**3GPP TSG-RAN WG4 Meeting # 113 *R4-2419872***

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

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.101-5** | **CR** | **0132** | **rev** | **1** | **Current version:** | **18.7.0** |  |
|  | | | | | | | | |
| *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 |  | Core Network |  |

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| ***Title:*** | (NR\_NTN\_enh-Core) CR for TS 38.101-5 to clarify Doppler shift issues for guard band and transmission bandwidth configuration | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_NTN\_enh-Core | | | | |  | ***Date:*** | | | 2024-10-28 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | Referring to the WF R4-2405995, the issue is identified that one RB could be shifted into the guard for 60kHz SCS when VSAT is handling the doppler pre-compensation.  Both 3GPP spec and ITU regulation specified the out-of-band domain as the frequency range immediately outside the channel bandwidth.  Based on the spectrum utilization and guard band specified in clause 5.3.2 and 5.3.3 from TS 38.101-5, that means NTN UE can’t meet current unwanted emission requirements which are specified immediately outside the channel bandwidth when the edge RB fall into the guard band due to the doppler shift pre-compensation.  Thus, it is necessary to address this issue to avoid the potential risks for NTN UE operating in NGSO scenario. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | To clarify the applicable RF requirements based on the condition. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | There is a risk for NTN UE to meet the RF requirements without the clarification on that the edge RB falls into the guard band due to the doppler shift or doppler shift pre-compensation. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.3.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 38.521-5 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

## **<<Start of Change for TS 38.101-5>>**

### 5.3.2 Maximum transmission bandwidth configuration

The maximum transmission bandwidth configuration NRB for each UE channel bandwidth and subcarrier spacing is specified in Table 5.3.2-1 for FR1-NTN and table 5.3.2-2 for FR2-NTN.

For NTN UE, the minimum RF requirements are applicable without configuring the first RB and the last RB in the Maximum transmission bandwidth configuration for NGSO scenario under the condition that doppler frequency shift is less than one SCS.

Table 5.3.2-1: Maximum transmission bandwidth configuration NRB for FR1-NTN

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| SCS (kHz) | 5  MHz | 10  MHz | 15  MHz | 20  MHz | **30**  MHz |
| NRB | NRB | NRB | NRB | NRB |
| 15 | 25 | 52 | 79 | 106 | 160 |
| 30 | 11 | 24 | 38 | 51 | 78 |
| 60 | N/A | 11 | 18 | 24 | 38 |

Table 5.3.2-2: Maximum transmission bandwidth configuration NRB for FR2-NTN

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SCS (kHz) | 50 MHz | 100 MHz | 200 MHz | 400 MHz |
|  | NRB | NRB | NRB | NRB |
| 60 | 66 | 132 | 264 | N/A |
| 120 | 32 | 66 | 132 | 264 |

## **<<End of Change>>**