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TECHNICAL SPECIFICATION

Rules for the management of the TETRA standard authentication and key management algorithm sets; Part 2: TAA2

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee TETRA and Critical Communications Evolution (TCCE).

The present document is part 1 of a multi-part deliverable covering the rules for the management of the TETRA standard authentication and key management algorithm sets, as identified below:

Part 1: "TAA1";

Part 2: "TAA2".

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.

1 Scope

The purpose of the present document is to specify the rules for the management of the TETRA standard authentication and key management algorithm set TAA2. This algorithm set is intended for air interface security in TETRA products.

The specification for TAA2 consists of the following three parts:

Part 1: Algorithm specifications.

Part 2: Design conformance test data.

Part 3: Algorithms input/output test data.

The procedures described in the present document apply to parts 1 and 2 of the specification. Parts 1 and 2 are confidential for each of the algorithms. The algorithm primitives' section of part 1 of the specification has been published as ETSI TS 104 053-4 [i.1].

Part 3 of of the specification is not confidential and can be obtained directly from the TAA2 Custodian (see clause 5.2). There are no restrictions on the distribution of this part of the specification.

The management structure is defined in clause 4. This structure is defined in terms of the principals involved in the management of TAA2 (ETSI, ETSI Technical Committee TCCE, TAA2 Custodian and approved recipients (beneficiaries)) together with the relationships and interactions between them.

The procedures for delivering TAA2 to approved recipients are defined in clause 5. This clause is supplemented by annex A which specifies the items which are to be delivered.

Clause 6 is concerned with the criteria for approving an organization for receipt of TAA2 and with the responsibilities of an approved recipient.

Clause 7 is concerned with the appointment and responsibilities of the TAA2 Custodian.

Clause 8 describes an overview of the algorithms.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found in the ETSI docbox.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long-term validity.

The following referenced documents are necessary for the application of the present document.

[1] Void.

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long-term validity.

The following referenced documents may be useful in implementing an ETSI deliverable or add to the reader's understanding, but are not required for conformance to the present document.

[i.1] ETSI TS 104 053-4: "TETRA Air Interface Security, Algorithms Specifications; Part 4: TETRA Authentication and Key Management Algorithms TAA2".

[i.2] ETSI TS 100 392-7: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 7: Security".

NOTE: ETSI TS 100 392-7 [i.2] may also be published as an ETSI European Norm, specifically ETSI EN 300 392-7. The latest version of the specification, either TS or EN, applies.

[i.3] ETSI Algorithms & Codes webpage.

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the following terms apply:

approved recipient: beneficiary of the algorithm specification as described in the Confidentiality and Restricted Usage Undertaking (CRUU)

3.2 Symbols

Void.

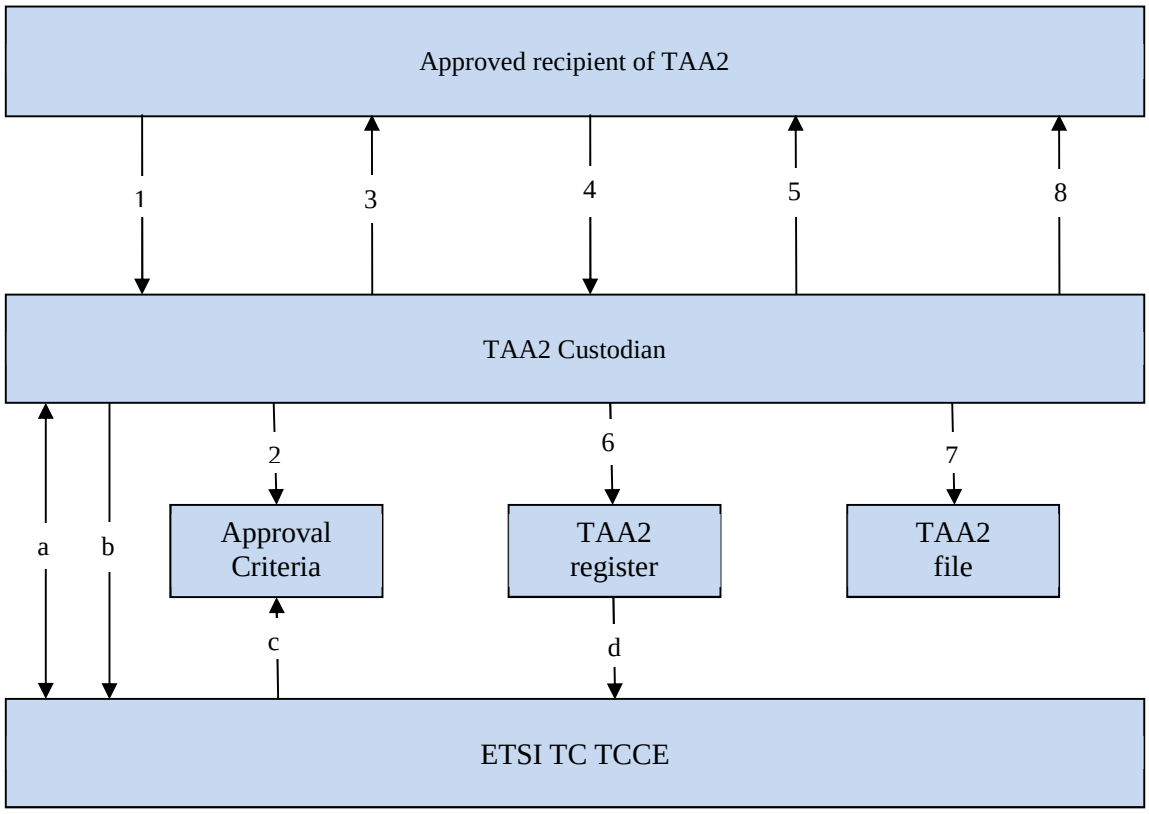
3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

