IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SA D6 resolution of CIDs 7026, 7041** | | | | |
| Date: 2020-11-15 | | | | |
| 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 |

Abstract

Resolution of SA D6 ballot comments CIDs **7026, 7041**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Line** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 7026 | 11.30.5 | 384 | 6 | The text has two definitions: one of "Transmit activity" and another of the "Transmit load". Both definitions define the relative time. One measures the load and second triggers the transmission. Having two different mechanisms complicates the implementation. I see no justification or reasoning to use two different mechanisms. Propose to have a single timer for both | Use a single time base. | **Revised**  See below in the document |
| 7041 | 11.30.5 | 383 | 4 | "...the STA monitors its transmit activity in terms of number of active time units, contiguous or non-contiguous, during a sliding window comprising a given number of time units. An active time unit is a period during which the STA has been in transmit mode for a percentage of the time..." versus "The Transmit Load subfield contains the percentage of time during the observation period that the local DMG PHY entity was in transmit state and was using the reported channel and Link ID. The subfield is encoded as 6 an 8-bit unsigned integer, linearly scaled, with values of 0 and 255 representing 0% and 100%, respectively."  There are two separate definitions: one of Transmit activity and another of the Transmit load. The first is used to define when to send the activity report and the second is used in this report. Both definitions are to measure the relative time the device is in the transmit state/mode. The use of two different mechanisms complicates the implementation. There is no justification or reasoning provided to use two different mechanisms. Propose to unify the solution. | Provide unified solution | **Revised**  See below in the document |

**CID 7026, 7041**

Discussion

The text has two definitions: one of "Transmit activity" and another of the "Transmit load". Both definitions define relative times. One measures the load and second triggers the transmission. Having two different mechanisms complicates the implementation.

As it is defined in the current text, the time the DMG STA decides to transmit the Directional Transmit Activity Report is a property of the STA and anyone can set it to any value. The range of the parameters dot11DMGSTATxActivityReportTimeUnit, dot11DMGSTATxActivityReportMinActiveTimeUnits, and dot11DMGSTATxActivityReportActiveMonitoringTime does not limit a bad actor from setting the trigger time of transmission of the Directional Transmit Activity Report frame to infinity.

Unification of the triggering timer with the Observation Period Duration proposed by the commenters may resolve the problem. The commenters propose to have a single timer - that will require substantial text changes.

We propose to harmonize the current solution by changing the range of the dot11DMGSTATxActivityReportTimeUnit, dot11DMGSTATxActivityReportMinActiveTimeUnits, dot11DMGSTATxActivityReportActiveMonitoringTime, and dot11DMGSTATxActivityReportInterval. The solution provided below keeps the slot resolution of 1us with a maximal size of 1 min and allows a maximum triggering time of more than one month with a resolution of 1 min.

***TGay editor, change as presented***

***P383L16***

As long as the STA has observed at least dot11DMGSTATxActivityReportMinActiveTimeUnits active time units over the last dot11DMGSTATxActivityReportActiveMonitoringTime time units, it shall transmit a PPDU containing at least one activity report frame, using the reference antenna pattern, and on the 2.16 GHz reference channel, at least once during every dot11DMGSTATxActivityReportInterval microseconds, provided that the STA has a transmit opportunity longer than SIFS plus the duration of a PPDU that only includes one activity report frame and no training subfields.

***P383L19***

NOTE—For example, the following settings require a capable DMG STA to transmit a DMG STA Directional Transmit Activity Report frame at least once during every second, as long as the STA has had at least 10 active seconds of transmission using a given antenna pattern over the last 60 seconds: dot11DMGSTATxActivityReportActivated = true, dot11DMGSTATxActivityReportTimeUnit = 1000000, dot11DMGSTATxActivityReportMinActiveTimeUnits = 10, dot11DMGSTATxActivityReportActiveMonitoringTime = 60, and dot11DMGSTATxActivityReportInterval = 1000000.

**C.3 MIB detail**

dot11DMGSTATxActivityReportTimeUnit OBJECT-TYPE

SYNTAX Unsigned32 (1.. 60000000)

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This is a control variable.

It is written by the SME or an external management entity.

Changes take effect as soon as practical in the implementation.

This attribute specifies the duration of the time unit, in microseconds, which is used to monitor the transmit activity of the STA for different antenna patterns and 2.16 GHz channels.."

DEFVAL { 1000000 }

::= { dot11DMGOperationEntry}

dot11DMGSTATxActivityReportMinActiveTimeUnits OBJECT-TYPE

SYNTAX Unsigned32 (0..60000)

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This is a control variable.

It is written by the SME or an external management entity.

Changes take effect as soon as practical in the implementation.

For a given receiver (or group of receivers always reached through a common transmit antenna pattern and transmit power) and a given 2.16 GHz channel, this attribute specifies the minimum number of active contiguous or non-contiguous time units (specified by another MIB variable) inside a sliding window of a given duration (specified by another MIB variable) that would require the STA to transmit DMG STA Directional Transmit Activity Report frames using that antenna pattern and 2.16 GHz channel.

."

DEFVAL { 10 }

::= { dot11DMGOperationEntry}

dot11DMGSTATxActivityReportActiveMonitoringTime OBJECT-TYPE

SYNTAX Unsigned32 (1..60000)

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This is a control variable.

It is written by the SME or an external management entity.

Changes take effect as soon as practical in the implementation.

For a given receiver (or group of receivers always reached through a common transmit antenna pattern and transmit power) and a given 2.16 GHz channel, this attribute specifies the duration of a sliding time window, as a multiple of a given time unit (specified by another MIB variable), during which the transmit activity of the STA is monitored to determine a minimum level of transmit activity(specified by another MIB variable) that would require the STA to transmit DMG STA Directional Transmit Activity Report frames using that antenna pattern and 2.16 GHz channel."

DEFVAL { 60 }

::= { dot11DMGOperationEntry 24 }

dot11DMGSTATxActivityReportInterval OBJECT-TYPE

SYNTAX Unsigned32 (1..2000000)

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This is a control variable.

It is written by the SME or an external management entity.

Changes take effect as soon as practical in the implementation. For a given receiver (or group of receivers always reached through a common transmit antenna pattern and transmit power) and a given 2.16 GHz channel, this attribute specifies the duration of a time interval, in microseconds, during which the STA must transmit at least one DMG STA Directional Transmit Activity Report frame using that antenna pattern and 2.16 GHz channel, provided that the STA has been actively transmitting data using that antenna pattern and 2.16 GHz channel, where the threshold for active transmission is specified by other MIB variables."

DEFVAL { 1000000 }

::= { dot11DMGOperationEntry 25 }

Discussion

The default value of the dot11DMGSTATxActivityReportInterval is one second. Sending the report frame once during each interval of one second means that the distance between two successive transmissions may reach two seconds in the general case when no tight schedule on the report transmission is applied. The maximum distance between two successive transmission of the report frame is limited by aDMGSTATxActivityReportingtLimit = 1000ms (see 11-20-1751-00-00ay SA D6 resolution of CIDs 7027 7031 7045 7046).

Propose to change the value to 2000ms.

**Note to TGay editor:**

The text below overrides the changes proposed in 11-20-1751 and accepted by Motion #687.

**11.37 DMG MAC sublayer attributes**

***P395***

***TGay editor insert new row in Table 11-22***

|  |  |
| --- | --- |
| aDMGSTATxActivityReportingtLimit | 2000ms |

**References:**

1. IEEE P802.11ay/D6.0, September 2020
2. IEEE P802.11-REVmd/D5.0, September 2020