3GPP TSG RAN WG1 Meeting #111 [R1-220xxxx](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_111/Docs/R1-220xxxx.zip)

**Toulouse, France, Nov 14th – 18th, 2022**

**Source: Moderator (CATT)**

**Title: FL Summary for mitigating UE/gNB Rx/Tx timing delays**

**Agenda item: 8.5**

**Document for: Discussion and Decision**

# Introduction

This document provides a summary of the issues related to mitigating UE/gNB Rx/Tx timing delays in AI 8.5 for Rel-17 Positioning enhancement.

# Draft CR for the configuration of UE Tx TEG association information reporting

Submitted Proposal and draft CR (CATT, R1-2211162/R1-2211163)

R1-2211162/R1-2211163 propose to clarify that the LPP signalling nr-UE-RxTxTEG-Request or the RRC signaling ue-TxTEG-RequestUL-TDOA-Config can be used to configure UE reporting of association information of the already transmitted SRS resource(s) configured by the higher layer parameter SRS-PosResource with UE Tx TEG(s).

FL Comment

The issue was originally discussed in RAN1#110bis-e and revised based on the comments. Suggest adopting the draft CR in this meeting.

Proposal 1

* *Adopt the draft CR in R1-2211162.*

Comments

|  |  |  |  |
| --- | --- | --- | --- |
| **Company** | **yes** | **NO** | **Additional comments** |
| CATT | YES |  | This TP is the same with the updated UE Tx TEG TP at RAN1#110bis-e, which we had discussed for several rounds. At RAN1#110bis-e, in the last Round discussion, there are 3 companies support this TP (CATT, Huawei, ZTE), and no company objects to it. Therefore, we hope this TP can be acceptable for everyone in this meeting. |
| Huawei, HiSilicon | Yes |  | OK |
| ZTE | Yes |  | OK |
| vivo | Yes |  | OK |
|  |  |  |  |

# Draft CR on UE TEG margin value report

Submitted draft CRs (ZTE, R1-2211499, Ericsson, R1-2212503)

Draft CRs R1-2211499 and R1-2212503 proposes to add description on UE Tx/Rx/RxTx TEG margin reporting according to RAN4’s agreement and TS 37.355-h20 and TS 38.331-h20.

FL Comment

Both draft CRs (R1-2212503, R1-2211499) proposes very similar changes with minor wording differnce. The issue was originally discussed in RAN1#110bis-e and it sems most companies are fine for the proposed changes. Thus, after discussing with the proponents of the draft CRs, the suggestion is to use Draft CR R1-2212503 as the base for further discussion with a correction of adding 6.2.1.4 as the affected clause in the cover page.

Proposal 2

Adopt the draft CR in R1-2212503 (after adding 6.2.1.4 as the affected clause in the cover page).

Comments

|  |  |  |  |
| --- | --- | --- | --- |
| **Company** | **yes** | **NO** | **Additional comments** |
| CATT | YES |  |  |
| Huawei, HiSilicon |  | NO | We prefer to move the following paragraph to 6.2.1.4, after the TEG ID reporting with UE Rx-Tx time difference measurement, which is as suggested in x1499.  If the UE reports a UE Tx TEG ID with a UE Rx-Tx time difference measurement, the UE may also report a UE Tx TEG timing error margin value, via high layer parameter *nr-UE-TxTEG-TimingErrorMargin*, for all the UE Tx TEGs within one *NR-Multi-RTT-SignalMeasurementInformation*. |
| ZTE |  |  | We support the idea of capturing TEG margin report in RAN1’s spec. However, based on our discussion in RAN1#110-b, the following modifications should be made if Draft CR R1-2212503 is as a base:  **Modification 1:**  Similar as Huawei’s comments, we should place the paragraph descripbing Tx TEG margin report in section 6.2.1.4.  If the UE reports a UE RxTx TEG ID with a UE Rx-Tx time difference measurement, the UE may report a Tx TEG ID.  If the UE reports a UE Tx TEG ID with a UE Rx-Tx time difference measurement, the UE may report a UE Tx TEG timing error margin value, via high layer parameter *nr-UE-TxTEG-TimingErrorMargin*, for all the UE Tx TEGs within one *NR-Multi-RTT-SignalMeasurementInformation*.  **Modification 2:**  In section 6.2.1.4, as commented by vivo in the last RAN1 meeting, “may be configured to report” is NOT needed since there is no signaling to request the UE to report the margin, we can adopt we following change:  The UE may be configured to report, subject to UE capability, association information of the already transmitted SRS resource(s) configured by the higher layer parameter *SRS-PosResource* with UE Tx TEG(s) via higher layer parameter *nr-SRS-TxTEG-Set* or *ue-TxTEG-AssociationList*.  ~~The UE may be configured to report, subject to UE capability, the UE Tx TEG timing error margin value of all the UE Tx TEGs within one~~ *~~UEPositioningAssistanceInfo~~* ~~via high layer parameter~~ *~~ue-TxTEG-TimingErrorMarginValue~~*~~.~~  The UE may report, via high layer parameter *ue-TxTEG-TimingErrorMarginValue*, the UE Tx TEG timing error margin value of all the UE Tx TEGs within one *UEPositioningAssistanceInfo*.  **Please check our draft CR R1-2211499 where we already include the above two modifications.** |
| vivo |  |  | We are okay with the CR with ZTE modification |
|  |  |  |  |

# References

1. [R1-2211162](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_111/Docs/R1-2211162.zip) Correction on configuration of UE Tx TEG association information reporting CATT
2. [R1-2211163](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_111/Docs/R1-2211163.zip) Discussion on configuration of UE Tx TEG association information reporting CATT
3. [R1-2211499](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_111/Docs/R1-2211499.zip) Draft CR on UE TEG margin value report ZTE
4. [R1-2212503](https://www.3gpp.org/ftp/tsg_ran/WG1_RL1/TSGR1_111/Docs/R1-2212503.zip) draft CR for maitnenance of NR positioning enhancements Ericsson