CRUU	Confidentiality and Restricted Usage Undertaking
TAA2	TETRA Authentication Algorithm set No. 2
TC	Technical Committee
TCCE	TETRA and Critical Communications Evolution
TETRA	TErrestrial Trunked Radio

4 TAA2 management structure

The management structure is depicted in figure 1.



Key:

a	=	Agreement between TAA2 Custodian and ETSI TC TCCE
b	=	Status reports and recommendations
c	=	Setting of approval criteria
d	=	Requested details of the TAA2 register
1	=	Request for TAA2
2	=	Check of request against approval criteria
3 and 4	=	Exchange of Confidentiality and Restricted Usage Undertaking
5	=	Dispatch of TAA2 specification
6	=	Update the TAA2 register
7	=	Document filing
8	=	Technical advice

Figure 1: TAA2 management structure

Figure 1 shows the three principals involved in the management of TAA2 and the relationships and interactions between them.

ETSI is Custodian of TAA2. ETSI together with ETSI TC TCCE sets the approval criteria for receipt of the algorithm (see clause 6).

The TAA2 Custodian is the interface between ETSI TC TCCE and the approved recipients of TAA2.

The Custodian shall be ETSI unless it is decided by ETSI and/or ETSI TC TCCE to delegate this task to a third party on the basis of an agreement between the latter and ETSI. The TAA2 Custodian's duties are detailed in clause 7. They include distributing TAA2 to approved recipients, as detailed in clause 5, providing limited technical advice to approved recipients.

5 Distribution procedures

5.1 Distribution of parts 1, 2 and 3 of the TAA2 specification by the TAA2 Custodian

The process for purchase and distribution of algorithm specifications is described at ETSI Algorithms & Codes [i.3].

5.2 Distribution of TAA2 specification part 3 by the TAA2 Custodian

The following procedure is defined for distributing only part 3 of the TAA2 specification:

1) The TAA2 Custodian receives a request for one single copy of part 3 of the TAA2 specification.
2) The TAA2 Custodian sends one copy of part 3 of the TAA2 specification to the applicant.
3) The TAA2 Custodian informs ETSI TC TCCE.

6 Approval criteria and restrictions

The approval criteria are set by ETSI together with ETSI TC TCCE. ETSI together with ETSI TC TCCE may recommend changes to these criteria.

ETSI TC TCCE shall decide whether an organization requesting the TAA2 specification may be considered to be an approved recipient. Where an organization consists of a group of companies or organizations, ETSI TC TCCE will decide whether one organization or company within the group may be an approved recipient on behalf of other organizations or companies within the group.

In order for an organization to be considered an approved recipient of the TAA2 specification it has to satisfy at least one of the criteria indicated in Article 3.2 of the Confidentiality and Restricted Usage Undertaking (CRUU) available at ETSI Algorithms & Codes [i.3].

