**3GPP TSG-RAN4 Meeting #102-e *R4-220xxxx***

**Electronic Meeting, 21st February – 3rd March, 2022**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** | **-** | **rev** | **-** | **Current version:** | **17.4.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network |  | Core Network |  |

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| ***Title:*** | draftCR on requirements for UE Rx-Tx measurement for propagation delay compensation | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell, Huawei | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_IIOT\_URLLC\_enh-Core | | | | |  | ***Date:*** | | | 2022-02-14 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | UE Rx-Tx measurement based on TRS or PRS within te serving cell is introduced for propagation delay compensation. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Define measurement requirements for UE Rx-Tx measurement for propagation delay compensation. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Performance for UE Rx-Tx measurement for propagation delay compensation cannot be guaranteed~~.~~ | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 9.12 (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

<Start of Change 1>

## 9.12 Measurement for Propagation Delay Compensation

### 9.12.1 Introduction

The requirements in this clause are applicable for UE capable of RTT based propagation delay compensation based on TRS and SRS, PRS and SRS, indicated by [TBD].

### 9.12.2 Requirements Applicability

The requirements in clause 9.12 apply for [periodic/semi-persistent/aperiodic] and triggered UE Rx-Tx time difference measurements, provided:

- If UE Rx-Tx time difference measurement is based on PRS, the related side conditions given in clause [TBD] are met for a corresponding band.

- If UE Rx-Tx time difference measurement is based on TRS, the related side conditions given in clause [TBD] are met for a corresponding band.

- SRS is configured on at least one of the PCell.

### 9.12.3 Measurement Capability

If UE Rx-Tx time difference measurement is based on PRS, the capability is as indicated by the UE in [TBD].

If UE Rx-Tx time difference measurement is based on TRS, the capability is as indicated by the UE in [TBD].

### 9.12.4 Measurement period requirements

#### 9.12.4.1 PRS Measurement Period

The UE shall be able to measure UE Rx-Tx time difference on PCell after receiving [TBD, command from network that triggers the UE Rx-Tx measurement] within TUERx-Tx\_PRS, where

where

[CSSF is the carrier-specific scaling factor for NR PRS-based measurement in the positioning as defined in clause 9.1.5.2,]

is the time duration of available PRS resources to be measured during , and is calculated in the same way as PRS duration K defined in clause 5.1.6.5 of TS 38.214 [26].

is the maximum number of DL PRS resources configured in a slot,

is UE capability combination per band where N is a duration of DL PRS symbols in ms corresponding to *durationOfPRS-ProcessingSysmbols* in TS 37.355 [34] processed every T ms corresponding to *durationOfPRS-ProcessingSymbolsInEveryTms* in TS 37.355 [34] for a given maximum bandwidth supported by UE corresponding to *supportedBandwidthPRS* in clause 4.2.7.2 of TS 37.355 [34],

is UE capability for number of DL PRS resources that it can process in a slot corresponding to *maxNumOfDL-PRS-ResProcessedPerSlot* as specified in clause 6.4.3 of TS 37.355 [34],

is the number of UE Rx-Tx time difference measurement samples and = 4,

is the measurement duration for the last UE Rx-Tx time difference measurement, including the sampling time and processing time, = + ,

is periodicity of UE Rx-Tx time difference measurement:

where

corresponds to *durationOfPRS-ProcessingSymbolsInEveryTms* in TS 37.355 [34],

is the PRS resource periodicity specific for PDC RTT UE Rx-Tx time difference measurement.

UE is only required to perform UE Rx-Tx time difference on PRS within the active DL BWP.

When UE is configured to perform UE Rx-Tx time difference measurement based on PRS, the requirements apply provided that the SCS of the PRS is same as that of the active BWP on PCell.

#### 9.12.4.2 TRS Measurement Period

The UE shall be able to measure UE Rx-Tx time difference on PCell after receving [TBD, command from network that triggers the UE Rx-Tx measurement] within TUERx-Tx\_TRS, where

Where

is the number of UE Rx-Tx time difference measurement samples and is [1 or 4],

is the TRS resource periodicity specific for PDC RTT UE Rx-Tx time difference measurement.

UE is only required to perform UE Rx-Tx time difference on TRS within the active DL BWP.

When UE is configured to perform UE Rx-Tx time difference measurement based on TRS, the requirements apply provided that the SCS of the TRS is same as that of the active BWP on PCell.

<End of Change 1>