IEEE P802.11
Wireless LANs

|  |
| --- |
| LB272-DMG-Sensing-Instance-CIDs |
| Date: 2023-05-15 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Pu (Perry) Wang | MERL | 201 Broadway, Cambridge, MA 02139 |  | pwang@merl.com |

Abstract

This document proposes resolution to several LB272 DMG related CIDs.

The list of CIDs is: 1016, 1017, ~~1048~~, 1205, 1300, 1301, 2009, 2010, 2011, 2012, 2013, 2075, 2078, 2080, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, ~~2097~~, and 2119.

R0: Initial document;

R1: Initial document;

R2: remove CIDs 1048 and 2097.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Section** | **Page****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 2075 | 11.55.3.6.3 | P210L48 | ... instances of the same measurement setup. | As in comment. |  Accepted |

**Proposed changes (11.55.3.6.3 Bistatic DMG sensing instance)**

DMG sensing instances of measurement whose Sensing Type subfield is set to bistatic are bistatic DMG sensing instances. Only a single transmitting STA and a single receiving STA participate in a bistatic DMG sensing instance. The roles of the sensing initiator (sensing transmitter or sensing receiver) and sensing responder are set by the RX Initiator subfield of the Measurement Setup Control field within the DMG Sensing Measurement Setup element sent by the sensing initiator. These roles apply to all DMG sensing instances of the same measurement setup.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Section** | **Page****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 2009 | 11.55.3.6.3 | P211L27 | Please remove the single "(" before "indicating" | As in comment | Revised |
| 2078 | 11.55.3.6.3 | P211L27 | the right bracket ')' is missed. | As in comment. | Accepted |

**Proposed changes (11.55.3.6.3 Bistatic DMG sensing instance)**

The sensing responder shall start transmitting using this beam (indicating it in the same field in the first BRP frame it transmits).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Section** | **Page****Line** | **Comment** | **Proposed Change** | **Resolution** |
| ~~2097~~ | ~~11.55.3.6.3~~ | ~~P211~~~~L52~~ | ~~The 'Report Delay = 0' in the first sensing instance in Figure 11-74p. It should be 'Report Delay = 1'.~~ | ~~As in comment.~~ | ~~Revised~~ |
| ~~1048,~~ | ~~11.55.3.6.3~~ | ~~P211~~~~L44~~ | ~~inconsistent Report Delay codes in the text and Figure 11-74p for the first instance. Based on Report Delay code specificaiton in Table 9-401z, "no report in this instance" shoud be Report Delay =0.~~ | ~~In line 44 page 211, change "Report Delay =1" to "Report Delay =0".~~ | ~~Revised~~ |



**Discussion:**

According to the definition of Report Delay code specification in Table 9-410z, the Report Delay code for no report in the first instance should be Report Delay = 1.



**Proposed changes:**

Update “~~Report~~ BRP Frame Report Delay=~~0~~1” in Figure 11-74p.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Section** | **Page****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 1300 | 11.55.3.6.4 | P212L9 | The 'DMG Measurement Setup Request frame' is not correct. | Replace it with the 'DMG Sensing Request frame' | Accepted |
| 2080 | 11.55.3.6.4 | P212L9 | It should be 'DMG Sensing Request frame' instead of 'DMG Measurement Setup Request frame'. | As in comment. | Accepted |
| 1301 | 11.55.3.6.4 | P212L13 | The ' SIF' is a typo. | Replace it with the 'SIFS'. | Accepted |
| 2010 | 11.55.3.6.4 | P212L13 | Please replace "SIF" with "SIFS". | As in comment | Accepted |
| 2082 | 11.55.3.6.4 | P212L13 | It should be 'SIFS'. | As in comment. | Accepted |

**Proposed changes (11.55.3.6.4 Coordinated bistatic DMG sensing instance):**

In the coordinated bistatic DMG sensing instance, the following rules shall apply:

* Number of sensing responders in each coordinated bistatic DMG sensing instance of the same DMG Measurement Setup ID may be different.
* The sensing initiator shall send a DMG ~~Measurement~~ ~~Setup~~ Sensing Request frame to each sensing responder it invites to participate in the sensing instance.
* The sensing responder shall respond with a DMG Sensing Response frame to the sensing initiator within a ~~SIF~~ SIFS
* The sensing responder that responded to the sensing initiator shall remain active to receive the BRP PPDU
* The order of sounding is indicated in the STA ID field within the DMG Sensing Measurement Setup Request frame

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Section** | **Page****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 1016 | 11.55.3.6.5.2 | P212L61 | "a SIFS" at this place in the sentence sounds like it describes or gives context to sensing PPDU instead of a timing related action. | The sensing initiator shall start the transmission of EDMG multistatic sensing PPDUs after receiving the response from the last sensing responder plus a SIFS. | Rejected |
| 1017 | 11.55.3.6.5.3 | P213L15 | "a SIFS" at this place in the sentence sounds like it describes or gives context to sensing responders instead of a timing related action. | The sensing initiator sends a DMG Sensing Poll frame to each of the sensing responders after thetransmission of the last PPDU plus a SIFS. | Rejected |

**Discussion (11.55.3.6.5 Multistatic EDMG sensing instance)**

This is an editorial comment. The commentor is concerned that the focus of the sentence is more about the subject, not the timing-related action. However, the original sentence appears to be more concise and accurate. For instance, in the proposed change, it can be “immediately after” or “some time after” the transmission of the last PPDU plus a SIFS.

