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## Foreword

This European Telecommunication Standard (ETS) has been produced by the Terrestrial Trunked Radio (TETRA) Project of the European Telecommunications Standards Institute (ETSI).

Every ETS prepared by ETSI is a voluntary standard. This ETS contains text concerning conformance testing of the equipment to which it relates. This text should be considered only as guidance and does not make this ETS mandatory.

This ETS is a multi-part standard and will consist of the following parts:

Part 1: "Radio";

Part 2: "Protocol testing specification for Voice plus Data (V+D)";

Part 4: "Protocol testing specification for Direct Mode Operation (DMO)";

**Part 5: "Security".**

Transposition dates	
Date of adoption of this ETS:	25 June 1999
Date of latest announcement of this ETS (doa):	30 September 1999
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 March 2000
Date of withdrawal of any conflicting National Standard (dow):	31 march 2000

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## 1 Scope

This ETS contains two Abstract Test Suites (ATSS) to test the TETRA security V+D and DMO protocols. The protocols are specified, respectively, in ETS 300 392-7 [2] and ETS 300 396-6 [3]. The Test Suite Structure (TSS) and Test Purposes (TPs) for these ATSS are defined in ETS 300 394-5-2 [1].

The objective of this test specification is to provide a basis for approval tests for TETRA equipment giving a high probability of air interface inter-operability between different manufacturer's TETRA equipment.

The ISO standard for the methodology of conformance testing, ISO/IEC 9646-1 [4], ISO/IEC 9646-2 [5], ISO/IEC 9646-3 [6] and ISO/IEC 9646-5 [7], as well as the ETSI rules for conformance testing, ETS 300 406 [9] and ETR 141 [10], are used as a basis for the test methodology.

Annex A and B provide the Tree and Tabular Combined Notation (TTCN) part of these ATSS.

Annex C and D provides the Partial Protocol Implementation eXtra Information for Testing (PIXIT) Proforma of these ATSS.

Annex E and F provides the Protocol Conformance Test Report (PCTR) Proforma of these ATSS.

## 2 Normative references

This ETS incorporates by dated and undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] ETS 300 394-5-2: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 5: Security; Sub-part 2: Protocol testing specification for TETRA security".
- [2] ETS 300 392-7: "Terrestrial Trunked Radio (TETRA); Voice plus Data (V+D); Part 7: Security".
- [3] ETS 300 396-6: "Terrestrial Trunked Radio (TETRA); Direct Mode Operation (DMO); Part 6: Security".
- [4] ISO/IEC 9646-1 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General Concepts". (See also CCITT Recommendation X.290 (1991)).
- [5] ISO/IEC 9646-2 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract test suite specification". (See also CCITT Recommendation X.291 (1991)).
- [6] ISO/IEC 9646-3 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation (TTCN)". (See also CCITT Recommendation X.292 (1992)).
- [7] ISO/IEC 9646-5 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 5: Requirements on test laboratories and clients for the conformance assessment process". (See also CCITT Recommendation X.292 (1992)).
- [8] ISO/IEC 9646-6 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 6: Protocol profile test specification".

- [9] ETS 300 406: "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".
- [10] ETR 141 (1994): "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; The Tree and Tabular Combined Notation (TTCN) style guide".

### 3 Definitions and abbreviations

#### 3.1 TETRA definitions

For the purposes of this ETS, the definitions given in ETS 300 394-5 [1] apply.

#### 3.2 TETRA abbreviations

For the purposes of this ETS the following TETRA abbreviations apply:

CC	Call Control
CMCE	Circuit Mode Control Entity
DM	Direct Mode
DMO	Direct Mode Operation
MAC	Medium Access Control
MLE	Mobile Link Entity
MM	Mobility Management
MS	Mobile Station
PC	Protocol Control
SCLNP	Specific ConnectionLess Network Protocol
SDS	Short Data Service
SDU	Service Data Unit

#### 3.3 ISO 9646 definitions

For the purposes of this ETS the following ISO/IEC 9646-1 [4] definitions apply:

Abstract Test Suite (ATS)  
Abstract Test Method (ATM)  
Implementation Conformance Statement (ICS)  
Implementation Under Test (IUT)  
Implementation eXtra Information for Testing (IXIT)  
Lower Tester (LT)  
PICS proforma  
PIXIT proforma  
Point of Control and Observation (PCO)  
Protocol Implementation Conformance Statement (PICS)  
Protocol Implementation eXtra Information for Testing (PIXIT)  
Service Access Point (SAP)  
Single Party Testing (SPyT)  
System Under Test (SUT)  
Upper Tester (UT)

For the purposes of this ETS the following ISO/IEC 9646-3 [6] definitions apply:

TTCN.GR  
TTCN.MP

For the purposes of this ETS the following ISO/IEC 9646-5 [7] definitions apply:

Protocol Conformance Test Report (PCTR)  
PCTR proforma

### 3.4 ISO 9646 abbreviations

For the purposes of this ETS the following ISO/IEC 9646-1 [4] abbreviations apply:

ASP	Abstract Service Primitive
ATM	Abstract Test Method
ATS	Abstract Test Suite
IUT	Implementation Under Test
LT	Lower Tester
NWK	Network Layer
PCO	Point of Control and Observation
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statements
PIXIT	Protocol Implementation eXtra Information for Testing
SAP	Service Access Point
SPyT	Single Party Testing
SUT	System Under Test
TC	Test Case
TP	Test Purpose
TTCN	Tree and Tabular Combined Notation
TSS	Test Suite Structure
UT	Upper Tester

For the purposes of this ETS the following ISO/IEC 9646-5 [7] abbreviations apply:

PCTR	Protocol Conformance Test Report
------	----------------------------------

## 4 Abstract Test Method (ATM)

This clause describes the ATM used for testing the V+D and DM security protocol. It is the embedded variant of the remote test method used in Single Party Testing (SPyT) context, as defined in ISO/IEC 9646-2 [2], clause 11. This test method has been selected, because:

- this test method implies no specific requirements from the Implementation Under Test (IUT);
- the upper Service Access Point (SAP) of the IUT cannot be directly observed;
- the variety of the possible TETRA implementations is a serious technical obstacle for the adoption of a different ATM;
- this test method places minimum limitations in the realisation of conformance testing.

