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**LTE;  
Evolved Universal Terrestrial  
Radio Access Network (E-UTRAN);  
X2 layer 1  
(3GPP TS 36.421 version 18.0.0 Release 18)**



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**Reference**

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**Keywords**

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In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

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# Foreword

This Technical Specification has been produced by the 3<sup>rd</sup> 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.

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# 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.

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

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# 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.

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# 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      |

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# History

| <b>Document history</b> |          |             |
|-------------------------|----------|-------------|
| V18.0.0                 | May 2024 | Publication |
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