

# ETSI TS 136 360 V14.0.0 (2017-04)



**LTE;  
Evolved Universal Terrestrial Radio Access (E-UTRA);  
LTE-WLAN Aggregation Adaptation Protocol (LWAAP)  
specification  
(3GPP TS 36.360 version 14.0.0 Release 14)**



---

Reference

RTS/TSGR-0236360ve00

---

Keywords

LTE

**ETSI**

650 Route des Lucioles  
F-06921 Sophia Antipolis Cedex - FRANCE

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

Siret N° 348 623 562 00017 - NAF 742 C  
Association à but non lucratif enregistrée à la  
Sous-Préfecture de Grasse (06) N° 7803/88

---

**Important notice**

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the only prevailing document is the print of the Portable Document Format (PDF) version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

---

**Copyright Notification**

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2017.

All rights reserved.

DECT™, PLUGTESTS™, UMTS™ and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members.

3GPP™ and LTE™ are Trade Marks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

oneM2M logo is protected for the benefit of its Members

GSM® and the GSM logo are Trade Marks registered and owned by the GSM Association.

---

## Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

---

## Foreword

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under <http://webapp.etsi.org/key/queryform.asp>.

---

## Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

---

# Contents

Intellectual Property Rights .....	2
Foreword.....	2
Modal verbs terminology.....	2
Foreword.....	4
1 Scope .....	5
2 References .....	5
3 Definitions, symbols and abbreviations .....	5
3.1 Definitions .....	5
3.2 Abbreviations .....	5
4 General .....	6
4.1 Introduction .....	6
4.2 LWAAP architecture.....	6
4.2.1 LWAAP entities.....	6
4.3 Services .....	7
4.3.1 Services provided to upper layers .....	7
4.3.2 Services expected from lower layers .....	7
4.4 Functions .....	7
5 Procedures .....	7
5.1 Data transfer procedures.....	7
5.1.1 DL data transfer procedures.....	7
5.1.2 UL data transfer procedures.....	7
5.2 Handling of unknown, unforeseen and erroneous protocol data .....	8
6 Protocol data units, formats and parameters.....	8
6.1 Protocol data units .....	8
6.1.1 General.....	8
6.1.2 LWAAP data PDU.....	8
6.2 Formats and parameters.....	8
6.2.1 LWAAP header .....	8
<b>Annex A (informative): Change history .....</b>	<b>10</b>
History .....	11

---

# 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:
  - 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 E-UTRA LTE-WLAN Aggregation Adaptation Protocol (LWAAP).

---

## 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] 3GPP TS 36.300: "E-UTRA and E-UTRAN Overall Description; Stage 2".
  - [3] 3GPP TS 36.323: "E-UTRA PDCP specification".
  - [4] 3GPP TS 36.331: "E-UTRA RRC Protocol specification".
- 

## 3 Definitions, symbols and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [1] and the following apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TR 21.905 [1].

**LWA bearer:** a bearer used in LTE-WLAN Aggregation, as defined in TS 36.300 [2].

### 3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

DL	DownLink
DRB	Data Radio Bearer
eNB	E-UTRAN Node B
E-UTRA	Evolved UMTS Terrestrial Radio Access
E-UTRAN	Evolved UMTS Terrestrial Radio Access Network
LWAAP	LTE-WLAN Aggregation Adaptation Protocol
PDCP	Packet Data Convergence Protocol
PDU	Protocol Data Unit
RRC	Radio Resource Control
SAP	Service Access Point
SDU	Service Data Unit
UE	User Equipment
UL	UpLink