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Technical Specification

3rd Generation Partnership Project;

Technical Specification Group Radio Access Network;

Evolved Universal Terrestrial Radio Access Network   
(E-UTRAN);

X2 layer 1

(Release 16)

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Keywords

UMTS, RADIO, ACCESS, LAYER 1, STAGE 3

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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:

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 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.

- 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".

# 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 |