**3GPP TSG-RAN WG4 Meeting # 97-e *R4-2017139***

**Electronic Meeting, 02 Nov. – 13 Nov., 2020**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** | **1205** | **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 test case for cell reselection to FR1 inter-RAT E-UTRA for not at cell edge criterion | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | vivo | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_UE\_pow\_sav-Perf | | | | |  | ***Date:*** | | | 2020-11-10 |
|  |  | | | |  | |  | | |  |
| ***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:*** | | Add test case for cell reselection to FR1 inter-RAT E-UTRA for not at cell edge criterion | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add test case for cell reselection to FR1 inter-RAT E-UTRA for not at cell edge criterion | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | There will be no test case to verity cell reselection to FR1 inter-RAT E-UTRA for not at cell edge criterion | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | x.x | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 38.533 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

## << Start of change 1>>

#### A.6.1.2.4 Cell reselection to lower priority E-UTRAN when UE fulfilling with not-at-cell edge criterion

##### A.6.1.2.4.1 Test Purpose and Environment

This test is to verify the requirement for the NR to E-UTRAN inter-RAT cell reselection requirements when UE fulfilling with not-at-cell edge criterion specified in clause 4.2.2.11.3 when the E-UTRAN cell is of lower priority.

##### A.6.1.2.4.2 Test Parameters

The test scenario comprises of one NR cell and one E-UTRAN cell as given in tables A.6.1.2.4.2-1, A.6.1.2.4.2-2, A.6.1.2.4.2-3 and A.6.1.2.4.2-4. The test consists of three successive time periods, with time duration of T1 and T2 respectively. Both NR cell 1 and E-UTRAN cell 2 are already identified by the UE prior to the start of the test. E-UTRAN cell 2 is of lower priority than cell 1.

Table A.6.1.2.4.2-1: Supported test configurations

|  |  |  |
| --- | --- | --- |
| Configuration | Description of serving cell | Description of target cell |
| 1 | NR 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode | LTE 10 MHz bandwidth, TDD duplex mode |
| 2 | NR 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode | LTE 10 MHz bandwidth, TDD duplex mode |
| 3 | NR 30 kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode | LTE 10 MHz bandwidth, TDD duplex mode |
| 4 | NR 15 kHz SSB SCS, 10 MHz bandwidth, FDD duplex mode | LTE 10 MHz bandwidth, FDD duplex mode |
| 5 | NR 15 kHz SSB SCS, 10 MHz bandwidth, TDD duplex mode | LTE 10 MHz bandwidth, FDD duplex mode |
| 6 | NR 30 kHz SSB SCS, 40 MHz bandwidth, TDD duplex mode | LTE 10 MHz bandwidth, FDD duplex mode |
| Note: The UE is only required to be tested in one of the supported test configurations. | | |

Table A.6.1.2.4.2-2: General test parameters for NR to E-UTRAN cell re-selection test case

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | | Unit | Test configuration | Value | Comment |
| Initial condition | Active cell |  | 1, 2, 3, 4, 5, 6 | Cell1 | The UE camps on cell 1 in the initial phase and fulfill the not at the cell edge criteria. |
| T1 end condition | Active cell |  | 1, 2, 3, 4, 5, 6 | Cell2 | The UE shall perform reselection to cell 2 during T1. |
| Neighbour cells |  | 1, 2, 3, 4, 5, 6 | Cell1 |
| T2 end condition | Active cell |  | 1, 2, 3, 4, 5, 6 | Cell1 | The UE shall perform reselection to cell 1 during T2 for iteration of the tests. |
| Neighbour cells |  | 1, 2, 3, 4, 5, 6 | Cell2 |
| Access Barring Information | | - | 1, 2, 3, 4, 5, 6 | Not Sent | No additional delays in random access procedure. |
| DRX cycle length | | s | 1, 2, 3, 4, 5, 6 | 0.64 | The value shall be used for all cells in the test. |
| NR PRACH configuration index | |  | 1, 2, 3, 4, 5, 6 | 102 | The detailed configuration is specified in TS 38.211 clause 6.3.3.2 |
| E-UTRAN PRACH | |  | 1, 2, 3 | 534 | As specified in table 5.7.1-2 in TS 36.211 [23] |
| configuration index | |  | 4, 5, 6 |  |
| T1 | | s | 1, 2, 3, 4, 5, 6 | 24 | T1 needs to be defined so that cell re-selection reaction time is taken into account. |
| T2 | | s | 1, 2, 3, 4, 5, 6 | 24 | T2 needs to be defined so that cell re-selection reaction time is taken into account. |

