**3GPP TSG-4 Meeting #116bis *R4-2515049***

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

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **6.102** | **CR** | **-** | **rev** | **-** | **Current version:** |  |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network |  | Core Network |  |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Draft CR for TS36.102 on testing related to satellite sccess and applicability of requirements | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | MediaTek | | | | | | | | | |
| ***Source to TSG:*** | 4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_IoT\_NTN\_req\_test\_enh-Perf | | | | |  | ***Date:*** | | | 01 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | |  |
|  | *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:*** | | Channel modelling of time varying doppler shift and propagation delay for NGSO is introduced in Rel-19. Currently, there are only test conditions assuming the snaphot of satellite link in TS36.102. It is necessary to capture the test condition for requirements assuming time varying channel in TS36.102. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Modify Annex A.3 to capture the test condition for requirements assuming time varying channel. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Test conditions for chanenl modelling with time varying doppler shift and propagation delay for NGSO is nuclear. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | Annex A.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **x** |  | Test specifications | | | | TS/TR 38.521-4 CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**<Start of change>**

8.1.2.3 Applicability of requirements for different channel modelling

The applicability rules for requirements in section 8 are specified in Table 8.1.2.3-1 and Table 8.1.2.3-2.

**Table 8.1.2.3-1: Applicability of requirements for UE category M1**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **If UE has passed** | | | **UE can skip** | | | **Applicability notes** |
| **Test type** | | **Test list** | **Test type** | | **Test list** |  |
| FDD and half-duplex FDD | PDSCH | Table 8.2.1.1.1.1-3 (Test 1) | FDD and half-duplex FDD | PDSCH | Table 8.2.1.1.1.1-2 (Test 1) |  |
| FDD and half-duplex FDD | PDSCH | Table 8.2.1.1.1.1-3 (Test 2) | FDD and half-duplex FDD | PDSCH | Table 8.2.1.1.1.1-2 (Test 2) |  |

**Table 8.1.2.3-2: Applicability of requirements for UE category NB1 and NB2**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **If UE has passed** | | | **UE can skip** | | | **Applicability notes** |
| **Test type** | | **Test list** | **Test type** | | **Test list** |  |
| Half-duplex FDD | NPDSCH | Table 8.3.1.1.1.1-3 (Test 1) | Half-duplex FDD | NPDSCH | Table 8.3.1.1.1.1-2 (Test 1) |  |

**<Changed part End>**

**<Start of change>**

A.3 Testing related to Satellite Access

A.3.1 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 36.508 [14].

- 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).

- Constant delay value is derived from ephemeris info (SIB31) 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 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 varies due to satellite motion and Earth rotation.A.3.2 Test condition for transmitter characteristics

All requriements in section 6 for transmitter characteristics, other than frequency error in clauses 6.4A.1 and 6.4B.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 clauses 6.4A.1 and 6.4B.1 shall be verified for at least two cases: one with zero Doppler condition and the other one with constant Doppler (different from zero) up to 0.93 ppm for GSO satellites and up to 24 ppm for NGSO satellites.

A.3.3 Test condition for receiver characteristics

All requirements in section 7 for receiver characteristics 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 satellites.

A.3.4 Test condition for performance requirements

All requirements defined in Table 8.2.1.1.1.1-2 and Table 8.3.1.1.1.1-2 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.

All requirements defined in Table 8.2.1.1.1.1-3 and Table 8.3.1.1.1.1-3 of section 8 for performance requirements shall be verified when Doppler conditions related to satellite motion for DL in service link are set to time varying and delay conditions are set to time varying for all types of NGSO satellites as defined in Annex E.**<Changed part End>**