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| 3GPP TR 38.xyz V0.0.1 (2025-10) | |
| Technical Report | |
| 3rd Generation Partnership Project;  Technical Specification Group Radio Access Network;  OTA test methods for NR NTN above 10GHz  (Release 20) | |
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# Foreword

This Technical Report has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

x the first digit:

1 presented to TSG for information;

2 presented to TSG for approval;

3 or greater indicates TSG approved document under change control.

y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z the third digit is incremented when editorial only changes have been incorporated in the document.

In the present document, modal verbs have the following meanings:

**shall** indicates a mandatory requirement to do something

**shall not** indicates an interdiction (prohibition) to do something

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

The constructions "must" and "must not" are not used as substitutes for "shall" and "shall not". Their use is avoided insofar as possible, and they are not used in a normative context except in a direct citation from an external, referenced, non-3GPP document, or so as to maintain continuity of style when extending or modifying the provisions of such a referenced document.

**should** indicates a recommendation to do something

**should not** indicates a recommendation not to do something

**may** indicates permission to do something

**need not** indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

**can** indicates that something is possible

**cannot** indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

**will** indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

**will not** indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

**might** indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

**might not** indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

**is** (or any other verb in the indicative mood) indicates a statement of fact

**is not** (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

# 1 Scope

The present document is a technical report for Over-the-Air (OTA) test methods for NR NTN above 10GHz.

This TR targets to define a full set of OTA test methods to cover different NTN UE types of operation above 10GHz.

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 38.101-5: " NR; User Equipment (UE) radio transmission and reception; Part 5: Satellite access Radio Frequency (RF) and performance requirements".

…

[x] <doctype> <#>[ ([up to and including]{yyyy[-mm]|V<a[.b[.c]]>}[onwards])]: "<Title>".

# 3 Definitions of terms, symbols and abbreviations

## 3.1 Terms

For the purposes of the present document, the terms given in 3GPP TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

Definition format (Normal)

**<defined term>:** <definition>.

**example:** text used to clarify abstract rules by applying them literally.

## 3.2 Symbols

For the purposes of the present document, the following symbols apply:

Symbol format (EW)

<symbol> <Explanation>

## 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

Abbreviation format (EW)

<ABBREVIATION> <Expansion>

# 4 General

## 4.1 Device types

<Editor’s note: Detailed structure of the subclause is TBD. >

## 4.2 Testing configuration

<Editor’s note: Detailed structure of the subclause is TBD. >

## 4.3 Testing bands

<Editor’s note: Detailed structure of the subclause is TBD. >

# 5 Performance metrics

<Editor’s note: This clause is not new metric, but just general explanation of performance metric for RF/RRM/Demod, which is highly related to test method and procedure>

## 5.1 General definition of UE RF metrics

<Editor’s note: Detailed structure of the subclause is TBD. Including at least EIRP, EIS, TRP, TRS>

## 5.2 General definition of UE RRM metrics

<Editor’s note: Detailed structure of the subclause is TBD. >

## 5.3 General definition of UE Demodulation metrics

<Editor’s note: Detailed structure of the subclause is TBD. >

# 6 NTN UE positioning guidelines

<Editor’s note: Detailed structure of the subclause is TBD. >

## 6.1 Free space

# 7 UE RF testing methodologies

## 7.1 General

## 7.2 Applicability of different test methods

*<Editor’s note: general applicability of different test methods for each RF requirements>*

## 7.3 Indirect far field (IFF)

*<Editor’s note: need sub-clauses,>*

## 7.4 other

*<Editor’s note: need sub-clauses,>*

# 8 UE RRM testing methodologies

## 8.1 General

## 8.2 Applicability of different test methods

*<Editor’s note: general applicability of different test methods for each RF requirements. Other methods can be further added, if needed>*

## 8.2 Indirect far field (IFF)

*<Editor’s note: need sub-clauses,>*

# 9 UE demodulation testing methodologies

## 9.1 General

## 9.2 Measurement setup

<Editor’s note: test setup. >

## 9.3 Test metrics and procedure

<Editor’s note: need sub-clauses >

Annex A:  
UE coordinate system

Annex B:  
Estimation of Measurement uncertainty

<Editor’s note: Detailed structure of the subclause is TBD. >

# B.1 General

# B.2 MU assessment for UE RF testing

# B.3 MU assessment for UE RRM testing

# B.4 MU assessment for UE Demodulation testing

Annex C:  
Environmental requirements

<Editor’s note: Detailed structure of the subclause is TBD. Normal condition>

Annex X (informative):  
Change history

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| **Change history** | | | | | | | |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2025-10 | RAN4#116bis-e | [R4-2514843](ftp://10.10.10.10/ftp/tsg_ran/WG4_Radio/TSGR4_116bis/Inbox/R4-2514843.zip) |  |  |  | Initial Skeleton (endorsement) | 0.0.1 |