SLOVENSKI STANDARD

SIST ETS 300 324-8 E1:%-,

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Vmesniki V pri digitalnih krajevnih centralah (LE) – Vmesnik V5.1 za podporo dostopovnemu omrežju (AN) – 8. del: Abstraktni preskušalni niz (ATS) in dodatna informacija za preskušanje delne izvedbe protokola (PIXIT) – Proforma specifikacija za podatkovno povezovalno plast

V interfaces at the digital Local Exchange (LE); V5.1 interface for the support of Access Network (AN); Part 8: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the data link layer

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specification for the data link layer

ETSI

European Telecommunications Standards Institute

ETSI Secretariat

Postal address: F-06921 Sophia Antipolis CEDEX - FRANCE
Office address: 650 Route des Lucioles - Sophia Antipolis - Valbonne - FRANCE
X.400: c=fr, a=atlas, p=etsi, s=secretariat - **Internet:** secretariat@etsi.fr

Tel.: +33 4 92 94 42 00 - Fax: +33 4 93 65 47 16

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Foreword

This draft European Telecommunication Standard (ETS) has been produced by the Signalling Protocol and Switching (SPS) Technical Committee of the European Telecommunications Standards Institute (ETSI), and is now submitted for the Public Enquiry phase of the ETSI standards approval procedure.

This ETS is part 8 of a multi-part standard covering the V5.1 interface as described below:

Part 1:   "V5.1 interface specification";

Part 2:   "Protocol Implementation Conformance Statement (PICS) proforma";

Part 3:   "Test Suite Structure and Test Purposes (TSS&TP) specification for the network layer (AN side)";

Part 4:   "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the network layer (AN side)";

Part 5:   "Test Suite Structure and Test Purposes (TSS&TP) specification for the network layer (LE side)";

Part 6:   "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the network layer (LE side)";

Part 7:   "Test Suite Structure and Test Purposes (TSS&TP) specification for the data link layer";

Part 8:   "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the data link layer";

Part 9:   "Test specification for the physical layer".

Proposed transposition dates	
Date of latest announcement of this ETS (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

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1   Scope

This eighth part of ETS 300 324 contains the Abstract Test Suite (ATS) as well as the Abstract Test Method (ATM) and the partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma for the Data Link Layer (DLL) of the V5.1 interface.

The objective of this ETS is to provide an ATS containing conformance tests which give a high probability of inter-operability of an Access Network (AN) and a Local Exchange (LE) from different manufacturers over the V5.1 interface.

ISO/IEC 9646-1 [5] and ISO/IEC 9646-2 [6] are used as the basis for the test methodology. The ATS is defined using the Tree and Tabular Combined Notation (TTCN) according to ISO/IEC 9646-3 [7].

The ATS in annex A describes a set of Test Cases (TCs) which are based on the Test Purposes (TPs) specified in ETS 300 324-7 [3]. The TCs provide the implementation of the TPs and can be converted into an executable test suite by using available TTCN translators and the corresponding tools.

Annex B provides the partial PIXIT proforma.

Annex C lists the bibliography.

2   Normative references

This ETS incorporates by dated or 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 300 324-1 (1994) including amendment A1 (1996): "Signalling Protocols and Switching (SPS); V interfaces at the digital Local Exchange (LE); V5.1 interface for the support of Access Network (AN); Part 1: V5.1 interface specification".

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[2]	ETS 300 324-2 (1994): "Signalling Protocols and Switching (SPS); V interfaces at the digital Local Exchange (LE); V5.1 interface for the support of Access Network (AN); Part 2: Protocol Implementation Conformance Statement (PICS) proforma".
[3]	ETS 300 324-7: "Signalling Protocols and Switching (SPS); V interfaces at the digital Local Exchange (LE); V5.1 interface for the support of Access Network (AN); Part 7: Test Suite Structure and Test Purposes (TSS&TP) specification for the data link layer".
[4]	ISO 7498: "Information Processing Systems - Open Systems Interconnection - Basic Reference Model".
[5]	ISO/IEC 9646-1: "Information Technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".
[6]	ISO/IEC 9646-2: "Information Technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract test suite specification".
[7]	ISO/IEC 9646-3: "Information Technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation (TTCN)".
[8]	ISO/IEC 9646-5: "Information Technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 5: Requirements on test laboratories and clients for the conformance assessment process".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this ETS, the following definitions apply:

Abstract Test Case (ATC): Refer to ISO/IEC 9646-1 [5].

