**3GPP TSG-RAN WG4 Meeting #111**

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

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** |  | **rev** |  | **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 |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | [NR\_FR1\_lessthan\_5MHz\_BW] draftCR for UE PDCCH demodulation requirements | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Qualcomm Inc. | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_FR1\_lessthan\_5MHz\_BW | | | | |  | ***Date:*** | | | 2024-05-07 |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***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:*** | | Introduce PDCCH requirements in the specification | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add PDCCH requirements for FDD and TDD test cases | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | PDCCH requirements will remain undefined | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.3.2.1.7  5.3.3.1.6 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **N** | Other core specifications | | | |  | | |
| ***affected:*** | | **Y** |  | Test specifications | | | | **TS 38521-4** | | |
| ***(show related CRs)*** | |  | **N** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | | Based on endored draftCR R4-2404266 | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

5.3.2 2RX requirements

5.3.2.1 FDD

**--- Start of change 1 ---**

5.3.2.1.7 Minimum requirements for 3 MHz channel bandwidth

During the test the UE shall be be configured to monitor CORESET#0 with *searchSpaceType=common* using *DCI Format* *1-0*.

The parameters specified in Table 5.3.2.1.7-1 are valid for FDD test in this clause unless otherwise stated.

**Table 5.3.2.1.7-1: Test Parameters**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | | **Unit** | **1 Tx Antenna** |
| Frequency domain resource allocation for PDCCH | Start | RB Index | 8 |
| Length | RBs | 7 (Note 1) |
| Allocation |  | Contiguous |
| CCE to REG mapping type | |  | nonInterleaved |
| REG bundle size | |  | 6 |
| Shift Index | |  | NA |
| Note 1: The last PDCCH RB in CORESET0 (RB#15) is punctured and not transmitted. | | | |

For the parameters specified in Table 5.3.2.1.7-1, the average probability of a missed downlink scheduling grant (Pm-dsg) shall be below the specified value in Table 5.3.2.1.7-2. The downlink physical setup is in accordance with Annex C.3.1.

**Table 5.3.2.1.7-2: Minimum performance for less than 5 MHz CBW**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Test number** | **Bandwidth (MHz)** | **CORESET0 RB** | **CORESET0 duration** | **Aggregation level** | **Reference Channel** | **Propagation Condition** | **Antenna configuration and correlation Matrix** | **Reference value** | |
| **Pm-dsg (%)** | **SNR (dB)** |
| 1 | 3 | 15 | 3 | 4 | R.PDCCH. 1-3.1 FDD | TDLA30-10 | 1x2 Low | 1 | [7.2] |

***<Unchanged* sections *omitted>***

**--- End of change ---**

5.3.3 4RX requirements

5.3.3.1 FDD

**--- Start of change 2 ---**

5.3.3.1.6 Minimum requirements for 3 MHz channel bandwidth

During the test the UE shall be be configured to monitor CORESET0 with *searchSpaceType=common* using *DCI Format* *1-0*.

The parameters specified in Table 5.3.3.1.6-1 are valid for FDD test in this clause unless otherwise stated.

**Table 5.3.3.1.6-1: Test Parameters**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | | **Unit** | **2 Tx Antennas** |
| Frequency domain resource allocation for PDCCH | Start | RB Index | 8 |
| Length | RBs | 7 (Note 1) |
| Allocation |  | Contiguous |
| CCE to REG mapping type | |  | nonInterleaved |
| REG bundle size | |  | 6 |
| Shift Index | |  | NA |
| Note 1: The last PDCCH RB in CORESET0 (RB#15) is punctured and not transmitted. | | | |

For the parameters specified in Table 5.3.3.1.6-1, the average probability of a missed downlink scheduling grant (Pm-dsg) shall be below the specified value in Table 5.3.3.1.6-2. The downlink physical setup is in accordance with Annex C.3.1.

**Table 5.3.3.1.6-2: Minimum performance for less than 5 MHz CBW**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Test number** | **Bandwidth (MHz)** | **CORESET0 RB** | **CORESET0 duration** | **Aggregation level** | **Reference Channel** | **Propagation Condition** | **Antenna configuration and correlation Matrix** | **Reference value** | |
| **Pm-dsg (%)** | **SNR (dB)** |
| 2 | 3 | 15 | 3 | 4 | R.PDCCH. 1-3.1 FDD | TDLC300-100 | 2x4 Low | 1 | [-1] |

***<Unchanged sections omitted>***

**--- End of change ---**