Operations at NetWork (NWK) layer in the V+D and DM security protocol (for example authentication) affect the content of the link layer PDUs (i.e. MAC PDUs). Therefore link layer test cases have been defined to observe the status of the MAC header when conveying NWK layer information elements.

The selected test method used to test the NWK layer is illustrated in figure 1.

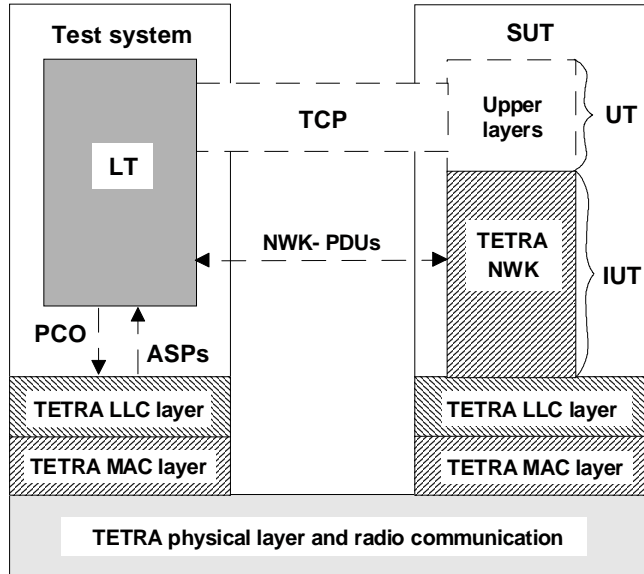


Figure 1: Remote SPyT test method for TETRA Security NWK layer

The selected test method used to test the DM link layer is illustrated in figure 2.

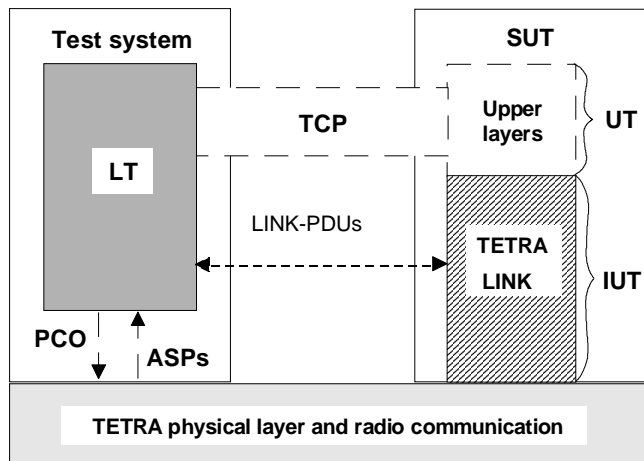


Figure 2: Remote SPyT test method for V+D TETRA Security link layer

#### 4.1 Lower Tester (LT)

A LT is located in a remote TETRA test system. It controls and observes the behaviour of the IUT.

#### 4.2 Upper Tester (UT)

There is no explicit UT in the remote test method, but the TETRA NWK layer or LINK layer and the layers above inside the System Under Test (SUT) are used implicitly for testing the NWK layer or LINK layer.

#### 4.3 Test Co-ordination Procedures (TCP)

The implicit send events defined by the provider of an implementation in annex B serve the purpose of the TCP. They are used as an input to the IUT communicating with the UT to initiate test events at NWK and LINK layers.

#### 4.4 Point of Control and Observation (PCO)

The PCOs for the V+D NWK layer testing are located inside the NWK protocols. Two different test configurations are assumed. One for testing the upper protocols in NWK layer Mobility Management (MM) and another one for invoking Mobile Link Entity (MLE). In the first case PCOs for upper protocols are to be used with test system providing the underlying MLE functionality and in the latter case the PCO inside MLE protocol is to be used. Additionally some Abstract Service Primitives (ASPs) are defined for control and observation purposes. Two other PCOs were defined to test the state of the IUT using the Circuit Mode Control Entity (CMCE) protocol: one to use the call control and an other one to use the Short Data Service (SDS).

The PCO defined for the DM link layer testing is located in the link protocol for testing the MAC header PDUs.

The PCO defined for testing the DM security protocol is located in the NWK layer inside the Short Data Service protocol.

### 5 ATS conventions

This clause describes the conventions applied to define the ATSS and gives the naming conventions chosen for the different elements of the ATSS.

The ATSS conventions are intended to give a better understanding of the ATSS but they describe also the conventions made for the development of the ATSS, thus for any later maintenance purposes or further development of the ATSS, the conventions described in this clause shall be considered.

#### 5.1 Naming conventions

##### 5.1.1 Declarations part

This subclause describes the naming conventions chosen for the elements of the ATSS declarations part.

