**3GPP TSG-RAN WG1 Meeting #109-e R1-220xxxx**

**e-Meeting, May 9th – 20th, 2022**

**Agenda Item: 7.2.8**

**Source: Moderator (Huawei)**

**Title: Summary #1 of [109-e-R16-Pos-01] on PRS reception without TDD configuration**

**Document for: Discussion and decision**

# Introduction

In RAN1#109-e, the following paper provided input on PRS reception without TDD configuration.

1. R1-2204922 PRS reception without TDD configuration Huawei, HiSilicon

It was observed in [1] that the existing specification text for handling PRS reception in dynamic/semi-static slot format configurations was intended for reception in the serving cell, for which the UE is aware of the slot format. However, there are cases were there can be PRS configured in a frequency layers entirely outside of the serving cell. [1] proposes to resolve the issue by specifying signalling of the TDD configuration for each TRP to the LMF.

The following observation are drawn:

***Observation 1: The existing PRS reception versus the slot format is intended for the case when serving cell is concerned, in which case the semi-static slot format and/or the dynamic SFI can be available at the UE.***

***Observation 2: It is possible that some positioning frequency layers does not contain any PRS from the serving cell.***

***Observation 3: The serving cell slot format may not be applied to the positioning frequency layers that do not contain the PRS from the serving cell.***

The following proposals are given:

***Proposal 1: RAN1 to clarify that for Rel-16, on positioning frequency layers that do not contain the PRS from any serving cell, UE may assume the symbol as DL/FL that is configured for PRS reception.***

***Proposal 2: RAN1 to discuss whether the following change is adopted in Rel-17:***

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| --- |
| Introduce the TDD configuration in the assistance data* The TDD configuration is provided per TRP or per positioning frequency layer, which is common for all TRPs within a positioning frequency layer.
* For the TDD configuration of the non-serving cell, UE may receive the PRS on DL/FL symbols.
* UE capability for TDD configuration is introduced for backward compatibility.
* Introduce the NRPPa signaling for LMF to obtain the TDD configuration from each TRP.
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This paper provides the moderator summary of PRS reception without TDD configuration, subject to the following email discussion.

[109-e-R16-Pos-01] Email discussion/approval on PRS reception without TDD configuration, for Rel-16 for proposal 1 in R1-2204922, and for Rel-17 for proposal 2 in R1-2204922, by May 13 – Su (Huawei)

# PRS measurement without TDD configuration

## Rel-16 behaviour

### Round 1

The proposal from [1] is directly copied for comments.

### Proposal 2.1.1-1

* RAN1 to clarify that for Rel-16, on positioning frequency layers that do not contain the PRS from any serving cell, UE may assume the symbol as DL/FL that is configured for PRS reception.

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| **Company** | **Yes/No** | **Comments** |
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### Round 2

TBD

## Rel-17 behaviour

### Round 1

The proposal from [2] is directly copied for comments.

### Proposal 2.2.1-1

* **RAN1 to discuss whether the following change is adopted in Rel-17:**

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| Introduce the TDD configuration in the assistance data* The TDD configuration is provided per TRP or per positioning frequency layer, which is common for all TRPs within a positioning frequency layer.
* For the TDD configuration of the non-serving cell, UE may receive the PRS on DL/FL symbols.
* UE capability for TDD configuration is introduced for backward compatibility.
* Introduce the NRPPa signaling for LMF to obtain the TDD configuration from each TRP.
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| **Company** | **Yes/No** | **Comments**Including views on the TDD configuration provision per TRP or per positioning frequency layer |
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### Round 2

TBD

## Other comments

### Round 1

Please provide other comments, if any, beyond the proposals in section 2.1 and section 2.2.

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| **Company** | **Comments** |
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# Conclusion