IEEE P802.11
Wireless LANs

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| --- |
| Resolution of CID 6115 and 6234 |
| Date: 2020-03-30 |
| 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 |
| Joe Andonieh  | Peraso |  |  | joe@perasotech.com |
| Payam Torab  |  |  |  | ptorab@telefarco.com |

Abstract

Resolution of SA ballot comments CID 6115, 6234

| **CID** | **Page** | **Sub-clause** | **Line #** | **Comment** | **Proposed Change** | **Resolution**  |
| --- | --- | --- | --- | --- | --- | --- |
| 6115 | 210 | 9.7.1 | 6 | The MPDU size field in the MPDU delimiter is 13 bit, which does not allow placing a Jumbo frame. | Extend the MPDU size field in the MPDU delimiter. Make the extension optional. | **Revised** See resolution below in the document   |
| 6234 |  |  |  | 11ay MSDU size is small for jumbo frame support I mmWave distribution (fixed wireless) use case. | Extend the relevant fields to accomadate ~16KB MSDUs. | **Revised** See resolution below in the document   |

Discussion

In the current router’s implementations, the MTU size is increased to support the Jumbo frame. The frames of size between 9000 and 9600 bytes are already in use and can be increased to 14,000 bytes or even more. To meet this requirement, the following changes are recommended,

* The MPDU size in the A-MPDU delimiter is extended to 14 bits by taking 1 bit from the reserved. As a result, the delimiter and its fields become the same in the DMG and non-DMG A-MPDUs and there is no need for a separate definition of the DMG A-MPDU delimiter.
* Support of the extended MPDU size is indicated in the DMG capabilities by a new Extended MPDU Capability field. The STA is capable of receiving larger MPDU sizes if the Extended MPDU support subfield =1 and is not capable otherwise.
* The MPDU Limit field is an unsigned integer value of 14 bit.
* The MPDU size to contain A-MSDU of 7935 bytes is equal to: A-MSDU (7935 bytes) + MPDU Header (26 bytes) +FCS (4 bytes) + GCMP Header (8 bytes) + MIC (16 bytes) =7989 (bytes).
* The extended MPDU size is in the range between 7990 and 16383 bytes.

Without the SAR agreement limit of the MSDU size may be established between the communicating STA by the TSPEC element (9.4.2.29 TSPEC element). The element contains the Maximum MSDU size field and Nominal MSDU size subfield. The Maximum MSDU size field is the unsigned value of 16 bits range and the Nominal MSDU size subfield is of 15 bits range. The Maximum MSDU size and the Nominal MSDU size subfield are compliant with the newly established MPDU limit subfield.

***TGay editor change as follows***

*P210L3*

***Remove Figure 9-974—MPDU delimiter (DMG)***

*P210L5*

***Remove Table 9-527—MPDU delimiter fields (DMG)***

***TGay editor instruct editor to make changes in the sub clause 9.7.1 A-MPDU format:***

*Change as follows*

*P1682L33*

The MPDU delimiter is 4 octets in length. The structure of the MPDU delimiter is defined in Figure 9-973 (MPDU delimiter).

*P1682L45*

**Figure 9-973—MPDU delimiter**

*P1682L57*

The fields of the MPDU delimiter are defined in Table 9-526 (MPDU

delimiter fields

P1683L1

**Table 9-526— MPDU delimiter fields**

*P1683L7 Table 9-526*

End of frame indication. Set to 1 in an A-MPDU subframe that has 0 in the

MPDU Length field and that is used to pad the A-MPDU in a VHT PPDU as

described in 10.12.6 (A-MPDU padding for VHT PPDU or S1G PPDU(11ah)).

Set to 1 in the MPDU delimiter of an S-MPDU(11ah) as described in 10.12.7

(Setting the EOF field of the MPDU delimiter). Set to 0 otherwise.

Reserved in a non-EDMG PPDU. In an EDMG PPDU, it is set to 1 in EOF padding subframes and set to 0 otherwise (see 10.12.7).

*Insert after the Figure 9-975—MPDU Length field (non-DMG)*

The format of the MPDU Length field when transmitted by a DMG STA is shown in Figure 9-975y (MPDU Length field (DMG)). The MPDU Length Low subfield contains the 13 low order bits of the MPDU length. The MPDU Length High subfield contains one high order bit of the MPDU length.

|  |  |  |
| --- | --- | --- |
|  | B0 | B1 B13 |
|  | MPDU Length High | MPDU Length Low |
| Bits: | 1 | 13 |

**Figure 9-975y—MPDU Length field (DMG)**

*(9-5)*

*(9-5)*

***TGay editor instruct editor to make changes in the sub clause 9.2.4.7.1 General***

*Modify the Table 9-25—Maximum data unit sizes (in octets) and durations (in microseconds) as follows*

