3GPP TSG-RAN WG4 Meeting # 98-bis-e R4-2104901

Electronic Meeting, Apr. 12-20, 2021

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| *CR-Form-v12.0* |
| **CHANGE REQUEST** |
|  |
|  | **38.133** | **CR** |  | **rev** | **-** | **Current version:** | **16.7.0** |  |
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| *For* [***HELP***](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:***  | 38.133 CR on UL spatial relation test cases |
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| ***Source to WG:*** | Qualcomm |
| ***Source to TSG:*** | R4 |
|  |  |
| ***Work item code:*** | NR\_RRM\_Enh |  | ***Date:*** | 2021-04-02 |
|  |  |  |  |  |
| ***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 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-12 (Release 12)Rel-13 (Release 13)Rel-14 (Release 14)Rel-15 (Release 15)Rel-16 (Release 16)* |
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| ***Reason for change:*** | In UL spatial relation test cases 7.5.9.1, correct the wording to fulfill known DL-RS condition |
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| ***Summary of change:*** | Update UL spatial relation test cases |
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| ***Consequences if not approved:*** | UL spatial relation test cases are not correct |
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| ***Clauses affected:*** | A.7.5.9.1 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **x** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** | **x** |  |  Test specifications | TS/TR 38.521-1 CR ...  |
| ***(show related CRs)*** |  | **x** |  O&M Specifications | TS/TR ... CR ...  |
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| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

## << Start of changes >>

#### A.7.5.9.1 MAC-CE based Spatial Relation switch

##### A.7.5.9.1.1 NR PCell FR2 spatial relation associated with known DL-RS

A.7.5.9.1.1.1 Test Purpose and Environment

The purpose of this test is to verify fulfillment of the uplink spatial relation switch delay requirement defined in clause 8.12.3 by a UE capable of beam correspondence without the need for UL beam sweeping. The supported test configurations are shown in Table A.7.5.9.1.1.1-1.

The test scenario comprises one PCell (Cell 1) as outlined in Table A.7.5.9.1.1.1-2. Cell-specific parameters are provided in Table A.7.5.9.1.1.1-3. OTA-related test parameters are provided in Table A.7.5.9.1.1.1-4.

Throughout the test, PDCCH indicating new transmissions shall ge sent continuously on PCell to ensure that the UE will send ACK/NACKs on PUCCH.

Before the test starts,

UE is connected to Cell 1 on radio channel 1.

UE is configured with a single TCI state, TCI State-0, which is QCLed with SSB0.

UE is configured with two spatial relation information configurations Spatial Relation Info-0 and Spatial Relation Info-1 for PUCCH, each associated with SSB0 and SSB1, respectively.

UE is indicated via MAC-CE activation of *PUCCH-SpatialRelationInfoId* corresponding to Spatial Relation Info-0

UE is configured with a CSI measurement configuration indicating L1-RSRP measurements on SSB0 and SSB1 with periodic reporting. The L1-RSRP measurement period is influenced by the following: the higher layer parameter *timeRestrictionForChannelMeasurement* is configured, measured SSBs are fully overlapping with SMTC window, and there are no conflicts with measurement gaps.

The test consists of two time periods, T1 and T2. During T1 only the SSB associated with PDCCH TCI state-0 and PUCCH Spatial Relation Info-0 is transmitted. At the beginning of T2, transmission of the SSB associated with PUCCH Spatial Relation Info-1 starts. The UE conducts periodic L1-RSRP measurements and *SSB-Index-RSRP* reporting for SSB0 and SSB1. In slot *n*, which is within 1280ms after UE receiving both SSB0 and SSB1, and after reporting valid results for both the SSB0 and the SSB1, the UE receives a MAC-CE indicating a switch of spatial relation to PUCCH Spatial Relation Info 1.

The test equipment verifies that the UE transmits according to PUCCH Spatial Relation Info 0 up until slot *n* + THARQ/NR slot length + $3N\_{slot}^{subframe,µ}$, and according to PUCCH Spatial Relation Info 1 from slot *n* + THARQ/NR slot length + $3N\_{slot}^{subframe,µ}$ + 1 and onwards.

<< End of change >>