject the proposal.
* The Protected Link Measurement frames are keeping the same Action field value as the Link Measurement so no need to change it.

P193L20

***TGay editor, change the table as follows***

**Table 9-457 Unprotected DMG Action field values**

|  |  |
| --- | --- |
| **Unprotected DMG Action field value**  | **Meaning**  |
| 0 | Announce  |
| 1 | BRP  |
| 2 | Reserved |
| 3 | Reserved |
| 4 | MIMO BF Setup  |
| 5 | MIMO BF Poll  |
| 6 | MIMO BF Feedback  |
| 7 | MIMO BF Selection  |

P199L1

 ***TGay editor, change the table as follows***

**Table 38 — Action field values for Protected Dual of Unprotected DMG Action frames**

|  |  |  |
| --- | --- | --- |
| **Action field value**  | **Description**  | **Defined in**  |
| 0 | Protected Announce  | 9.6.21.2  |
| 1 | Protected BRP | 9.6.21.3 |
| 2 | Protected Link Measurement Request  | 9.6.6.4  |
| 3 | Protected Link Measurement Report  | 9.6.6.5  |
|  |  |  |
|  |  |  |
|  |  |  |
| 4 | Protected MIMO BF Setup  | 9.6.21.4  |
| 5 | Protected MIMO BF Poll  | 9.6.21.5  |
| 6 | Protected MIMO BF Feedback  | 9.6.21.6  |
| 7 | Protected MIMO BF Selection  | 9.6.21.7  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 4476 | 376.05 | 12.6.20 | How does the transmitting STA knows that its peer is also capable of the newly defined Protected Dual frames? Some capability bit is needed. | Define a new capability bit so that the use of the protected variants depends on both the PMF having been negotiated and the capability being true on both STAs. | Security | **Revised**Agree in principle. See solution below in the document |

**9.4.2.127.2 DMG STA Capability Information field**

***TGay editor, in the Figure 9-543 change as follows***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | B14 B19  | B20  | B21 B26  | B27  | B28 B51  | B52  | B53  |
|  | RXSS Length  | DMG Antenna Reciprocity  | A-MPDU Parameters  | BA with Flow Control  | Supported MCS Set  | Protected DMG Dual Support | A-PPDU Supported  |
| Bit: | 6 | 1 | 6 | 1 | 24 | 1 | 1 |

*P1275L42*

***TGay editor, before paragraph that start with “***The A-PPDU Supported subfield is set to 1…” ***insert new paragraph:***

The Protected DMG Dual Support subfield is set to 1 to indicate that the STA supports Protected Dual of Unprotected DMG Action frames as described in 12.6.20 (Robust management frame selection procedure). Otherwise, it is set to 0.

**12.6.20 Robust management frame selection procedure**

P376L7

***TGay editor, change as follows***

If a Protected Dual of Unprotected DMG Action frame is defined to allow robust STA-STA communications of the same information that is conveyed in the corresponding Action frame with the same name and that is not robust, the protected variant shall be used when the following conditions met:

* the Protected DMG Dual Support subfield is set to 1 in the DMG capabilities element (9.4.2.127 DMG Capabilities element) sent by the communicating DMG STAs,
* the management frame protection has been negotiated between the communicating DMG STAs,

otherwise the action frames of the category Protected Dual of Unprotected DMG Action shall not be used.

An EDMG STA shall set the Protected DMG Dual Support subfield to 1 in the DMG Capabilities element if the Management Frame Protection Capable field in its RSNE is also set to 1.

The Unprotected DMG Action frames are listed in 9.6.21.1 and the Protected Dual of Unprotected DMG Action frames are listed in 9.6.31.

**References:**

1. IEEE P802.11ay/D3.0, February 2019
2. IEEE P802.11-REVmd/D2.1, February 2019