##### 5.1.1.1 Test suite type and structured type definitions

The test suite type and test suite structured type identifiers describe the information elements, and each whole word included in the name is written in lowercase starting by an uppercase letter:

EXAMPLE:	CellIdentifierType	simple type
	ITSI_Type	structured type

In the case an abbreviation is included in the declaration name, there is an underscore ("\_") before and/or after it, separating it from the rest of the identifier. This rule with abbreviations apply to all the naming conventions in the whole test suite.

##### 5.1.1.2 Test suite operations definitions

The test suite operation identifiers are composed of strings in uppercase letters starting by the uppercase string "TSO\_". The different strings in the definition are separated with underscores.

EXAMPLE:	TSO_ENCRYPT_SDU
----------	-----------------

##### 5.1.1.3 Test suite parameter declarations

The test suite parameter identifiers are composed of strings in uppercase letters starting by the uppercase string "PIC\_" or "PIX\_" and separated by underscores.

If the test suite parameter references a PICS item, the prefix "PIC\_" is used.

EXAMPLE 1:               PIC\_OTAR\_CCK\_SUPP

If the test suite parameter references a PIXIT item, the prefix "PIX\_" is used.

EXAMPLE 2:               PIX\_MS\_ITSI

Complete names as defined in the specifications are used.

#### **5.1.1.4            Test case selection expression definitions**

The naming conventions for the test case selection expression definitions use free text starting with an uppercase letter. The name of the expression shall explain clearly the selection rule. The test case selection expressions are generally logical combinations of the test suite parameter definitions.

#### **5.1.1.5            Test suite constant declarations**

The test suite constant identifiers are composed of strings in uppercase letters starting by the uppercase string "TSC\_".

EXAMPLE:                TSC\_TETRA\_VERSION

Complete names as defined in the specifications are used. However, in the parameters including a dot character, the dot is replaced by an underscore.

#### **5.1.1.6            Test suite variable declarations**

The test suite variable identifiers are composed of string in lowercase letters starting by the lowercase string "tsv\_".

EXAMPLE:                tsv\_llc\_ul\_sdu\_nمبر

If the test suite variable represents a system parameter or value, the name defined in the specifications is used. However, in the variables including a dot character, the dot is replaced by an underscore.

#### **5.1.1.7            Test case variable declarations**

The test case variable identifiers are composed of strings in lowercase letters starting by the lowercase string "tcv\_".

#### **5.1.1.8            PCO declarations**

The point of control and observation identifiers are composed of three to six capital letters, beginning with an "L", as there are only LTs.

EXAMPLE:                LMM                Represents a PCO on NWK interface for call control PDUs as  
LT in the test equipment.

#### **5.1.1.9            Timer declarations**

Two kinds of timers can be distinguished:

- 1) standardized:  
Those defined in the standard, e.g. T.316, use the same name as in the standard, beginning with a capital "T", except that the dot is replaced by an underscore.

As there is a tolerance margin accepted for these timers, two values are needed:

- the maximum value allowed, which will use the suffix "\_Max";
- the minimum value allowed, which will use the suffix "\_Min";

EXAMPLE 1:               T316\_Max

- 2) non-standardized:  
Those not defined in the standard, i.e. for execution use, e.g. a timer waiting for a response. These timers begin with the prefix "T\_", followed by a string in lowercase letters with each word in the following string starting with an uppercase letter.

EXAMPLE 2:           T\_IUT\_Response  
                      T\_NoResponse

#### 5.1.1.10       ASP type definitions

ASP definitions follow the specification in the ETS 300 392-7 [2] or ETS 300 396-6 [3] when a corresponding definition exists. If not, a free name is used.

EXAMPLE:            MLE\_ACTIVATE\_confirm\_RegistrationReq  
                      RESET\_MS.

#### 5.1.1.11       PDU type definitions

The identifier of a PDU is given in a string in uppercase letters, which represents the layer message.

EXAMPLE 1:           D\_ENABLE                               for the D-STATUS layer 3 PDU reception;  
                      U\_AUTHENTICATION\_DEMAND for the DISCONNECT layer 3 PDU transmission.

Where the message is a composite word, an underscore character appears in the string.

EXAMPLE 2:           U\_AUTHENTICATION\_DEMAND is the U-AUTHENTICATION DEMAND layer  
                      3 message.

#### 5.1.1.12       Alias definitions

No alias definitions are used in the test suite.

### 5.1.2       Constraints part

This subclause describes the naming conventions chosen for the elements of the ATS constraints part.

PDU constraint identifiers shall explain clearly the meaning/contents of the constraint. The PDU identifiers names are defined with:

- 1) the PDU type name in uppercase
- 2) additional names separated with underscores and written in lowercase with each word starting with an uppercase letter.  
If the declaration part of the name does not indicate if the constraint is received or sent (U\_ for Uplink and D\_ for Downlink), then the expression \_S or \_R shall be added at the end of the name of the constraint.

EXAMPLE 1:           DM\_SDS\_DATA\_ENDIS\_CONFIRM\_Normal\_R

The identifier name of structured type constraints shall be written with upper and lower cases. This identifier name shall represent the contents of the constraint.

If formal parameter lists are used, the variable names are written in lowercase. The variable name is the same as the name of the element it is representing starting with prefix "cpa\_".

EXAMPLE 2:           D\_ENABLE\_Confirm\_TEI(cpa\_tei: TEI\_Type)

### 5.1.3 Dynamic part

This subclause describes the naming conventions chosen for the elements of the ATS dynamic part.