Similar sentences have been used in 802.11ay:

In the MIMO phase…, the responder shall send a MIMO BF Setup frame a SIFS following the reception of the MIMO BF Setup frame from the initiator.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Section** | **Page****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 2083 | 11.55.3.6.5.1 | P212L31 | It should be 'DMG Sensing Response frames response to the DMG Sensing Request frames'. | As in comment. | Revised |

**Proposed changes (11.55.3.6.5 Multistatic EDMG sensing instance)**

11.55.3.6.5.1 Initiation

A multistatic EDMG sensing instance between a sensing initiator in the sensing transmitter role and two or more sensing responders is initiated by several DMG Sensing Measurement Setup Request frames and DMG Sensing Response frames respond ~~responses~~ to the DMG Sensing Requests frames.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Section** | **Page****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 2119 | 11.55.3.6.5.1 | P212L45 | The symbol: #N is confusing | change to N^th | Revised |
| 2084 | 11.55.3.6.5.1 | P212L37 | It should be 'The DMG Measurement Setup ID, Measurement Burst ID and Sensing Instance SN subfields shall have the same value in all DMG Sensing Request frames'. | As in comment. | Accepted |

**Proposed changes (11.55.3.6.5 Multistatic EDMG sensing instance):**

The sensing initiator initiates the multistatic EDMG sensing instance by sending DMG Sensing Measurement Setup Request frames to each of the intended sensing responders. The DMG Measurement Setup ID, Measurement Burst ID and the Sensing Instance SN subfields shall have the same value in all DMG Sensing Measurement Setup Request frames. The sensing initiator shall set the STA ID subfield to a value between 0 and 7 indicating the index of the sensing responder sync subfield in the sync field of the EDMG multistatic sensing PPDUs. EDMG multistatic sensing PPDUs shall be addressed to the sensing responder that is assigned the value of 0 in the STA ID. The sensing initiator sets the First Beam Index field to a value that indicates the first beam that is used for transmission in the TRN field of the first EDMG multistatic sensing PPDU. The other beams used in the Multistatic Sensing PPDUs are the following beams in the Tx Beam List subelement. The sensing initiator sets the Start of ~~#N~~ the *N*th PPDU subfields to the time, in microseconds, from the end of the DMG Sensing Request to the beginning of the *N*th EDMG multistatic sensing PPDU in the multistatic EDMG sensing instance.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Section** | **Page****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 2085 | 11.55.3.6.5.1 | P212L50 | It should be 'A STA that receives ...'. | As in comment. | Accepted |

**Proposed changes (11.55.3.6.5 Multistatic EDMG sensing instance):**

A STA that ~~receivers~~ receives a DMG Sensing Request frame shall respond after SIFS with a DMG Sensing Response frame. The sensing responder shall remain active to receive all the EDMG multistatic sensing PPDUs in the multistatic EDMG sensing instance and poll frame.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Section** | **Page****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 2011 | 11.55.3.6.5.3 | P213L22 | The last paragraph and Figure 11-74q are not specific to subclause 11.5.36.5.3. Please insert a new subclause "11.5.36.5.4 EDMG multistatic measurement instance" | As in comment | Revised |
| 2012 | 11.55.3.6.5.3 | P213L47 | Please correct typo "EMDG" in caption of Figure 11-74q | As in comment | Accepted |
| 2086 | 11.55.3.6.5.3 | P213L46 | In Figure 11-74q, the title should be 'EDMG'. | As in comment. | Accepted |
| 2013 | 11.55.3.6.5.3 | P213L36 | Figure 11-74q needs to be revised so that it is aligned with the preceeding paragraph. For example, replace "RQ", "RSP", "Report RQ" with "DMG Sensing Request", "DMG Sensing Response", "DMG Sensing Poll". | As in comment | Revised |

**Discussion (11.55.3.6.5 Multistatic EDMG sensing instance):**

In the subclause **11.55.3.6.5.3 Reporting**, the last paragraph and Figure 11-74q are about an example of Multistatic EDMG sensing instance, illustrating the initiation, sounding, and reporting phases. The commentor suggested to add a new subclause that is specific to this paragraph and Figure 11-74q.



