IEEE P802.11
Wireless LANs

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| 802.11[Resolutions to CIDs related to the FTM Protocol(relative to IEEE 802.11 REVmd D2.0) |
| Date: 2018-03-11 |
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**Abstract**

This submission proposes resolutions to CIDs 2641, 2380, 2605 and 2399.

History:

R0: Initial Version

R1: Added resolution to 2605

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| 2399 | Mark RISON | 6.3.56.1 |  |  | MLME-FINETIMINGMSMTRQ primitives are not used anywhere | In Figure 6-17---Fine timing measurement primitives and timestamps capture add at the top a MLME-FINETIMINGMSMT.request from STA B's SME to STA B's MLME, a Fine Timing Measurement Request frame from STA B's MLME to STA A's MLME and a MLME-FINETIMINGMSMT.request from STA A's MLME to STA A's SME | FTM | REJECT |

**Discussion:**

Not all primitives described in Clause 6 have a diagram/reference in the rest of the specification. An example is MLME-TIMINGMSMTRQ.

The description of MLME-FINETIMINGMSMTRQ in Clause 6 describe how these primitive result in a Fine Timing Measurement Request to be transmitted; and at the receiver results in a corresponding indication. Figures 11-34, 11-35 and 11-36 describe the initial Fine Timing Measurement Request and initial Fine Timing Measurement exchange. This is how the MLME-FINETIMINGMSMTRQ describe in Cl. 6 gets used in the specification.

initial Fine Timing Measurement Request/initial Fine Timing Measurement exchange constitutes FTM Session negotiation and is not the context of Figure 6-17. Adding the primitives that trigger this exchange to Figure 6-17 could be confusing. Figure 6-17 describes where timestamps t1, t2, t3 and t4 are captured. When ASAP=1, the initial Fine Timing Measurement in addition to being a response to the initial Fine Timing Measurement Request, also causes timestamp measurement.

**Resolution: Reject.**

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| 2380 | Mark RISON | 11.22.6.3 | 2344 | 4 | "NOTE---Apart from the Status Indication, Value, ASAP, Number of Bursts Exponent, Min Delta FTM, and Burst Periodfields, the other fields in the Fine Timing Measurement Parameters element in the initial Fine Timing Measurementframe have no constraints." is misleading in that things like Burst Duration do have recommendations, which are a form of constraint, albeit not absolute | Change the cited text at the referenced location to "NOTE---Except as indicated in this subclause, the fields in the Fine Timing Measurement Parameters element in the initial Fine Timing Measurement frame have no constraints." | FTM | ACCEPT |

Discussion: In addition to the issues pointed by the commenter, the current version of the note has a maintenance problem – if additional fields are added to the Fine Timing Parameters element, the note in its current form will need a corresponding update. The recommended change avoids this problem.

Resolution: Accept

***Editor: Change the Note in P2344L4-7 as shown below:***

NOTE—Except as indicated in this subclause, the fields in the Fine Timing Measurement Parameters element in the initial Fine Timing Measurement frame have no constraints.

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| 2641 | Mark RISON | 11.22.6.4 |  |  | The RTT includes the turnaround time. Using it for a context (FTM) that excludes this leads to confusion with techniques that estimate range by measuring the actual RTT and then subtracting the estimated turnaround time at the peer (sometimes called "one-sided"). The issue is not whether Equation (11-5) is clear, it's whether calling the value yielded by that equation an RTT is correct | Change the definition of "RTT" in 3.4 to "RTTOA round trip time over air". Change "RTT" to "RTTOA" in 11.22.6.4 (2x including Figure 11-35 but excluding following change) and Figure P-1. Change " round trip time (RTT)" to " round trip time over air (RTTOA)" in 4.3.19.19, 11.22.6.4 | FTM | Reject |

Discussion:

<from submission 11-18-0885r12 resolving CID #1364>

CID #326 is similar to this comment and was discussed in REVmd during the Comment Collection #25 cycle. CID #326 proposed replacing RTT with ‘a two way ToF’. At that time CID #326 was rejected with the resolution “REJECTED (MAC: 2017-10-06 17:12:30Z): The 802.11 definition of RTT is provided in equation 11-5, consistent with the usage in the Standard. There is no technical error.”

Feedback from Jonathan:

The term RTT is widely used in the market place (some popular OS implementations refer to this quantity as RTT). Changing this to RTTOA while technically correct will cause unnecessary confusion in the market.

Resolution: Reject

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| 2605 | Mark RISON | 11.22.6.4 | 2348 | 57 | May an initial non-ASAP Fine Timing Measurement frame be retried? There seems no reason not to | Allow an initial non-ASAP FTM frame to be retried | FTM | Reject |

Discussion: There are implementations of FTM that do not retry intitial Fine Timing Measurement (both for ASAP=0 and ASAP=1). Allowing retry of initial Fine Timing Measurement frame when ASAP=0 may render those implementations non-standard.

In addition, initial Fine Timing Measurement includes fields like Partial TSF Timer and Time Synchronization Information which carry time-critical information. Retrying initial Fine Timing Measurement frame when ASAP=0 may render the value in these fields useless.

Resolution: Reject