



**LTE;  
Evolved Universal Terrestrial  
Radio Access Network (E-UTRAN);  
Layer 1 for interfaces supporting Multimedia Broadcast  
Multicast Service (MBMS) within E-UTRAN  
(3GPP TS 36.441 version 19.0.0 Release 19)**



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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:
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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.

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# 1 Scope

The present document specifies the standards allowed to implement layer 1 on the interfaces supporting Multimedia Broadcast Multicast Service (MBMS) within E-UTRAN.

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 TR 21.905: "Vocabulary for 3GPP Specifications".

[2] Void

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# 3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [1] and the following apply. An abbreviation defined in the present document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

|         |                                                    |
|---------|----------------------------------------------------|
| E-UTRAN | Evolved Universal Terrestrial Radio Access Network |
| MBMS    | Multimedia Broadcast Multicast Service             |

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# 4 Introduction

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

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

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# 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.

## Annex A (informative): Change history

| TSG #   | TSG Doc.  | CR   | Rev | Subject/Comment                                            | New    |
|---------|-----------|------|-----|------------------------------------------------------------|--------|
| 2009-10 |           |      |     | Update to take into account comments raised at RAN3 #65bis | 0.0.2  |
| 2009-12 |           |      |     | Stepping to version 2.0.0 for approval at RAN#46           | 2.0.0  |
| 46      | RP-091209 |      |     | Approved at RAN#46                                         | 9.0.0  |
| 2010-12 |           |      |     | Created Rel-10 version based on version v. 9.0.0           | 10.0.0 |
| 52      | RP-110685 | 0003 |     | Reference review outcome in TS 36.441                      | 10.1.0 |
| 2012-09 |           |      |     | Update to Rel-11 version (MCC)                             | 11.0.0 |
| 2014-09 |           |      |     | Update to Rel-12 version (MCC)                             | 12.0.0 |
| 2015-12 |           |      |     | Update to Rel-13 version (MCC)                             | 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      |
| 2018-09        | -       | -    | -  | -   | -   | Update to Rel-15 version (MCC)                   | 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      |

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# History

| Document history |              |             |
|------------------|--------------|-------------|
| V19.0.0          | October 2025 | Publication |
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