**3GPP TSG RAN WG1 #122 R1-250XXXX**

**Bengaluru, India, Aug 25th – 29th, 2025**

Agenda Item: 10.6

Source: Ad-Hoc Chair (Ericsson)

Title: Session notes for 10.6 Non-Terrestrial Network (NTN) for NR Phase 4

Document for: Discussion, Decision

## Non-Terrestrial Networks (NTN) for NR Phase 4

*Please refer to* [*RP-251863*](https://www.3gpp.org/ftp/TSG_RAN/TSG_RAN/TSGR_106/Docs/RP-243300.zip) *for detailed scope of the SI for NR-NTN Phase 4.*

[122-R20-NR-NTN] Email discussion on Rel-20 NR-NTN – xxx

* To be used for sharing updates on online/offline schedule, details on what is to be discussed in online/offline sessions, tdoc number of the moderator summary for online session, etc

R1-2505153 Discussion on Rel-20 GNSS resilient NR NTN operation FUTUREWEI

**R1-2505361** Work plan for NR NTN Phase 4 THALES

Late submission

R1-2506115 Discussion on GNSS resilient NR-NTN operation Sony

### NR-NTN GNSS resilience

**R1-2505859** Considerations for the study of NR-NTN GNSS resilience Eutelsat Group

**R1-2506048** Initial views on GNSS resilient operation for NR over NTN Nokia

R1-2505124 Discussion on NR-NTN GNSS resilience SageRAN

R1-2505142 On GNSS-resilient operation for NR-NTN Ericsson

R1-2505169 Discussion on NR NTN GNSS resilience Spreadtrum, UNISOC

R1-2505223 GNSS resilience for NR-NTN Huawei, HiSilicon

R1-2505307 Discussion on NR-NTN GNSS resilience CATT

R1-2505359 Considerations on NR-NTN Resilience to GNSS Unavailability and Degradation THALES

R1-2505413 Discussion on NR-NTN GNSS resilience vivo

R1-2505460 Discussion on NR-NTN GNSS resilience Xiaomi

R1-2505508 Discussion on NR-NTN GNSS resilience ZTE Corporation, Sanechips

R1-2505581 Discussion on NR-NTN GNSS resilience Samsung

R1-2505590 Discussion on NR-NTN GNSS resilience Fraunhofer IIS, Fraunhofer HHI

R1-2505632 GNSS Resilient NR-NTN Operation in 5G Adv Tejas Network Limited

R1-2505672 Discussion on NR-NTN GNSS resilience Ofinno

R1-2505695 Random access for NR NTN GNSS resilient operation Sharp

R1-2505754 Discussion on NR-NTN GNSS resilience OPPO

R1-2505779 Discussion on NR-NTN GNSS resilience China Telecom

R1-2505910 Considerations of NR-NTN GNSS Resilient Operations Apple

R1-2505937 Discussion on NR-NTN GNSS resilience NEC

R1-2505940 Discussion on the GNSS resilient NR-NTN operation TCL

R1-2505949 Discussion on GNSS resilient NR-NTN operation LG Electronics

R1-2505977 Discussion on GNSS resilient NR-NTN Panasonic

R1-2506001 Discussion on NR-NTN GNSS resilience HONOR

R1-2506040 GNSS resilient operations in NR NTN MediaTek Inc.

R1-2506062 Discussion on NR-NTN GNSS resilient operations ETRI

R1-2506094 Discussion on NR-NTN GNSS resilience CMCC

R1-2506132 Discussion on NR-NTN GNSS Resilient Operations Lenovo

R1-2506154 Considerations for GNSS resilient NR-NTN operation ST Engineering iDirect

R1-2506155 NR-NTN GNSS resilience InterDigital, Inc.

R1-2506165 Discussion on GNSS resilient NR-NTN operation TOYOTA Info Technology Center

R1-2506215 NR-NTN GNSS resilience Qualcomm Incorporated

R1-2506264 Discussion of NR-NTN GNSS Resilience Johns Hopkins University APL

R1-2506302 Study on NR-NTN GNSS resilience NTT DOCOMO, INC.

R1-2506334 Discussion on GNSS resilience for NR-NTN CSCN

R1-2506343 Discussion on NR-NTN GNSS resilience Google

R1-2506357 Discussion on GNSS Resilient Operation for NR NTN CEWiT

R1-2506385 Discussion on NR-NTN GNSS resilience ViaSat Satellite Holdings Ltd, Inmarsat, Terrestar, Ligado, Space42, Thuraya

**R1-2506446**

**Proposal 1-2-v1**

**For the study on GNSS resilient operation, scenarios should be considered where:**

* **The UE cannot rely on its GNSS for timing and frequency compensation on the service link.**
* **~~There is a total loss of GNSS based positioning information; that is,~~ the UE cannot rely on its GNSS for timing and frequency compensation on the service link.**
* **There is a previously measured GNSS based position ~~with accuracy degradation~~**
  + **UE has not received GNSS information for T time from the last GNSS acquisition**
  + **FFS: value of T**
  + **FFS: GNSS accuracy**