**3GPP TSG- Meeting #**

**Electronic Meeting, –**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  |  | **CR** |  | **rev** | 1 | **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:*** | Draft CR: PDSCH FRC for eMIMO sDCI/mDCI-based SDM transmission | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | |  |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | FRC for PDSCH demodulation requirement with sDCI/mDCI-based PDSCH transmission is missing. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Addition of new FRCs for PDSCH demodulation requirements with mDCI-based SDM transmission  Addition of new FRCs for PDSCH demodulation requirements with sDCI-based SDM transmission  - R.PDSCH.1-3.2 FDD: sDCI based SDM schemes in FDD  - R.PDSCH.1-3.3 FDD: mDCI based SDM schemes in FDD  - R.PDSCH.2-3.2 TDD: sDCI based SDM schemes in TDD  - R.PDSCH.2-3.3 TDD: mDCI based SDM scheme in TDD | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The eMIMO feature sDCI/mDCI-based transmission scheme is not verified. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | A.3.2.1.1, A.3.2.2.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **x** |  | Test specifications | | | | TS38.521-4 ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

----------------------------------------------------- Beginning of Change ------------------------------------------------------------

#### A.3.2.1.1 Reference measurement channels for SCS 15 kHz FR1

Table A.3.2.1.1-3: PDSCH Reference Channel for FDD (64QAM)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Parameter** | **Unit** | **Value** | | | | |
| Reference channel |  | R.PDSCH.1-3.1 FDD | R.PDSCH.1-3.2 FDD | R.PDSCH.1-3.3 FDD |  |  |
| Channel bandwidth | MHz | 10 | 10 | 10 |  |  |
| Subcarrier spacing | kHz | 15 | 15 | 15 |  |  |
| Number of allocated resource blocks | PRBs | 52 | 52 | 26 |  |  |
| Number of consecutive PDSCH symbols |  | 12 | 12 | 12 |  |  |
| Allocated slots per 2 frames | Slots | 19 | 19 | 19 |  |  |
| MCS table |  | 64QAM | 64QAM | 64QAM |  |  |
| MCS index |  | 19 | 19 | 19 |  |  |
| Modulation |  | 64QAM | 64QAM | 64QAM |  |  |
| Target Coding Rate |  | 0.51 | 0.51 | 0.51 |  |  |
| Number of MIMO layers |  | 2 | 2 | 2 |  |  |
| Number of DMRS REs |  | 12 | 12 | 12 |  |  |
| Overhead for TBS determination |  | 0 | 0 | 0 |  |  |
| Information Bit Payload per Slot |  |  |  |  |  |  |
| For Slot i = 0 | Bits | N/A | N/A | N/A |  |  |
| For Slots i = 1,…, 19 | Bits | 42016 | 42016 | 21000 |  |  |
| Transport block CRC per Slot |  |  |  |  |  |  |
| For Slot i = 0 | Bits | N/A | N/A | N/A |  |  |
| For Slots i = 1,…, 19 | Bits | 24 | 24 | 24 |  |  |
| Number of Code Blocks per Slot |  |  |  |  |  |  |
| For Slot i = 0 | CBs | N/A | N/A | N/A |  |  |
| For Slots i = 1,…, 19 | CBs | 5 | 5 | 3 |  |  |
| Binary Channel Bits Per Slot |  |  |  |  |  |  |
| For Slot i = 0 | Bits | N/A | N/A | N/A |  |  |
| For Slots i = 10, 11 | Bits | 78624 | 74800 | 37440 |  |  |
| For Slots i = 1,…, 9, 12, …, 19 | Bits | 82368 | 82368 | 41184 |  |  |
| Max. Throughput averaged over 2 frames | Mbps | 39.915 | 39.915 | 19.950 |  |  |
| Note 1: SS/PBCH block is transmitted in slot #0 with periodicity 20 ms  Note 2: Slot i is slot index per 2 frames | | | | | | |

------------------------------------------------- Unchanged sections omitted --------------------------------------------------------

