



**Universal Mobile Telecommunications System (UMTS);
LTE;**

**Specification of the TUAk algorithm set: A second example
algorithm set for the 3GPP authentication and key generation
functions f_1 , f_1^* , f_2 , f_3 , f_4 , f_5 and f_5^* ;**

**Document 6: Security assessment
(3GPP TR 35.936 version 19.0.0 Release 19)**



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Foreword

This Technical Report has been produced by the 3rd Generation Partnership Project (3GPP).

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Version x.y.z

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- x the first digit:
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 - 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 provides a reference to an independent security assessment of the Tuak algorithm set carried out by the University of Waterloo, Canada.

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 TS 35. 231: "Specification of the Tuak algorithm set: A second example algorithm set for the 3GPP authentication and key generation functions f1, f1*, f2, f3, f4, f5 and f5*; Document 1: Algorithm specification ".
- [2] "Security Assessment of TUAk Algorithm Set"; Guang Gong, Kalikinkar Mandal, Yin Tan, TengWu; Department of Electrical and Computer Engineering University of Waterloo, Canada (available at http://www.3gpp.org/ftp/Specs/archive/35_series/35.935/SAGE_report/Secassesment.zip)

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TS 35.231 apply. A term defined in the present document takes precedence over the definition of the same term, if any, in TS 35.231 [1].

4 Security assessment of the Tuak algorithm set

The security assessment of the Tuak algorithm set [1] can be found here: [2].

Annex A:

Change history

Change history							
Date	TSG #	TSG Doc.	CR	Rev	Subject/Comment	Old	New
Nov 2014					First TR version		0.1.0
Dec 2014	SA#66	SP-140818			Version for information and approval	0.1.0	1.0.0
					Version after approval	1.0.0	12.0.0
Jun 2015	SA#68	SP-150302	001	-	Correction of clause title and text referring to wrong subject	12.0.0	12.1.0
Jan 2016	SA#70				Upgrade to Rel-13 (MCC)	12.1.0	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
2018-06	-	-	-	-	-	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

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