**3GPP TSG- RAN WG4 Meeting #97-e *R4-2017137***

**Electronic Meeting, 2-13 Nov., 2020**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** | **1170** | **rev** | **1** | **Current version:** | **16.5.0** |  |
|  | | | | | | | | |
| *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 | **X** | Radio Access Network |  | Core Network |  |

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| ***Title:*** | CR for TS38.133, test case for cell reselection to FR1 intra-frequency NR case for UE fulfilling low mobility criterion | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | CATT | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_UE\_pow\_sav-Perf | | | | |  | ***Date:*** | | | 2020-11-09 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | It is agreed that the test cases for relaxed RRM measurement requirements should be defined. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The test cases for relaxed RRM measurement requirements are introduced. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The relaxed RRM measurement requirements will not be tested. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | New section A.6.1.1.3, A.6.1.1.4, A.6.1.2.3, A.6.1.2.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS38.533 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

========================= First Change Request ===========================

#### A.6.1.1.3 Cell reselection to FR1 intra-frequency NR case for UE fulfilling low mobility criterion

##### A.6.1.1.3.1 Test Purpose and Environment

This test is to verify the requirement for the intra frequency NR cell reselection requirements for UE fulfilling low mobility criterion specified in clause 4.2.2.9.2

##### A.6.1.1.3.2 Test Parameters

The test scenario comprises of 1 NR carrier and 2 cells as given in tables A.6.1.1.3.2-1, A.6.1.1.3.2-2 and A.6.1.1.3.2-3. The test consists of two successive time periods, with time duration of T1 and T2 respectively. Both cell 1 and cell 2 are already identified by the UE prior to the start of the test. Cell 1 and cell 2 belong to different tracking areas. Furthermore, UE has not registered with network for the tracking area containing cell 2.

Table A.6.1.1.3.2-1: Supported test configurations

|  |  |
| --- | --- |
| Configuration | Description |
| 1 | 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode |
| 2 | 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode |
| 3 | 30 kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode |
| Note: The UE is only required to be tested in one of the supported test configurations. | |

Table A.6.1.1.3.2-2: General test parameters for intra frequency NR cell re-selection test case for UE fulfilling low mobility criterion

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test configuration | Value | Comment |
| Initial condition | Active cell |  | 1, 2, 3 | Cell1 | The UE camps on cell 1 in the initial phase |
| Neighbour cells |  | 1, 2, 3 | Cell2 |
| T1 end condition | Active cell |  | 1, 2, 3 | Cell2 | The UE reselects to cell 2 during T1 period |
| Neighbour cells |  | 1, 2, 3 | Cell1 |
| Final condition | Active cell |  | 1, 2, 3 | Cell1 | The UE reselects to cell 1 during T2 period |
| Neighbour cells |  | 1, 2, 3 | Cell 2 |
| RF Channel Number | |  | 1, 2, 3 | 1 |  |
| Time offset between cells | |  | 1 | 3 ms | Asynchronous cells |
| 2 | 3 μs | Synchronous cells |
| 3 | 3 μs | Synchronous cells |
| Access Barring Information | | - | 1, 2, 3 | Not Sent | No additional delays in random access procedure. |
| SSB configuration | |  | 1 | SSB.1 FR1 |  |
| 2 | SSB.1 FR1 |  |
| 3 | SSB.2 FR1 |  |
| SMTC configuration | |  | 1 | SMTC pattern 2 |  |
| 2 | SMTC pattern 1 |  |
| 3 | SMTC pattern 1 |  |
| DRX cycle length | | s | 1, 2, 3 | 0.64 | The value shall be used for all cells in the test. |
| PRACH configuration index | |  | 1, 2, 3 | 102 | The detailed configuration is specified in TS 38.211 clause 6.3.3.2 |
| rangeToBestCell | |  | 1, 2, 3 | Not configured |  |
| T1 | | s | 1, 2, 3 | 20 | T1 needs to be defined so that cell re-selection reaction time is taken into account. |
| T2 | | s | 1, 2, 3 | 20 | T2 needs to be defined so that cell re-selection reaction time is taken into account. |

Table A.6.1.1.3.2-3: Cell specific test parameters for intra frequency NR cell re-selection test case in AWGN for UE fulfilling low mobility criterion