**Table 9-25—Maximum data unit sizes (in octets) and durations (in microseconds)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Non-HT non-****VHT****(11ah) non-****S1G non-DMG****PPDU and****non-HT****duplicate****PPDU** | **HT PPDU VHT PPDU** | **HT PPDU VHT PPDU** | **S1G****PPDU (11ah)** | **DMG PPDU** |
| MMPDU size |  |  |  |  | 2304 |
| MSDU size |  |  |  |  | Without SAR agreement - Value of A-MSDU size minus 14 for basic A-MSDU format or minus 2 for short A-MSDU format if the Extended MPDU Capability field of the DMG Capabilities element is valid, or 7920 if the field is not present or its value is unknown. Figure 9-549 (DMG Capabilities element format).With SAR agreement see NOTE 8 |
| A-MSDU size |  |  |  |  | Without SAR agreement – indirectly limited by the value indicated in the Extended MPDU Capability field of the DMG Capabilities element, or 7935 if the field is not present or its value is unknown (see Figure 9-549 (DMG Capabilities element format).With SAR agreement see NOTE 8 |
| MPDU size  |  |  |  |  | The value indicated in the Extended MPDU Capability field of the DMG Capabilities element or see NOTE 5 if the field is not present or its value is unknown. Figure 9-549 (DMG Capabilities element format). |
| PSDU size  |  |  |  |  | Non-EDMG PSDU size 218–1 (see Table 20- 32 (DMG PHY characteristics))EDMG PSDU size222 – 1 (see Table 28-12 and Table 28-19) |
| PPDU duration |  |  |  |  | 2000 (see Table 20- 32 (DMG PHY characteristics)) |
| NOTE 1—No direct constraint on the maximum MMPDU size; indirectly constrained by the maximum MPDU size (see 9.3.3.2 (Beacon frame format)). NOTE 2—Indirect constraint from the maximum PSDU size: 212–1 octets minus the minimum QoS Data frame overhead (26 octets for the MAC header and 4 octets for the FCS). NOTE 3—No direct constraint on the maximum A-MSDU size; indirectly constrained by the maximum MPDU size. NOTE 4—No direct constraint on the maximum MPDU size; indirectly constrained by the maximum MSDU/MMPDU or (for HT STAs only) A-MSDU size. NOTE 5—No direct constraint on the maximum MPDU size; indirectly constrained by the maximum A-MSDU size. NOTE 6—No direct constraint on the maximum duration, but an L\_LENGTH value above 2332 might not be supported by some receivers (see last NOTE in 10.27.4 (L\_LENGTH and L\_DATARATE parameter values for HT-mixed format PPDUs)). NOTE 7—The maximum MPDU size might be greater than the size declared as supported by the recipient if the MPDU is an HE Compressed Beamforming/CQI frame.NOTE 8—No direct constraint on the maximum MSDU or A-MSDU size; indirectly constrained by the maximum PSDU size. Each MPDU in an A-MPDU of the PSDU that contains the MSDU or A-MSDU generates an overhead of MPDU Header (26 bytes), FCS (4 bytes), GCMP Header (8 bytes), MIC (16 bytes), and MPDU delimiter (4 bytes). |

***TGay editor change as follows***

**9.4.2.127.1 General***P119L1*

 *Change Figure 9-549 (DMG Capabilities element format) as follows*

**

Extended MPDU Capability

2

*Append new subclause after* **9.4.2.127.8 SAR Capability Information field**

**9.4.2.127.9 Extended MPDU Capability field**

The Extended MPDU Capability is defined in Figure xyz

|  |  |  |  |
| --- | --- | --- | --- |
|  | B0 B13 | B14 | B15 |
|  | MPDU Limit | Reserved | Extended MPDU Support |
| Bits: | 14 | 1 | 1 |

**Figure xyz – Extended MPDU Capabilty field**

The MPDU Limit subfield indicates the maximum MPDU size in octets the STA can receive when the the Extended MPDU capability support is valid. The field contains an integer between 7990 and 16383.

The Extended MPDU Support subfield indicates whether the MPDU Limit subfield is valid. When the dot11DMGExtendedMPDULimitValid is equal to true, the Extended MPDU Support subfield is set to 1 to indicate that the MPDU Limit subfield is valid. When the dot11DMGExtendedMPDULimitValid is equal to false, the Extended MPDU Support subfield is set to 0 to indicate that the MPDU Limit subfield is invalide.

**10.39.4 DTI transmission rules**

 ***TGay editor instruct editor to make following changes in the subclause 10.39.4 DTI transmission rules***

*P1975L52*

*Insert the following text at end of subclause*

A STA shall be capable of receiving MPDUs of arbitrary length that is less than or equal to the MPDU size advertised by the STA. See Table 9-25—Maximum data unit sizes (in octets) and durations (in microseconds)

***TGay editor change as follows***

*P763L6*

*Insert in the Dot11DMGSTAConfigEntry*

dot11DMGExtendedMPDULimitValid TruthValue,

*P777L42*

*Insert in the dot11DMGComplianceGroup OBJECT-GROUP*

dot11DMGExtendedMPDULimitValid,

P765L26

*Append*

dot11DMGExtendedMPDULimitValid OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This is a control variable.

It is written by the SME or external management entity.

Changes take effect as soon as practical in the implementation.

This attribute, when true, indicates that the station can receive MPDUs larger than 7989 octets.”

DEFVAL { false }

::= { dot11DMGSTAConfigEntry 15 }

**References:**

1. IEEE P802.11ay/D5.0, October 2019
2. IEEE P802.11-REVmd/D3.0, October 2019