**3GPP TSG-RAN4 Meeting #113 *R4-241xxxx***

**Orlando, Florida, USA, 18 – 22 November, 2024**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** | **5129** | **rev** | 1 | **Current version:** |  |  |
|  | | | | | | | | |
| *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:*** | CR on performance requirements maintenance for R18 NTN | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_NTN\_enh-Perf | | | | |  | ***Date:*** | | | 2024-11-08 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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:*** | | Based on the NTN beam gain discussion, the test case of NTN needs to be updated. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The changes are in following part:   1. Create a new chapter to describe the NTN gain range value. 2. Correct the note in the NTN test case. 3. Update the [FFS] in NTN test requirement content. | | | | | | | | |
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| ***Consequences if not approved:*** | | The test cases of NTN are not correct. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | A.14.6.1.3.3, A.14.6.4.3.3, B.2.1.8 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS38.533 | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

### <Start of Change 1>

##### A.14.6.1.3.3 Test Requirements

The SS-RSRP measurement accuracy shall fulfil the absolute accuracy requirements in clauses 10.1.3.1.1 and relative accuracy requirements in clause 10.1.3.1.2. The following requirements are to be verified:

During T1:

Absolute accuracy of Cell 1 and absolute accuracy of Cell 2. The UE is deemed to meet the requirement if the reported SS-RSRP is in the range shown in table A.14.6.1.3.3-1.

Relative accuracy of Cell 2 compared with Cell 1. The UE is deemed to meet the requirement if the difference in reported SS-RSRP meets the requirements in Table 10.1.3C.1.2-1.

During T2:

Absolute accuracy of Cell 1 and absolute accuracy of Cell 2. The UE is deemed to meet the requirement if the reported SS-RSRP is in the range shown in table A.14.6.1.3.3-1.

Relative accuracy of Cell 2 compared with Cell 1. The UE is deemed to meet the requirement if the difference in reported SS-RSRP meets the requirements in Table 10.1.3C.1.2-1.

During T1 and T2:

Relative accuracy of Cell 1 during T2 compared with Cell 1 during T1. The UE is deemed to meet the requirement if the difference in reported SS-RSRP meets the requirements in Table 10.1.3C.1.2-1

Relative accuracy of Cell 2 during T2 compared with Cell 2 during T1. The UE is deemed to meet the requirement if the difference in reported SS-RSRP meets the requirements in Table 10.1.3C.1.2-1.

Table A.14.6.1.3.3-1: SS-RSRP absolute accuracy test requirement

|  |  |
| --- | --- |
|  | Test requirement Notes1,2,3,4 |
| Cell 1 | SSB\_RP1 -δ +Gmin – NTNmargin/2 ≤ Reported RSRP(dBm) ≤ SSB\_RP1 +δ +Gmax + NTNmargin/2 |
| Cell 2 | SSB\_RP2 -δ +Gmin - NTNmargin/2 ≤ Reported RSRP(dBm) ≤ SSB\_RP2 +δ +Gmax + NTNmargin/2 |
| Note 1: SSB\_RPn is the equivalent power received by an antenna with 0dBi gain at the centre of the quiet zone configured in the test for the cell n under consideration  Note 2: δ is the RSRP absolute accuracy requirement from Table 10.1.3.1.1-1, selected according to the Io used in the test  Note 3: Gmin and Gmax are the minimum and maximum UE gain values from Table Table B.2.1.8.1-1, selected according to the UE power class  Note 4: NTNmargin is the relaxation margin for FR2-NTN and equals 1 dB. | |

### <End of Change 1>

### <Start of Change 2>

##### A.14.6.4.3.3 Test Requirements

The UE shall send L1-RSRP report every 320 slots. No later than 640 ms plus 320 slots from the beginning of time period T2, UE shall send L1-RSRP report including the results for both SSB#0 and SSB#1 while meeting the accuracy requirements defined in [clause TBD].

The reported L1-RSRP value shall include the Rx antenna gain in the range of Table B.2.1.8.1-1.

The rate of correct events observed during repeated tests shall be at least 90%.

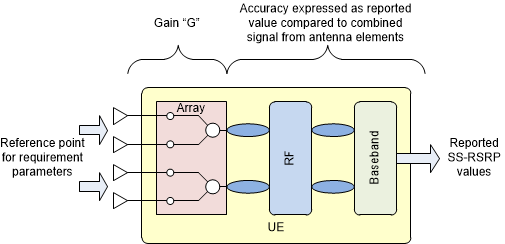
### <End of Change 2>

### <Start of Change 3>

### B.2.1.8 Gain to SS-RSRP for FR2-NTN for satellite access

In clause 5.1.1 of TS 38.215 [4] SS-RSRP and CSI-RSRP is defined to be measured based on the combined signal from antenna elements corresponding to a given receiver branch. The reference point for requirement parameters from the UE perspective is the input of the UE antenna array. The gain “G” relates the combined signal from antenna elements corresponding to a given receiver branch to the reference point for requirement parameters.

The gain “G” affects absolute signal level values reported by the UE.



**Figure B.2.1.8.1-1: Gain and Reference point for requirement parameters**

The gain range for each type of VSAT equipment is specified in Table B.2.1.8.1-1.

Table B.2.1.8.1-1: NTN gain G

|  |  |  |
| --- | --- | --- |
|  | **VSAT type 3** | **VSAT type 1/2/4/5** |
| Minimum, dBi | 25.6 | 28.5 |
| Maximum, dBi | From 45 to 55 | From 45 to 55 |

### <End of Change 3>