**3GPP TSG-RAN4 Meeting #95-e *R4-2008870***

**Electronic Me**e**ting, 25 May – 5 June 2020**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.104** | **CR** | **0172** | **rev** | **1** | **Current version:** | **16.3.0** |  |
|  | | | | | | | | |
| *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 |  | Radio Access Network | **X** | Core Network |  |

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|  | | | | | | | | | | |
| ***Title:*** | Correction on requirement of UCI multiplexed on PUSCH | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_newRAT-Perf | | | | |  | ***Date:*** | | | 2020-05-25 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-16 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | One of the requirements table is dupliced and the right table is missing. The change is for Rel-16 but it will make sure the Rel-15 requirements are captured. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Replace wrong table with right one based on Rel-15 sepecifcation. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The Rel-15 requirements will be not correctly captured. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 11.2.2.3.2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | | **x** |  | Other core specifications | | | | TS/TR 38.104 CR ... | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR 38.141-1 CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

######################### Start of change ############################

##### 11.2.2.3.2 Minimum requirements

The CSI part 1 block error probability shall not exceed 0.1% at the SNR given in table 11.2.2.3.2-1 and table 11.2.2.3.2-2. The CSI part 2 block error probability shall not exceed 1% at the SNR given in table 11.2.2.3.2-3 and table 11.2.2.3.2-4.

Table 11.2.2.3.2-1: Minimum requirements for UCI multiplexed on PUSCH, Type B, with PT-RS, CSI part 1, 50 MHz Channel Bandwidth, 120 kHz SCS

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Number of TX antennas | Number of demodulation branches | Cyclic prefix | Propagation conditions and correlation matrix (Annex G) | UCI bits  (CSI part 1, CSI part 2) | Additional DM-RS position | FRC  (Annex A) | SNR  (dB) |
| 1 | 2 | Normal | TDLA30-300 Low | 7(5,2) | pos0 | G-FR2-A4-3 | 7.2 |
| 2 | Normal | TDLA30-300 Low | 40(20,20) | pos0 | G-FR2-A4-3 | 5.8 |
| 2 | Normal | TDLA30-300 Low | 7(5,2) | pos1 | G-FR2-A4-13 | 7.8 |
| 2 | Normal | TDLA30-300 Low | 40(20,20) | pos1 | G-FR2-A4-13 | 5.9 |



Table 11.2.2.3.2-2: Minimum requirements for UCI multiplexed on PUSCH, Type B, Without PTRS, CSI part 1, 50 MHz Channel Bandwidth, 120 kHz SCS

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Number of TX antennas | Number of demodulation branches | Cyclic prefix | Propagation conditions and correlation matrix (Annex G) | UCI bits  (CSI part 1, CSI part 2) | Additional DM-RS position | FRC  (Annex A) | SNR  (dB) |
| 1 | 2 | Normal | TDLA30-300 LOW | 7(5,2) | pos0 | G-FR2-A4-3 | 7.1 |
| 2 | Normal | TDLA30-300 LOW | 40(20,20) | pos0 | G-FR2-A4-3 | 5.8 |
| 2 | Normal | TDLA30-300 LOW | 7(5,2) | pos1 | G-FR2-A4-13 | 7.3 |
| 2 | Normal | TDLA30-300 LOW | 40(20,20) | pos1 | G-FR2-A4-13 | 5.5 |

Table 11.2.2.3.2-3: Minimum requirements for UCI multiplexed on PUSCH, Type B, with PTRS, CSI part 2, 50 MHz Channel Bandwidth, 120 kHz SCS

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Number of TX antennas | Number of demodulation branches | Cyclic prefix | Propagation conditions and correlation matrix (Annex G) | UCI bits  (CSI part 1, CSI part 2) | Additional DM-RS position | FRC  (Annex A) | SNR  (dB) |
| 1 | 2 | Normal | TDLA30-300 Low | 7(5,2) | pos0 | G-FR2-A4-3 | 1.1 |
| 2 | Normal | TDLA30-300 Low | 40(20,20) | pos0 | G-FR2-A4-3 | 4.0 |
| 2 | Normal | TDLA30-300 Low | 7(5,2) | pos1 | G-FR2-A4-13 | 1.3 |
| 2 | Normal | TDLA30-300 Low | 40(20,20) | pos1 | G-FR2-A4-13 | 4.0 |

Table 11.2.2.3.2-4: Minimum requirements for UCI multiplexed on PUSCH, Type B, Without PTRS, CSI part 2, 50 MHz Channel Bandwidth, 120 kHz SCS

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Number of TX antennas | Number of demodulation branches | Cyclic prefix | Propagation conditions and correlation matrix (Annex G) | UCI bits  (CSI part 1, CSI part 2) | Additional DM-RS position | FRC  (Annex A) | SNR  (dB) |
| 1 | 2 | Normal | TDLA30-300 Low | 7(5,2) | pos0 | G-FR2-A4-3 | 1.1 |
| 2 | Normal | TDLA30-300 Low | 40(20,20) | pos0 | G-FR2-A4-3 | 3.9 |
| 2 | Normal | TDLA30-300 Low | 7(5,2) | pos1 | G-FR2-A4-13 | 1.2 |
| 2 | Normal | TDLA30-300 Low | 40(20,20) | pos1 | G-FR2-A4-13 | 3.7 |

######################### end of change ############################