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**5G;
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F1 layer 1
(3GPP TS 38.471 version 19.0.0 Release 19)**



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Foreword

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

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Version x.y.z

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- 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.
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- [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

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#97 bis	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
2025-09	SA#109	-	-	-	-	Update to Rel-19 version (MCC)	19.0.0

History

Document history		
V19.0.0	October 2025	Publication