**3GPP TSG RAN WG1 #119 *R1-24XXXXX***

**Orlando, US, November 18th – 22nd, 2024**

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| *CR-Form-v12.2* | | | | | | | | |
| **[DRAFT] CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.215** | **CR** | **xxxx** | **rev** | **-** | **Current version:** | **18.3.0** |  |
|  | | | | | | | | |
| *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 | **X** | Core Network |  |

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| ***Title:*** | Correction to reference point for NG-RAN measurement for UL SRS-RSRP and UL SRS-RSRPP | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Moderator(vivo) | | | | | | | | | |
| ***Source to TSG:*** | R1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_NTN\_enh-Core | | | | |  | ***Date:*** | | | 2024-11-19 |
|  |  | | | |  | |  | | |  |
| ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Requirements for SAN providing NR user plane and control plane protocol terminations towards NTN satellite capable UE is defined in 38.108. For the definition of UL SRS-RSRP and UL SRS-RSRPP in 38.215, the reference point for conducted and radiated requirement for SAN in NTN case is not defined. | | | | | | | | |
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| ***Summary of change:*** | | Add description of reference point for UL SRS-RSRP and UL SRS-RSRPP in NTN. | | | | | | | | |
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| ***Consequences if not approved:*** | | The reference point for UL SRS-RSRP and UL SRS-RSRP in NTN is unclear. | | | | | | | | |
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| ***Clauses affected:*** | | 2, 5.2.5, 5.2.6 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |

# 2 References

\*\*\* unchanged text omitted \*\*\*

[17] 3GPP TS 37.213: "Physical layer procedures for shared spectrum channel access"

[18] 3GPP TS 38.305: "NG Radio Access Network (NG-RAN); Stage 2 functional specification of User Equipment (UE) positioning in NG-RAN"

[19] 3GPP TS 38.108: " Satellite Access Node radio transmission and reception"

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### 5.2.5 UL SRS reference signal received power (UL SRS-RSRP)

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| **Definition** | UL SRS reference signal received power (UL SRS-RSRP) is defined as linear average of the power contributions (in [W]) of the resource elements carrying sounding reference signals (SRS). UL SRS‑RSRP shall be measured over the configured resource elements within the considered measurement frequency bandwidth in the configured measurement time occasions.  The reference point for UL SRS-RSRP shall be:  - for type 1-C base station TS 38.104 [9]: the Rx antenna connector,  - for type 1-O or 2-O base station TS 38.104 [9]: based on the combined signal from antenna elements corresponding to a given receiver branch,  - for type 1-H base station TS 38.104 [9]: the Rx Transceiver Array Boundary connector.  - for type 1-O or 2-O Satellite access node TS 38.108 [19]: based on the combined signal from antenna elements corresponding to a given receiver branch,  - for type 1-H Satellite access node TS 38.108 [19]: the Rx Transceiver Array Boundary connector.  For frequency range 1 and 2, if receiver diversity is in use by the gNB, the reported UL SRS-RSRP value shall not be lower than the corresponding UL SRS-RSRP of any of the individual receiver branches. |

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### 5.2.6 UL SRS reference signal received path power (UL SRS-RSRPP)

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| **Definition** | UL SRS reference signal received path power (UL SRS-RSRPP) is defined as the power of the linear average of the channel response at the i-th path delay of the resource elements that carry the received UL SRS signal configured for the measurement, where UL SRS-RSRPP for 1st path delay is the power contribution corresponding to the first detected path in time  The reference point for UL SRS-RSRPP shall be:  - for type 1-C base station TS 38.104 [9]: the Rx antenna connector,  - for type 1-O or 2-O base station TS 38.104 [9]: based on the combined signal from antenna elements corresponding to a given receiver branch  - for type 1-H base station TS 38.104 [9]: the Rx Transceiver Array Boundary connector.  - for type 1-O or 2-O Satellite access node TS 38.108 [19]: based on the combined signal from antenna elements corresponding to a given receiver branch,  - for type 1-H Satellite access node TS 38.108 [19]: the Rx Transceiver Array Boundary connector.  For frequency range 1 and 2, if receiver diversity is in use by the gNB for UL SRS-RSRPP measurements:  - The reported UL SRS-RSRPP value for the first and additional paths shall be provided for the same receiver branch(es) as applied for UL SRS-RSRP measurements, or  - The reported UL SRS-RSRPP value for the first path shall not be lower than the corresponding UL SRS-RSRPP for the first path of any of the individual receiver branches and the reported UL SRS-RSRPP for the additional paths shall be provided for the same receiver branch(es) as applied UL SRS-RSRPP for the first path. |

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