IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Max Number Of A-MSDU subframes in A-MSDU | | | | |
| Date: 2016-02-07 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Trainin, Solomon | Intel Corporation |  | 972547885738 | [solomon.trainin@intel.com](mailto:solomon.trainin@intel.com) |
| Cordeiro, Carlos | Intel Corporation |  |  | [carlos.cordeiro@intel.com](mailto:carlos.cordeiro@intel.com) |
| Aharon, Mordechay | Qualcomm |  |  | maharon@qti.qualcomm.com |
| Basson, Gal | Qualcomm |  |  | bgal@qti.qualcomm.com |

Abstract

Resolve CID7153 to provide capability of maximal number of MSDU in A-MSDU

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Clause** | **Duplicate of CID** | **Resn Status** | **Comment** | **Proposed Change** |
| 7153 | 1010.44 | 9.4.2.128.1 |  |  | Negotiation of Max Number Of MSDUs In AMSDU as part of STA capabilities makes a lot of sense to DMG STA. In the current definition the Max Number Of MSDUs In AMSDU capability is not applicable for DMG STA's | Extend DMG Capabilities element to convey DMG Max Number Of MSDUs In AMSDU capability subfield with four values encoded 32, 16, 8, and 4 |

Discussion:

Support of A-MSDU on the receiver side requires additional processing to release A-MSDU subframes to upper layer in relation to processing of MPDU. The additional processing increases with number of A-MSDU subframes aggregated in A-MSDU. If number of the A-MSDU subframes in one A-MSDU rises over threshold that depends on the receiver processing capabilities then delivery of A-MSDU subframes to higher layer may be substantially delayed or in worst case the MSDU’s may be even dropped. The maximum number of A-MSDU subframes in A-MSDU indication of receiver capabilities, which is already defined for HT and VHT STAs, allows to prevent the mentioned issues. However, such capability does not exist for a DMG STA. There are two types of A-MSDU subframes supported in DMG networks - basic A-MSDU subframe and short A-MSDU subframe.

To address this issue, propose to add a two subfields named Maximum Number Of Basic A-MSDU subframes In A-MSDU and Maximum Number Of Short A-MSDU subframes In A-MSDU to DMG Capabilities element.

**Editor,** append new fields Maximum Number Of Basic A-MSDU subframes In A-MSDU and Maximum Number Of Short A-MSDU subframes In A-MSDU to DMG Capabilities element format in Figure 9-502 – DMG Capabilities element format

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Element ID | Length | STA Address | AID | DMG STA Capability Information | DMG AP or PCP Capability Information | DMG STA BeamTrackingTimeLimit | Maximum Number Of Basic  A-MSDU subframes In A-MSDU | Maximum Number Of Short  A-MSDU subframes In A-MSDU |
| Octets | 1 | 1 | 6 | 1 | 8 | 2 | 2 | 1 | 1 |

Figure 9-502 – DMG Capabilities element format

**Editor,** in P1016L21 add sub clause

**9.4.2.128.x Maximum Number of A-MSDU subframes in A-MSDU**

The Maximum Number Of Basic A-MSDU subframes in A-MSDU subfield is defined in Figure 9-xyy (Maximum Number Of Basic A-MSDU subframes in A-MSDU subfield) and indicates the maximum number of Basic A-MSDU subframes in an A-MSDU that the DMG STA is able to receive from another DMG STA.

|  |  |
| --- | --- |
| **Value** | **Meaning** |
| 0 | No limit on the maximum number of Basic A-MSDU subframes supported |
| 1 | A maximum of 4 Basic A-MSDU subframes are supported |
| 2 | A maximum of 8 Basic A-MSDU subframes are supported |
| 3 | A maximum of 16 Basic A-MSDU subframes are supported |
| 4 | A maximum of 32 Basic A-MSDU subframes are supported |
| 5 | A maximum of 64 Basic A-MSDU subframes are supported |
| 6 | A maximum of 128 Basic A-MSDU subframes are supported |
| 7 | A maximum of 256 Basic A-MSDU subframes are supported |
| 8-255 | Reserved |

**Figure 9-xyy Maximum Number Of Basic A-MSDU subframes in A-MSDU subfield**

The Maximum Number Of Short A-MSDU subframes in A-MSDU subfield is defined in Figure 9-xyz (Maximum Number Of Short A-MSDU subframes in A-MSDU subfield) and indicates the maximum number of Short A-MSDU subfields in an A-MSDU that the DMG STA is able to receive from another DMG STA.

|  |  |
| --- | --- |
| **Value** | **Meaning** |
| 0 | No limit on the maximum number of Short A-MSDU subframes supported |
| 1 | A maximum of 32 Short A-MSDU subframes are supported |
| 2 | A maximum of 64 Short A-MSDU subframes are supported |
| 3 | A maximum of 128 Short A-MSDU subframes are supported |
| 4 | A maximum of 256 Short A-MSDU subframes are supported |
| 5 | A maximum of 512 Short A-MSDU subframes are supported |
| 6 | A maximum of 1024 Short A-MSDU subframes are supported |
| 7-255 | Reserved |

**Figure 9-xyz Maximum Number Of Short A-MSDU subframes in A-MSDU subfield**

**Editor,** in sub clause 10.12 at P1336L57 add paragraph:

A DMG STA shall not transmit a A-MSDU that includes a number of Basic A-MSDU subframes greater than the value indicated by the Maximum Number Of Basic A-MSDU subframes in A-MSDU subfield in any DMG Capabilities element sent by the recipient DMG STA.

A DMG STA shall not transmit a A-MSDU that includes a number of Short A-MSDU subframes greater than the value indicated by the Maximum Number Of Short A-MSDU subframes in A-MSDU subfield in any DMG Capabilities element sent by the recipient DMG STA.

A DMG STA that sets A-MSDU subframe structure subfield to 1 in a DMG Attributes field of TSPEC element (9.4.2.30) to indicate Short A-MSDU subframe support shall be capable of receiving at least 32 Short A-MSDU subframes in A-MSDU.

**References:**

1. IEEE P802.11-REVmc/D5.0, Jan 2016