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Parameter | Unit | Test configuration | Cell 1 | | Cell 2 | |
| T1 | T2 | T1 | T2 |
| TDD configuration |  | 1 | N/A | | N/A | |
| 2 | TDDConf.1.1 | | TDDConf.1.1 | |
| 3 | TDDConf.2.1 | | TDDConf.2.1 | |
| PDSCH RMC configuration |  | 1 | SR.1.1 FDD | | N/A | |
| 2 | SR.1.1 TDD | |
| 3 | SR.2.1 TDD | |
| RMSI CORESET RMC configuration |  | 1 | CR.1.1 FDD | | CR.1.1 FDD | |
| 2 | CR.1.1 TDD | | CR.1.1 TDD | |
| 3 | CR.2.1 TDD | | CR.2.1 TDD | |
| Dedicated CORESET RMC configuration |  | 1 | CCR.1.1 FDD | | CCR.1.1 FDD | |
| 2 | CCR.1.1 TDD | | CCR.1.1 TDD | |
| 3 | CCR.2.1 TDD | | CCR.2.1 TDD | |
| OCNG Pattern |  | 1, 2, 3 | OP.1 defined in A.3.2.1 | | OP.1 defined in A.3.2.1 | |
| Initial DL BWP configuration |  | 1, 2, 3 | DLBWP.0.1 | | DLBWP.0.1 | |
| Initial UL BWP configuration |  | 1, 2, 3 | ULBWP.0.1 | | ULBWP.0.1 | |
| RLM-RS |  | 1, 2, 3 | SSB | | SSB | |
| Qrxlevmin | dBm/SCS | 1, 2 | -140 | | -140 | |
| 3 | -137 | | -137 | |
| Pcompensation | dB | 1, 2, 3 | 0 | | 0 | |
| Qhysts | dB | 1, 2, 3 | 0 | | 0 | |
| Qoffsets, n | dB | 1, 2, 3 | 0 | | 0 | |
| SSearchDeltaP | dB | 1, 2, 3 | 3 | | 3 | |
| Cell\_selection\_and\_ reselection\_quality\_ measurement |  | 1, 2, 3 | SS-RSRP | | SS-RSRP | |
|  | dB | 1, 2, 3 | -3.11 | 2.79 | 2.79 | -3.11 |
| Note2 | dBm/SCS | 1 | -98 | | | |
| 2 | -98 | | | |
| 3 | -95 | | | |
| Note2 | dBm/15 kHz | 1, 2, 3 | -98 | | | |
|  | dB | 1, 2, 3 | 13 | 16 | 16 | 13 |
| SS-RSRP Note3 | dBm/SCS | 1 | -85 | -82 | -82 | -85 |
| 2 | -85 | -82 | -82 | -85 |
| 3 | -82 | -79 | -79 | -82 |
| Io | dBm/9.36 MHz | 1 | -52.21 | -52.21 | specified in Cell 1 columns- | |
| dBm/9.36 MHz | 2 | -52.21 | -52.21 |
| dBm/38.16 MHz | 3 | -46.12 | -46.12 |
| Treselection | s | 1, 2, 3 | 0 | 0 | 0 | 0 |
| SintrasearchP | dB | 1, 2, 3 | 60 | | 60 | |
| Propagation Condition |  | 1, 2, 3 | AWGN | | | |
| Note 1: OCNG shall be used such that both cells are fully allocated and a constant total transmitted power spectral density is achieved for all OFDM symbols.  Note 2: Interference from other cells and noise sources not specified in the test is assumed to be constant over subcarriers and time and shall be modelled as AWGN of appropriate power for  to be fulfilled.  Note 3: SS-RSRP levels have been derived from other parameters for information purposes. They are not settable parameters themselves. | | | | | | |

##### A.6.1.1.3.3 Test Requirements

The cell reselection delay to an already detected cell is defined as the time from the beginning of time period T1, to the moment when the UE camps on Cell 2, and starts to send preambles on the PRACH for sending the *RRCSetupRequest* message to perform a Tracking Area Update procedure on Cell 2.

The cell re-selection delay to an already detected cell shall be less than [15.36+X] s.

The cell reselection delay to an already detected cell is defined as the time from the beginning of time period T2, to the moment when the UE camps on cell 1, and starts to send preambles on the PRACH for sending the *RRCSetupRequest* message to perform a Tracking Area Update procedure on cell 1.

The cell re-selection delay to an already detected cell shall be less than [15.36+X] s.

The rate of correct cell reselections observed during repeated tests shall be at least 90%.

NOTE: The cell re-selection delay to an already detected cell can be expressed as: Tevaluate, NR\_ intra + TSI-NR,

Where:

Tevaluate, NR\_ intra See Table 4.2.2.9.2-1 in clause 4.2.2.9.2 for reselection to Cell 2 during T1 with UE fulfilling low mobility criterion. 15.36s.

TSI-NR Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; [X]ms is assumed in this test case.

This gives a total of [15.36+X] s, allow [X] s for the cell re-selection delay to an already detected cell in the test case.