#### 5.1.3.1 Test case identifier

The identifier of a TC is built according to table 1:

**Table 1: TC naming convention**

TC_<ts>_<p>_<fm>_<l>_<x>_<s>_<nn>		
<ts>	= test suite	Sec Security
<p>	= protocol	VD Voice + Data DM Direct Mode
<fm>	= functional module	For Sec layer: AU Authentication OTAR Over The Air Rekeying SED Secure Enable/Disable
<l>	= layer	L3 Layer 3 (not in the V+D part) L2 Layer 2 (not in the V+D part)
x	= Type of testing	BV Valid Behaviour Tests BI Invalid Behaviour Tests
s	= test subgroup (as many subgroups as required)	as defined in the test suite structure
<nn>	= sequential number	(01-99) Test Purpose Number

#### 5.1.3.2 Test step identifier

The test step identifier is built with a string of lowercase letters led by a string of capital letter and joined by an underscore character. The first string indicates the main function of the test step; e.g. PRE for preamble, PST for postamble and LTS for local tree name. The second string indicates the meaning of the step.

EXAMPLES:           PRE\_Name  
                       PST\_Name  
                       LTS\_Name

#### 5.1.3.3 Default identifier

Six default identifiers are used, namely OtherwiseFail with a prefix indicating the configuration.

EXAMPLES:           VD\_L2\_OtherwiseFail



## 5.2 TC and TP mapping

There is a one-to-one mapping between the TC identifiers and the TP identifiers. The correspondence rule is given by the following examples:

TP identifier	TC identifier
TP/S/VD/L3/AU/BV/II/01	S_VD_L3_AU_BV_II_01
TP/S/VD/L2/OTAR/BV/CCK/01	S_VD_L2_OTAR_BV_CCK_01

**Annex A (normative):      ATS for TETRA V+D security NWK layers and TETRA  
V+D security link layer**

This ATS has been produced using the Tree and Tabular Combined Notation (TTCN) according to ISO/IEC 9646-3 [6].

The ATS was developed on a separate TTCN software tool and therefore the TTCN tables are not completely referenced in the contents table. The ATS itself contains a test suite overview part which provides additional information and references.

**A.1   The TTCN Graphical form (TTCN.GR)**

The TTCN.GR representation of this ATS is contained in an Adobe Portable Document Format™ file (Sec\_VD.PDF contained in archive 39453e1.ZIP) which accompanies the present document.

**A.2   The TTCN Machine Processable form (TTCN.MP)**

The TTCN.MP representation corresponding to this ATS is contained in an ASCII file (Sec.VM.MP contained in archive 39453e1.ZIP) which accompanies the present document.

NOTE:      According to ISO/IEC 9646-3 [6], in case of a conflict in interpretation of the operational semantics of TTCN.GR and TTCN.MP, the operational semantics of the TTCN.GR representation takes precedence.

**Annex B (normative):      ATS for TETRA DMO security NWK layers and TETRA  
DMO security link layer**

This ATS has been produced using the Tree and Tabular Combined Notation (TTCN) according to ISO/IEC 9646-3 [6].

The ATS was developed on a separate TTCN software tool and therefore the TTCN tables are not completely referenced in the contents table. The ATS itself contains a test suite overview part which provides additional information and references.

**B.1    The TTCN Graphical form (TTCN.GR)**

The TTCN.GR representation of this ATS is contained in an Adobe Portable Document Format™ file (Sec\_DM.PDF contained in archive 39453e1.ZIP) which accompanies the present document.

**B.2    The TTCN Machine Processable form (TTCN.MP)**

The TTCN.MP representation corresponding to this ATS is contained in an ASCII file (Sec\_DM.MP contained in archive 39453e1.ZIP) which accompanies the present document.

NOTE:      According to ISO/IEC 9646-3 [6], in case of a conflict in interpretation of the operational semantics of TTCN.GR and TTCN.MP, the operational semantics of the TTCN.GR representation takes precedence.

## Annex C (normative): Partial PIXIT proforma for TETRA V+D security

Notwithstanding the provisions of the copyright clause related to the text of this ETS, ETSI grants that users of this ETS may freely reproduce the PICS proforma in this annex so that it can be used for its intended purposes and may further publish the completed PICS.

The PIXIT proforma is based on ISO/IEC 9646-6 [8]. Any additional information needed can be found in this international standard document.

### C.1 Identification summary

Table C.1

PIXIT number:	
Test laboratory name:	
Date of issue:	
Issued to:	

### C.2 ATS summary

Table C.2

Protocol specification:	ETS 300 392-7
Protocol to be tested:	
ATS specification:	ETS 300 394-5
Abstract test method:	Remote test method, embedded variant

### C.3 Test laboratory

Table C.3

Test laboratory identification:	
Test laboratory manager:	
Means of testing:	
SAP address:	

### C.4 Client identification

Table C.4

Client identification:	
Client test manager:	
Test facilities required:	

## C.5 SUT

Table C.5

Name:	
Version:	
SCS number:	
Machine configuration:	
Operating system identification:	
IUT identification:	
PICS reference for IUT:	
Limitations of the SUT:	
Environmental conditions:	

## C.6 Protocol layer information

### C.6.1 Protocol identification

Table C.6

Name:	TETRA Security - ETS 300 392-7
Version:	
PICS references:	

### C.6.2 IUT information

#### C.6.2.1 Implicit send events

Editor's note: shall be reviewed due to the splitting of the test suites and deletion of test purposes.

