**3GPP TSG-RAN4 Meeting #98-bis-e *R4-210xxxx***

**Electronic Meeting, April 12 –20, 2021**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** | **draft** | **rev** | **1** | **Current version:** | **16.7.0** |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network | **x** | Core Network |  |

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|  | | | | | | | | | | |
| ***Title:*** | draftCR to introduce gNB Rx-Tx time difference requirements | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_pos-Perf | | | | |  | ***Date:*** | | | 2021-03-23 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | This draftCR is based on Big draftCR R4-2103585 endorsed at RAN4#98-e. There is no exact gNB Rx-Tx accuracy requirements. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Introduces gNB Rx-Tx accuracy requirements. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Performance requirements for gNB positioning measurement are missing. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 13.2.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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>

### 13.2.2 Measurement Accuracy Requirements

#### 13.2.2.1 Introduction

This clause defines accuracy requirements for gNB Rx-Tx time difference measurement in FR1 and FR2. The requirements are applicable for gNB supporting gNB Rx-Tx time difference measurement.

#### 13.2.2.2 Requirements

The accuracy requirements in Table 13.2.2.2-1, Table 13.2.2.2-2, Table 13.2.2.2-3 and Table 13.2.2.2-4 are valid under the following conditions:

- AWGN propagation conditions.

*Editor’s note: further conditions are FFS.*

*Editor’s note: The needed number of bandwidth ranges for which specific gNB Rx-Tx time difference measurement accuracy apply for given Ês/Iot side condition is FFS*

*Editor’s note: The dependency of gNB Rx-Tx time difference measurement accuracy on SRS CombSize and SRS SymbolSize is FFS and shall be captured in an updated version of following tables if needed.*

**Table 13.2.2.2-1: gNB Rx-Tx time difference absolute accuracy in FR1 for gNB type 1-C**

|  |  |  |  |
| --- | --- | --- | --- |
| **Accuracy** | **SRS Ês/Iot** | **SCS** | **SRS bandwidth range** |
| **Unit: Tc** | **Unit: dB** | **Unit: kHz** | **Unit: RB** |
| TBD | ≥ -13 | 15 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | ≥ +3 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | ≥ -13 | 30 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | ≥ +3 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | ≥ -13 | 60 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | ≥ +3 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |

**Table 13.2.2.2-2: gNB Rx-Tx time difference absolute accuracy in FR1 for gNB type 1-H**

|  |  |  |  |
| --- | --- | --- | --- |
| **Accuracy** | **SRS Ês/Iot** | **SCS** | **SRS bandwidth range** |
| **Unit: Tc** | **Unit: dB** | **Unit: kHz** | **Unit: RB** |
| TBD | ≥ -13 | 15 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | ≥ +3 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | ≥ -13 | 30 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | ≥ +3 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | ≥ -13 | 60 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | ≥ +3 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |

**Table 13.2.2.2-3: gNB Rx-Tx time difference absolute accuracy in FR1 for gNB type 1-O**

|  |  |  |  |
| --- | --- | --- | --- |
| **Accuracy** | **SRS Ês/Iot** | **SCS** | **SRS bandwidth range** |
| **Unit: Tc** | **Unit: dB** | **Unit: kHz** | **Unit: RB** |
| TBD | ≥ -13 | 15 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | ≥ +3 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | ≥ -13 | 30 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | ≥ +3 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | ≥ -13 | 60 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | ≥ +3 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |

**Table 13.2.2.2-4: gNB Rx-Tx time difference absolute accuracy in FR2 for gNB type 2-O**

|  |  |  |  |
| --- | --- | --- | --- |
| **Accuracy** | **SRS Ês/Iot** | **SCS** | **SRS bandwidth range** |
| **Unit: Tc** | **Unit: dB** | **Unit: kHz** | **Unit: RB** |
| TBD | ≥ -13 | 60 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | ≥ +3 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | ≥ -13 | 120 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | ≥ +3 | TBD |
| TBD | TBD |
| TBD | TBD |
| TBD | TBD |

<End of Change 1>