

ETSI TS 133 234 V19.0.0 (2025-10)



**Universal Mobile Telecommunications System (UMTS);
LTE;
3G security;
Wireless Local Area Network (WLAN) interworking security
(3GPP TS 33.234 version 19.0.0 Release 19)**



Reference

RTS/TSGS-0333234vj00

Keywords

LTE,SECURITY,UMTS

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 - APE 7112B
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° w061004871

Important notice

The present document can be downloaded from the
[ETSI Search & Browse Standards application](#).

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 prevailing version of an ETSI deliverable is the one made publicly available in PDF format on [ETSI deliver repository](#).

Users should be aware that the present document may be revised or have its status changed,
this information is available in the [Milestones listing](#).

If you find errors in the present document, please send your comments to
the relevant service listed under [Committee Support Staff](#).

If you find a security vulnerability in the present document, please report it through our
[Coordinated Vulnerability Disclosure \(CVD\)](#) program.

Notice of disclaimer & limitation of liability

The information provided in the present deliverable is directed solely to professionals who have the appropriate degree of experience to understand and interpret its content in accordance with generally accepted engineering or other professional standard and applicable regulations.

No recommendation as to products and services or vendors is made or should be implied.

No representation or warranty is made that this deliverable is technically accurate or sufficient or conforms to any law and/or governmental rule and/or regulation and further, no representation or warranty is made of merchantability or fitness for any particular purpose or against infringement of intellectual property rights.

In no event shall ETSI be held liable for loss of profits or any other incidental or consequential damages.

Any software contained in this deliverable is provided "AS IS" with no warranties, express or implied, including but not limited to, the warranties of merchantability, fitness for a particular purpose and non-infringement of intellectual property rights and ETSI shall not be held liable in any event for any damages whatsoever (including, without limitation, damages for loss of profits, business interruption, loss of information, or any other pecuniary loss) arising out of or related to the use of or inability to use the software.

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.

© ETSI 2025.
All rights reserved.

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The declarations pertaining to these essential IPRs, if any, are 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 IPR online database](#).

Pursuant to the ETSI Directives including the ETSI IPR Policy, no investigation regarding the essentiality of IPRs, 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.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members. **3GPP™**, **LTE™** and **5G™** logo are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners. **oneM2M™** logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners. **GSM®** and the GSM logo are trademarks registered and owned by the GSM Association.

Legal Notice

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. These shall be interpreted as being references to the corresponding ETSI deliverables.

The cross reference between 3GPP and ETSI identities can be found at [3GPP to ETSI numbering cross-referencing](#).

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 Rights2
Legal Notice2
Modal verbs terminology.....2
Foreword.....4
Introduction4
1 Scope5
2 References5
3 Definitions and abbreviations.....7
3.1 Definitions7
3.2 Abbreviations7
4 Security Requirements for 3GPP-WLAN Interworking7
Annex A (informative): Change history8
History11

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.

Introduction

Void.

1 Scope

The present document provides an index to the set of specifications for interworking between 3GPP systems and Wireless Local Area Networks (WLAN).

No further changes to this specification are intended. If any future evolution of the procedures in this specification is necessary, it should be documented in other specifications.

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]	Void
[2]	Void
[3]	Void.
[4]	Void.
[5]	Void.
[6]	Void.
[7]	Void.
[8]	Void
[9]	Void.
[10]	Void.
[11]	Void.
[12]	Void.
[13]	3GPP TS 23.234: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; 3GPP system to Wireless Local Area Network (WLAN) Interworking; System Description" (Release 12).
[14]	Void.
[15]	Void.
[16]	Void.
[17]	Void..
[18]	Void.
[19]	Void.
[20]	Void.

