SLOVENSKI STANDARD
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Digitalno omrežje z integriranimi storitvami (ISDN) - Protokoli digitalne naročniške signalizacije št. 1 (DSS1) in signalizacije št. 7 (SS7) - Signalizacijska aplikacija za storitev upravljanja mobilnosti na vmesniku alfa - 6. del: Abstraktni preskušalni niz (ATS) in delna dodatna informacija za preskušanje izvedbe protokola (PIXIT) - Proforma specifikacija za omrežje

Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) and Signalling System No.7 (SS7) protocols; Signalling application for the mobility management service on the alpha interface; Part 6: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification for the network

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN).

The present document is part 6 of a multi-part deliverable covering the Digital Subscriber Signalling System No. one (DSS1) and Signalling System No.7 protocols; Signalling application for the mobility management service on the alpha interface, as identified below:

Part 1: "Protocol specification";

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

Part 3: "Test Suite Structure and Test Purposes (TSS&TP) specification for the user";

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

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

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

National transposition dates	
Date of adoption of this EN:	15 December 2000
Date of latest announcement of this EN (doa):	31 March 2001
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 September 2001
Date of withdrawal of any conflicting National Standard (dow):	30 September 2001

1 Scope

This sixth part of EN 301 144 specifies the Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma for the network of the Signalling application for the mobility management service on the alpha interface. It is applicable to all types of exchanges as defined in the reference specification.

Part 5 of EN 301 144 specifies the Test Suite Structure and Test Purposes (TSS&TP) related to this protocol. Other parts specify the TSS&TP and the ATS and partial PIXIT proforma for the User side for implementations conforming to part 1 of EN 301 144 [5].

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, subsequent revisions do apply.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

[1] ETSI EN 300 196: "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol".

[2] ISO/IEC 9646 (all parts): "Information Technology - Open Systems Interconnection - Conformance testing methodology and framework".

[3] ETSI TR 101 101 (V1.1): "Methods for Testing and Specification (MTS); TTCN interim version including ASN.1 1994 support [ISO/IEC 9646-3] (Second Edition Mock-up for JTC1/SC21 Review)".

[4] ETSI EN 300 175-5: "Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Part 5: Network (NWK) Layer".

[5] ETSI EN 301 144-1: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) and Signalling System No.7 (SS7); Signalling application for the mobility management service on the alpha interface; Part 1: Protocol specification".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ISO/IEC 9646 [2] apply.

3.2 Abbreviations

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

ASP	Abstract Service Primitive
ATS	Abstract Test Suite
BER	Basic Encoding Rules
IUT	Implementation Under Test
LT	Lower Tester
MOT	Means Of Testing
PCO	Point of Control and Observation
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
SUT	System Under Test
TP	Test Purpose
TSS	Test Suite Structure
TTCN	Tree and Tabular Combined Notation
UT	Upper Tester

4 Abstract Test Method

The remote test method is applied for this ATS.

A Point of Control and Observation (PCO) resides at the service access point between layers 2 and 3 in the test system. This PCO is named "L" (for Lower). The L PCO is used to control and observe the behaviour of the Implementation Under Test (IUT) and test case verdicts are assigned depending on the behaviour observed at this PCO.

A second "informal" PCO, called "O" (for Operator) is used to specify control but not observation concerning the IUT; events at this PCO are never used to generate test case verdicts. Messages sent by the tester at this PCO explicitly indicate to the operator actions which are to be performed on the SUT. This is regarded as a preferred alternative to the use of the implicit send event.

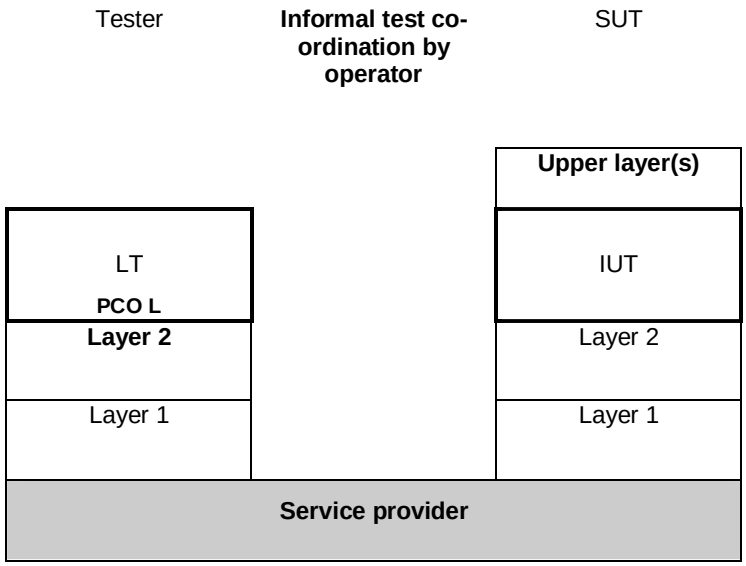

Figure 1: Remote test method with PCO O for test co-ordination

5 Untestable test purposes

There are no untestable test purposes.

6 ATS conventions

6.1 Version of TTCN used

The version of TTCN used is that defined in TR 101 101 [3].

6.2 Naming conventions

6.2.1 Declarations part

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

6.2.1.1 Simple type, ASN.1 type and structured type definitions

The test suite simple type, ASN.1 type and structured type identifiers are written in lowercase starting by an uppercase letter or completely in upper case letters.

