**3GPP TSG-RAN Meeting #117 *R1-240xxxx***

**Fukuoka, Japan, 20 – 24. May 2024**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **38.211** | **CR** | **DRAFT** | **rev** | **-** | **Current version:** | **17.7.0** |  |
|  |
| *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 | **x** | Radio Access Network | **x** | Core Network |  |

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|  |
| ***Title:***  | Draft CR for 38.211 for capturing NR over NTN operation  |
|  |  |
| ***Source to WG:*** | Nokia |
| ***Source to TSG:*** | R1 |
|  |  |
| ***Work item code:*** | NR\_NTN\_solutions-Core |  | ***Date:*** | 2024-05-23 |
|  |  |  |  |  |
| ***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 canbe 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:*** | Current Rel-17 specifications does not contain references to the TS 38.101-5 (which defines frequency bands and requirements for these). Without these, it is not possible to extract e.g. frequency bands, UE Tx power control limits, etc. |
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| ***Summary of change:*** | Update of refences to capture operation of NR over NTN for Rel-17 |
|  |  |
| ***Consequences if not approved:*** | Rel-17 NR over NTN will not be implementable. |
|  |  |
| ***Clauses affected:*** | 2, 5.4 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **Y** |  |  Other core specifications  | TS 38.213 |
| ***affected:*** |  | **x** |  Test specifications |  |
| ***(show related CRs)*** |  | **x** |  O&M Specifications |  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

**<Unchanged parts omitted>**

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 38.201: "NR; Physical Layer – General Description"

[3] 3GPP TS 38.202: "NR; Services provided by the physical layer"

[4] 3GPP TS 38.212: "NR; Multiplexing and channel coding"

[5] 3GPP TS 38.213: "NR; Physical layer procedures for control "

[6] 3GPP TS 38.214: "NR; Physical layer procedures for data "

[7] 3GPP TS 38.215: "NR; Physical layer measurements"

[8] 3GPP TS 38.104: "NR; Base Station (BS) radio transmission and reception"

[9] void

[10] 3GPP TS 38.306: "NR; User Equipment (UE) radio access capabilities"

[11] 3GPP TS 38.321: "NR; Medium Access Control (MAC) protocol specification"

[12] 3GPP TS 38.133: "NR; Requirements for support of radio resource management"

[13] 3GPP TS 38.304: "NR; User Equipment (UE) procedures in Idle mode and RRC Inactive state"

[15] 3GPP TS 38.101-5: "NR; User Equipment (UE) radio transmission and reception; Part 5: Satellite access Radio Frequency (RF) and performance requirements"

**<Unchanged parts omitted>**

## 5.4 Modulation and upconversion

Modulation and upconversion to the carrier frequency  of the complex-valued OFDM baseband signal for antenna port $p$, subcarrier spacing configuration $μ$, and OFDM symbol  in a subframe assumed to start at  is given by

- for PRACH

 $Re\left\{s\_{l}^{(p,μ)}\left(t\right)e^{j2πf\_{0}t}\right\}$

- for RIM-RS

 $Re\left\{s\_{l}^{(p,μ)}\left(t\right)e^{j2πf\_{0}^{RIM}\left(t-t\_{start,l\_{0}}^{μ}-N\_{CP}^{RIM}T\_{c}\right)}\right\}$

where $f\_{0}^{RIM}$ is the configured reference point for RIM-RS;

- for all other channels and signals

 

NOTE: For the uplink, the signal $s\_{l}^{(p,μ)}\left(t\right)$ and the baseband signals part thereof should be filtered per UEimplementation, as required, to meet the minimum requirements as specified in [38.101-1], [38.101-2], and [15, 38.101-5] for the respective frequency range.

**<Unchanged parts omitted>**