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

|  |  |  |
| --- | --- | --- |
| **Company** | **Point of contact** | **Email address** |
| Intel Corporation | Yi Guo | Yi.guo@intel.com |
| Qualcomm | Sven Fischer | sfischer@qti.qualcomm.com |
| Huawei, HiSilicon | YinghaoGuo | Yinghaoguo@huawei.com |
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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. |  |
| Huawei, HiSilicon | 3.1 | Definition for TEG | 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   * **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 errors 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 errors within a certain margin. * **UE Rx ‘timing error group’ (UE Rx TEG):** A UE Rx TEG is associated with one or more DL measurements, which have the Rx timing errors within a certain margin. * **TRP Rx ‘timing error group’ (TRP Rx TEG):** A TRP Rx TEG is associated with one or more UL measurements, which have the Rx timing errors within a 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, and one or more UL SRS resources for the positioning purpose, which have the ‘Rx timing errors+Tx timing errors’ 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 and one or more DL PRS resources, which have the ‘Rx timing errors+Tx timing errors’ within a certain margin. |
|  | 6.2.2 | RRC\_INCTIVE postioning | We need to mention that the RRC can provide positioning SRS configuration to UE for posSRS transmission in RRC\_INACTIVE. The previous text can be used for RRC\_CONNECTED |
|  | 6.3.1 | NRPPa | We think the NRPPa change can include TRP information of the neighbouring cells, PRS configuration request, etc. I wonder whether we should capture it or we should let R3 to provide a TP.  If we want R3 to provide the TP, this has to be made clear to R3 such that we can avoid what has happened for R1 stage2 procedure text. |
|  | 6.4 | LPP PDU/LCS message transfer in RRC\_INACTIVE | We think at least this should be captured since it is different from the legacy spec by SDT transport.  For the stage2 INACTIVE procedure, we agree that this can be left for SA2 to decide. |
|  | 7.3.2 | Preconfigured AD with validity area for scheduled location time | Description for preconfigured AD with validity area can be decoupled with that for scheduled location time. Current text reads like the preconfigured AD is only for scheduled location time |
|  | 7.3.2 | Scheduled location time for NRPPa | SA2 text has agreed that scheduled location time does not need to be sent to NG-RAN |
|  | 7.3.3 | Preconfigured AD with validity area for scheduled location time | Same as above |
|  | 7.3.3 | Scheduled location time for NRPPa | Same as above |
|  | 7.4.1.y | The pre-configured PRS processing window procedure is used by the network to provide PRS processing window for NR DL-PRS measurements. | This sentence might be too generic. To make it more specific, maybe we can say that “The pre-configured PRS processing window procedure is used by the network for PRS measurement in the UE without measurement gap” |
|  | 7.1.4.y | The gNB may activate the pre-configurated PRS processing window upon receiving the request from LMF. | We should keep it consistent between 7.1.4.x and 7.1.4.y for NRPPa message. If the sentence “The gNB may activate the pre-configurated PRS processing window upon receiving the request from LMF.” is captured in 7.1.4.y, it should also be captured in 7.1.4.x |
|  | 7.1.4.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; | Request |
|  | 7.2.4.y | figure | If LMF request is captured, LMF and NRPPa message should be shown in the figure |
|  | 7.2.4.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; | Containing |
|  | 7.x.2 | Step0 | During the TRP information exchange procedure |
|  | 7.x.2 | Editorial issues | For each step, it should end with semi-colon ; rather than period.  The name of the figure can be “Procedure for on-demand PRS request” |
|  | 7.x.2 | Step2a  The On-Demand PRS request may be a request for PRS transmission or change to the PRS transmission characteristics for positioning measurements. | I think we can make the sentence to be more specific as “The on-demand PRS request can be the request for a defined PRS configuration with PRS configuration ID or explicit parameter for PRS configuration” |
|  | 7.x.2 | 2b. In case of LMF-initiated On-Demand PRS or UE-initiated On-Demand PRS, the LMF may obtain measurements from the UE using some existing positioning methods to assist step 3 e.g., the LMF may obtain SSB/CSI-RS RSRP measurements (NR-ECID) or DL-PRS RSRP measurements (DL-AoD). | This is only for LMF-initiated on-demand PRS request, so UE-initiated ON-demand PRS can be removed. |
|  | 7.x.2 | 4. The LMF requests the serving and non-serving gNBs/TRPs for new PRS transmission or PRS transmission with changes to the PRS configuration via NRPPa PRS CONFIGURATION REQUEST message. | Can be replaced as “TRPs” |
|  | 7.x.2 | 6. LMF provides the updated PRS configuration used for PRS transmission via LPP Provide Assistance Data message to the UE. | I think the updated posSIB should also be provided by the LMF to the gNBs, since posSIB is ciphered by the LMF. gNB cannot change posSIB by itself when PRS transmission changes. |
|  | 8.13.2.4/5 |  | Description for information transfer gNB and UE is not needed. For example, previously we also have PosSRS configuration sent from gNB to the UE. But that is not captured here. |

# Summary report and proposals