3GPP TSG RAN WG2 Meeting #117-e R2-220xxxx

**Electronic meeting,** **21 Feb- 3 March, 2022**

**Agenda item:** 8.11.1

**Source:** Intel Corporation

**Title:** Report of [Pre117-e][614][POS] Issues requiring RAN1 input (Intel)

**Document for:**  Discussion and decision

# Introduction

This is the report of [Pre117-e][614][POS] Issues requiring RAN1 input (Intel).

Feb 9th Start of Pre-discussions that collects structured company Input.

Feb 14th, 2359 UTC. **General Tdoc Submission Deadline**. Tdoc number allocation deadline. Kick off, summaries. Stop of Pre-discussions that collects structured company Input (rapporteurs to provide report at earliest convenient time, within 24h if possible).

Feb 17th 1800 UTC Tdocs submission deadline for Summaries

Companies please provide your comments by Feb 14th, 2359 UTC.

# Annex: companies’ point of contact

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| **Company** | **Point of contact** | **Email address** |
| Intel Corporation | Yi Guo | Yi.guo@intel.com |
| Huawei, HiSilicon | Yinghao Guo | yinghaoguo@huawei.com |
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# Discussion

The intention of the pre-meeting discussion is to collect issues requiring RAN1 inputs, and send LS to RAN1 as early as possible.

Based on open issue list in R2-2202005 and R2-2201722. Rapporteur summarized the issues requiring RAN1 inputs as following:

Note: issues may be updated based on other pre-meeting discussions.

**Table: Issues requiring RAN1 inputs (FFS in RAN1 parameter list and UE feature list are not listed in the table)**

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| **Topic** | **Issue** | **Required RAN1 work** |
| **Mitigation of UE/TRP Rx/Tx timing delays** | **The definition of TEG is captured in TS38.305 as**  ***UE Rx Timing Error Group (UE Rx TEG)****: A UE Rx TEG is associated with one or more DL timing measurements, which have the Rx timing error difference within a certain margin.*  ***UE RxTx Timing Error Group (UE RxTx TEG):*** *A UE RxTx TEG is associated with one or more UE Rx-Tx time difference measurements, which have the ‘Rx timing errors+Tx timing errors’ difference within a certain margin.*  ***UE Tx Timing Error Group (UE Tx TEG)****: A UE Tx TEG is associated with the transmissions of one or more UL SRS resources for the positioning purpose, which have the Tx timing error difference within a certain margin.*  ***TRP Rx Timing Error Group (TRP Rx TEG):*** *A TRP Rx TEG is associated with one or more UL timing measurements, which have the Rx timing error difference within a certain margin.*  ***TRP RxTx Timing Error Group (TRP RxTx TEG):*** *A TRP RxTx TEG is associated with one or more gNB Rx-Tx time difference measurements, which have the ‘Rx timing errors+Tx timing errors’ difference within a certain margin.*  ***TRP Tx Timing Error Group (TRP Tx TEG):*** *A TRP Tx TEG is associated with the transmissions of one or more DL PRS resources, which have the Tx timing error difference within a certain margin.*  **Issue:** companies in RAN2 commented that the definitions for the different TEG are unclear. The emphasis seems to be about the association with certain measurement but still does not explain the relation to the resources involved and what reference is for the “error difference”. It is also not intuitive what the “group” in TEG refers to; | **RAN1 provides further clarifications on the definition;** |
| **Periodic Tx TEG reporting/TEG change procedure**  According to RAN1 LS in R2-2200092: "It is up to RAN2 to decide how to indicate the change of the Tx TEG association during the configured period (e.g., using the timestamps)". what is needed seems an a-periodic report (i.e., a report when the TEG association has changed).  **Issue:** What is the purpose of periodically reporting the same information? Or only a-periodic report is required (i.e., a report when the TEG association has changed)? | **RAN1 provides further clarifications on the issue;** |
| **PRU** | RAN2 has agreed that RAN2 will not discuss PRUs further without further guidance from RAN1 (LS or feature list). | **RAN1 to decide whether PRU is supported in Rel-17;** |
| **Preconfigured MG** | The gNB may activate the pre-configurated measurement gap upon receiving the request from a UE or LMF."  **Issue:** Is the LMF activation of measurement gaps only for pre-configured measurement gaps? Can LMF ask the gNB to activate the MG (e.g. via RRC) even if the gNB did not provide the preconfigured measurement gaps? | **RAN1 provides further clarifications on the issue;** |
| **PRS processing window** | **Issues:**  FFS:Whether PRS processing window configuration is provided per BWP or not is up to RAN1 to decide.  FFS: Whether UE can be configured with multiple PRS processing windows should be decided by RAN1.  FFS on the max number of PPW configurations (from Stage 2 discussion) | **RAN1 provides further clarifications on the issue;** |
| **FFS in RAN1 parameter list** |  | **RAN1 to resolve the FFFs.** |
| **FFS in RAN1 UE feature list** |  | **RAN1 to resolve the FFFs.** |

