



**SLOVENSKI STANDARD**  
**SIST ETS 300 394-5-3 E1:2003**  
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**Prizemni snopovni radio (TETRA) – Specifikacija za preskušanje skladnosti – 5.**  
**del: Varnost – 3. poddel: Abstraktni preskušalni niz (ATS)**

Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 5: Security;  
Sub-part 3: Abstract Test Suite (ATS)

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33.070.10	Prizemni snopovni radio (TETRA)	Terrestrial Trunked Radio (TETRA)
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**Terrestrial Trunked Radio (TETRA);  
Conformance testing specification;  
Part 5: Security;  
Sub-part 3: Abstract Test Suite (ATS)**

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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
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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.

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- [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

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#### 3.3 ISO 9646 definitions

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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.