

ETSI TS 136 441 V15.0.0 (2018-09)



**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 15.0.0 Release 15)**



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Reference

RTS/TSGR-0336441vf00

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Keywords

LTE

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# Contents

Intellectual Property Rights .....	2
Foreword.....	2
Modal verbs terminology.....	2
Foreword.....	4
1 Scope .....	5
2 References .....	5
3 Abbreviations .....	5
4 Introduction .....	5
5 Layer 1 specifications.....	5
<b>Annex A (informative): Change history .....</b>	<b>6</b>
History .....	7

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# Foreword

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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.

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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

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# History

<b>Document history</b>		
V15.0.0	September 2018	Publication