**3GPP TSG-RAN WG4 Meeting #116-bis *R4-2513190***

**Prague , CZ, 13th – 17th Oct, 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** | **Draft** | **rev** | **-** | **Current version:** | **19.1.0** |  |
|  | | | | | | | | |
| *For* ***HE******LP*** *on using this form: comprehensive instructions can be found at  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 cases for satellite switching with re-synchronization for less than 5MHz with NTN | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | CATT | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_IoT\_NTN\_req\_test\_enh-Perf | | | | |  | ***Date:*** | | | 2025-10-03 |
|  |  | | | |  | |  | | |  |
| ***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 can be found in 3GPP TR 21.900. | | | | | | | | *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:*** | | The test cases for satellite switching with re-synchronization for less than 5MHz with NTN needs to be introduced. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add the test cases for satellite switching with re-synchronization for less than 5MHz with NTN in clause A.14.2.2.X. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The test cases for satellite switching with re-synchronization for less than 5MHz with NTN would be missed. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | (new) A.14.2.2.X | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

<Start of Change 1>

#### A.14.2.2.X RACH-based hard Satellite switching with re-synchronization from FR1 to FR1 for less than 5MHz with NTN

##### A.14.2.2.X.1 Test Purpose and Environment

This test is to verify the requirement for RACH-based hard satellite switching with re-synchronization from SAN FR1 to SAN FR1 for unknown target cell operating with 12 PRB SSB bandwidth specified in clause 6.1C.3.

##### A.14.2.2.X.2 Test Parameters

Supported test configurations are shown in table A.14.2.2.X.2-1. General test parameters as specified in table A.14.2.2.X.2-2 apply except those specified in table A.14.2.2.4.2-2. Target Satellite configuration pattern specified in table A.14.2.2.4.2-3 shall apply. Cell specific test parameters as specified in table A.14.2.2.X.2-4 apply except those specified in table A.14.2.2.4.2-4.

The test procedure specified in clause A.14.2.2.4.2 applies to this test. The Cell 2 is the unknown target cell operating with 12 PRB SSB bandwidth.

Table A.14.2.2.X.2-1: Supported test configurations

|  |  |
| --- | --- |
| Configuration | Description |
| 1 | GSO, NR FDD, 15 kHz SSB SCS, 3 MHz BW |
| 2 | NGSO, NR FDD, 15 kHz SSB SCS, 3 MHz BW |

Table A.14.2.2.X.2-2: General test parameters for RACH-based hard Satellite switching with re-synchronization from FR1 to FR1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | | **Unit** | **Value** | **Comment** |
| Initial conditions | Active cell |  | Cell 1 |  |
| Final condition | Active cell |  | Cell 2 | unknown target cell operating with 12 PRB SSB bandwidth |

Table A.14.2.2.X.2-3: Cell specific test parameters for RACH-based Hard Satellite switching with re-synchronization from FR1 to FR1 test case

| Parameter | | Unit | Cell 1Note1 | | Cell 2Note1 | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| T1 | T2 | T1 | T2 | |
| BWchannel | Config 1,2 | MHz | 3: NPRB,c = 15 |  |  | 3: NPRB,c = 15 | |
| BWP BW | MHz | 3: NPRB,c = 15 |  |  | 3: NPRB,c = 15 | |
| PDSCH Reference measurement channel |  | SR.1.2 FDD |  |  | SR.1.2 FDD | |
| CORESET Reference Channel |  | CR.1.3 FDD |  |  | CR.1.3 FDD | |
| SSB Configuration |  | SSB.13 FR1 |  |  | SSB.13 FR1 | |
| IoNote1 | Config 1, 2 | dBm/  2.7 MHz | -66.81 | -66.81 | -66.81 | -66.81 | |
| NOTE 1: Io levels have been derived from other parameters for information purposes. They are not settable parameters themselves. | | | | | | |

##### A.14.2.2.X.3 Test Requirements

The UE shall start to transmit the PRACH to Cell 2 less than 52.5 ms from the beginning of time period T2.

The rate of correct satellite switch observed during repeated tests shall be at least 90 %.

NOTE: The hard satellite switch with re-sync delay Dswitch\_unchangedPCI can be expressed as: Tinterrupt, where:

Tinterrupt is defined in clause 6.1C.3.2.2.

Dswitch\_unchangedPCI = Tinterrupt = Tsearch + Tprocessing + T∆ + Tmargin ms

Here: Tsearch = Tfirst\_SSB = 0.5ms; Tprocessing = 10ms; T∆ = 20ms; Tmargin = 2ms.

This gives a total of 52.5 ms.

<End of Change 1>