3GPP TSG-RAN WG2 #113e Tdoc R2-20xxxxx

Electronic meeting, Jan 25th – Feb 5th, 2021

Agenda Item: 8.11.2.2

Source: Ericsson

Title: Summary of Email Discussion [AT113-e][610][POS] Continue discussion of on-demand PRS (Ericsson)

Document for: Discussion, Decision

# 1 Introduction

This document addresses the below email discussion

* [AT113-e][610][POS] Continue discussion of on-demand PRS (Ericsson)

Scope: Continue the discussion of R2-2101389 and converge to an agreeable TP.

Intended outcome: Endorsable TP

Deadline: Tuesday 2021-02-02 1200 UTC

# 2 Discussion

Based upon the email discussion R2-2101389 the below proposals have been drafted

Proposal 1 RAN2 to capture in TR that RAN2 see benefits of “On demand PRS” Functionality.

Proposal 2 RAN2 to provide recommendation for UE-initiated “on demand Request” during active LPP session

Proposal 3 RAN2 to provide recommendation for LMF Initiated on Demand request in order to be able to dynamically vary the PRS configuration and also for recommending turning on/off beams.

Proposal 4 RAN2 during WI phase decides or takes assistance from RAN1 to identify which DL-PRS configuration parameters can be dynamically changed.

Proposal 5 For existing Rel-16 NR Positioning architecture, gNB based dynamic PRS configuration is not supported.

Proposal 6 RAN2 during WI phase identifies ways for the LMF to be able to obtain measurement results from UE operating in UE based mode in order to support LMF-initiated on demand PRS.

Companies are requested to provide their veiw on the above proposals.

Please express your concern for any of the Proposals in below table. Please indicate P numbers and why the Proposal is invalid or have concerns. Please also review the Text Proposal below (section 3) prior to providing your comments; e.g. P2, P3 have been simplified in the Text Proposal.

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| Company | Concerns for Proposals |
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P6 may need further discussion. We would like to ask a question; as on what basis LMF should initiate on demand PRS configuration. For LMF initiated case, how will LMF identify that certain configuration of DL PRS needs to be altered in order to result in better location estimates?

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| Company | Concerns for Proposals |
| Ericsson | We think it should be based upon UE measurements; quality/uncertainty report from UE. Since, in the specification UE based UEs do not need to report measurement, we see that it is hinderness in having functionality such as LMF-Initiated On demand PRS. Some active feedback between UE and LMF is needed to realize this and thus UE should provide the measurement results. The LMF-Initated dynamic PRS is beneficial for both UE and NW when such active feedback exists. |
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# 3 Text Proposal

Please review the text proposal and include your changes

## 10.2 On-demand transmission and reception of DL PRS

From a physical layer perspective, on-demand transmission and reception of DL PRS, which includes at least the following is recommended

* UE-initiated request of on-demand DL PRS transmission
* LMF (network)-initiated request of on-demand DL PRS transmission
* Above enhancements are recommended for both DL and DL+UL positioning methods and both UE-based and UE-assisted positioning solutions.

From upper layers perspecive, on-demand DL PRS functionality is deemed beneficial primarily for below reasons:

Efficiency: On-demand DL-PRS avoids unnecessary overhead, waste of energy, etc. in the case that no UE positioning is required during a particular time or in a particular area of a network. In case of beamformed DL-PRS, DL-PRS transmission in all beam sweeping directions may result in an unnecessary transmission of DL-PRSs.

Latency: The current DL-PRS configuration may not be sufficient to meet the response time requirements of the LCS client; e.g., may have a too large periodicity.

Accuracy: The current DL-PRS configuration may not be sufficient to meet the accuracy requirements of the LCS client; e.g., may have a too small bandwidth, too few repetitions, etc.

From Upper layers perspective the below conclusions have been made for on demand PRS functionaity.

* UE-initiated “on demand Request” is recommended and performed during active LPP session.
* LMF Initiated on Demand request is recommended.
* The exact parameters that can be dynamically changed would be decided during WI phase
* For existing Rel-16 NR Positioning architecture, gNB based dynamic PRS configuration is not supported.
* During WI phase, in order to support LMF-initiated on demand PRS, it would be further studied as how the LMF can obtain measurement results from UE operating in UE based mode.

# Conclusion