SLOVENSKI STANDARD
SIST EN 301 144-3 V1.1.3:2005

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Digitalno omreģje z integriranimi storitvami (ISDN) ï Protokola digitalne naroļniġke signalizacije ġt. 1 (DSS1) in signalizacije ġt. 7 (SS7) ï Aplikacija signalizacije za storitev upravljanja mobilnosti v vmesniku alfa ï 3. del: Zgradba preskuġalnega niza in namen preskuġanja (TSS&TP) ï Specifikacija za uporabnika

Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) and Signalling System No.7 protocols; Signalling application for the mobility management service on the alpha interface; Part 3: Test Suite Structure and Test Purposes (TSS&TP) specification for the user

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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 3 of a multi-part EN covering the 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 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:	5 May 2000
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1 Scope

The present document provides the Test Suite Structure and Test Purposes (TSS&TP) for the user 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.

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, the latest version applies.
- 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 301 144-1 (V.1.1): "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".

[2] ETSI EN 301 144-2 (V1.1): "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) and Signalling System No.7 protocols; Signalling application for the mobility management service on the alpha interface; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification".

[3] ISO/IEC 9646-1: "Information Technology - Open Systems Interconnection - Conformance Testing Methodology and Framework; Part 1: General Concepts".

[4] ISO/IEC 9646-2: "Information Technology - Open Systems Interconnection - Conformance Testing Methodology and Framework; Part 2: Abstract Test Suite Specification".

[5] ISO/IEC 9646-3: "Information Technology - Open Systems Interconnection - Conformance Testing Methodology and Framework; Part 3: The Tree and Tabular Combined Notation".

[6] ETSI EN 301 002-1: "Integrated Services Digital Network (ISDN); Security tools (SET) procedures; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in EN 301 144-1 [1] and the following apply:

abstract test case: refer to ISO/IEC 9646-1 [3]

Abstract Test Method (ATM): refer to ISO/IEC 9646-1 [3]

Abstract Test Suite (ATS): refer to ISO/IEC 9646-1 [3]

active test: test case where the IUT is required to send a particular message, but not in reaction to a received message. This would usually involve the use of PIXIT information to see how this message can be generated and quite often is specified in an ATS using an implicit send event

Implementation Under Test (IUT): refer to ISO/IEC 9646-1 [3]

implicit send event: refer to ISO/IEC 9646-3 [5]

lower tester: refer to ISO/IEC 9646-1 [3]

passive test: test case where the IUT is required to respond to a protocol event (e.g. received message) with another protocol event (sends message) and which normally does not require any special operator intervention such as is associated with the implicit send event

point of control and observation: refer to ISO/IEC 9646-1 [3]

Protocol Implementation Conformance Statement (PICS): refer to ISO/IEC 9646-1 [3]

PICS proforma: refer to ISO/IEC 9646-1 [3]

Protocol Implementation eXtra Information for Testing (PIXIT): refer to ISO/IEC 9646-1 [3]

PIXIT proforma: refer to ISO/IEC 9646-1 [3]

system under test: refer to ISO/IEC 9646-1 [3]

Test Purpose (TP): refer to ISO/IEC 9646-1 [3]

3.2 Abbreviations

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

ATM	Abstract Test Method
ATS	Abstract Test Suite
CES	Connection Endpoint Suffix
CR	Call Reference
CTM	Cordless Terminal Mobility
DECT	Digital Enhanced Cordless Telecommunications
DSS1	Digital Subscriber Signalling System No. one
GSM	Global System for Mobile communications
I	Inopportune
ISDN	Integrated Services Digital Network
IUT	Implementation Under Test
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
S	Syntactically invalid stimulus
TP	Test Purpose
TSS	Test Suite Structure
V	Valid