Table C.7: Implicit send events

Item	PIXIT (See note)	Related implicit send message (PDU)	Invocation description
1	PIX_IMP_LOCATION_UPDATE_DEMAND_AuthRq	Cause IUT to send U-LOCATION UPDATE DEMAND PDU having given location update type and ITSl and containing an authentication demand	
2	IMP_U_LOCATION_UPDATE_DEMAND_AuthRq_CCK	Cause IUT to send U-LOCATION UPDATE DEMAND PDU having given location update type and ITSl and containing an authentication demand and a CCK request	
3	IMP_U_LOCATION_UPDATE_DEMAND_CCK	Cause IUT to send U-LOCATION UPDATE DEMAND PDU having given location update type and ITSl and containing a CCK request type 3 element	
4	IMP_U_LOCATION_UPDATE_Type	Cause IUT to send U-LOCATION UPDATE DEMAND PDU having given location update type and ITSl	
5	PIX_IMP_LOCATION_UPDATE_CellClass1	Sending of U-LOCATION UPDATE for registration in a class 1 cell implemented	

Item	PIXIT (See note)	Related implicit send message (PDU)	Invocation description
6	PIX_IMP_LOCATION_UPDATE_CellClass2	Sending of U-LOCATION UPDATE for registration in a class 2 cell implemented	
7	PIX_IMP_LOCATION_UPDATE_CellClass3	Sending of U-LOCATION UPDATE for registration in a class 3 cell implemented	

NOTE: The PIXIT names for the implicit send events in this table are the same as those of the test steps in which the implicit send events are used.

### C.6.2.2 Parameter values

**Table C.8: General parameter values**

Item	Parameter	Parameter type	Explanation	Value or reference
1	PIX_MS_ITSI	TSI_Type	ITSI of the IUT	
2	PIX_WRONG_MS_ITSI	TSI_Type	ITSI not corresponding to the ITSI of the IUT	
3	PIX_TEI	TEI_Type	TEI of the IUT	
4	PIX_WRONG_TEI	TEI_Type	TEI not corresponding to the TEI of the IUT	
5	PIX_GSSI	GSSI_Type	GSSI	
6	PIX_SSI	SSI_Type	The SSI value of the IUT	

**Table C.9: Authentication parameter values**

Item	Parameter	Parameter type	Explanation	Value or reference
1	PIX_RAND1	RandomChallengeType	Value of Random challenge (RAND1)	
2	PIX_RS	RandomSeedType	Value of the Random seed (RS)	
3	PIX_RES2	ResponseValueType	Value of the result RES2	
4	PIX_WRONG_RES2	ResponseValueType	Wrong value of the result RES2	

Table C.10: OTAR parameter values

Item	Parameter	Parameter type	Explanation	Value or reference
1	PIX_CURRENT_CCK	CCK_IdType	Value of the CCK of the current LA	
2	PIX_OTHER_CCK	CCK_IdType	Value of the CCK of an other LA	
3	PIX_INVALID_CCK	CCK_IdType	Value of an incorrect CCK	
4	PIX_CURRENT_SCCK	SealedKeyType	Value of the sealed SCCK of the current LA	
5	PIX_OTHER_SCCK	SealedKeyType	Value of the sealed SCCK of an other LA	
6	PIX_INVALID_SCCK	SealedKeyType	Value of an invalid SCCK	
7	PIX_SCKN	SCK_NbrType	SCK number	
8	PIX_INVALID_SCKN	SCK_NbrType	Invalid SCK number	
9	PIX_SCK_VN	SCK_VersionNbrType	SCK version number	
10	PIX_SSCK	SealedKeyType	Sealed SCK	
11	PIX_GCK_VN	GCK_VersionNbrType	GCK version number	
12	PIX_SGCK	SealedKeyType	Sealed GCK	
13	PIX_INVALID_SGCK	SealedKeyType	Invalid sealed GCK	
14	PIX_CURRENT_LA	LocationAreaType	Value of the current location area	
15	PIX_OTHER_LA_DIFF_RA	LocationAreaType	Value for an other location area in an other registration area as the current one.	
16	PIX_OTHER_LA_SAME_RA	LocationAreaType	Value for an other location area in the same registration area as the current one	

## Annex D (normative): Partial PIXIT proforma for TETRA DMO security

Notwithstanding the provisions of the copyright clause related to the text of this ETS, ETSI grants that users of this ETS may freely reproduce the PIXIT proforma in this annex so that it can be used for its intended purposes and may further publish the completed PIXIT.

The PIXIT proforma is based on ISO/IEC 9646-6 [8]. Any additional information needed can be found in this international standard document.

### D.1 Identification summary

Table D.1

PIXIT number:	
Test laboratory name:	
Date of issue:	
Issued to:	

### D.2 ATS summary

Table D.2

Protocol specification:	ETS 300 396-6
Protocol to be tested:	
ATS specification:	ETS 300 394-5
Abstract test method:	Remote test method, embedded variant

### D.3 Test laboratory

Table D.3

Test laboratory identification:	
Test laboratory manager:	
Means of testing:	
SAP address:	

### D.4 Client identification

Table D.4

Client identification:	
Client test manager:	
Test facilities required:	



## D.5 SUT

Table D.5

Name:	
Version:	
SCS number:	
Machine configuration:	
Operating system identification:	
IUT identification:	
PICS reference for IUT:	
Limitations of the SUT:	
Environmental conditions:	

## D.6 Protocol layer information

### D.6.1 Protocol identification

Table D.6

Name:	TETRA - DMO Security - ETS 300 396-6
Version:	
PICS references:	

### D.6.2 IUT information

#### D.6.2.1 Implicit send events

Editor's note: shall be reviewed due to the splitting of the test suites and deletion of test purposes.

