SLOVENSKI STANDARD
SIST ETS 300 394-4-10 E1:2003

01-december-2003

Prizemni snopovni radio (TETRA) - Specifikacija za preskuġanje skladnosti - 4. del: Specifikacija za preskuġanje protokola za neposredno obratovanje (DMO) â- 10. poddel: Abstraktni preskuġalni niz (ATS) za neposredno delujoļ i prehod (DM-GATE)

Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 10: Abstract Test Suite (ATS) for Direct Mode Gateway (DM-GATE)

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Ta slovenski standard je istoveten z: **ETS 300 394-4-10 Edition 1**

ICS:

33.070.10	Prizemni snopovni radio (TETRA)	Terrestrial Trunked Radio (TETRA)

SIST ETS 300 394-4-10 E1:2003 **en**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN TELECOMMUNICATION STANDARD

ETS 300 394-4-10

June 1999

Source: TETRA

Reference: DE/TETRA-02009-4-10

ICS: 33.020

Key words: TETRA, protocol, testing, TTCN, radio

Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 10: Abstract Test Suite (ATS) for Direct Mode Gateway (DM-GATE)

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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).

This ETS consists of 4 parts as follows:

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:	4 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 the Abstract Test Suites (ATS) to test the Terrestrial Trunked Radio (TETRA) Direct Mode Operation (DMO) Gateway V+D interface at layer 3, i.e. the GateWay Call Control (GWCC) and the GateWay Mobility Management (GWMM) protocol. The GWCC and GWMM protocols are specified in ETS 300 396-1 [1] and in ETS 300 396-5 [2]. The Test Suite Structure and Test Purposes (TSS&TPs) for these ATSs are defined in ETS 300 394-4-8 [4].

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 [6], ISO/IEC 9646-2 [7], ISO/IEC 9646-3 [8] and ISO/IEC 9646-5 [9], as well as the ETSI rules for conformance testing, ETS 300 406 [5] and ETR 141 [10] are used as a basis for the test methodology.

Annex A provides the Tree and Tabular Combined Notation (TTCN) part of this ATS in an electronic file.

Annex B provides the partial Protocol Implementation eXtra Information for Testing (PIXIT) Proforma of this ATS.

Annex C provides the Protocol Conformance Test Report (PCTR) Proforma of this ATS.

2 References

2.1 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 300 396-1: "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 1: General network design".

[2] ETS 300 396-5: "Terrestrial Trunked Radio (TETRA); Technical requirements for Direct Mode Operation (DMO); Part 5: Gateways".

[3] ETS 300 396-8-3: "Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 8: Test Suite Structure and Test Purposes (TSS&TP) for Direct Mode Gateway (DM-GATE)".

[4] ETS 300 394-4-8 (1998): "Terrestrial Trunked Radio (TETRA); Part 4: Protocol testing specification for Direct Mode Operation (DMO); Sub-part 8: Test Suite Structure and Test Purposes for Direct Mode Gateway (DM-GATE)".

[5] ETS 300 406: "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

[6] ISO/IEC 9646-1 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts". (See also ITU-T Recommendation X.290 (1991)).

[7] ISO/IEC 9646-2 (1994): "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 2: Abstract Test Suite Specification". (See also ITU-T Recommendation X.291 (1991)).

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[8] ISO/IEC 9646-3 (1994): "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 3: The Tree and Tabular Combined Notation (TTCN)". (See also ITU-T Recommendation X.292 (1992)).

[9] ISO/IEC 9646-5 (1994): "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 ITU-T Recommendation X.292 (1992)).

2.2 Other references

[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 300 396-5 [2] apply.

3.2 TETRA abbreviations

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

GWCC	GateWay Call Control
GWMM	GateWay Mobility Management
MAC	Medium Access Control
MS	Mobile Station
MS-GW	Mobile Station Gateway
SDS	Short Data Service

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3.3 ISO 9646 definitions

For the purposes of this ETS the following ISO/IEC 9646-1 [6] 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 [8] definitions apply:

TTCN.GR
TTCN.MP

For the purposes of this ETS the following ISO/IEC 9646-5 [9] definitions apply:

Protocol Conformance Test Report (PCTR)
PCTR proforma

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3.4 ISO 9646 abbreviations

For the purposes of this ETS the following ISO/IEC 9646-1 [6] abbreviations apply:

ASP	Abstract Service Primitive
ATM	Abstract Test Method
ATS	Abstract Test Suite
IUT	Implementation Under Test
LT	Lower Tester
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 [9] abbreviations apply:

PCTR	Protocol Conformance Test Report

4 Abstract Test Method (ATM)

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This clause describes the ATM used for testing the GWCC and GWMM. The test method selected is the embedded variant of the remote test method used in Single Party Testing (SPyT) context, as defined in ISO/IEC 9646-2 [7], clause 11. This test method has been selected, because:

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- it does not imply specific requirements to 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 realization of conformance testing.