IEEE P802.11
Wireless LANs

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| Proposed resolution to Time Advertisement comments |
| Date: 2019-01-14 |
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Abstract

This submission proposes resolutions to CID 3576 and 3577 related to Time Advertisement and UTC TSF Offset Procedures.

The CID is in reference to Comment database on Draft IEEE 802.11ay/D2.0.

# Comment:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **CID** | **PP.LL** | **Comment** | **Proposed Change** | **Suggested Resolution** |
| 3576 |  | dot11UTCTSFOffsetActivated operation for DMG is underspecified | Under this MIB,- Add Time Advertisement and Time Zone IEs to DMG Beacon and Announce frames- Study if a minimum or maximum repetition rate should be specifed | REVISED: Adopt changes proposed in doc11-19/109r1 |
| 3577 |  | Use of Time Zone IE under dot11UTCTSFOffsetActivated in DMG: Time Zone IE appears only in Probe Response in non-DMG; is there a need for alternative ways/frames for DMG, so that devices that do not solicit Probe Response can still receive this IE, e.g. DMG devices operating in TDD mode? This should be possible WITHOUT making the solution TDD mode specific. | Consider the following options,- Add a Probe Response flow to DMG TDD discovery flow and keep usage of Time Zone IE (and probably some more IEs) the same as non-DMG- Allow Time Zone IE in DMG Beacon and Announce framesOr perhaps nothing needs ot be done: If the DMG device does not go through a Probe excahnge during discovery (e.g., DMG devices in TDD mode), it doesn't mean it cannot exchange probe frams later. In that case, seems like Time Zone IE can be exclusively left for Probe Response and no DMG change is needed. | REVISED: Adopt changes proposed in doc11-19/109r1 |

# Discussion:

The commenter is asking to clarify how the Time Advertisement is implemented with DMG/EDMG STAs. Time Advertisement is done through transmission of the Time Advertisement element in Beacon frame and transmission of the Time Advertise element and the Time Zone element in the Probe Response frame.

It would be straight forward if the standard allows DMG Beacon to carry Time Advertisement element as the Beacon frame does. Also, it will give more flexibility to the implementer if the standard allows that AP or PCP may transmit the Time Advertisement element inside the Announce frame as well.

Looking through the Timing Advertisement clause (11.20) in the 802.11REVmd D2.0, there is no need to change the definition or use of the Time Advertisement as it does not restrict the use by DMG STAs. But, need small changes to accommodate the Time Advertisement element inside the DMG Beacon and the Announce frame.

The frequency to carry the Time Advertisement element in Beacon frame is already given by the dot11TimeAdvertisementDTIMInterval. As written in 11.20.3 (UTC TSF Offset procedures), the Time Advertisement element shall be included in the Beacon frame every dot11TimeAdvertisementDTIMInterval DTIMs.

However, DMG STA does not use DTIM at all. It is proposed to define a new MIB variable, dot11DMGTimeAdvertisementBeaconInterval, to specify the frequency to carry the Time Advertisement element in DMG Beacon frame.

# Proposed changes:

Apply the following changes.

Corresponding changes to 802.11ay D2.2 and 802.11REVmd D2.0 are indicated in the following text with “Track Changes” on, to clarify the direction to the editor.

**9.3.4 Extension frames**

**9.3.4.2 DMG Beacon**

***To TGay Editor: Insert the following row before the last row in Table 9-41(from 11ay D2.2)***

|  |  |  |
| --- | --- | --- |
| 48 | Time Advertisement | Optionally present everydot11DMGTimeAdvertisementBeaconInterval if dot11UTCTSFOffsetActivated is true |

**9.6.21 Unprotected DMG Action frame details**

**9.6.21.2 Announce frame format**

***To TGay Editor: Insert the following row to the end of Table 9-458 (from 11ay D2.2)***

|  |  |  |
| --- | --- | --- |
| 34 | Time Advertisement | Optionally present if dot11UTCTSFOffsetActivated is true |

**11.20.3 UTC TSF Offset procedures**

***To TGay Editor: Change the 1st paragraph of the 11.20.3 (from REVmd D2.0) as follows:***

When dot11UTCTSFOffsetActivated is true, the Time Advertisement and Time Zone elements shall be included in all Probe Response frames, the Time Advertisement element shall be included in the

Beacon frame every dot11TimeAdvertisementDTIMInterval DTIMs, the Time Advertisement element shall be included in the DMG Beacon frame every dot11DMGTimeAdvertisementBeaconInterval, and the Time Advertisement element shall be included in the Announce frame. When dot11UTCTSFOffsetActivated is false, the Time Advertisement and Time Zone elements shall not be included in Beacon, Probe Response, DMG Beacon, and Announce frames.

**Annex C**

**C.3 MIB Detail**

***To TGay Editor: Change the definition of “Dot11DMGSTAConfigEntry” in C.3 as follows:***

Dot11DMGSTAConfigEntry ::=

 SEQUENCE {

 dot11DMGOptionImplemented TruthValue,

 dot11RelayActivated TruthValue,

 dot11REDSActivated TruthValue,

 dot11RDSActivated TruthValue,

 dot11MultipleMACActivated TruthValue,

 dot11ClusteringActivated TruthValue,

 dot11DiscoveryAssistanceActivated TruthValue,

 dot11DMGTimeAdvertisementBeaconInterval Unsigned32

 }

***To TGay Editor: Insert the definition of the new MIB variable (dot11DMGTimeAdvertisementBeaconInterval) to the end of dot11DMGSTAConfigTable in C.3 as follows:***

dot11DMGTimeAdvertisementBeaconInterval OBJECT-TYPE

 SYNTAX Unsigned32 (0..65535)

 UNITS "beacon interval"

 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 indicates the number of beacon intervals between successive DMG Beacon frame transmissions that includes the Time Advertisement element."

 ::= { dot11DMGSTAConfigEntry 8 }

# Reference:

[1] Draft P802.11REVmd D2.0

[2] Draft P802.11ay D2.2

[3] 11-18/1483 “Comments on TGay/D2.0”