



TECHNICAL SPECIFICATION

**5G;**  
**Specification of the ZUC based 256-bits algorithm set:**  
**Specification of the 256-NEA6 encryption, the 256-NIA6**  
**integrity, and the 256-NCA6 authenticated encryption**  
**algorithm for 5G;**  
**Document 2: implementation test data**  
**(3GPP TS 35.247 version 19.0.0 Release 19)**



---

**Reference**

RTS/TSGS-0335247vj00

---

**Keywords**

5G, 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 - 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 2026.  
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 Rights .....	2
Legal Notice .....	2
Modal verbs terminology.....	2
Foreword.....	4
Introduction .....	5
1 Scope .....	6
2 References .....	6
3 Definitions of terms, symbols and abbreviations .....	6
3.1 Terms.....	6
3.2 Symbols.....	6
3.3 Abbreviations .....	6
4 Technical provisions.....	6
<b>Annex A (informative): Change history .....</b>	<b>7</b>
History .....	8

---

# 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.

In the present document, modal verbs have the following meanings:

- shall** indicates a mandatory requirement to do something
- shall not** indicates an interdiction (prohibition) to do something

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

The constructions "must" and "must not" are not used as substitutes for "shall" and "shall not". Their use is avoided insofar as possible, and they are not used in a normative context except in a direct citation from an external, referenced, non-3GPP document, or so as to maintain continuity of style when extending or modifying the provisions of such a referenced document.

- should** indicates a recommendation to do something
- should not** indicates a recommendation not to do something
- may** indicates permission to do something
- need not** indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

- can** indicates that something is possible
- cannot** indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

- will** indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document
- will not** indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document
- might** indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

**might not** indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

**is** (or any other verb in the indicative mood) indicates a statement of fact

**is not** (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

---

## Introduction

The present document is one of three, which between them form the entire specification set of the ZUC based 256-bit encryption and integrity protection algorithms, entitled:

- 3GPP TS 35.246: "Specification of the ZUC based 256-bits algorithm set: Specification of the 256-NEA6 encryption, the 256-NIA6 integrity, and the 256-NCA6 authenticated encryption algorithm for 5G; Document 1: Algorithm Specification".
- 3GPP TS 35.247: "Specification of the ZUC based 256-bits algorithm set: Specification of the 256-NEA6 encryption, the 256-NIA6 integrity, and the 256-NCA6 authenticated encryption algorithm for 5G; **Document 2: Implementation Test Data**".
- 3GPP TS 35.248: "Specification of the ZUC based 256-bits algorithm set: Specification of the 256-NEA6 encryption, the 256-NIA6 integrity, and the 256-NCA6 authenticated encryption algorithm for 5G; Document 3: Design Conformance Test Data".

---

# 1 Scope

The present document contains the implementers' test data of the encryption and integrity protection function 256-NEA6, 256-NIA6 and the combined authenticated encryption 256-NCA6 protection function for 3GPP systems.

---

# 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] The non-redacted specification is available via <http://www.etsi.org/WebSite/OurServices/Algorithms/3gppalgorithms.aspx> and is subject to licensing conditions described at this site.

**Editor's Note:** The given reference [2] leads to the valid portal, but the desired specifications are not stored there because they are still under construction.

---

# 3 Definitions of terms, symbols and abbreviations

## 3.1 Terms

For the purposes of the present document, the terms given in 3GPP TR 21.905 [1], in the non-redacted version of the specification [2] and the following apply. A term defined in the present document and its corresponding non-redacted version [2] takes precedence over the definition of the same term, if any, in 3GPP TR 21.905 [1].

## 3.2 Symbols

void

## 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TR 21.905 [1], in the non-redacted version of the specification [2] and the following apply. An abbreviation defined in the present document and its corresponding non-redacted version [2] takes precedence over the definition of the same abbreviation, if any, in 3GPP TR 21.905 [1].

---

# 4 Technical provisions

The technical provisions of the ZUC based 256-bits algorithm specific implementation test data are contained in the non-redacted version of the present document [2].

---

## Annex A (informative): Change history

Change history							
Date	Meeting	TDoc	CR	Rev	Cat	Subject/Comment	New version
2023-11	SA3#113	S3-234431				First time submitted for discussion and approval.	0.1.0
2024-02	SA3#115	S3-240275				Skeleton only submitted for approval.	0.2.0
2024-02	SA3#115	S3-240595				Technical provision content edited.	0.3.0
2024-03	SA#103	SP-240229				Presented for information and approval	1.0.0
2024-03	SA#103					Upgrade to change control version	18.0.0
2026-03	SA#109					Upgrade to Rel-19	19.0.0

---

## History

<b>Version</b>	<b>Date</b>	<b>Status</b>
V19.0.0	March 2026	Publication