In the event that an organization cannot comply with the rules as described in the present document, the TAA2 Custodian will inform ETSI TC TCCE who may provide a justification. If a special Confidentiality and Restricted Usage Undertaking is used, the TAA2 Custodian will first ask the ETSI Legal Department to approve this Confidentiality and Restricted Usage Undertaking (CRUU).

7 The TAA2 Custodian

7.1 Responsibilities

The TAA2 Custodian is expected to perform the following tasks:

T1	To approve requests for TAA2 by reference to the Approval Criteria given in Article 3.2 of the Confidentiality and Restricted Usage Undertaking (CRUU) after confirmation by ETSI TC TCCE.
T2	To process the Confidentiality and Restricted Usage Undertaking with approved recipients as described at ETSI Algorithms & Codes [i.3].
T2bis	To obtain the administrative authorization and export licences required by the Customs Services of its country if any.
T3	To distribute, if approved, the TAA2 specifications as described at ETSI Algorithms & Codes [i.3].

T4 To maintain the TAA2 Register as described in clause 4.

T5 To hold in custody the contents of the TAA2 File as specified in clause 4.

T6 To provide recipients of TAA2 with limited technical support, i.e. answer written queries arising from the specification or test data (see note).

T7 To advise ETSI TC TCCE of any problems arising with the approval criteria.

T8 In the light of written queries from recipients of the TAA2 specifications, to make recommendations to ETSI TC TCCE for improvements/corrections to the specification and, subject to ETSI TC TCCE approval.

T9 To provide ETSI TC TCCE with information from the TAA2 Register when requested to do so.

NOTE: The TAA2 Custodian will only endeavour to answer questions relating to the TAA2 specifications. The TAA2 Custodian is not expected to provide technical support for development programmes.

7.2 Appointment

The TAA2 Custodian is:

- ETSI

The contact person is:

- ETSI Algorithms & Codes service
- Email: algorithms@etsi.org
- ETSI
  F-06921 Sophia Antipolis Cedex
  FRANCE

The TAA2 Custodian will ask a fee from the recipient to cover the cost of distribution of parts 1 and 2 of the specifications.

The TAA2 Custodian may ask for an optional fee from the recipient to cover the cost of distribution of part 3.

All requests for either the TAA2 specification parts 1 and 2 or the TAA2 specification part 3 should be addressed to the indicated contact person or to ETSI.

8 TAA2 Overview Description

The TAA2 algorithm set is used to provide secure air interface authentication and key management processes across the Air Interface and Inter-System interface (ISI) of TETRA systems.

The set of TAA2 algorithms are described in detail in clause 5 of ETSI TS 104 053-4 [i.1].

A full description of the TETRA air interface encryption, authentication and key management protocols are described in ETSI TS 100 392-7 [i.2].

All algorithms specified in TAA2, with the exception of the rather simple algorithms TA72 and TA102 - TA106, make use of a Rijndael block cipher.

Annex A (informative): Items delivered to approved recipient of TAA2

ITEM-1: The TAA2 specification (parts 1, 2 and 3).

ITEM-2: A countersigned Confidentiality and Restricted Usage Undertaking.

Annex B (normative): Void

Annex C (informative): Bibliography

- ETSI TS 101 052-1: "Rules for the management of the TETRA standard authentication and key management algorithm sets; Part 1: TAA1".
- ETSI TS 101 053-1: "Rules for the management of the TETRA standard encryption algorithms; Part 1: TEA1".
- ETSI TS 101 053-2: "Rules for the management of the TETRA standard encryption algorithms; Part 2: TEA2".
- ETSI TS 101 053-3: "Rules for the management of the TETRA standard encryption algorithms; Part 3: TEA3".
- ETSI TS 101 053-4: "Rules for the management of the TETRA standard encryption algorithms; Part 4: TEA4".
- ETSI TS 101 053-5: "Rules for the management of the TETRA standard encryption algorithms; Part 5: TEA5".
- ETSI TS 101 053-6: "Rules for the management of the TETRA standard encryption algorithms; Part 6: TEA6".
- ETSI TS 101 053-7: "Rules for the management of the TETRA standard encryption algorithms; Part 7: TEA7".

History

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