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TECHNICAL REPORT

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 f1, f1*, f2, f3, f4, f5 and f5*; Document 4: Report on the design and evaluation (3GPP TR 35.934 version 14.0.0 Release 14)

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Contents

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1 Scope

The present document (together with three accompanying documents, [8], [9] and [10] describes the design rationale, and presents evaluation results, on the Tuak algorithm set [5] – a second example set of algorithms which may be used as the authentication and key generation functions ***f1***, ***f1****, ***f2***, ***f3***, ***f4***, ***f5*** and ***f5****, e.g. as an alternative to MILENAGE.

2 References

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[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 33.102: "3G Security; Security Architecture", (available at http://www.3gpp.org/ftp/specs/html-info/33102.htm).

[3] 3G TS 33.105 (V 3.4.0) (2000-07): "3G Security; Cryptographic Algorithm Requirements (Release 1999)".

[4] 3GPP TS 35.206: "3G Security; Specification of the MILENAGE algorithm set: An example algorithm set for the 3GPP authentication and key generation functions f1, f1*, f2, f3, f4, f5 and f5*; Document 2: Algorithm specification", (available at http://www.3gpp.org/ftp/Specs/html-info/35206.htm).

[5] 3GPP TS 35.231: "3G Security; 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", (available at http://www.3gpp.org/ftp/Specs/html-info/35231.htm).

[6] 3GPP TS 35.232: "3G Security; 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 2: Implementers' Test Data", (available at http://www.3gpp.org/ftp/Specs/html-info/35232.htm).

[7] 3GPP TS 35.233: "3G Security; 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 3: Design Conformance Test Data", (available at http://www.3gpp.org/ftp/Specs/html-info/35233.htm).

[8] "Security Assessment of Tuak Algorithm Set", Guang Gong, Kalikinkar Mandal, Yin Tan and Teng Wu, included as an accompanying document to the present report (available at http://www.3gpp.org/ftp/Specs/archive/35_series/35.935/SAGE_report/Secassesment.zip).

[9] "Performance Evaluation of the Tuak algorithm in support of the ETSI SAGE standardisation group", Keith Mayes, included as an accompanying document to the present report (available at http://www.3gpp.org/ftp/Specs/archive/35_series/35.936/SAGE_report/Perfevaluation.zip).

[10] "Performance Evaluation of the Tuak algorithm in support of the ETSI SAGE standardisation group – extension report", Keith Mayes, included as an accompanying document to the present report (available at http://www.3gpp.org/ftp/Specs/archive/35_series/35.936/SAGE_report/Perfevaluationext.zip).