3GPP TSG RAN WG2 Meeting #116b-e R2-220xxxx

**Electronic meeting, 17-25 January 2022**

**Agenda item:** 8.11.1

**Source:** Intel Corporation

**Title:** Report of email discussion [Post116bis-e][629][POS] 38.305 RAT-dependent positioning running CR (Intel)

**Document for:**  Discussion and decision

# Introduction

This is the report of following offline discussion:

* [Post116bis-e][629][POS] 38.305 RAT-dependent positioning running CR (Intel)

Scope: Check and endorse the running CR considering decisions of RAN2#116bis-e.

Intended outcome: Endorsed CR

Deadline: Friday 2022-01-28 0800 UTC

**CR review**: Companies are invited to provide comments/suggestions in the summary documents; Please do not add your comments/suggestions in the running CRs directly;

Rapporteur would like to set an early deadline for companies to provide initial comments in order to reserve time for further updates/discussion.

Deadline for initial comments (from companies): Thursday 2022-01-27 0700 UTC;

# Annex: companies’ point of contact

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| --- | --- | --- |
| **Company** | **Point of contact** | **Email address** |
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# Discussion

## 3.1 Discussion

**Discussion point 3.1: Companies are invited to provide view on running TS38.305 CR ?**

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| --- | --- | --- | --- |
| **Company’s name** | **Section** | **Identified issues** | **Change suggestion** |
| Qualcomm | 3.2 | Editorial | Abbreviation SDT is nowhere used |
| 6.2.2 | PRS Processing Window has no definition. | PRS Processing Window is a new feature, specifically for positioning methods requiring DL-PRS and therefore, should have a definition in 38.305? |
| 7.3.2 | Description creates dependency between different features: "If a scheduled location time is provided in step 1, the LMF may provide pre-configured assistance data with a validity area to the UE ahead of time…" | Keep assistance data and location measurements separate; keep assistance data and validity area separate.  "If a scheduled location time is provided in step 1, the LMF schedule location measurements by the UE to occur at or near to the scheduled location time."  Assistance data delivery is already covered by the previous sentence.  This whole section is Service Layer Support (i.e., method independent) and not only for NR RAT-dependent methods.  LPP features should be described in 8.x.3 for each applicable positioning method. |
| 7.3.3 | Same as in 7.3.2 above. | In addition, not all MO-LR service types require location estimate and/or assistance.  LPP features may be better put into 8.x.3. |
| 7.4.1.x | 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. |
| 7.4.1.z | 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? |
| 7.x.2 | Editor's Note on MO-LR has been deleted, but procedure has not been updated. | Add possibility for MO-LR in procedure; a simple proposal is described in R2-2200964, section 7. |
| 7.x.2 | Step 2b of the procedure is not restricted to LPP Location Information Transfer (up to LMF). | Replace Step 2b with "Possible LPP Procedure" which includes LPP Location Information Transfer, LPP Capability Transfer and LPP Assistance Data Transfer. A proposal is described in R2-2200964, section 7. |
| 7.x.2 | Step 2a is not restricted to pre-defined configurations only. | Delete " if the UE has pre-defined PRS configurations". |
| 8.10.2 | Available On-Demand-DL-PRS-Configurations missing in Table 8.10.2.1-1.  First path RSRP missing in Table 8.10.2.2-1 |  |
| 8.11.2 | Available On-Demand-DL-PRS-Configurations missing in Table 8.11.2.1-1.  Spatial direction information for UE-assisted missing in Table 8.11.2.1-1.  Expected Angle Assistance missing in Table 8.11.2.1-1.  PRS priority list missing in Table 8.11.2.1-1. |  |
| 8.12.2 | Available On-Demand-DL-PRS-Configurations missing in Table 8.12.2.1-1. |  |
| Nokia | 3.1 | 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.  Agree with Qualcomm that we need a definition for PRS processing window. | We propose getting further clarifications on the definition from RAN1 and so add this to the open issues list. |
| 6.2.1 | Signalling of UE Tx TEG is described in RRC protocol section 6.2.2. Similarly, we should describe UE Rx and UE RxTx TEG function in LPP section 6.2.1. Likewise, the TRP Rx, TRP RxTx and TRP Tx functions needs to be described in appropriate protocol sections. |  |
