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**LTE;
Evolved Universal Terrestrial
Radio Access Network (E-UTRAN);
S1 layer 1
(3GPP TS 36.411 version 12.0.0 Release 12)**



Reference

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Keywords

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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 S1 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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| | |
|-----|---|
| [1] | 3GPP TR 21.905: "Vocabulary for 3GPP Specifications". |
| [2] | Void |
| [3] | Void |
| [4] | Void |
| [5] | Void |
| [6] | Void |

3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] and the following abbreviations apply:

| | |
|---------|--|
| E-UTRAN | Evolved Universal Terrestrial Radio Access Network |
|---------|--|

4 Introduction

The main functions of layer 1 are summarized in the following:

- Interface to physical medium;
- Frame delineation;
- Line clock extraction capability;
- Layer 1 alarms extraction and generation;
- Transmission quality control.

5 Layer 1 specifications

The support of any suitable layer 1 technique - like point-to-point or point-to-multipoint techniques - shall not be prevented.

6 Interface to management plane

The description of the interface towards the management plane is out of scope of this document, but at least the following O&M functions should be foreseen:

- Performance monitoring functions;
- Alarm status reporting functions;
- Synchronisation source management.

Annex A (informative): Change history

| Change history | | | | | | | |
|----------------|-------|-----------|-----|-----|---|--------|--------|
| Date | TSG # | TSG Doc. | CR | Rev | Subject/Comment | Old | New |
| 2007-09 | 37 | RP-070586 | | | specification presented to TSG-RAN for information | 0.0.2 | 1.0.0 |
| 2007-11 | 38 | RP-070849 | | | 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 |
| 2008-12 | 42 | RP-080844 | 001 | | Rapporteurs Cut | 8.0.0 | 8.1.0 |
| 2009-12 | | | | | Created Rel-9 version based on v8.1.0 | 8.1.0 | 9.0.0 |
| 2010-12 | | | | | Created Rel-10 version based on v 9.0.0 | 9.0.0 | 10.0.0 |
| 2011-06 | 52 | RP-110684 | 004 | | Correction of references | 10.0.0 | 10.1.0 |
| 2012-09 | | | | | Update to Rel-11 version (MCC) | 10.1.0 | 11.0.0 |
| 2014-09 | | | | | Update to Rel-12 version (MCC) | 11.0.0 | 12.0.0 |

History

| Document history | | |
|-------------------------|----------------|-------------|
| V12.0.0 | September 2014 | Publication |
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