[21]	Void.
[22]	Void.
[23]	Void.
[24]	Void.
[25]	Void.
[26]	Void.
[27]	Void.
[28]	Void.
[29]	Void.
[30]	Void.
[31]	Void.
[32]	Void.
[33] - [35]	Void.
[36]	Void.
[37]	Void.
[38]	Void.
[39]	Void.
[40]	Void.
[41]	Void.
[42]	Void.
[43]	Void.
[44]	Void.
[45]	Void.
[46]	Void.
[47]	Void.
[48]	Void.
[49]	Void.
[50]	Void.
[51]	Void.
[52]	3GPP TS 22.234: "Requirements on 3GPP system to Wireless Local Area Network (WLAN) interworking (Release 13)".
[53]	3GPP TS 32.252: "Telecommunication management; Charging management; Wireless Local Area Network (WLAN) charging (Release 11)".
[54]	3GPP TS 24.235: "3GPP System to Wireless Local Area Network (WLAN) interworking Management Object (MO) (Release 12)".

- [55] 3GPP TS 24.327: "Mobility between 3GPP Wireless Local Area Network (WLAN) interworking (I-WLAN) and 3GPP systems; General Packet Radio System (GPRS) and 3GPP I-WLAN aspects; Stage 3 (Release 12)".
- [56] 3GPP TS 29.161: "Interworking between the Public Land Mobile Network (PLMN) supporting packet based services with Wireless Local Area Network (WLAN) access and Packet data (Release 11)".
- [57] 3GPP TS 29.234: "3GPP system to Wireless Local Area Network (WLAN) interworking; Stage 3 (Release 11)".

3 Definitions and abbreviations

3.1 Definitions

Void.

3.2 Abbreviations

Void.

4 Security Requirements for 3GPP-WLAN Interworking

This feature has been discontinued since Release 13 and the present specification is used to provide references to the latest versions of the stage-1, 2 and 3 specifications.

- TS 22.234 [52].
- TS 24.234 [47].
- TS 24.235 [54].
- TS 24.327 [55].
- TS 29.161 [56].
- TS 29.234 [57].
- TS 23.234 [13].
- TS 32.252 [53].