> NOTE: In this ETS, the commonly used term TC is applied in the same way as ATC.

Abstract Test Suite (ATS): Refer to ISO/IEC 9646-1 [5].

Data Link Layer (DLL): Refer to ISO 7498 [4].

embedded variant: Refer to ISO/IEC 9646-2 [6].

Implementation Under Test (IUT): Refer to ISO/IEC 9646-1 [5].

Lower Tester (LT): Refer to ISO/IEC 9646-1 [5].

Network Layer (NWK): Refer to ISO 7498 [4].

notional UT: The upper layers of the SUT are used to realize the functions of the upper tester, without any additional mechanism being installed.

Physical Layer (PHL): Refer to ISO 7498 [4].

PICS proforma: Refer to ISO/IEC 9646-1 [5].

PIXIT proforma: Refer to ISO/IEC 9646-1 [5].

Point Of Control And Observation (PCO): Refer to ISO/IEC 9646-1 [5].

Protocol Implementation Conformance Statement (PICS): Refer to ISO/IEC 9646-1 [5].

Protocol Implementation eXtra Information For Testing (PIXIT): Refer to ISO/IEC 9646-1 [5].

remote test method: Refer to ISO/IEC 9646-2 [6].

System Under Test (SUT): Refer to ISO/IEC 9646-1 [5].

Test Purpose (TP): Refer to ISO/IEC 9646-1 [5].

3.2 Abbreviations

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

AN	Access Network
ASP	Abstract Service Primitive
ATM	Abstract Test Method
ATS	Abstract Test Suite
BI	Invalid Behaviour
BO	Inopportune Behaviour
BV	Valid Behaviour
CA	Capability test
DLL	Data Link Layer
ID	Identifier
IE	Information Element
IEI	Information Element Identifier
ISDN	Integrated Services Digital Network

IT	basic Interconnection Test
IUT	Implementation Under Test
LAPV5	Link Access Protocol for V5 interface
LAPV5-DL	LAPV5 Data Link sub layer
LAPV5-EF	LAPV5 Envelope Function sub layer
LE	Local Exchange
LT1	Lower Tester 1
NWK	Network Layer
PCO	Point of Control and Observation
PDU	Protocol Data Unit
PHL	Physical Layer
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
PSAP	PHL Service Access Point
PSTN	Public Switched Telephone Network
RX	Receiver condition
SAP	Service Access Point
SAPI	Service Access Point Identifier
SUT	System Under Test
TC	Test Case
TEI	Terminal Endpoint Identifier
TI	Timer
TP	Test Purpose
TSS	Test Suite Structure
TTCN	Tree and Tabular Combined Notation
TX	Transmitter condition
UT	Upper Tester
V5DLaddr	V5 Data Link address
V5DLL	V5 Data Link Layer

4 Abstract test method

This clause describes the Abstract Test Method (ATM) and the Point of Control and Observation (PCO) used to test the DLL of the V5.1 protocol.

4.1 ATM

Principally, the remote test method is used for V5 DLL conformance testing. Certain DLL TPs need also part of the NWK functions (e.g. I frame transmission). Therefore, the embedded variant of the remote test method is applied.

4.2 DLL protocol testing

The V5.1 implementations do not offer a direct access to the upper service boundary. The remote test method was chosen because any co-ordination procedures can only be expressed in an informal way.

LT1:	A Lower Tester (LT1) is located in a remote V5.1 test system. It controls and observes the behaviours of the IUT.
PCO:	The PCO for DLL testing is located on the PSAP. All test events at the PCO are specified in terms of PH-Data ASPs and DLL PDUs. A single PCO is defined for DLL testing in order to exchange messages of the LAPV5-EF sub layer as well as of the LAPV5-DL sub layer.
Notional UT:	The notional UT includes the NWK and system management functions.
V5-DLL:	V5-DLL includes LAPV5-EF, mapping function and LAPV5-DL.
AN test:	To test the LAPV5-EF protocol, an ISDN terminal shall be connected to the relevant user port.