#### A.3.2.2.2 Reference measurement channels for SCS 30 kHz FR1

Table A.3.2.2.2-3: PDSCH Reference Channel for TDD UL-DL pattern FR1.30-1 (64QAM)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Parameter** | **Unit** | **Value** | | | | |
| Reference channel |  | R.PDSCH.2-3.1 TDD | R.PDSCH.2-3.2 TDD | R.PDSCH.2-3.3 TDD |  |  |
| Channel bandwidth | MHz | 40 | 40 | 40 |  |  |
| Subcarrier spacing | kHz | 30 | 30 | 30 |  |  |
| Allocated resource blocks | PRBs | 106 | 106 | 53 |  |  |
| Number of consecutive PDSCH symbols |  |  |  |  |  |  |
| For Slot i, if mod(i, 10) = 7 for i from {0,…,39} |  | 4 | 4 | 4 |  |  |
| For Slot i, if mod(i, 10) = {0,1,2,3,4,5,6} for i from {1,…,39} |  | 12 | 12 | 12 |  |  |
| Allocated slots per 2 frames |  | 31 | 31 | 31 |  |  |
| MCS table |  | 64QAM | 64QAM | 64QAM |  |  |
| MCS index |  | 19 | 19 | 19 |  |  |
| Modulation |  | 64QAM | 64QAM | 64QAM |  |  |
| Target Coding Rate |  | 0.51 | 0.51 | 0.51 |  |  |
| Number of MIMO layers |  | 2 | 2 | 2 |  |  |
| Number of DMRS REs |  |  |  |  |  |  |
| For Slot i, if mod(i, 10) = 7 for i from {0,…,39} |  | 6 | 6 | 6 |  |  |
| For Slot i, if mod(i, 10) = {0,1,2,3,4,5,6} for i from {1,…,39} |  | 12 | 12 | 12 |  |  |
| Overhead for TBS determination |  | 0 | 0 | 0 |  |  |
| Information Bit Payload per Slot |  |  |  |  |  |  |
| For Slots 0 and Slot i, if mod(i, 10) = {8,9} for i from {0,…,39} | Bits | N/A | N/A | N/A |  |  |
| For Slot i, if mod(i, 10) = 7 for i from {0,…,39} | Bits | 27144 | 27144 | 13576 |  |  |
| For Slot i, if mod(i, 10) = {0,1,2,3,4,5,6} for i from {1,…,39} | Bits | 83976 | 83976 | 42014 |  |  |
| Transport block CRC per Slot |  |  |  |  |  |  |
| For Slots 0 and Slot i, if mod(i, 10) = {8,9} for i from {0,…,39} | Bits | N/A | N/A | N/A |  |  |
| For Slot i, if mod(i, 10) = 7 for i from {0,…,39} | Bits | 24 | 24 | 24 |  |  |
| For Slot i, if mod(i, 10) = {0,1,2,3,4,5,6}for i from {1,…,39} | Bits | 24 | 24 | 24 |  |  |
| Number of Code Blocks per Slot |  |  |  |  |  |  |
| For Slots 0 and Slot i, if mod(i, 10) = {8,9} for i from {0,…,39} | CBs | N/A | N/A | N/A |  |  |
| For Slot i, if mod(i, 10) = 7 for i from {0,…,39} | CBs | 4 | 4 | 2 |  |  |
| For Slot i, if mod(i, 10) = {0,1,2,3,4,5,6} for i from {1,…,39} | CBs | 10 | 10 | 5 |  |  |
| Binary Channel Bits Per Slot |  |  |  |  |  |  |
| For Slots 0 and Slot i, if mod(i, 10) = {8,9} for i from {0,…,39} | Bits | N/A | N/A | N/A |  |  |
| For Slots i = 20, 21 | Bits | 160272 | 152640 | 76320 |  |  |
| For Slot i, if mod(i, 10) = 7 for i from {0,…,39} | Bits | 53424 | 53424 | 26712 |  |  |
| For Slot i, if mod(i, 10) = {0,1,2,3,4,5,6} for i from {1,…,19,22,…,39} | Bits | 167904 | 167904 | 83952 |  |  |
| Max. Throughput averaged over 2 frames | Mbps | 118.796 | 118.796 | 59.434 |  |  |
| Note 1: SS/PBCH block is transmitted in slot #0 with periodicity 20 ms  Note 2: Slot i is slot index per 2 frames | | | | | | |

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