IEEE P802.11
Wireless LANs

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| 802.11[Resolutions to CID #148 and 339(relative to IEEE 802.11 REVmd D0.4) |
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**Abstract**

This submission proposes resolutions to CIDs 148 and 339.

History:

R0: Initial Version

R1: update based on discussion during the Aug 18th teleconference. The resolution for CID #148 is still work in progress

R2: Updated proposed resolution to equation 11-6 based on discussion in the Thu PM1 session at Waikoloa.

R3: Updates based on discussion with IEEE802.1AS authors. The suggestion to remove equations 11-4 and 11-6 from 802.11 cannot be executed since the equivalent of equation 11-6 does not yet exist in IEEE802.1AS Rev D5.0.

R4: Changes from discussions in REVmd

R5: Changes based on review comments from Mark Rison (on R4).

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| 148 | Mark RISON | 9.4.2.22.18 | 937 | 47 | T | N | "The Measurement Start Time field contains the least significant 4 octets of the TSF (synchronized with the associated AP) at the time (+/- 32 us) at which the initial Fine Timing Measurement frame was transmitted where the timestamps of both the frame and response frame were successfully measured." -- no measurement is done with the iFTM, except when both the initiator and the responder set the ASAP bit to 1 | Change "initial" to "first" in the cited text | MAC: 2017-06-21 16:52:46Z: If the "initial Fine Timing Measurement frame" is special ("initial" doesn't mean "first"), perhaps we should capitalize the 'I' in 'Initial', and treat this as a unique frame? |
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**Discussion:**

The intent is to identify the Fine Timing Measurement Request frame from the initiator to the responder; and the corresponding Fine Timing Measuremetn frame from the responder to the initiator that establishes an FTM session as special frames – these are special because they carry additional information.

**Resolution:**

**REVISE:**

***Change the fourth paragraph of Cl. 9.4.2.22.18 as shown below:***

9.4.2.22.18 Fine Timing Measurement Range report

The Measurement Start Time field contains the least significant 4 octets of the TSF (synchronized with the
associated AP) at the time (± 32 µs) at which the first Fine Timing Measurement frame within the first burst (FTM\_2 in Figure 11-37. FTM\_1 in Figure 11-38 and FTM\_1 in Figure 11-39) was transmitted where the timestamps of both the frame and response frame were successfully measured.

***Update figures 11-35, 11-36 and 11-37, as shown below:***



Figure 11-37—Example negotiation and measurement exchange sequence, ASAP=0, and FTMs per Burst=2



Figure 11-38—Example negotiation and measurement exchange sequence, ASAP=1, and FTMs per Burst=2



Figure 11-39—Example negotiation and measurement exchange sequence for a single burst instance, ASAP=1, and FTMs per Burst=3

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| 339 | Qi Wang | 11.24.6.4 | 1920 | 50 | T | N | Equation (11-6) is incorrect. | Modify equation (11-6) to: clock offset = [(t2-t1)-(t4-t3)]/2 |  |

**Discussion:**

Equation 11-6 is correct but the subtlety of the currently captured t2 and t3 being used with the t1 and t4 from the payload of the next FTM frame received is not clear in the description. The clock offset computation is better described in IEEE802.1AS REV D6.0. Delete equations 11-4 and 11-6 and add a reference to IEEE802.1AS REV D6.0.

**Proposed Resolution:** Accept in Principle – delete equations 11-4 and 11-6 and add a reference to IEEE802.1AS REV D6.0.

***Replace Figure 11-35 Timing measurement procedure with the following figure:***



***Delete paragraph-9 and equation 11-4 in Clause 11.24.5 Timing measurement procedure***

***Delete paragraphs 27, 28 and 29 and equation 11 -6 in Clause 11.24.6.4 Measurement exchange***