6.2.1.2 Test suite operations definitions

The test suite operation identifiers are composed of strings in uppercase and lowercase letters starting by the string "TSO_".

EXAMPLE: TSO_CalcFieLength

6.2.1.3 Test suite parameter declarations

The test suite parameter identifiers are composed of strings in uppercase and lowercase letters starting by the uppercase string "PC_" for a PICS or "PX_" for a PIXIT.

6.2.1.4 Test case selection expression definitions

The naming conventions for the test case selection expression definitions use free text starting with the string: "TCSE_". The name of the expression shall explain clearly the selection rule. The test case selection expressions are generally logical combinations of the applied test suite parameter definitions.

6.2.1.5 Test suite constant declarations

The test suite constant identifiers are composed of strings in uppercase and lower letters starting by the uppercase string "TSC_".

6.2.1.6 Test suite variable declarations

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

6.2.1.7 Test case variable declarations

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

6.2.1.8 PCO type declarations

The point of control and observation type identifiers consist of two or three capital letters.

6.2.1.9 PCO declarations

The point of control and observation identifiers consist of one capital letter.

6.2.1.10 Timer declarations

The timer names begin with the prefix "T_", followed by a string in lowercase or uppercase letters with each word in the following string starting with an uppercase letter.

6.2.1.11 ASP type definitions

The ASP types are defined in uppercase letters.

6.2.1.12 PDU type definitions

The type of a PDU is given in uppercase letters, followed by the string "_PDU".

6.2.2 Constraints part

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

6.2.2.1 Structured type constraints

Structured type constraint identifiers begin with an uppercase letter followed by uppercase and lowercase letters. The meaning of the identifier represents the contents of the structured type constraint.

6.2.2.2 ASN.1 type constraints

ASN.1 type constraint identifiers begin with an uppercase letter followed by uppercase and lowercase letters. The meaning of the identifier represents the contents of the ASN.1 type constraint.

6.2.2.3 ASP constraints

ASP constraint identifiers begin with an uppercase letter followed by uppercase and lowercase letters. The meaning of the identifier represents the contents of the ASP constraint.

6.2.2.4 PDU constraint

Constraint identifiers begin with the type of the PDU meaningfully abbreviated, written in uppercase.

As a suffix a string "_S" or "_R" is appended to indicate if the constraint is sent or received by the tester. This string is followed by a number allowing to distinguish between different variations of sent or received PDUs.

In case the PDU constraints are specific to the CTM part of the DECT access to GSM part of the ATS the character "C" respectively "G" immediately follows the undersore character.

6.2.3 Dynamic part

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

6.2.3.1 Test case identifiers

The test case identifiers are built with a string of uppercase letters subdivided by underscore characters distinguishing between the different groups and subgroups of which the test suite consists. The highest group level allows to make the difference between the test cases according to "CTM" and those according to "DECT access to GSM", for which prefixes "CTM" and "DG" are used. The lowest subgroup level divides "valid" and "invalid" test cases, represented by the character "V" or "I" respectively. Within these subgroups the test case are given individual numbers.

EXAMPLES: CTM_…_…_V_01
DG_…_ …_I_02

This convention is the one applied to identify the test cases in the TSS&TP document.

6.2.3.2 Test step identifiers

The test step identifiers are built with a string of lowercase letters prefixed by a string of capital letters and joined by an underscore character. The first string indicates the main function of the test step; e.g. PR for preamble, PO for postamble, ST for a normal step, LTS for a local test step, and DEF for a default test step. The second string indicates the meaning of the step.

EXAMPLES: PR_Name
PO_Name
ST_Name
LTS_Name
DEF_Name

6.3 Use of ASN.1

6.3.1 Situations where ASN.1 is used

ASN.1 has been used for three major reasons. First, types defined in ASN.1 can model problems that "pure" TTCN cannot. For instance, data structures modelling ordered or unordered sequences of data are preferably defined in ASN.1. Second, ASN.1 provides a better restriction mechanism for type definitions by using sub-type definitions. Third, it is necessary to use ASN.1 to reproduce the type definitions for remote operation components specified in the base standards in ASN.1.

The possibility to use TTCN and ASN.1 in combination is used, i.e. referring to an ASN.1 type from a TTCN type.

6.3.2 Specification of encoding rules

The data types therefore consist of non-ASN.1 and eventually ASN.1 parts, each of which has to be encoded as these parts require. Consequently two different types of encoding rules are used in this test suite:

- direct Encoding: the data structures fully specified in the relevant protocol standards – in a form sometimes called tabular - are mapped bitwise onto the transfer data stream;
- basic Encoding Rules defined in the ASN.1 standard.

Note that within BER, there are a number of variations for the encoding of lengths of fields. According to EN 300 196-1 [1], an IUT should be able to interpret all length forms within BER for received PDUs. When sending PDUs containing BER encoding, EN 300 196-1 [1] gives guidelines but makes no restrictions on the length forms within BER which an IUT may apply. This ATS prescribes a BER encoding variation which requests that, if possible, the short form of length enocding is being used in data being sent, and that the receiving end shall be capable of decoding any length form.

In this particular ATS all ASN.1 type constraints which are of type "Component" are to be encoded using BER. In circumstances where it is irrelevant received components are decoded as if they had been directly encoded, applying a simplified data structure.