Table D.7: Implicit send events

Item	PIXIT (See note)	Related implicit send message (PDU)	Invocation description
1	PIX_IMP_SDS_DATA_DISABLE_COMMAND	Sending of Disable Command PDU in an SDS DATA PDU implemented	
2	PIX_IMP_SDS_DATA_SCK_DEMAND	Sending of the DM SDS DATA PDU containing an OTAR SCK demand implemented	
3	PIX_IMP_DM_SDS_DATA_DMAC_SYNC	True if the IUT supports the sending of the DMO MACSYNC PDU containing a DMO DM-SDS DATA SDU	
NOTE: The PIXIT names for the implicit send events in this table are the same as those of the test steps in which the implicit send events are used.			

D.6.2.2 Parameter values

Table D.8: General parameter values

Item	Parameter	Parameter type	Explanation	Value or reference
1	PIX_MS_ITSI	TSI_Type	ITSI of the IUT	
2	PIX_TEI	TEI_Type	TEI of the IUT	
3	PIX_SSI	SSI_Type	The SSI value of the IUT	
4	PIX_TESTER_SSI	SSI_Type	SSI of the tester	
5	PIX_TESTER_MNI	MNI_Type	MNI of the tester	
6	PIX_SDS_TIME_REMAINING	DM_TimeRemainingType	Value of the SDS time remaining element used to indicate the current estimate of the SDS channel occupation time	

Table D.9: Authentication parameter values

Item	Parameter	Parameter type	Explanation	Value or reference
1	PIX_RAND1	RandomChallengeType	Value of Random challenge (RAND1)	
2	PIX_RAND2	RandomChallengeType	Value of Random challenge (RAND2)	
3	PIX_RS	RandomSeedType	Value of the Random seed (RS)	
4	PIX_RES1	ResponseValueType	Value of the result RES1	
5	PIX_RES2	ResponseValueType	Value of the result RES2	
6	PIX_WRONG_RES2	ResponseValueType	Wrong value of the result RES2	

Table D.10: OTAR parameter values

Item	Parameter	Parameter type	Explanation	Value or reference
1	PIX_SCKN	SCK_NbrType	SCK number	
2	PIX_INVALID_SCKN	SCK_NbrType	Invalid SCK number	
3	PIX_SCK_VN	SCK_VersionNbrType	SCK version number	
4	PIX_INVALID_SCK_VN	SCK_VersionNbrType	Invalid SCK version number	
5	PIX_SSCK	SealedKeyType	Sealed SCK	
6	PIX_SCK_NOT_KNOWN	Boolean	True if the IUT does not know the value of SCK	
7	PIX_KG_UNAVAILABLE	Boolean	True if KG is not available to IUT acting as a KH	

**Annex E (normative): Protocol Conformance Test Report (PCTR) proforma for TETRA V+D security**

Notwithstanding the provisions of the copyright clause related to the text of this ETS, ETSI grants that users of this ETS may freely reproduce the PCTR proforma in this annex so that it can be used for its intended purposes and may further publish the completed PCTR.

The PCTR Proforma is based on ISO/IEC 9646-6 [8]. Any additional information needed can be found in this document.

**E.1 Identification summary**

**E.1.1 Protocol conformance test report**

**Table E.1**

PCTR number:	
PCTR date:	
Corresponding SCTR number:	
Corresponding SCTR date:	
Test laboratory identification:	
Test laboratory manager:	
Signature:	

**E.1.2 IUT identification**

**Table E.2**

Name:	
Version:	
Protocol specification:	
PICS:	
Previous PCTR if any:	

**E.1.3 Testing environment**

**Table E.3**

PIXIT number:	
ATS specification:	
Abstract test method:	Remote test method, embedded variant
Means of testing identification:	
Date of testing:	
Conformance log reference(s):	
Retention date for log reference(s):	

**E.1.4 Limits and reservation**

Additional information relevant to the technical contents or further use of the test report, or the rights and obligations of the test laboratory and the client, may be given here. Such information may include restriction on the publication of the report.

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**E.1.5 Comments**

Additional comments may be given by either the client or the test laboratory on any of the contents of the PCTR, for example, to note disagreement between the two parties.

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**E.2 IUT conformance status**

This IUT has or has not been shown by conformance assessment to be non-conforming to the specified protocol specification.

Strike the appropriate words in this sentence. If the PICS for this IUT is consistent with the static conformance requirements as specified in clause C.3 in this report and there are no "FAIL" verdicts to be recorded in clause C.6 strike the words "has or". otherwise strike the words "or has not".

**E.3 Static conformance summary**

The PICS for this IUT is or is not consistent with the static conformance requirements in the specified protocol.

Strike the appropriate words in this sentence.

**E.4 Dynamic conformance summary**

The test campaign did or did not reveal errors in the IUT.

Strike the appropriate words in this sentence. If there are no "FAIL" verdicts to be recorded in clause C.6 of this report strike the words "did or" otherwise strike the words "or did not".

Summary of the results of groups of test:

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**E.5 Static conformance review report**

If clause C.3 indicates non-conformance, this subclause itemizes the mismatches between the PICS and the static conformance requirements of the specified protocol specification.

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**E.6 Test campaign report**

Editor's note: shall be reviewed due to splitting into 2 test suites.