**Proposed change:**

11.55.3.6.5.4 An Example of An EDMG multistatic sensing measurement instance

Figure 11-74q (Example of an ~~EMDG~~ EDMG multistatic sensing measurement instance with two sensing responders) shows an example of an EDMG multistatic sensing measurement instance. The instance starts with the sensing initiator sending a DMG Sensing Request frame (RQ) to each of the sensing responders to initiate the burst and indicate the parameters that will be used in the TRN fields of the EDMG multistatic sensing PPDUs in the instance. The sensing responders respond with DMG Sensing Response frames (RSP) indicating they are ready to participate in the instance. After receiving the response from the last sensing responder, the sensing initiator sends an EDMG multistatic sensing PPDU. Sensing responder STA A uses Sync subfield 1 for synchronization and sensing responder STA B uses Sync subfield 2 for synchronization. They then use the TRN field for sensing. After the EDMG multistatic sensing PPDU, the sensing initiator uses DMG Sensing Poll frame (Report RQ) to solicit reports from the sensing responder.



**Figure 11-74q—Example of an ~~EMDG~~ (EDMG) multistatic sensing measurement instance with two sensing responders.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Section** | **Page****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 2087 | 11.55.3.8 | P214L57 | It should be '11.55.3.4 DMG sensing measurement setup' | As in comment. | Accepted |

**Proposed changes (11.55.3.8 DMG sensing measurement setup termination):**

For the implicit DMG sensing measurement setup termination of the measurement setup, the sensing initiator and the sensing responder shall use the DMG sensing procedure expiry timer. The DMG sensing procedure expiry timer maintains the DMG measurement setup identified with the DMG Measurement Setup ID between the sensing initiator and the sensing responder. The DMG sensing procedure expiry timer shall be set to the dot11DMGSensingProcedureExpiry value at

 — the success of the procedure specified in ~~11.55.3.3 (DMG sensing session setup)~~ 11.55.3.4 (DMG sensing measurement setup);

— the exchange of DMG Sensing Request and DMG Sensing Response frames is completed in the coordinated DMG sensing instance (see 11.55.3.6.2 (Coordinated monostatic DMG sensing [instance](#_bookmark3)), 11.55.3.6.4 (Coordinated bistatic DMG sensing instance), and 11.55.3.6.5 (Multistatic [EDMG sensing instance](#_bookmark2))); or

— the exchange of the BRP frames is completed in the Bistatic DMG sensing instance (see 11.55.3.6.3 (Bistatic DMG sensing instance)).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Section** | **Page****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 1205 | 11.55.4.2 | P217L45 | change anDMG-MLME-SENSMSMTSETUP.request to a DMG-MLME-SENSMSMTSETUP.request | change anDMG-MLME-SENSMSMTSETUP.request to a DMG-MLME-SENSMSMTSETUP.request | Accept |
|  |  |  |  |  |  |

**Proposed changes (11.55.4.2 DMG SBP Setup)**

If the Sensing Responder subfield within the DMG SBP Parameters of the corresponding MLME-DMG- SBP.indication primitive is set to 0, the SBP responder shall not use a DMG sensing procedure initiated with the issue of an MLME-DMG-SENSMSMTSETUP.request primitive with PeerSTAAddress parameter equal to the SBP initiator’s MAC address to satisfy the DMG SBP request. Otherwise, if the Sensing Responder subfield is set to 1, the SBP responder shall use a DMG sensing procedure initiated with the issue of ~~an~~ a DMG-MLME-SENSMSMTSETUP.request primitive with PeerSTAAddress parameter equal to the SBP initiator’s MAC address to satisfy the DMG SBP request.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Section** | **Page****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 2088 | 11.55.4.2 | P218L43 | WLAN' should be removed in the first row of the NOTE. | As in comment. | Accepted |

**Proposed changes (DMG SBP Setup):**

NOTE—The method used by an SBP responder to select DMG STAs to include in the DMG ~~WLAN~~ sensing procedure used in response to an MLME-DMG-SBP.request primitive in which the DMG Preferred Responder List subfield within the DMG SBP Parameters is equal to 0 or in which the DMG Preferred Responder List subfield and the DMG Mandatory Preferred Responder subfield within the DMG SBP Parameters are set to 1 and 0, respectively, is implementation dependent.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Section** | **Page****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 2089 | 11.55.4.3 | P219L15 | ..., the SBP responder shall transmit all frames prepared...' | As in comment. | Accepted |

**Proposed changes (DMG SBP Setup):**

At the time scheduled to deliver the DMG SBP report frame(s), the SBP responder shall ~~delete~~ transmit all frames prepared for delivery at the preceding scheduled time.

Straw Poll:

Do you agree with the proposed resolutions for CIDs 1016, 1017, ~~1048~~, 1205, 1300, 1301, 2009, 2010, 2011, 2012, 2013, 2075, 2078, 2080, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, ~~2097~~, and 2119 in revision 2 of this document?

Y/N/A