**3GPP TSG-RAN4 Meeting # 116-bis *R4-2513803***

**Prague, Czech Republic, Oct. 13 - 17, 2025**

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| *CR-Form-v12.3* |
| **CHANGE REQUEST** |
|  |
|  | **38.133** | **CR** | **draftCR** | **rev** | **-** | **Current version:** | **19.2.0** |  |
|  |
| *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:***  | Draft CR on test case of NR SAN FR1 Cell reselection for UE operating on a cell with less than 5MHz BW |
|  |  |
| ***Source to WG:*** | Samsung |
| ***Source to TSG:*** | R4 |
|  |  |
| ***Work item code:*** | NR\_IoT\_NTN\_req\_test\_enh-Perf  |  | ***Date:*** | 2025-10-01 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***Release:*** | Rel-19 |
|  | *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-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19) Rel-20 (Release 20)* |
|  |  |
| ***Reason for change:*** | According to the approved WF (R4-2508261), RAN4 should specify the test case of NR SAN FR1 Cell reselection for UE operating on a cell with less than 5MHz BW. |
|  |  |
| ***Summary of change:*** | Add test case of NR SAN FR1 Cell reselection for UE operating on a cell with less than 5MHz BW. |
|  |  |
| ***Consequences if not approved:*** | There is no test case of NR SAN FR1 Cell reselection for UE operating on a cell with less than 5MHz BW. |
|  |  |
| ***Clauses affected:*** | A.14.1.X |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  | **X** |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** | **Y** |  |  Test specifications | TS38.533 |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

----------------------------------------Start Change #1-------------------------

#### A.14.1.X Cell reselection to FR1 intra-frequency NR case for UE operating on a cell with less than 5 MHz BW

##### A.14.1.X.1 Test Purpose and Environment

This test is to verify the requirement for the intra frequency NR cell reselection requirements for satellite access specified in clause 4.2C.2.3 for UE capable of operating on a cell with less than 5 MHz BW.

##### A.14.1.X.2 Test Parameters

The test scenario comprises of 2 cells on 1 NR carrier configured each in a different satellite as given in tables A.14.1.X.2-1, A.14.1.X.2-2 and A.14.1.X.2-3. The test consists of three successive time periods, with time duration of T1, T2, and T3 respectively. Only Cell 1 is 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.14.1.X.2-1: Supported test configurations

|  |  |
| --- | --- |
| Configuration | Description |
| 1 | GSO, NR FDD, SSB SCS 15 kHz, data SCS 15 kHz, BW 3 MHz |
| 2 | NGSO, NR FDD, SSB SCS 15 kHz, data SCS 15 kHz, BW 3 MHz |
| Note: If UE supports both NGSO and GSO, the GSO-based test cases can be skipped if the UE passes NGSO-based test cases. |

Table A.14.1.X.2-2: General test parameters for intra frequency NR cell re-selection test case

| Parameter | Unit | Value | Comment |
| --- | --- | --- | --- |
|  |  |
| Initial condition | Active cell |  | Cell 1 |  |
| T2 end condition | Active cell |  | Cell 2 |  |
|  | Neighbour cells |  | Cell 1 |  |
| Final condition | Active cell |  | Cell 1 |  |
|  | Neighbour cells |  | Cell 2  |  |
| RF Channel Number |  | 1 |  |
| Time offset between cells |  | 3 ms | Asynchronous cells |
| Access Barring Information | - | Not Sent | No additional delays in random access procedure. |
| DRX cycle length | s | 1.28 | The value shall be used for all cells in the test. |
| PRACH configuration index |  | 102 | The detailed configuration is specified in TS 38.211 [6] clause 6.3.3.2 |
| rangeToBestCell |  | Not configured |  |
| T1 | s | >7 | During T1, Cell 2 shall be powered off, and during the off time the physical cell identity shall be changed, The intention is to ensure that Cell 2 has not been detected by the UE prior to the start of period T2 |
| T2 | s | 40(NOTE 1) | T2 needs to be defined so that cell re-selection reaction time is taken into account. |
| T3 | s | 15(NOTE 1) | T3 needs to be defined so that cell re-selection reaction time is taken into account. |
| NOTE 1: If the test is performed in a NGSO configuration, and the scaling factor Kmulti\_SMTC defined in clause 4.2C.2.3 is greater than 1, according to UE capabilities, the duration of times T2 and T3 shall be scaled for the same factor to allow the UE to complete the cell reselection within the duration of the test case. |

