**3GPP TSG-RAN WG4 Meeting #116bisR4-2515046**

**Prague, CZ, 13 - 17 Oct, 2025**

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.101-5** | **CR** | **-** | **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 |  | Radio Access Network | **X** | Core Network |  |

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|  | | | | | | | | | | |
| ***Title:*** | Draft CR for testing related to satellite sccess and applicability of requirements | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_IoT\_NTN\_req\_test\_enh-Perf | | | | |  | ***Date:*** | | | 2025-10-03 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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:*** | | As per the WF R4-2508625, two NR NTN test cases, TS 38.101-5 Clause 8.2.1.2.2.1 Test 1-1 and Test 1-2, are agreed to be introduced with timing varying channel model. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Added the test condition and corresponding test applicability for NGSO requirements with timing varying channel model. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | There will be inconsist between specification and RAN4 agreements. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 8.2.1.1.3, A.4.1, A.4.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 38.521-5 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | R4-2513438 | | | | | | | | |

*<START OF THE CHANGE 1>*

##### 8.2.1.1.3 Applicability of different requirements

The applicability rules for different requirements in section 8 are specified in Table 8.2.1.1.3-1.

Table 8.2.1.1.3-1: Applicability of requirements

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| If UE has passed | | | UE can skip | | | Applicabili  ty notes |
| Test type | | Test list | Test type | | Test list |
| FDD | PDSCH | Table 8.2.1.2.2.1.1-4 (Test 1-1) | FDD | PDSCH | Table 8.2.1.2.2.1.1-3 (Test 1-1) |  |
| FDD | PDSCH | Table 8.2.1.2.2.1.1-4 (Test 1-2) | FDD | PDSCH | Table 8.2.1.2.2.1.1-3 (Test 1-2) |  |

*<END OF THE CHANGE 1>*

*<START OF THE CHANGE 2>*

## A.4.1 General

The following test conditions should be maintained for Satellite Access when test equipment emulates the snapshot of the satellite link channel.

- The same ephemeris info will be maintained during each test.

- A set of ephemeris information are pre-defined for each satellite corresponding to respective epoch times in TS 38.508-1 [13].

- The range of the selected constant delay shift is as follows:

- For NGSO an altitude of 600km and 1200km on a circular orbit are considered. The range of the one-way delay between UE and satellite is from 2ms (lowest value for LEO orbit 600km) to 6.67ms (highest value for LEO orbit 1200km).

- For GSO the range of the one-way delay from UE to satellite is within 119.375ms to 128.79ms.

- Constant delay value is derived from ephemeris info (SIB19) and UE location associated to zero Doppler or non-zero Doppler value under test.

The following test conditions should be maintained for Satellite Access when test equipment emulates the time varying Doppler shift and propagation delay for NGSO satellite link based on Annex E.

- The ephemeris info will be updated according to the velocity and position of satellite during each test.

- The Doppler shift and propagation delay vary due to satellite motion and Earth rotation.

## A.4.2 Test condition for transmitter characteristics

All requriements in section 6 for transmitter characteristics, other than frequency error in clause 6.4.1, shall be verified when Doppler conditions are set to zero and delay conditions are set to constant for all types of satellites.

Frequency error requirement in clause 6.4.1 shall be verified for at least two cases: one with zero Doppler condition and the other with a constant Doppler shift where the range of the absolute value of Doppler is greater than zero and up to [0.93] ppm if the IE field *ntn-ScenarioSupport-r17* is present and indicated as GSO and up to 24 ppm if the IE field *ntn-ScenarioSupport-r17* is present and indicated as NGSO or only the IE field *nonTerrestrialNetwork-r17* is present. The delay condition is a constant.

## A.4.3 Test condition for receiver characteristics

All requirements in section 7 for receiver characteristics shall be verified when Doppler conditions are set to zero and delay conditions are set to constant for all types of satellites.

A.4.4 Test condition for performance requirements

All requirements defined in Table 8.2.1.2.2.1.1-3 of section 8 for performance requirements shall be verified when Doppler conditions related to satellite motion for DL in service link are set to zero and delay conditions are set to constant for all types of NGSO satellites.

The one-way delay between UE and satellite for NGSO at an altitude of 600km is 2ms.

The requirements defined in Table 8.2.1.2.2.1.1-4 of section 8 for performance requirements shall be verified when Doppler conditions related to satellite motion for DL in service link are set to time varying and delay conditions are set to time varying for all types of NGSO satellites as defined in Annex G.

*<END OF THE CHANGE 2>*