**3GPP TSG-RAN4 Meeting #112 *R4-241XXXX***

**Maastricht, Netherlands, 19th – 23rd August, 2024**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** | **4711** | **rev** | **1** | **Current version:** | **17.14.0** |  |
|  | | | | | | | | |
| *For* ***[HE](http://www.3gpp.org/3G_Specs/CRs.htm" \l "_blank)******[LP](http://www.3gpp.org/3G_Specs/CRs.htm" \l "_blank)*** *on using this form: comprehensive instructions can be found at  <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:*** | (NR\_NTN\_solutions-Perf) CR to TS 38.133 measurement accuracy related corrections for NR NTN | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | CMCC | | | | | | | | | |
| ***Source to TSG:*** | RAN4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_NTN\_solutions-Perf | | | | |  | ***Date:*** | | | 2024-08-05 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19) Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The CSI-RS based L1-RSRP measurement core requirement and test cases has been introduced for NTN, however, the corresponding measurement accuracy requirement is missing. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Introduce CSI-RS based L1-RSRP accuracy requirements | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The NTN spec will be incomplete | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 10.1.19C.2(new clause) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 38.533 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Revised of R4-2411749 | | | | | | | | |

**<Start of change#1>**

#### 10.1.19C.2 CSI-RS based L1-RSRP accuracy requirements

##### 10.1.19C.2.1 Absolute Accuracy

Unless otherwise specified, the requirements for absolute accuracy of CSI-RS based L1-RSRP in this clause apply to all CSI-RS resources of the serving cell configured for L1-RSRP measurement.

The accuracy requirements in Table 10.1.19C.2.1-1 are valid under the following conditions:

- Conditions defined in clause 7.3 of TS 38.101-5 [39] for reference sensitivity are fulfilled.

- Conditions for L1-RSRP measurements are fulfilled according to Annex B.2.19.2 for a corresponding Band for each relevant CSI-RS.

- The bandwidth of CSI-RS is 48 PRBs and the density is 3.

- Valid information for the SAN serving the target cell has been provided.

The performance with larger bandwidth of CSI-RS is equal to or better than the accuracy requirements in Table 10.1.19C.2.1-1.

Table 10.1.19C.2.1-1: CSI-RS based L1-RSRP absolute accuracy in FR1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Accuracy | | Conditions | | | | | |
| Normal condition | Extreme condition | CSI-RS Ês/Iot | Io Note 1 range | | | | |
|  |  |  | NR operating band groups Note 2 | Minimum Io | | | Maximum Io |
| dB | dB | dB |  | dBm / SCSCSI-RS | | dBm/BWChannel | dBm/BWChannel |
|  |  |  |  | SCSCSI-RS = 15 kHz | SCSCSI-RS = 30 kHz |  |  |
| ±[5] | ±[9.5] | ≥-3 | NR\_FDD\_SAB\_FR1\_A | -121 | -118 | N/A | -70 |
| ±[8.5] | ±[11.5] | ≥-3 | NR\_FDD\_SAB\_FR1\_A | N/A | N/A | -70 | -50 |
| NOTE 1: Io is assumed to have constant EPRE across the bandwidth.  NOTE 2: NR operating band groups in FR1 are as defined in clause 3.5.2A. | | | | | | | |

##### 10.1.19C.2.2 Relative Accuracy

The relative accuracy of CSI-RS based L1-RSRP is defined as the L1-RSRP measured from one CSI-RS compared to the largest measured value of L1-RSRP among all CSI-RS resources of the serving cell.

The accuracy requirements in Table 10.1.19C.2.2-1 are valid under the following conditions:

- Conditions defined in clause 7.3 of TS 38.101-5 [39] for reference sensitivity are fulfilled.

- Conditions for L1-RSRP measurements are fulfilled according to Annex B.2.19.2 for a corresponding Band for each relevant CSI-RS.

- The bandwidth of CSI-RS is 48 PRBs and the density is 3.

- Valid information for the SAN serving the target cell has been provided.

The performance with larger bandwidth of CSI-RS is equal to or better than the accuracy requirements in Table 10.1.19C.2.2-1.

Table 10.1.19C.2.2-1: CSI-RS based L1-RSRP relative accuracy in FR1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Accuracy | | Conditions | | | | | |
| Normal condition | Extreme condition | CSI-RS Ês/Iot Note 2 | Io Note 1 range | | | | |
|  |  |  | NR operating band groups Note 4 | Minimum Io | | | Maximum Io |
| dB | dB | dB |  | dBm / SCSCSI-RS | | dBm/BWChannel | dBm/BWChannel |
|  |  |  |  | SCSCSI-RS = 15 kHz | SCSCSI-RS = 30 kHz |  |  |
| ±[3] | ±[4] | ≥-3 | NR\_FDD\_SAB\_FR1\_A | -121 | -118 | N/A | -50 |
| NOTE 1: Io is assumed to have constant EPRE across the bandwidth.  NOTE 2: The parameter CSI-RS Ês/Iot is the minimum CSI-RS Ês/Iot of the pair of CSI-RS resources to which the requirement applies.  NOTE 3: Void  NOTE 4: NR operating band groups in FR1 are as defined in clause 3.5.2A. | | | | | | | |

**<End of change#1>**