**Table E.4**

<b>ATS reference</b>	<b>Selected</b>	<b>Run</b>	<b>Verdict</b>	<b>Observations (see note)</b>
S_VD_AU_BV_II_01	Yes/No	Yes/No		
S_VD_AU_BV_II_02	Yes/No	Yes/No		
S_VD_AU_BV_II_03	Yes/No	Yes/No		
S_VD_AU_BV_II_04	Yes/No	Yes/No		
S_VD_AU_BV_II_05	Yes/No	Yes/No		
S_VD_AU_BV_II_06	Yes/No	Yes/No		
S_VD_AU_BV_TI_01	Yes/No	Yes/No		
S_VD_AU_BV_TI_02	Yes/No	Yes/No		
S_VD_AU_BV_TI_03	Yes/No	Yes/No		
S_VD_AU_BV_TI_04	Yes/No	Yes/No		
S_VD_AU_BV_TI_05	Yes/No	Yes/No		
S_VD_AU_BV_TI_06	Yes/No	Yes/No		
S_VD_AU_BV_TI_07	Yes/No	Yes/No		

**(continued)**

Table E.4 (continued)

ATS reference	Selected	Run	Verdict	Observations (see note)
S_VD_AU_BV_TI_08	Yes/No	Yes/No		
S_VD_AU_BV_TI_09	Yes/No	Yes/No		
S_VD_AU_BV_TI_10	Yes/No	Yes/No		
S_VD_AU_BI_01	Yes/No	Yes/No		
S_VD_OTAR_BV_CCK_01	Yes/No	Yes/No		
S_VD_OTAR_BV_CCK_02	Yes/No	Yes/No		
S_VD_OTAR_BV_CCK_03	Yes/No	Yes/No		
S_VD_OTAR_BV_GCK_01	Yes/No	Yes/No		
S_VD_OTAR_BV_GCK_02	Yes/No	Yes/No		
S_VD_OTAR_BV_SCK_01	Yes/No	Yes/No		
S_VD_OTAR_BV_SCK_02	Yes/No	Yes/No		
S_VD_OTAR_BI_CCK_01	Yes/No	Yes/No		
S_VD_OTAR_BI_GCK_01	Yes/No	Yes/No		
S_VD_OTAR_BI_GCK_02	Yes/No	Yes/No		
S_VD_OTAR_BI_SCK_01	Yes/No	Yes/No		
S_VD_OTAR_BI_SCK_02	Yes/No	Yes/No		
S_VD_SED_BV_TD_01	Yes/No	Yes/No		
S_VD_SED_BV_TD_02	Yes/No	Yes/No		
S_VD_SED_BV_TD_03	Yes/No	Yes/No		
S_VD_SED_BV_TD_04	Yes/No	Yes/No		
S_VD_SED_BV_TD_05	Yes/No	Yes/No		
S_VD_SED_BV_TD_06	Yes/No	Yes/No		
S_VD_SED_BV_TD_07	Yes/No	Yes/No		
S_VD_SED_BV_TD_08	Yes/No	Yes/No		
S_VD_SED_BV_TD_09	Yes/No	Yes/No		
<b>(continued)</b>				

Table E.4 (continued)

ATS reference	Selected	Run	Verdict	Observations (see note)
S_VD_SED_BV_PD_01	Yes/No	Yes/No		
S_VD_SED_BV_PD_02	Yes/No	Yes/No		
S_VD_SED_BV_PD_03	Yes/No	Yes/No		
S_VD_SED_BV_PD_04	Yes/No	Yes/No		
S_VD_SED_BV_PD_05	Yes/No	Yes/No		
S_VD_SED_BV_PD_06	Yes/No	Yes/No		
S_VD_SED_BV_PD_07	Yes/No	Yes/No		
S_VD_SED_BV_PD_08	Yes/No	Yes/No		
S_VD_SED_BV_PD_09	Yes/No	Yes/No		
S_VD_SED_BV_EN_01	Yes/No	Yes/No		
S_VD_SED_BV_EN_02	Yes/No	Yes/No		
S_VD_SED_BV_EN_03	Yes/No	Yes/No		
S_VD_SED_BV_EN_04	Yes/No	Yes/No		
S_VD_SED_BV_EN_05	Yes/No	Yes/No		
S_VD_SED_BV_EN_06	Yes/No	Yes/No		
S_VD_SED_BV_EN_07	Yes/No	Yes/No		
S_VD_SED_BV_EN_08	Yes/No	Yes/No		
S_VD_SED_BV_EN_09	Yes/No	Yes/No		
S_VD_SED_BI_01	Yes/No	Yes/No		
S_VD_SED_BI_02	Yes/No	Yes/No		
S_VD_SED_BI_03	Yes/No	Yes/No		
S_VD_SED_BI_04	Yes/No	Yes/No		
S_VD_SED_BI_05	Yes/No	Yes/No		
S_VD_SED_BI_06	Yes/No	Yes/No		

## E.7 Observations

Additional information relevant to the technical content of the PCTR are given here.

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**Annex F (normative): Protocol Conformance Test Report (PCTR) proforma for TETRA DMO security**

Notwithstanding the provisions of the copyright clause related to the text of this ETS, ETSI grants that users of this ETS may freely reproduce the PCTR proforma in this annex so that it can be used for its intended purposes and may further publish the completed PCTR.

The PCTR Proforma is based on ISO/IEC 9646-6 [8]. Any additional information needed can be found in this document.