Table A.6.1.2.4.2-3: Cell specific test parameters for NR cell 1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | **Unit** | **Test configuration** | **Cell 1** | |
| **T1** | **T2** |
| TDD configuration |  | 1, 4 | N/A | |
|  |  | 2, 5 | TDDConf.1.1 | |
|  |  | 3, 6 | TDDConf.2.1 | |
| PDSCH RMC configuration |  | 1, 4 | SR.1.1 FDD | |
|  |  | 2, 5 | SR.1.1 TDD | |
|  |  | 3, 6 | SR.2.1 TDD | |
| RMSI CORESET RMC |  | 1, 4 | CR.1.1 FDD | |
| configuration |  | 2, 5 | CR.1.1 TDD | |
|  |  | 3, 6 | CR.2.1 TDD | |
| Dedicated CORESET RMC |  | 1, 4 | CCR.1.1 FDD | |
| configuration |  | 2, 5 | CCR.1.1 TDD | |
|  |  | 3, 6 | CCR.2.1 TDD | |
| SSB configuration |  | 1, 4 | SSB.1 FR1 | |
|  |  | 2, 5 | SSB.1 FR1 | |
|  |  | 3, 6 | SSB.2 FR1 | |
| SMTC configuration |  | 1, 4 | SMTC pattern 2 | |
|  |  | 2, 5 | SMTC pattern 1 | |
|  |  | 3, 6 | SMTC pattern 1 | |
| OCNG Pattern |  | 1, 2, 3, 4, 5, 6 | OP.1 defined in A.3.2.1 | |
| Initial DL BWP configuration |  | 1, 2, 3, 4, 5, 6 | DLBWP.0 | |
| Initial UL BWP configuration |  | 1, 2, 3, 4, 5, 6 | ULBWP.0 | |
| RLM-RS |  | 1, 2, 3, 4, 5, 6 | SSB | |
| Qrxlevmin | dBm/SCS | 1, 2, 4, 5 | -140 | |
|  |  | 3, 6 | -137 | |
|  | dBm/SCS | 1, 4 | -98 | |
|  |  | 2, 5 | -98 | |
|  |  | 3, 6 | -95 | |
|  | dBm/15 kHz | 1, 2, 3, 4, 5, 6 | -98 | |
| SS-RSRP | dBm/SCS | 1, 4 | -102 | -86 |
|  |  | 2, 5 | -102 | -86 |
|  |  | 3, 6 | -99 | -83 |
|  | dB | 1, 4 | -4 | 12 |
|  |  | 2, 5 |  |  |
|  |  | 3, 6 |  |  |
|  | dB | 1, 4 | -4 | 12 |
|  |  | 2, 5 |  |  |
|  |  | 3, 6 |  |  |
| SSearchThresholdP | dB | 1, 2, 4, 5 | [Srxlev- 6] | [Srxlev- 6] |
| 3, 6 | [Srxlev- 6] | [Srxlev- 6] |
| Io | dBm/9.36 MHz | 1, 4 | -68.60 | -57.78 |
|  | dBm/9.36 MHz | 2, 5 | -68.60 | -57.78 |
|  | dBm/38.16 MHz | 3, 6 | -62.50 | -51.69 |
| Treselection | S | 1, 2, 3, 4, 5, 6 | 0 | |
| Snonintrasearch | dB | 1, 2, 3, 4, 5, 6 | 50 | |
| Threshx, high (Note 2) | dB | 1, 2, 3, 4, 5, 6 | 48 | |
| Threshserving, low | dB | 1, 2, 3, 4, 5, 6 | 44 | |
| Threshx, low | dB | 1, 2, 3, 4, 5, 6 | 50 | |
| Propagation Condition |  | 1, 2, 3, 4, 5, 6 | 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: This refers to the value of Thresh**x, high** which is included in NR system information, and is a threshold for the E-UTRA target cell | | | | |

Table A.6.1.2.4.2-4: Cell specific test parameters for E-UTRA cell 2

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Unit | Cell 2 | |
| T1 | T2  T3 |
| E-UTRA RF Channel number |  | 1 | |
| BWchannel | MHz | 10 | |
| OCNG Patterns defined in TS 36.133 [15] clause A.3.2 |  | OP.2 TDD for test configuration 1, 2, 3;  OP.2 FDD for test configuration 4, 5, 6 | |
| PBCH\_RA | dB | 0 | |
| PBCH\_RB | dB |
| PSS\_RA | dB |
| SSS\_RA | dB |
| PCFICH\_RB | dB |
| PHICH\_RA | dB |
| PHICH\_RB | dB |
| PDCCH\_RA | dB |
| PDCCH\_RB | dB |
| PDSCH\_RA | dB |
| PDSCH\_RB | dB |
| OCNG\_RANote 1 | dB |
| OCNG\_RBNote 1 | dB |
| Qrxlevmin | dBm | -140 | |
|  | dBm/15 kHz | -98 | |
| RSRP | dBm/15 KHz | -84 | -84 |
|  | dB | 14 | 14 |
|  | dB | 14 | 14 |
| TreselectionEUTRAN | S | 0 | |
| Snonintrasearch | dB | Not sent | |
| Threshx, high (Note 2) | dB | 48 | |
| Threshserving, low | dB | 44 | |
| Threshx, low | dB | 50 | |
| Propagation Condition |  | 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: This refers to the value of Thresh**x, high** which is included in E-UTRA system information, and is a threshold for the NR target cell | | | |

##### A.6.1.2.4.3 Test Requirements

The cell reselection delay to a lower priority E-UTRAN cell is defined as the time from the beginning of time period T2, 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 a lower priority cell shall be less than 17s.

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

NOTE: The cell re-selection delay to a lower priority cell can be expressed as: Tevaluate, E-UTRAN + TSI-E-UTRA,

Where:

Tevaluate, E-UTRAN See Table 4.2.2.5-1 in clause 4.2.2.11.3

TSI-E-UTRA Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1280 ms is assumed in this test case.

This gives a total of 16.64 s, allow 17 s for the cell re-selection delay to a lower priority E-UTRAN cell.

## << End of change 1>>