Annex A (informative): Change history

Change history									
Date	TSG #	TSG Doc.	CR	Rev	Cat	Subject/Comment	Old	New	WI
2004-03	SP-23	SP-040167	-	-		Presented for approval at TSG SA #23	1.0.1	2.0.0	
2004-03	SP-23	-	-	-		Approved and placed under Change Control (Rel-6)	2.0.0	6.0.0	
2004-06	SP-24	SP-040384	001	-		Profiling of IKEv2 and ESP for NAT traversal	6.0.0	6.1.0	WLAN
2004-06	SP-24	SP-040385	002	-		Sending of temporary identities from WLAN UE	6.0.0	6.1.0	WLAN
2004-06	SP-24	SP-040386	003	-		Extension of IKEv2 and IPsec profiles	6.0.0	6.1.0	WLAN
2004-06	SP-24	SP-040462	004	1		Support of EAP SIM and AKA in AAA server and WLAN UE	6.0.0	6.1.0	WLAN
2004-06	SP-24	SP-040388	005	-		Introduction of UE split alternative 2 in TS 33.234	6.0.0	6.1.0	WLAN
2004-06	SP-24	SP-040389	006	-		Re-authentication failure notification to HSS	6.0.0	6.1.0	WLAN
2004-06	SP-24	SP-040390	007	-		Identity request procedure clarification	6.0.0	6.1.0	WLAN
2004-06	SP-24	SP-040391	008	-		WLAN mechanism to allow restrictions on simultaneous sessions	6.0.0	6.1.0	WLAN
2004-06	SP-24	SP-040392	009	-		Requirement on keeping WLAN access keys independent from 2G/3G access keys stored in USIM	6.0.0	6.1.0	WLAN
2004-09	SP-25	SP-040622	010	-		Update reference to RFC3748 "Extensible Authentication Protocol (EAP)"	6.1.0	6.2.0	WLAN
2004-09	SP-25	SP-040622	011	-		References update	6.1.0	6.2.0	WLAN
2004-09	SP-25	SP-040622	012	-		Sending of temporary identities from WLAN UE	6.1.0	6.2.0	WLAN
2004-09	SP-25	SP-040622	013	-		Clarification on fast re-authentication procedure	6.1.0	6.2.0	WLAN
2004-09	SP-25	SP-040622	014	-		Correction of authentication procedure for WLAN UE split	6.1.0	6.2.0	WLAN
2004-09	SP-25	SP-040622	016	-		WLAN interface security	6.1.0	6.2.0	WLAN
2004-09	SP-25	SP-040622	017	-		Introduction of protected result indications	6.1.0	6.2.0	WLAN
2004-09	SP-25	SP-040622	018	-		Tunnel authentication procedure in Wm interface	6.1.0	6.2.0	WLAN
2004-09	-	-	-	-		Resolution of CR 015 (see below) which modified the same parts as CR 017 (MCC)	6.2.0	6.2.1	
2004-09	SP-25	SP-040622	015	-		Modification of mechanism to restrict simultaneous WLAN sessions	6.2.0	6.2.1	WLAN
2004-12	SP-26	SP-040858	019	2		Profile for PDG certificates in Scenario 3	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040868	020	5		Impact of Feasibility Study on (U)SIM Security Reuse by Peripheral Devices on Local Interfaces	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040858	024	1		Sending of W-APN identification	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040858	025	2		Clean up of not completed chapters	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040858	027	6		Correction of WLAN UE function split	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040858	028	-		Passing keying material to the WLAN-AN during the Fast re-authentication procedure	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040858	029	1		Clarification on Deletion of Temporary IDs	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040858	030	-		Clarification on Protecting Re-authentication ID in FAST/FULL Re-Authentication procedure	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040858	031	-		Assigning Remote IP Address to WLAN UE using IKEv2 configuration Payload	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040858	033	1		Tunnel Establishment Procedure	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040858	036	-		Deletion of inconclusive text on A5/2 countermeasures	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040858	037	1		Alignment of IPsec profile with RFC2406	6.2.1	6.3.0	
2004-12	SP-26	SP-040858	040	2		Control of simultaneous sessions in WLAN 3GPP IP access	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040858	041	1		Completion of definition and abbreviations	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040858	042	1		Fallback from re-authentication to full authentication	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040858	043	-		Clarification on the use of IMSI in WLAN 3GPP IP access	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040858	044	2		Clarification on the use of MAC addresses	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040858	045	-		Clarifications and corrections on the use of pseudonyms	6.2.1	6.3.0	WLAN