Table A.14.1.X.2-3: Cell specific test parameters for intra frequency NR cell re-selection test case

| Parameter | Unit | Cell 1 | Cell 2 |
| --- | --- | --- | --- |
|  |  | T1 | T2 | T3 | T1 | T2 | T3 |
| Satellite information |  | SSC.1 for Config 1SSC.2 for Config 2 | NSC.1 for Config 1NSC.2 for Config 2 |
| PDSCH RMC configuration |  | SR.1.2 FDD | SR.1.2 FDD |
| RMSI CORESET configuration |  | CR.1.3 FDD | CR.1.3 FDD |
| Dedicated CORESET configuration |  | CCR.1.6 FDD | CCR.1.6 FDD |
| OCNG Pattern |  | OP.1 defined in A.3.2.1 | OP.1 defined in A.3.2.1 |
| Initial DL BWP configuration |  | DLBWP.0.1 | DLBWP.0.1 |
| Initial UL BWP configuration |  | ULBWP.0.1 | ULBWP.0.1 |
| SSB configuration |  | SSB.13 FR1 | SSB.13 FR1 |
| SMTC configuration |  | #1: SMTC.2 for Cell 1#2: SMTC.5 for Cell 2 | #1: SMTC.6 for Cell 1#2: SMTC.2 for Cell 2 |
| RLM-RS |  | SSB | SSB |
| Qrxlevmin | dBm/SCS | -130 | -130 |
| Pcompensation | dB | 0 | 0 |
| Qhysts | dB | 0 | 0 |
| Qoffsets, n | dB | 0 | 0 |
| Cell\_selection\_and\_reselection\_quality\_measurement |  | SS-RSRP | SS-RSRP |
|  | dB | 16 | -3.11 | 2.79 | -infinity | 2.79 | -3.11 |
|  Note2 | dBm/SCS | -98 |
|  Note2 | dBm/15 kHz | -98 |
|  | dB | 16 | 13 | 16 | -infinity | 16 | 13 |
| SS-RSRP Note3 | dBm/SCS | -82 | -85 | -82 | -infinity  | -82 | -85 |
| Io | dBm/2.7 MHz | -60.31 | -58.58 | -58.58 | Same as parameters specified in Cell 1 columns- |
| Treselection | s | 0 | 0 | 0 | 0 | 0 | 0 |
| SintrasearchP | dB | 60 | 60 |
| Propagation Condition  |  | AWGN |

##### A.14.1.X.3 Test Requirements

The cell reselection delay to a newly detectable 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 Registration procedure for mobility and periodic registration update on Cell 2.

The cell re-selection delay to a newly detectable cell shall be less than:

34 s if Kmulti\_SMTC is equal to 1 (see note on Table A.14.1.X.2-2); or

66 s if Kmulti\_SMTC is equal to 2.

The cell reselection delay to an already detected cell is defined as the time from the beginning of time period T3, 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 Registration procedure for mobility and periodic registration update on Cell 1.

The cell re-selection delay to an already detected cell shall be less than:

8 s if Kmulti\_SMTC is equal to 1 (see note on Table A.14.1.X.2-2); or

14.5 s if Kmulti\_SMTC is equal to 2.

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

NOTE: The cell re-selection delay to a newly detectable cell can be expressed as: Kmulti\_SMTC \*Tdetect, NR\_Intra + TSI-NR, and to an already detected cell can be expressed as: Kmulti\_SMTC \*Tevaluate, NR\_ intra + TSI-NR,

Where:

Tdetect, NR\_Intra + 40msSee Table 4.2C.2.3-1 in clause 4.2C.2.3

Tevaluate, NR\_ intra See Table 4.2C.2.3-1 in clause 4.2C.2.3

Kmulti\_SMTC is described in clause 4.2C.2.3

TSI-NR Maximum repetition period of relevant system info blocks that needs to be received by the UE to camp on a cell; 1320 ms is assumed in this test case provided that SIB1 and SIB19 are scheduled with 20 ms period and 80 ms period, respectively.

If Kmulti\_SMTC = 1, Kmulti\_SMTC \*Tevaluate, NR\_Intra + TSI-NR = 7.68 s; allow 8 s. And Kmulti\_SMTC \*Tdetect, NR\_ intra + TSI-NR = 33.36 s, allow 34 s.

If K\_multi\_SMTC = 2, Kmulti\_SMTC \*Tevaluate, NR\_Intra + TSI-NR = 14.08 s; allow 14.5 s. And Kmulti\_SMTC \*Tdetect, NR\_ intra + TSI-NR = 65.4 s, allow 66 s.

----------------------------------------End Change #1-------------------------