IEEE P802.11
Wireless LANs

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| Response to 3GPP RAN 4 liaison on RTT on round trip time (RTT) measurement accuracy Nov. 9th  |
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Abstract

This contribution is the proposed response to 3GPP RAN4 on the request R4-168579 (16/1338r0) for information on RTT measurement performance using Fine Timing Measurement.

Dear 3GPP RAN4 chairs,

The IEEE 802.11 Working Group (WG) thanks the 3GPP RAN4 for their Liaison on WLAN round trip time (RTT) measurement for performing UE positioning and appreciates the opportunity to provide 3GPP RAN4 feedback on the request [1]

IEEE 802.11 WG informs 3GPP RAN4 that:

Most features in the IEEE 802.11 specification does not include minimum performance requirements and rely on the market to set performance expectations based on considerations that include the type of device, typical operating environment, relative priority of the UE positioning task with respect to other tasks running on the UE, wireless load on the infrastructure, cost etc.

The IEEE 802.11 specification provides mechanisms for obtaining an RTT estimate or a set of RTT estimates over a period of time. Accuracy of RTT estimates depend on the detection of line-of-sight signal between the UE and the infrastructure peer with which the UE executes the protocol. When line-of-sight signal is weak or unavailable RTT accuracy deteriorates.

IEEE 802.11 WG would also like to make you aware of submissions [3] and [4] that include some performance metrics. With regards to minimum value of RTT maximum value of RTT, the Fine Timing Measurement protocol used for RTT measurement is limited to the WLAN communication range and the RTT estimate is derived from timestamps represented in units of picoseconds.

The protocol only provides the estimated timestamp error and does not provide standard deviation or the number of samples used for estimating WLAN RTT accuracy.

We’re looking forward to any future communication with 3GPP RAN4.

Sincerely,

Adrian P. Stephens, Chair IEEE 802.11 Working Group

**References:**

1. 11-14-0936-03-000m-liaison-response-followup-to-3gpp-tsg-ran-wg2.doc (https://mentor.ieee.org/802.11/)
2. IEEE P802.11REVmc tm /D8, Draft Standard for Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Specific requirements - Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY)
3. <https://mentor.ieee.org/802.11/dcn/14/11-14-1464-02-0wng-ng-positioning-overview-and-chalanges.pptx>, Slide #9
4. <https://mentor.ieee.org/802.11/dcn/14/11-14-1193-01-0wng-beyond-indoor-navigation.pptx>, Slide #9