2004-12	SP-26	SP-040858	047	-		Wn Reference Point Description	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040858	048	-		Removal of word "scenario"	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040858	049	1		Correction of WRAP to CCMP	6.2.1	6.3.0	WLAN
2004-12	SP-26	SP-040858	050	1		Removal of resolved editors' notes	6.2.1	6.3.0	WLAN
2005-03	SP-27	SP-050142	051	-		Wu Reference Point Description	6.3.0	6.4.0	WLAN
2005-03	SP-27	SP-050142	052	1		Replacing PDGW with PDG	6.3.0	6.4.0	WLAN
2005-03	SP-27	SP-050142	055	1		Clarification on EAP-AKA(SIM) description in 3GPP IP access authentication and authorization	6.3.0	6.4.0	WLAN
2005-03	SP-27	SP-050142	056	2		Threat of users accessing each other in link layer and corresponding security requirements of user traffic segregation	6.3.0	6.4.0	WLAN
2005-03	SP-27	SP-050142	057	1		Clarifying the status that can't be changed in the security requirement of WLAN-UE split	6.3.0	6.4.0	WLAN
2005-03	SP-27	SP-050142	058	2		WLAN AN providing protection against IP address spoofing	6.3.0	6.4.0	WLAN
2005-03	SP-27	SP-050142	059	1		Clarification on the handling of simultaneous sessions	6.3.0	6.4.0	WLAN
2005-03	SP-27	SP-050142	060	2		Removal of editors' notes	6.3.0	6.4.0	WLAN
2005-03	SP-27	SP-050142	061	1		Detecting the start of a WLAN Direct IP Access session based on Wa/Wd Accounting Messages	6.3.0	6.4.0	WLAN
2005-03	SP-27	SP-050142	063	1		Adding verification method of PDG certification by OSCP protocol	6.3.0	6.4.0	WLAN
2005-06	SP-28	SP-050265	064	2	F	Specify the number of the IPsec SAs under the same IKE SA in WLAN 3GPP IP access	6.4.0	6.5.0	WLAN
2005-06	SP-28	SP-050265	065	1	F	Terminate WLAN session by AAA server	6.4.0	6.5.0	WLAN
2005-06	SP-28	SP-050265	066	-	F	Correction to the definition of the Wn Reference Point	6.4.0	6.5.0	WLAN
2005-06						Corrects version number on cover page	6.5.0	6.5.1	
2005-09	SP-29	SP-050547	0067	-	F	Correction of reference	6.5.1	6.6.0	WLAN
2005-09	SP-29	SP-050547	0068	-	F	Clarification on obtaining Remote IP address during Tunnel Establishment Procedure	6.5.1	6.6.0	WLAN
2005-09	SP-29	SP-050547	0069	-	F	Profiling of IKEv2 to support Re-keying of IPsec SAs and IKE SAs	6.5.1	6.6.0	WLAN
2005-09	SP-29	SP-050547	0070	-	F	Separation of authentication and authorization in WLAN 3GPP IP access	6.5.1	6.6.0	WLAN
2005-09	SP-29	SP-050547	0071	-	F	Support for simultaneous WLAN direct IP access sessions	6.5.1	6.6.0	WLAN
2005-12	SP-30	SP-050765	0072	-	F	IMSI availability at PDG	6.6.0	6.7.0	WLAN
2006-03	SP-31	SP-060047	0073	-	F	Correction of the incorrect statement in Tunnel fast re-authentication and authorization	6.7.0	6.8.0	WLAN
2006-03	SP-31	SP-060047	0074	-	F	updating the reference	6.7.0	6.8.0	WLAN
2006-03	SP-31	SP-060047	0076	-	F	Correction to authentication information retrieval between 3GPP AAA Server and HSS	6.7.0	6.8.0	WLAN
2006-03	SP-31	SP-060058	0075	-	C	Addition of in-band OSCP support	6.7.0	7.0.0	WLAN
2006-06	SP-32	SP-060414	0078	1	F	Correction of reference	7.0.0	7.1.0	WLAN
2006-06	SP-32	SP-060382	0079	-	B	Tunnel setup procedures for the private network access from WLAN 3GPP IP Access	7.0.0	7.1.0	I-WLAN Private NW access
2006-06	SP-32	SP-060382	0080	-	C	Clarification on PDG requirements for in-band OSCP support and update of reference	7.0.0	7.1.0	WLAN
2006-09	SP-33	SP-060498	0081	-	F	Correction to protocol used in Wx reference point	7.1.0	7.2.0	WLAN2
2006-09	SP-33	SP-060652	0082	1	F	Corrections and updates of references	7.1.0	7.2.0	WLAN2
2006-12	SP-34	SP-060804	0085	1	F	Correction of the Note re. fast re-authentication	7.2.0	7.3.0	WLAN
2007-03	SP-35	SP-070149	0087	1	F	CR 33.234-0087 - Update Reference	7.3.0	7.4.0	WLAN2
2007-03	SP-35	SP-070218	0091	1	A	Mandate the format of PDG ID	7.3.0	7.4.0	WLAN
2007-03	SP-35	SP-070144	0093	1	A	Correction and clarification of 3GPP AAA Server behaviour	7.3.0	7.4.0	TEI6
2007-03	SP-35	SP-070161	0095	1	D	Correction of reference	7.3.0	7.4.0	TEI7
2007-03	SP-35	SP-070141	0096	-	A	Extension of scope of TS 33.234	7.3.0	7.4.0	WLAN
2007-03	SP-35	SP-070161	0098	-	A	Clarification on certificate chain handling	7.3.0	7.4.0	TEI7
2007-06	SP-36	SP-070467	0088	2	B	Support of IMS emergency call over I-WLAN	7.4.0	7.5.0	WLAN
2007-06	SP-36	SP-070339	0089	2	B	Support of IMS emergency call over I-WLAN for UICC-less case	7.4.0	7.5.0	WLAN
2007-12	SP-38	SP-070911	0099	3	B	Support of IMS emergency call over I-WLAN	7.5.0	8.0.0	WLAN
2008-03	SP-39	SP-080144	0100	1	F	Note on using an unauthenticated Diffie_Hellman exchange for emergency calls	8.0.0	8.1.0	TEI8
2009-09	SP-45	SP-090526	0102	1	F	Addition of cipher suite for interworking WLAN	8.1.0	9.0.0	TEI9
2010-03	SP-47	SP-100103	0103	1	F	Use of EAP Request/AKA Identity message	9.0.0	9.1.0	TEI9

