**3GPP TSG-RAN4 Meeting #111  *R4-2409874***

**Fukuoka, Japan, 20 - 24 May 2024**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **38.101-4** | **CR** | **Draft** | **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 |  | Core Network |  |

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| ***Title:***  | Draft CR on the Introduction of PDCCH requirement for DSS enhancement -FDD 4Rx |
|  |  |
| ***Source to WG:*** | Nokia |
| ***Source to TSG:*** | R4 |
|  |  |
| ***Work item code:*** | NR\_DSS\_enh-Perf |  | ***Date:*** | 2024-05-21 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***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 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:*** | Introduce PDCCH FDD 4Rx requirements for eDSS |
|  |  |
| ***Summary of change:*** | Add eDSS PDCCH FDD 4Rx requirements |
|  |  |
| ***Consequences if not approved:*** | No requirements for eDSS PDCCH FDD 4Rx |
|  |  |
| ***Clauses affected:*** | 5.3.3.1.5 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **x** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** | **x** |  |  Test specifications | TS/TR 38.521-4 |
| ***(show related CRs)*** |  | **x** |  O&M Specifications | TS/TR ... CR ...  |
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| ***Other comments:*** | This draft CR is a revision of the already endorsed draftCR R4-2406018, with the following changes:* Adding a sentence: The parameters specified in Table 5.3.3.1.5-1 are additional prarameters for requirements with PDCCH overlapping with LTE CRS.
* Moving the sentence: For the parameters specified in Table 5.3.3.1.5-1, the average probability of a missed downlink scheduling grant (Pm-dsg) shall be below the specified value in Table 5.3.3.1.5-2. The downlink physical setup is in accordance with Annex C.3.1. to be directly before Table 5.3.3.1.5-2 with additional editorial changes highlighted in turquoise.
* Change the test number from 2 to 1 (marked in turquoise).
* Update the SNR requirement value based on updated simulation results with impairments.
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| ***This CR's revision history:*** |  |

***<Start of Change 1>***

##### 5.3.3.1.5 Minimum requirements for PDCCH overlapping with LTE CRS

The parameters specified in Table 5.3.3.1.5-1 are additional parameters for requirements with PDCCH overlapping with LTE CRS.

**Table 5.3.3.1.5-1: Test parameters**

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Unit** | **Value** |
| Duplex mode |  | FDD |
| Active DL BWP index |  | 1 |
| NR UL transmission with a 7.5 kHz shift to the LTE raster  |  | true |
| PDCCH configuration | Symbols with PDCCH |  | Symbol#1 and #2 |
| CRS for rate matching (Note 1) | LTE carrier centre subcarrier location |  | Same as NR carrier centre subcarrier location |
|  | LTE carrier BW | MHz | 10 |
|  | Number of antenna ports |  | 4 |
|  | v-shift |  | 0 |
| Note 1: No MBSFN is configured on LTE carrier.Note 2: NR PDCCH data REs and DMRS REs overlapped with LTE CRS are punctured at the transmitter side. |

For the parameters specified in Table 5.3.3.1.5-1, the average probability of a missed downlink scheduling grant (Pm-dsg) shall be below the specified value in Table 5.3.3.1.5-2. The downlink physical setup is in accordance with Annex C.3.1.

Table 5.3.3.1.5-2: Minimum performance for PDCCH with 15 kHz SCS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Test number** | **Bandwidth (MHz)** | **CORESET RB** | **CORESET duration** | **Aggregation level** | **Reference Channel** | **Propagation Condition** | **Antenna configuration and correlation Matrix** | **Reference value** |
| **Pm-dsg (%)** | **SNR (dB)** |
| 1 | 10  | 48 | 2 | 8 | R.PDCCH.1-2.9 FDD | TDLC300-100 | 2x4 Low | 1 | [-0.5] |

***<End of Change 1>***