IEEE P802.11
Wireless LANs

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| Proposed Resolution to LB164 CID59 |
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Abstract

CID59 in LB164 states:

*The text assumes that AC\_VO and AC\_VI have admission control mandatory. Couldn't the AP use statistics on the AC\_VI and AC\_VO frames that have passed through the AP, when ACM is not mandatory?*

With the proposed resolution of:

*Add support for calculating traffic self when not using admission control*

This document proposes normative text to accept the above comment resolution.

***Instructions to the TGaa editor are marked in purple italics.***

**Changes to the draft are marked in blue to indicate an addition and ~~blue strikethrough indicates deletion~~.**

***Modify annex aa 2.3 in P802.11aa D1.01 as shown:***

aa 2.3. Calculation of Allocated Traffic Self

Allocated Traffic Self represents the total ~~composite~~ BSS load of all streams that the AP has allocated at any one time and the number of AC\_VI and AC\_VO streams that make up that total ~~composite stream~~.

It is recommended that the AP should calculate the mean and standard deviation using the Minimum Data Rate, Mean Data Rate and Peak Data Rate fields of admitted TSPECs and to re-calculate Allocated Traffic Self as each TS is added or deleted. It is recommended that the values of the mean and standard deviation placed in the Allocated Traffic Self field, for *i* allocated streams is calculated using:

*MEAN* = Σ*MEANi*

*STDEV* = sqrt(Σ*σi*2)

If TSPECi has the Minimum Data Rate and Peak Data Rate fields populated:

*σi* = $\sqrt{\left(MAXi-MINi\right)^{2}}$

else if TSPECi has the Mean Data Rate and Peak Data Rate fields populated:

*σi* =$\frac{(MAXi-MEANi)}{2}$

otherwise*:*

*σi* =0

Where *MAXi*, *MINi* and *MEANi* are medium times calculated using the Peak Data Rate, Minimum Data Rate, Mean Data Rate fields respectively from TSPEC*i*.

When Admission Control is not used, it is recommended that the AP monitors the mean and maximum frame reception and transmission rates for AC\_VI and AC\_VO (for example by regular sampling of changes to dot11QosMPDUsReceivedCount and dot11QosTransmittedFrameCount of each AC). The MAX, MEAN and STDEV at time t for access category AC is:

*MEANt* = *PPSfactor*$\frac{d}{dt}(dot11QosMPDUsReceivedCount\left[AC\right]+dot11QosTransmittedFrameCount\left[AC\right]-dot11QosFrameDuplicateCount[AC])$

Note ⎯The differentiation above calculates the packets per second for the given AC

If the AP is able to monitor the mean MSDU size and PHY rate of received and transmitted MSDUs for each AC, PPSfactor can be calculated using:

*PPSfactor* = 1.1(duration(Mean MSDU Size, Mean PHY Rate) + SIFS + ACK duration)

duration() is the PLME-TXTIME primitive that returns the duration of a packet based on its payload size and the PHY data rate employed

Otherwise:

PPSfactor[AC\_VI] = 414

PPSfactor[AC\_VO] = 127

Note ⎯ The AC\_VI factor is based upon a nominal MSDU of 1401 bytes at a 36Mbps PHY rate and a 24Mbps ACK PHY rate. The AC\_VO factor is based upon the same PHY rates but with a nominal MSDU size of 365 bytes.

*MAXt* is the maximum value of MEANt since MLME-START.confirm

*STDEVt* =$\frac{MAXt-MEANt}{2}$

~~It is recommended that as each stream is added or deleted, the AP should calculate the mean and standard deviation of the resulting composite stream, i.e. µ~~~~tot~~ ~~and~~~~σ~~~~tot~~~~.and note the total number of EDCA streams that are now admitted for this AP.~~

~~It is recommended that the values of the mean and standard deviation placed in the Allocated Traffic Self field, for~~ *~~i~~* ~~allocated streams is calculated using:~~

*~~MEAN~~* ~~= Σ~~*~~MEANi~~*

*~~STDEV~~* ~~= sqrt(Σ~~*~~σ~~~~i~~*~~2~~~~)~~

**References:**