

ETSI TS 155 216 V11.0.0 (2012-11)



**Digital cellular telecommunications system (Phase 2+);
3G Security;
Specification of the A5/3 encryption algorithms for GSM
and ECSD, and the GEA3 encryption algorithm for GPRS;
Document 1: A5/3 and GEA3 specifications
(3GPP TS 55.216 version 11.0.0 Release 11)**



Reference

RTS/TSGS-0355216vb00

Keywords

GSM,SECURITY

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

Individual copies of the present document can be downloaded from:

<http://www.etsi.org>

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the 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

<http://portal.etsi.org/tb/status/status.asp>

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

http://portal.etsi.org/chaicor/ETSI_support.asp

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.

© European Telecommunications Standards Institute 2012.
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.
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 (<http://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>.

Contents

| | |
|--|----------|
| Intellectual Property Rights | 2 |
| Foreword..... | 2 |
| Foreword..... | 4 |
| 0 Scope | 5 |
| 0A References | 5 |
| 0B Definitions, symbols and abbreviations | 5 |
| 0B.1 Definitions | 5 |
| 0B.2 Symbols..... | 5 |
| 0B.3 Abbreviations | 5 |
| 0C Technical provisions..... | 5 |
| Annex D (informative): Change history | 6 |
| History | 7 |

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.

0 Scope

The present document specifies the A5/3 and GEA3 specification.

0A 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 Task Force Specification: "Specification of the A5/3 encryption algorithms for GSM and ECSD, and the GEA3 encryption algorithm for GPRS; Document 1: A5/3 and GEA3 specification" version 1.1, 2002-05-30

Note: Reference [2] is available via <http://portal.etsi.org/dvbandca/home.asp> and is subject to licensing conditions described at this site.

0B Definitions, symbols and abbreviations

0B.1 Definitions

For the purposes of the present document, the terms and definitions given in TR 21.905 [1] and in the 3GPP Task Force Specification [2] apply. A term defined in the latter document takes precedence over the definition of the same term, if any, in TR 21.905 [1].

0B.2 Symbols

For the purposes of the present document, the symbols defined in the 3GPP Task Force Specification [2] apply.

0B.3 Abbreviations

For the purposes of the present document, the abbreviations given in TR 21.905 [2] and in the 3GPP Task Force Specification [2] apply. An abbreviation defined in the latter document takes precedence over the definition of the same abbreviation, if any, in TR 21.905 [1].

0C Technical provisions

The technical provisions of the current document are contained in the 3GPP Task Force Specification [2].

Annex D (informative): Change history

| Change history | | | | | | | |
|----------------|-------|-----------|-----|-----|--|-----------|---------------|
| Date | TSG # | TSG Doc. | CR | Rev | Subject/Comment | Old | New |
| 2002-05 | - | - | - | - | ETSI SAGE first publication | | SAGE V1.0 |
| 2002-07 | - | - | - | - | Agreed at SA WG3 #24 for presentation to TSG SA #17 for approval. Converted into 3GPP TS format as TS 55.216 (Technically equivalent to SAGE V1.0) | SAGE V1.0 | 1.0.0 |
| 2002-09 | SP-17 | SP-020506 | - | - | Approved for Release 6 - version 6.0.0 | 1.0.0 | 6.0.0 |
| 2002-12 | SP-18 | SP-020721 | 001 | - | EGPRS algorithm | 6.0.0 | 6.1.0 |
| 2003-09 | SP-19 | SP-030490 | 002 | - | Clarification on the usage of the Key length | 6.1.0 | 6.2.0 |
| 2007-12 | SP-38 | SP-070776 | 003 | - | Conversion to pointer to export controlled document Note: Version 7.0.0 is a "readme" file placeholder with no technical content. | 6.2.0 | 7.1.0 |
| 2008-12 | SP-42 | - | - | - | Upgrade to Release 8 | 7.1.0 | 8.0.0 |
| 2009-12 | - | - | - | - | Update to Rel-9 version (MCC) | 8.0.0 | 9.0.0 |
| 2011-03 | - | - | - | - | Update to Rel-10 version (MCC) | 9.0.0 | 10.0.0 |
| 2012-09 | - | - | - | - | Update to Rel-11 version (MCC) | 10.0.0 | 11.0.0 |

History

| Document history | | |
|-------------------------|---------------|-------------|
| V11.0.0 | November 2012 | Publication |
| | | |
| | | |
| | | |
| | | |