

ETSI TS 136 421 V19.0.0 (2025-10)



**LTE;
Evolved Universal Terrestrial
Radio Access Network (E-UTRAN);
X2 layer 1
(3GPP TS 36.421 version 19.0.0 Release 19)**



ReferenceRTS/TSGR-0336421vj00

KeywordsLTE

ETSI

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Sous-Préfecture de Grasse (06) N° w061004871

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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

where:

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 - 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 X2 interface.

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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- 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 36.411: "Evolved Universal Terrestrial Radio Access Network (E-UTRAN); S1 layer 1".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the definitions given in TS 36.411 [1] apply.

3.2 Symbols

For the purposes of the present document, the symbols given in TS 36.411 [1] apply.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in TS 36.411 [1] apply.

4 Introduction

The X2 Layer 1 shall comply with the requirements of clauses 4 through 6 in TS 36.411 [1].

Annex A (informative): Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
2007-09	37	RP-070587			specification presented to TSG-RAN for information	0.0.1	1.0.0
2007-11	38	RP-070854			specification presented to TSG-RAN for approval	1.0.0	2.0.0
2007-12	38				specification approved at TSG-RAN and placed under change control	2.0.0	8.0.0
2009-12	46				Upgraded to Release 9	8.0.0	9.0.0
2010-02					History section updated	9.0.0	9.0.1
2010-12					Rel-10 created based on v. 9.0.1	9.0.1	10.0.0
2011-03	SP-49	SP-100629			Clarification on the use of References (TS 21.801 CR#0030)	10.0.0	10.0.1
2012-09					Update to Rel-11 version (MCC)	10.0.1	11.0.0
2012-12	58	RP-121737	2	1	Rapporteur editorial cleanup	11.0.0	11.1.0
2014-09					Update to Rel-12 version (MCC)	11.1.0	12.0.0
2015-12					Update to Rel-13 version (MCC)	12.0.0	13.0.0

Change history							
Date	Meeting	TDoc	CR	Rev	Cat	Subject/Comment	New version
2017-03	SA#75					Promotion to Release 14 without technical change	14.0.0
2018-06	SA#80	-	-	-	-	Promotion to Release 15 without technical change	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