**3GPP TSG-RAN WG5 Meeting #99 R5-23xxxx**

**Incheon, Korea, 22nd -26th May 2023**

Title: LS on clarifications for Non-Terrestrial Networks

Response to: -

Release: Rel-17

Work Item: NR\_NTN\_solutions, LTE\_NBIoT\_eMTC\_NTN\_req

Source: RAN WG5

To: RAN WG4

Cc: -

**Contact Person:**

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Attachments:

**1. Overall Description:**

In TS 38.101-5 Sections 6.1 and 7.1, it is indicated that all requirements for NR NTN in such specification, except for frequency error, shall be verified when Doppler conditions are set to zero. Even when not yet in TS 36.102, similar agreement was achieved for IoT NTN in R4-2303538 Issue 2-6.

In TS 38.101-5 Section 6.4.1, it is indicated that NR NTN frequency error requirement will be verified for at least 2 cases of which one has zero Doppler conditions. Similar statements for IoT NTN frequency error requirements appear= in TS 36.102 sections 6.4A.1 and 6.4B.1

Q1a: Are all the section 6 and section 7 RF Tx/Rx test cases defined in TS 38.101-5 applicable to both GSO and NGSO?

Q1b: Similarly are the section 6 and section 7 RF Tx/Rx test cases defined in TS 36.102 applicable to both GSO and NGSO?

Q2a: Can RAN4 clarify what zero doppler conditions imply for the section 6 and section 7 RF test cases defined in TS 38.101-5? Specifically for NGSO where satellite orbit introduces a large time varying doppler shift and time varying propagation delay. For GSO any propagation delay needs to be considered?

[KEYS wants to ask whether UE’s doppler pre-compensation algorithm are active for the RF Tx/Rx test cases other than Frequency error requirements]

Q2b. Above questions apply to TS 36.102 as well.

Q3a: For the NTN frequency error requirements defined in section 6.4.1 of TS 38.101-5, what is RAN4 assumption for the 2nd case with non-zero doppler conditions for both GSO and NGSO?

Q3b: Above question applies to frequency error requirements defined in TS 36.102 section 6.4A.1 and 6.4B.1

Q4a: For section 6, section 7, section 8 test cases defined in TS 38.101-5, is RAN4 assuming implementation of a satellite propagator model in the Test equipment for the service link?

Q4b: Similarly, is RAN4 assuming implementation of a satellite propagator model in the test equipment for service link for test cases defined in TS 36.102?

Q5. [KEYS wants to ask RAN4 if UE mobility during the test needs to be considered]

**2. Actions:**

**To RAN WG4:**

**ACTION:** RAN5 would like to kindly ask RAN4 to provide above requested clarifications..

**3. Date of Next RAN WG5 Meetings:**

TSG RAN WG5 Meeting #100 August 21st – 25th, 2023 Toulouse, FR

TSG RAN WG5 Meeting #101 November 13th – 17th, 2023 Chicago, US