**3GPP TSG-RAN4 Meeting #116-bis *R4-251xxxx***

**Prague, Czech Republic, 13 – 17 October, 2025**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.133** | **CR** | xxxx | **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:*** | draftCR on RLM test cases for less than 5MHz for NTN | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_IoT\_NTN\_req\_test\_enh-Perf | | | | |  | ***Date:*** | | | 2025-09-28 |
|  |  | | | |  | |  | | |  |
| ***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](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:*** | | Based on work split in R4-2508261, RLM test cases should be introduced for less than 5MHz in NTN. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Introduce RLM test cases for less than 5MHz in NTN. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Agreed test cases are missing for less than 5MHz in NTN. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | A.14.4.1.X (new), A.14.4.1.Y (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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.14.4.1.X Radio Link Monitoring Out-of-sync Test for FR1 SAN PCell configured with SSB-based RLM RS in non-DRX mode

A.14.4.1.X.1 Test Purpose and Environment

The purpose of this test is to verify that the UE supporting *support-3MHz-ChannelBW-r18* properly detects the out of sync for the purpose of monitoring downlink radio link quality of the PCell operating on a 3 MHz channel bandwidth. This test will partly verify the FR1 radio link monitoring requirements in clause 8.1C.

Supported test configurations are specified in table A.14.4.1.X.1-1. General test parameters as specified in table A.14.4.1.1.1-2 with config 1 apply except those specified in table A.14.4.1.X.1-2. Cell specific test parameters as specified in table A.14.4.1.1.1-3 apply except those specified in table A.14.4.1.X.1-3.

The test procedure specified in clause A.14.4.1.1.1 applies to this test.

**Table A.14.4.1.X.1-1: Supported test configurations for FR1 PCell**

|  |  |
| --- | --- |
| **Configuration** | **Description** |
| 1 | FDD duplex mode, 15 kHz SSB SCS, 3 MHz bandwidth |

**Table A.14.4.1.X.1-2: General test parameters for FR1 OOS 15 PRB in non-DRX mode**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | | **Unit** | **Value** |
|  | |  | **Test 1** |
| BWchannel | Config 1 | MHz | 3: NPRB,c = 15 |
| RMSI CORESET Reference Channel | Config 1 |  | CR.1.3 FDD |
| Dedicated CORESET Reference Channel | Config 1 |  | CCR.1.7 FDD |
| SSB Configuration | Config 1 |  | SSB.13 FR1 |
|  | DCI format |  | 1-0 |
|  | Number of Control OFDM symbols |  | 3 |
|  | Aggregation level | CCE | 4 |
| In sync transmission parameters | Ratio of hypothetical PDCCH RE energy to average SSS RE energy | dB | 0 |
|  | Ratio of hypothetical PDCCH DMRS energy to average SSS RE energy | dB | 0 |
|  | Number of Control OFDM symbols |  | 3 |
|  | Aggregation level | CCE | 8 |
| Out of sync transmission parameters | Ratio of hypothetical PDCCH RE energy to average SSS RE energy | dB | 4 |
|  | Ratio of hypothetical PDCCH DMRS energy to average SSS RE energy | dB | 4 |
|  | REG bundle size |  | 6 |
|  | CP length |  | Normal |
|  | Mapping from REG to CCE |  | Non-Distributed |

**Table A.14.4.1.X.1-3: Cell specific test parameters for FR1 PCell**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter** | | **Unit** | **Test 1** | | |
|  | |  | **T1** | **T2** | **T3** |
| SNR\_SSB of set q0 | Config 1 | dB | 2 | -6 | -14 |

A.14.4.1.X.2 Test Requirements

Test requirements specified in clause A.14.4.1.1.2 apply to this test.

A.14.4.1.Y Radio Link Monitoring In-sync Test for FR1 SAN PCell configured with SSB-based RLM RS in DRX mode for for less than 5 MHz BW

A.14.4.1.Y.1 Test Purpose and Environment

The purpose of this test is to verify that the UE supporting *support-3MHz-ChannelBW-r18* properly detects the out of sync and in sync for the purpose of monitoring downlink radio link quality of the PCell operating on a 3 MHz channel bandwidth. This test will partly verify the FR1 radio link monitoring requirements in clause 8.1C.

Supported test configurations are specified in table A.14.4.1.Y.1-1. General test parameters as specified in table A.14.4.1.4.1-2 with config 1 apply to this test, except those specified in table A.14.4.1.Y.1-2. Cell specific test parameters as specified in table A.14.4.1.4.1-3 apply except those specified in table A.14.4.1.Y.1-3.

The test procedure specified in clause A.14.4.1.4.1 applies to this test.

**Table A.14.4.1.Y.1-1: Supported test configurations for FR1 PCell**

|  |  |
| --- | --- |
| **Configuration** | **Description** |
| 1 | FDD, SSB SCS 15 kHz, data SCS 15 kHz, BW 3 MHz (15PRB) |
| NOTE: The UE is required to pass the test with configuration 1 for every supported 3 MHz band in FR1. | |

**Table A.14.4.1.Y.1-2: General test parameters for FR1 in-sync testing in DRX mode**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter** | | | **Unit** | **Value** | |
| **Parameter** | | **Unit** | | | **Value** |
|  | |  | | | **Test 1** |
| BWchannel | Config 1 | MHz | | | 3: NRB,c = 15 |
| RMSI CORESET Reference Channel | Config 1 |  | | | CR.1.3 FDD |
| Dedicated CORESET Reference Channel | Config 1 |  | | | CCR.1.7 FDD |
| SSB Configuration | Config 1 |  | | | SSB.13 FR1 |
| In sync transmission parameters | Number of Control OFDM symbols, Config 1 |  | | | 3 |
|  | Aggregation level, Config 1 | CCE | | | 4 |
|  | Mapping from REG to CCE, Config 1 | Config 1 | | | Non-Distributed |
| Out of sync transmission parameters | Number of Control OFDM symbols, Config 1 |  | | | 3 |
|  | Aggregation level, Config 1 | CCE | | | 8 |
|  | Mapping from REG to CCE, Config 1 | Config 1 | | | Non-Distributed |

**Table A.14.4.1.Y.1-3: Cell specific test parameters for FR1 (Cell 1) for in-sync radio link monitoring tests in DRX mode**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Parameter** | | **Unit** | **Test 1** | | | | |
|  | |  | **T1** | **T2** | **T3** | **T4** | **T5** |
| SNR on RLM-RS | Config 1 | dB | 2 | -6 | -14 | -2.5 | 3 |

A.14.4.1.Y.2 Test Requirements

Test requirements specified in clause A.14.4.1.4.2 apply to this test.

<End of Change 1>