| 7.4.1.x | LMF activating pre-configured measurement gaps was not agreed in RAN2 even though the RAN1 LS R2-2200074 mentioned “RAN1 also agreed MG activation request to the gNB by the LMF in RAN1#106bis-e”. Also, it is strange to talk about LMF activation of pre-configured MG in the RRC procedure description showing only RRC call flow. | LMF sending activation request to gNB should be put on the open issues list to get further clarifications from RAN1 |
| 7.4.1 | RRC procedure names should be aligned with what is specified in the RRC running CR. Also, “RRC message for UE Tx TEG” is not a procedure. The UE Tx TEG signaling via RRC must be clarified that it is for UL-TDOA only. |  |
| 8.10.2.x | For multi-RTT, gNB to LMF measurement results table should show UL SRS RSPP (path power) and LoS/NLoS indicators?  LMF to gNB information transfer table should show Expected AoA/ZoA and Expected AoA/ZoA Uncertainty? |  |
| 8.11.x | For DL-TDOA, LMF to UE information transfer table should show Expected Angle and uncertainty and PRS subset information. |  |
| 8.13.2.x | For UL-TDOA, gNB to LMF measurement results transfer table should show LoS/NLoS indictors  LMF to gNB information transfer table should show Expected AoA/ZoA and uncertainty |  |
| 8.14.2.x | For UL-AoA, gNB to LMF measurement results table should show LoS/NLoS Indicators  LMF to gNB information transfer table should show Expected AoA/ZoA and uncertainty |  |
| CATT | 3.1 | **UE Tx Timing Error Group (UE Tx TEG)**: A UE Tx TEGis 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. | **UE Tx Timing Error Group (UE Tx TEG)**: A UE Tx TEGis associated with the transmissions of one or more UL SRS resources the positioning, which have the Tx timing error difference within a certain margin. |
| 7.4.1.x | The gNB may activate the pre-configurated measurement gap upon receiving the request from a UE or LMF. | The gNB may activate/deactivate the pre-configurated measurement gap upon receiving the request from a UE or LMF. |
| 7.4.1.x | 4. Based on the quest from the UE in step 3 or the request from the LMF, the gNB sends DL MAC CE Activation/Deactivation command contained an ID to activate the associated measurement gap; | Do we have any agreement that for UE initiated pos MG activation or deactivation, there should be an DL MAC CE as response?  Further, the step 3and step 4 are activation/deactivation procedure, which are MAC related, but not RRC procedure. We are wondering if it is proper to capture it as here.  Further, on the procedure of RRC pre-configuration of the pos MG(s) and/or the PPW, we are also wondering whether need to be captured here. From our perspective, it is similar like R16 posSRS configuration which is enabled via the RRCReconfiguration message, but we did not capture the posSRS configuration procedure in TS38.305 in R16. |
| 7.4.1.y | 3. Based on the quest from the LMF, the gNB sends DL MAC CE Activation/Deactivation command contained an ID to activate the associated PRS processing window; | Not sure how many PPW are configured. FFS the ID part. |
| Figure 7.x.2-1: Procedures to support On-Demand PRS transmission |  | RAN2 agreed the on-demand PRS request via MO-LR, which is not captured currently. |
| 7.x.2 | 6. LMF provides the updated PRS configuration used for PRS transmission via LPP Provide Assistance Data message to the UE. | We didn’t find P6 “ for on-demand PRS, posSI cannot be the response for on-demand PRS request” in the existing agreement. Could you please double confirm? |
| Ericsson | Figure 7.x.2-1: Procedures to support On-Demand PRS transmission | Issue 1. Below agreement is not captured.  Agreement  LPP signalling supports index-based and explicit request of DL-PRS parameters from the UE. The UE is not required to implement requesting explicit parameters and the LMF is not required to grant them if the UE does request. | Resolution Proposed for issue 1.    Step 7: During an LPP session UE may request either explictly requesting specific PRS characterisctis with desired value or using a pre-defined index; in such case the steps from 3 to 6 may be repeated. |
| Ericsson | Definition section | Issue 2: Definition of pre-configure needs to be updated as per below agreement.  Proposal 3: Pre-configured DL-PRS assistance data can consist of multiple instances, where each instance is applicable to a different area within the network. | Resolution:  **Pre-configured assistance data**: Refers to the DL-PRS assistance data (with associated validity criteria) that can be provided to the UE (before or during an ongoing LPP positioning session), to be then utilized for potential positioning measurements at a future time (e.g. for deferred MT-LR). Pre-configured DL-PRS assistance data may consist of multiple instances, where each instance is applicable to a different area within the network. |

# Summary report and proposals