**3GPP TSG-RAN WG1 Meeting #107-e R1-21xxxxxx**

**e-Meeting, November 11–19, 2021**

**Title:** Draft LS on propagation delay compensation

**Response to:** **-**

**Release:** Rel-17

**Work Item:** NR\_IIOT\_URLLC\_enh

**Source:** Huawei [TSG RAN WG1]

**To:** TSG RAN WG2, TSG RAN WG4

**Contact Person:**

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**1. Overall Description:**

RAN1 further discussed propagation delay compensation enhancements in RAN1#107-e, and the following additional agreements are achieved on top of the ones included in LS R1-2110647 sent to RAN2 and RAN4 in RAN1#106bis-e:

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| --- |
| **Agreement**If RTT-based PDC is supported, a single granularity 32Tc (i.e. k=5) is supported for Rx-Tx measurement report. **Agreement** For Rel-17 * Support RTT-based PDC method
* Support PDC method based on legacy TA-based mechanism
	+ No RAN1/RAN4 specification impact expected

**Agreement** For RTT-based PDC, existing definitions of UE Rx – Tx time difference (i.e. section 5.1.30 in TS 38.215) and gNB Rx – Tx time difference (i.e. section 5.2.3 in TS 38.215) are reused, with updates at least to reflect the single pair of TRS/PRS and SRS configured for RTT-based PDC.**Agreement**Send an LS to RAN2 and RAN4 with the content including: * The agreements made in RAN1#107-e for propagation delay compensation.
* Ask RAN4 to define the following for RTT-based propagation delay compensation:
	+ UE Rx-Tx time difference measurement accuracy based on CSI-RS for tracking
	+ UE Rx-Tx time difference measurement accuracy based on PRS (including reuse existing spec if appropriate)
	+ gNB Rx-Tx time difference absolute accuracybased on SRS (including reuse existing spec if appropriate)
* Inform RAN4 that enhanced TA-based PDC with reduced Te and enhanced TA command granularity is precluded in RAN1.

**Conclusion**For RTT-based PDC, it is assumed that the transmission of DL TRS/PRS, UL SRS and reference time information are associated with a same TRP. * Note: No RAN1 specification impact is expected for this conclusion

**Agreement**For RTT-based propagation delay compensation, the Rx-Tx time difference is reported via RRC signaling.**Conclusion**The reporting range of Rx-Tx time difference measurement for RTT-based PDC is up to RAN4. |

Based on the agreements achieved in RAN1, RTT-based PDC and legacy TA based PDC are supported in Rel-17. RAN1 respectfully asks RAN4 to at least define the following for RTT-based PDC:

* UE Rx-Tx time difference measurement accuracy based on CSI-RS for tracking
* UE Rx-Tx time difference measurement accuracy based on PRS (including reuse existing spec if appropriate)
* gNB Rx-Tx time difference absolute accuracy$error\_{gNB,RxTxDiff}$ based on SRS (including reuse existing spec if appropriate)

RAN1 also would like to inform RAN2 and RAN4 that enhanced TA-based PDC with reduced Te and enhanced TA command granularity is precluded in RAN1.

**2. Actions:**

**To RAN2**

**ACTION:** RAN1 respectfully asks RAN2 and RAN4 to take the above information into account in their future work.

**3. Date of Next TSG-RAN WG1 Meetings:**

TSG-RAN WG1 Meeting #107bis-e 17 – 25 January 2022 E-Meeting

TSG-RAN WG1 Meeting #108-e 21 February – 03 March 2022 E-Meeting