3GPP TS 36.441 V16.0.0 (2020-07)

Technical Specification

3rd Generation Partnership Project;

Technical Specification Group Radio Access Network;

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

Layer 1 for interfaces supporting Multimedia Broadcast Multicast Service (MBMS) within E-UTRAN

(Release 16)

* *

The present document has been developed within the 3rd Generation Partnership Project (3GPP TM) and may be further elaborated for the purposes of 3GPP.  
The present document has not been subject to any approval process by the 3GPPOrganizational Partners and shall not be implemented.  
This Specification is provided for future development work within 3GPPonly. The Organizational Partners accept no liability for any use of this Specification.  
Specifications and reports for implementation of the 3GPP TM system should be obtained via the 3GPP Organizational Partners' Publications Offices.

Keywords

LTE, MBMS, radio

***3GPP***

Postal address

3GPP support office address

650 Route des Lucioles - Sophia Antipolis

Valbonne - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Internet

http://www.3gpp.org

***Copyright Notification***

No part may be reproduced except as authorized by written permission.  
The copyright and the foregoing restriction extend to reproduction in all media.

© 2020, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TSDSI, TTA, TTC).

All rights reserved.

UMTS™ is a Trade Mark of ETSI registered for the benefit of its members

3GPP™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners  
LTE™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners

GSM® and the GSM logo are registered and owned by the GSM Association

Contents

Foreword [4](#__RefHeading___Toc525650013)

1 Scope [5](#__RefHeading___Toc525650014)

2 References [5](#__RefHeading___Toc525650015)

3 Abbreviations [5](#__RefHeading___Toc525650016)

4 Introduction [5](#__RefHeading___Toc525650017)

5 Layer 1 specifications [5](#__RefHeading___Toc525650018)

Annex A (informative): Change history [6](#__RefHeading___Toc525650019)

# Foreword

This Technical Specification has been produced by the 3rd 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.

# 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.

# 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

# 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

# 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.

# 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 |