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| 3GPP TS 38.471V18.0.0(2024-03) | |
| Technical Specification | |
| 3rd Generation Partnership Project;  Technical Specification Group Radio Access Network;  NG-RAN;  F1 layer 1  (Release 18) | |
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# Foreword

This Technical Specification 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.

# 1 Scope

The present document specifies the standards allowed to implement Layer 1 on the F1 interface. The F1 interface provides means for interconnecting a gNB-CU and a gNB-DU of a gNB within an NG-RAN, or for interconnecting a gNB-CU and a gNB-DU of an en-gNB within an E-UTRAN.

The specification of transmission delay requirements and O&M requirements are not in the scope of the present document.

In the following 'Layer 1' and ‘Physical Layer’ are assumed to be synonymous.

# 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 TS 38.411: "NG-RAN; NG layer 1".

[2] 3GPP TS 38.401: "NG-RAN; Architecture Description".

[3] 3GPP TS 38.300: "NR; Overall description; Stage-2".

[4] 3GPP TS 37.340: "NR; Multi-connectivity; Overall description; Stage-2".

# 3 Definitions, symbols and abbreviations

## 3.1 Definitions

gNB-CU: as defined in TS 38.401 [2]

gNB-DU: as defined in TS 38.401 [2]

gNB: as defined in TS 38.300 [3]

en-gNB: as defined in TS 37.340 [4]

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TS 38.411 [1] apply.

# 4 Introduction

The F1 Layer 1 shall comply with the requirements of clauses 4 through 6 in TS 38.411 [1].

Annex A (informative):  
Change history

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| **Change history** | | | | | | | |
| **Date** | **Meeting** | **TDoc** | **CR** | **Rev** | **Cat** | **Subject/Comment** | **New version** |
| 2017-06 | RAN3-NR#2 | R3-172602 |  |  |  | Replace sections 4, 5 and 6 by a reference to NG Layer 1 requirements. | 0.2.0 |
| 2017-10 | RAN3#97bis | R3-174245 |  |  |  | Implementing the agreed pCR from RAN3#97bis meeting: R3-174127 | 0.3.0 |
| 2017-12 | RAN#78 | RP-172493 |  |  |  | Version submitted to RAN for approval. Correction of the references in "Definitions, symbols and abbreviations" section. Table of contents changes | 1.0.0 |
| 2017-12 | RAN#78 |  |  |  |  | TR approved by RAN plenary | 15.0.0 |
| 2020-07 | SA#88-e | - | - | - | - | Update to Rel-16 version (MCC) | 16.0.0 |
| 2022-03 | SA#95-e |  |  |  |  | Promotion to Release 17 without technical change | 17.0.0 |
| 2024-03 | SA#103- | - | - | - | - | Update to Rel-18 version (MCC) | 18.0.0 |