2010-06	SP-48	SP-100251	0104	-	F	Use of EAP Request/AKA Identity message	9.1.0	9.2.0	TEI9
2010-06	SP-48	SP-100361	0105	1	C	Deprecation of SHA-1 and other changes to certificate, CRL and OCSP profiles	9.1.0	9.2.0	TEI9
2010-06	SP-49	SP-100474	0106	2		IPsec alignment	9.2.0	10.0.0	TEI10
2010-06	SP-49	SP-100482	0107	1		Unification of certificate and CRL profiles in TS 33.234 with TS 33.310, clause 6.1	9.2.0	10.0.0	TEI10
2011-03	SP-51	SP-110020	0108	1	C	IPsec alignment	10.0.0	11.0.0	TEI11
2011-09	SP-53	SP-110563	0109	-		IKEv2 profiling shall also point to TS 33.310	11.0.0	11.1.0	Sec11
2011-09	SP-53	SP-110564	0111	1		Removal of last step in tunnel authentications	11.0.0	11.1.0	TEI10
2011-12	SP-54	SP-110848	0110	1	C	CR to 33.234: Removal of maximum number of IKEv2 SA limit	11.1.0	11.2.0	Sec11
2011-12	SP-54	SP-110848	0113	1	C	Authentication for Private Network Access	11.1.0	11.2.0	Sec11
2012-03	SP-55	SP-120038	0117	1	A	Corrections to IKEv2 procedure	11.2.0	11.3.0	TEI10
			0120	2	A	The identity of the UICC-less UE in emergency call	11.2.0		
2012-06	SP-56	SP-120341	0121	1	F	Removal of void references in IMS emergency call over I-WLAN	11.3.0	11.4.0	SEC11
2013-12	SP-62	SP-130667	0122	1	F	User profile fetching before authentication in WLAN interworking	11.4.0	12.0.0	TEI12, WLAN
2014-09	SP-65	SP-140593	0123	-	F	Adding a Note on new purpose of specification	12.0.0	12.1.0	TEI12
2016-01	SP-70					Upgrade to Rel-13 (MCC)	12.1.0	13.0.0	

Change history									
Date	Meeting	TDoc	CR	Rev	Cat	Subject/Comment	New version		
2016-12	SA#74	SP-160787	0126	1	C	Alignment according to withdrawal of I-WLAN feature	13.1.0		
2017-03	SA#75	-	-	-	-	Promotion to Release 14 without technical change	14.0.0		
2018-06	-	-	-	-	-	Update to Rel-15 version (MCC)	15.0.0		
2020-07	-	-	-	-	-	Update to Rel-16 version (MCC)	16.0.0		
2022-03	-	-	-	-	-	Update to Rel-17 version (MCC)	17.0.0		
2024-03	-	-	-	-	-	Update to Rel-18 version (MCC)	18.0.0		
2025-10	-	-	-	-	-	Update to Rel-19 version (MCC)	19.0.0		

History

Document history		
V19.0.0	October 2025	Publication