**F.1 Identification summary**

**F.1.1 Protocol conformance test report**

**Table F.1**

PCTR number:	
PCTR date:	
Corresponding SCTR number:	
Corresponding SCTR date:	
Test laboratory identification:	
Test laboratory manager:	
Signature:	

**F.1.2 IUT identification**

**Table F.2**

Name:	
Version:	
Protocol specification:	
PICS:	
Previous PCTR if any:	

**F.1.3 Testing environment**

**Table F.3**

PIXIT number:	
ATS specification:	
Abstract test method:	Remote test method, embedded variant
Means of testing identification:	
Date of testing:	
Conformance log reference(s):	
Retention date for log reference(s):	

**F.1.4 Limits and reservation**

Additional information relevant to the technical contents or further use of the test report, or the rights and obligations of the test laboratory and the client, may be given here. Such information may include restriction on the publication of the report.

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**F.1.5 Comments**

Additional comments may be given by either the client or the test laboratory on any of the contents of the PCTR, for example, to note disagreement between the two parties.

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**F.2 IUT conformance status**

This IUT has or has not been shown by conformance assessment to be non-conforming to the specified protocol specification.

Strike the appropriate words in this sentence. If the PICS for this IUT is consistent with the static conformance requirements as specified in clause C.3 in this report and there are no "FAIL" verdicts to be recorded in clause C.6 strike the words "has or". otherwise strike the words "or has not".

**F.3 Static conformance summary**

The PICS for this IUT is or is not consistent with the static conformance requirements in the specified protocol.

Strike the appropriate words in this sentence.

**F.4 Dynamic conformance summary**

The test campaign did or did not reveal errors in the IUT.

Strike the appropriate words in this sentence. If there are no "FAIL" verdicts to be recorded in clause C.6 of this report strike the words "did or" otherwise strike the words "or did not".

Summary of the results of groups of test:

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**F.5 Static conformance review report**

If clause C.3 indicates non-conformance, this subclause itemizes the mismatches between the PICS and the static conformance requirements of the specified protocol specification.

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**F.6 Test campaign report**

Editor's note: shall be reviewed due to splitting into 2 test suites.

**Table F.4**

ATS reference	Selected	Run	Verdict	Observations (see note)
S_DM_L2_01	Yes/No	Yes/No		
S_DM_L2_02	Yes/No	Yes/No		
S_DM_L2_03	Yes/No	Yes/No		
S_DM_L3_OTAR_BV_01	Yes/No	Yes/No		
S_DM_L3_OTAR_BV_02	Yes/No	Yes/No		
S_DM_L3_OTAR_BV_03	Yes/No	Yes/No		
S_DM_L3_OTAR_BV_04	Yes/No	Yes/No		
S_DM_L3_OTAR_BI_01	Yes/No	Yes/No		
S_DM_L3_OTAR_BI_02	Yes/No	Yes/No		
S_DM_L3_OTAR_BI_03	Yes/No	Yes/No		
S_DM_L3_SED_BV_TD_TAR_01	Yes/No	Yes/No		
S_DM_L3_SED_BV_TD_TAR_02	Yes/No	Yes/No		
S_DM_L3_SED_BV_TD_TAR_03	Yes/No	Yes/No		

(continued)

Table F.4 (concluded)

ATS reference	Selected	Run	Verdict	Observations (see note)
S_DM_L3_SED_BV_TD_MNG_01	Yes/No	Yes/No		
S_DM_L3_SED_BV_TD_MNG_02	Yes/No	Yes/No		
S_DM_L3_SED_BV_TD_MNG_03	Yes/No	Yes/No		
S_DM_L3_SED_BV_PD_TAR_01	Yes/No	Yes/No		
S_DM_L3_SED_BV_PD_TAR_02	Yes/No	Yes/No		
S_DM_L3_SED_BV_PD_TAR_03	Yes/No	Yes/No		
S_DM_L3_SED_BV_PD_MNG_01	Yes/No	Yes/No		
S_DM_L3_SED_BV_PD_MNG_02	Yes/No	Yes/No		
S_DM_L3_SED_BV_PD_MNG_03	Yes/No	Yes/No		
S_DM_L3_SED_BV_EN_TAR_01	Yes/No	Yes/No		
S_DM_L3_SED_BV_EN_TAR_02	Yes/No	Yes/No		
S_DM_L3_SED_BV_EN_TAR_03	Yes/No	Yes/No		
S_DM_L3_SED_BV_EN_MNG_01	Yes/No	Yes/No		
S_DM_L3_SED_BV_EN_MNG_02	Yes/No	Yes/No		
S_DM_L3_SED_BV_EN_MNG_03	Yes/No	Yes/No		
S_DM_L3_SED_BV_TEI_01	Yes/No	Yes/No		
S_DM_L3_SED_BV_TEI_02	Yes/No	Yes/No		
S_DM_L3_SED_BV_REJ_01	Yes/No	Yes/No		
S_DM_L3_SED_BV_REJ_02	Yes/No	Yes/No		

**F.7 Observations**

Additional information relevant to the technical content of the PCTR are given here.

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## **Annex G (informative): Bibliography**

The following material, though not specifically referenced in the body of the present document (or not publicly available), gives supporting information.

EWOS/ETSI Project Team No 5: "Project Report and Technical Report. OSI Conformance Testing Methodology and Procedures in Europe".

ETR 022 (1991): "Advanced Testing Methods (ATM); Vocabulary of terms used in communications protocols conformance testing".

## History

Document history			
January 1998	Public Enquiry	PE 9822:	1998-01-30 to 1998-05-29
April 1999	Vote	V 9925:	1999-04-20 to 1999-06-18
July 1999	First Edition		