**3GPP TSG- Meeting #**

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

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| ***Title:*** | CR to 38.101-4 on PDSCH demod requirements for mDCI fully-overlapping with multi-RX in FR2 | | | | | | | | | |
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| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** | RAN4 | | | | | | | | | |
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| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
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| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *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:*** | | Clause 7.2.2.2.6 is under clause 7.1.1.3  Requirements need to be updated  TBS size in FRC needs to be updated | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Moved Clause 7.2.2.2.6 to clause 7.2.2.2  Updated the requirements based on latest simultion result summary  Updated TBS size in FRC table | | | | | | | | |
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| ***Consequences if not approved:*** | | The requirements for mDCI fully-overlapping with multi-RX will be incorrect. | | | | | | | | |
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| ***Clauses affected:*** | | 7.1.1.3, 7.2.2.2, A.3.2.2.5 | | | | | | | | |
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|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 38.521-4 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
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| ***Other comments:*** | | This is formal CR for endorsed draftCR in RAN4#110bis R4-2406009 | | | | | | | | |
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| ***This CR's revision history:*** | |  | | | | | | | | |

Change #1

#### 7.1.1.3 Applicability of requirements for optional UE features

The performance requirements in Table 7.1.1.3-1 shall apply for UEs which support optional UE features only.

Table 7.1.1.3-1: Requirements applicability for optional UE features

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| UE feature/capability [14] | Test type | | Test list | Applicability notes | |
| SU-MIMO Interference Mitigation advanced receiver | FR2-1 TDD | PDSCH | Clause 7.2.2.2.1 (Test 3-1) |  | |
| Basic DL NR-NR CA operation (*supportedBandCombinationList*) | NR CA | SDR | Clause 7.5A.1 | 1) Up to 16 DL carriers  2) Same numerology across carrier for data/control channel at a given time | |
| PDSCH repetitions over multiple slots *(pdsch-RepetitionMultiSlots)* | FR2-1 TDD | PDSCH | Clause 7.2.2.2.2 |  | |
| Alternative 64QAM MCS table for PDSCHNew 64QAM MCS table for PDSCH (*dl-64QAM-MCS-TableAlt*) | FR2 TDD | PDSCH | Clause 7.2.2.2.2 | |  |
| DRX Adaptation (*drx-Adaptation-r16*) | FR2-1 TDD | PDCCH | Clause 7.3.2.2.3 | If the Test 3-1 in Clause 7.3.2.2.3 is passed, the test coverage can be considered fulfilled without executing Test 1-2 in clause 7.3.2.2.1. | |
| 256QAM for PDSCH  (*pdsch-256QAM-FR2*) | FR2-1 TDD | PDSCH | Clause 7.2.2.2.1 (Test 1-4) |  | |
| 256QAM for PDSCH (*pdsch-256QAM-FR2*) | FR2-1 TDD | SDR | Clause 7.5A.1 | For UE capable of *pdsch-256QAM-FR2* for certain band(s), *mcs-Table* is configured to ‘64QAM’ for SDR test. | |
| Support of FR2 HST operation [(FR2 UE power class PC6 signalling is used to indicate support of feature group)] | FR2-1 TDD | PDSCH | [Clause 7.2.2.2.4] |  | |
| Support of Single Carrier operations with 120kHz SCS for FR2-2  (*initialAccessSSB-120kHz-r17)* | FR2-2 TDD | PDSCH | Clause 7.2.2.2.1  (Table 7.2.2.2.1-6: Test 4-1, 4-2, 4-3, 4-4) |  | |
|  |  | PDCCH | Clause 7.3.2.2  (Table 7.3.2.2.1-2: Test 1a-1, 1a-2, 1a-3)  (Table 7.3.2.2.2-2, Test 3-1, 3-2) |  | |
|  |  | PBCH | Clause 7.4.2.2  (Table 7.4.2.2-2: Test 3) |  | |
| Support of 480kHz SCS for FR2-2  (*ul-FR2-2-SCS-480kHz-r17* and *initialAccessSSB-480kHz-r17)* | FR2-2 TDD | PDSCH | Clause 7.2.2.2.1  (Table 7.2.2.2.1-6: Test 4-5, 4-6) |  | |
|  |  | PDCCH | Clause 7.3.2.2  (Table 7.3.2.2.1-2: Test 1a-4) (Table 7.3.2.2.2-2, Test 3-3) |  | |
|  |  | PBCH | Clause 7.4.2.2  (Table 7.4.2.2-2: Test 4) |  | |
| Support simultaneous reception with different QCL Type-D RSs (simultaneousReceptionDiffTypeD-r16) | FR2  TDD | PDSCH | Clause 7.2.2.2.X1  Clause 7.2.2.2.6  Clause 7.2.2.2.7 |  | |
| Single DCI based SDM transmission for simultaneous reception support (singleDCI-SDM-scheme-r16) | FR2  TDD | PDSCH | Clause 7.2.2.2.7 |  | |
| Multi DCI based simultaneous reception non-overlapping support (multiDCI-MultiTRP-r16) | FR2  TDD | PDSCH | Clause 7.2.2.2.X1 |  | |
| Multi DCI based simultaneous reception fully-overlapping support (overlapPDSCHsFullyFreqTime-r16) | FR2  TDD | PDSCH | Clause 7.2.2.2.6 |  | |
| Support of 2-port DL PTRS (supportTwoPortDL-PTRS-r16) | FR2  TDD | PDSCH | Clause 7.2.2.2.7 Test 1-2 |  | |