**Discussion point 3.1-1: Do you agree the issues requiring RAN1 inputs shown in the table? Please add in comments column if any RAN1 related issue is missing.**

**Note: We should avoid to repeat the issues which have been indicated in RAN1 parameter list and UE feature list;**

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| **Company’s name** | **Yes/No** | **Comments, if any** |
| Huawei, HiIilicon | Yes, Also see comments | On the issue below, note that it has already been included in the R2 discussion for latency enhancement. Also, for the highlighted part below, it should be “configured” instead of “activate”? |
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# Summary report and proposals

# Addressed open issues list

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| QC:  Measurement gap activation via LMF"  The gNB may activate the pre-configurated measurement gap upon receiving the request from a UE or LMF."  Question:  Is the LMF activation of measurement gaps only for pre-configured measurement gaps? It's not clear to me from the RAN1 LS.  [Rapp] Good question, I think the LMF may activate the measurement even if there is no preconfigured MG. But we need to discuss this. Added it as open issue. | Yes | Rapp, this can be a general issue for MG. (from stage 2 discussion)  LS to RAN1? **Pre-117-e614** |

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| Pre-configuration of PPW  FFS:Whether PRS processing window configuration is provided per BWP or not is up to RAN1 to decide.  1 FFS: Whether UE can be configured with multiple PRS processing windows should be decided by RAN1.  2 FFS on PPW configuration (R2 and R1 to resolve)  3 FFS on the max number of PPW configurations (from Stage 2 discussion) | Yes | **Status**: check the status of RRC email discussion 116bis-631  RAN2#116bis:  Proposal 7: The PRS processing window configuration is provided via RRCReconfiguration message. Whether PRS processing window configuration is provided per BWP or not is up to RAN1 to decide.  1/3 LS to RAN1? **Pre-117-e614** |

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| **PRU** | Support of PRU in Rel-17?  What solution should be adopted if support PRU in Rel-17, MT-LR, MO-LR, etc | Yes | **Status**: Hold on, wait for RAN1  LS to RAN1? **Pre-117-e614** |
| What additional information should be introduced in ProvideLocationInformation (known location information and antenna orientation information) and ProvideAssistanceData (correction information); | Yes | **Status**: Hold on, wait for RAN1  LS to RAN1? **Pre-117-e614** |

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| TEG  The definitions for the different TEG are still unclear. The emphasis seems to be about the association with certain measurement but still does not explain the relation to the resources involved and what reference is for the “error difference”. It is also not intuitive what the “group” in TEG refers to |  | LS to RAN1? **Pre-117-e614** |

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| Periodic Tx TEG reporting/TEG change procedure  According to RAN1 LS in R2-2200092: "It is up to RAN2 to decide how to indicate the change of the Tx TEG association during the configured period (e.g., using the timestamps)".  The procedure mentions "periodic report of UE TxTEG association", but what is needed seems an a-periodic report (i.e., a report when the TEG association has changed). Or what is the purpose of periodically reporting the same information?  [Rapp] Good question, RAN1 only agreed periodic report. I added this as an open issue. | Yes | From stage 2 discussion  Rapp, Would be good to understand whether the UE only needs to report upon the change or periodic although RAN1 agreed periodic reporting.  LS to RAN1? **Pre-117-e614** |

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| Nokia:  The definitions for the different TEG are still unclear. The emphasis seems to be about the association with certain measurement but still does not explain the relation to the resources involved and what reference is for the “error difference”. It is also not intuitive what the “group” in TEG refers to |  | Nokia:  We propose getting further clarifications on the definition from RAN1 and so add this to the open issues list.  **Huawei**  We just need to copy and paste the R1 agreements on the definition for all kinds of TEG into the definition, currently, there are some misalignments  LS to RAN1? **Pre-117-e614** |

# Reference

1. R1-R1-2200767 Rel17 RAN1 UE feature List
2. R4-2202400 (R4 feature list)
3. R2-2202005 Report of email discussion [Post116bis-e][634][POS] Positioning open issues list (Intel) Intel Corporation
4. R2-2201722 Summary of [Post116bis-e][628][POS] 37.355 running CR (Qualcomm)
5. R2-2201723 Running LPP CR for NR positioning enhancements draftCR Qualcomm Incorporated