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Change #2

#### 7.2.2.2 TDD

<Unchanged sections omitted>

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| R  SNR is defined per UE Rx chain. SNR of Rx chain i (i=1,2) is derived based on Es from TRxP#i, as defined in 4.5.2. | | | | | | | | | |

<Unchanged sections omitted>

Change #3

Table A.3.2.2.5-3: PDSCH Reference Channel for TDD UL-DL pattern FR2.120-1 (64QAM)

|  |  |  |  |  |  |  |
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| **Parameter** | **Unit** | **Value** | | | | |
| Reference channel |  | R.PDSCH.5-3.1 TDD | R.PDSCH.5-3.2 TDD | R.PDSCH.5-3.3 TDD |  |  |
| Channel bandwidth | MHz | 100 | 100 | 100 |  |  |
| Subcarrier spacing | kHz | 120 | 120 | 120 |  |  |
| Allocated resource blocks | PRBs | 66 | 66 | 66 |  |  |
| Number of consecutive PDSCH symbols |  |  |  |  |  |  |
| For Slots 0 and Slot i, if mod(i, 5) = 4 for i from {0,…,159} |  | N/A | N/A | N/A |  |  |
| For Slots i = 80, 81 |  | 13 | N/A | 12 |  |  |
| For Slot i, if mod(i, 5) = 3 for i from {0,…, 159} |  | 9 | 9 | 8 |  |  |
| For Slot i, if mod(i, 5) = {0,1,2} for i from {1,…,159} |  | 13 | 13 | 12 |  |  |
| Allocated slots per 2 frames |  | 127 | 125 | 127 |  |  |
| MCS table |  | 64QAM | 64QAM | 64QAM |  |  |
| MCS index |  | 18 | 17 | 17 |  |  |
| Modulation |  | 64QAM | 64QAM | 64QAM |  |  |
| Target Coding Rate |  | 0.46 | 0.43 | 0.43 |  |  |
| Number of MIMO layers |  | 1 | 1 | 1 |  |  |
| Number of DMRS REs |  |  |  |  |  |  |
| For Slots 0 and Slot i, if mod(i, 5) = 4 for i from {0,…,159} |  | N/A | N/A | N/A |  |  |
| For Slots i = 80, 81 |  | 12 | N/A | 24 |  |  |
| For Slot i, if mod(i, 5) = 3 for i from {0,…, 159} |  | 12 | 12 | 24 |  |  |
| For Slot i, if mod(i, 5) = {0,1,2} for i from {1,…,159} |  | 12 | 12 | 24 |  |  |
| Overhead for TBS determination |  | 6 | 6 | 6 |  |  |
| Information Bit Payload per Slot |  |  |  |  |  |  |
| For Slots 0 and Slot i, if mod(i, 5) = 4 for i from {0,…,159} | Bits | N/A | N/A | N/A |  |  |
| For Slots i = 80, 81 | Bits | 25104 | N/A | 19464 |  |  |
| For Slot i, if mod(i, 5) = 3 for i from {0,…, 159} | Bits | 16136 | 15112 | 11272 |  |  |
| For Slot i, if mod(i, 5) = {0,1,2} for i from {1,…,159} | Bits | 25104 | 23568 | 19464 |  |  |
| Transport block CRC per Slot |  |  |  |  |  |  |
| For Slots 0 and Slot i, if mod(i, 5) = 4 for i from {0,…,159} | Bits | N/A | N/A | N/A |  |  |
| For Slots i = 80, 81 | Bits | 24 | N/A | 24 |  |  |
| For Slot i, if mod(i, 5) = 3 for i from {0,…, 159} | Bits | 24 | 24 | 24 |  |  |
| For Slot i, if mod(i, 5) = {0,1,2} for i from {1,…,159} | Bits | 24 | 24 | 24 |  |  |
| Number of Code Blocks per Slot |  |  |  |  |  |  |
| For Slots 0 and Slot i, if mod(i, 5) = 4 for i from {0,…,159} | CBs | N/A | N/A | N/A |  |  |
| For Slots i = 80, 81 | CBs | 3 | N/A | 3 |  |  |
| For Slot i, if mod(i, 5) = 3 for i from {0,…, 159} | CBs | 2 | TBA | 2 |  |  |
| For Slot i, if mod(i, 5) = {0,1,2} for i from {1,…,159} | CBs | 3 | TBA | 3 |  |  |
| Binary Channel Bits Per Slot |  |  |  |  |  |  |
| For Slots 0 and Slot i, if mod(i, 5) = 4 for i from {0,…,159} | Bits | N/A | N/A | N/A |  |  |
| For Slots i = 80, 81 | Bits | 52470 | N/A | 43164 |  |  |
| For Slot i, if mod(i, 5) = 3 for i from {0,…, 159} | Bits | 36630 | 35640 | 27324 |  |  |
| For Slot i, if mod(i, 5) = {0,1,2} for i from {1,…,79,82,…,159} | Bits | 54846 | 54648 | 45540 |  |  |
| Max. Throughput averaged over 2 frames | Mbps | 145.062 | 136.1272 | 110.489 |  |  |
| Note 1: SS/PBCH block is transmitted in slot #0 with periodicity 20 ms  Note 2: Slot i is slot index per 2 frames | | | | | | |