4 Test Suite Structure (TSS)

CTM
- Registration & deregistration (RD)
  - Subscription registration (SR)
    - Valid
    - Invalid
  - Subscription deregistration (SD)
    - Valid
    - Invalid
- Activation & deactivation (AD)
  - Location registration (LR)
    - Valid
    - Invalid
  - Location cancellation (LC)
    - Valid
    - Invalid
- Invocation & operation (IO)
  - Location registration suggest (LRS)
    - Valid
    - Invalid
  - Terminal authentication (TA)
    - Valid
    - Invalid
  - Network authentication (NA)
    - Valid
    - Invalid
  - Network initiated ciphering (NIC)
    - Valid
    - Invalid
  - Portable initiated ciphering (PIC)
    - Valid
    - Invalid
  - Key allocation (KA)
    - Valid
    - Invalid
  - Identity request (IR)
    - Valid
    - Invalid
- Embedded procedure (EMB)
- Outgoing call (OC)
- Incoming call (IC)

Figure 1 (sheet 1 of 2): Test suite structure

- DECT/GSM access (DG)
  - Activation & deactivation (AD)
    - Location registration (LR)
      - Valid
      - Invalid
    - Location cancellation (LC)
      - Valid
      - Invalid
    - Detach (D)
      - Valid
      - Invalid
  - Invocation & operation (IO)
    - Terminal authentication (TA)
      - Valid
      - Invalid
    - Network initiated ciphering (NIC)
      - Valid
      - Invalid
    - Temporary identity assignment (TIA)
      - Valid
      - Invalid
    - Identity request (IR)
      - Valid
      - Invalid
  - Embedded procedure (EMB)
  - Outgoing call (OC)
  - Incoming call (IC)

Figure 1 (sheet 2 of 2): Test suite structure

5 Test Purposes (TP)

5.1 Introduction

For each test requirement, a TP is defined.

5.1.1 TP naming convention

TPs are numbered, starting at 001, within each group. Groups are organized according to the TSS. Additional references are added to identify the actual test suite and whether it applies to the network or the user (see table 1).

Table 1: TP identifier naming convention scheme

Identifier: <mode>_<groupProcedure>_<procedure>_<group>_<nnn>
<mode> = mode of the IUT: "CTM" for the CTM mode or "DG" for DECT/GSM access mode
<groupProcedure> = group procedure: e.g. "IO" representing the group for the Invocation & Operation procedures
<procedure> = procedure: e.g. "SR" representing the Subscription Registration procedure
<group> = group: one character field representing the group reference according to TSS
V: Valid stimulus
I: Invalid stimulus
<nnn> = sequential number: (01-99)

5.1.2 Source of TP definition

The TPs are based on EN 301 144-1 [1] and EN 301 144-2 [2].

5.1.3 TP structure

Each TP has been written in a manner which is consistent with all other TPs. The intention of this is to make the TPs more readable and checkable. A particular structure has been used which is illustrated in table 2. This table should be read in conjunction with any TP, i.e. please use a TP as an example to facilitate the full comprehension of table 2.

Table 2: Structure of a single TP

TP part	Text	Example
Header	<Identifier> *tab* <subclause number in EN 301 144-1 [1]> *tab* <type of test> *tab* <condition> *CR.*	see table 1 subclause 9.3.4 Valid, Invalid Mandatory, Optional, Conditional
Stimulus	Ensure that the IUT in the <state> <trigger> *see below for information structure* *or* <goal>	 Idle, etc. on receipt of a XXXX information (see note 2) to request a ...
Reaction	<action> <conditions> *if the action is sending* *see below for information structure*	sends, saves, does, etc. using en bloc sending, etc.
Information structure	<information type> *a)* with the <parameter>	CTMAuthentication invoke component PortableIdentity, etc.
NOTE 1: Text in italics will not appear in TPs and text between < > is filled in for each TP and may differ from one TP to the next.		
NOTE 2: All information shall be considered as "valid and compatible" unless otherwise specified in the test purpose.		

5.1.4 Test strategy

As the base standard EN 301 144-1 [1] contains no explicit requirements for testing, the TPs were generated as a result of an analysis of the base standard and the PICS specification EN 301 144-2 [2]. The criteria applied included the following:

- only the requirements from the point of view of the T or coincident S and T reference point are considered;
- whether or not a test case can be build from the TP is not considered.

5.2 CTM mode

Selection: Support of user requirements. PICS R2.1
AND
Support of the CTM mode. PICS R1.1

5.2.1 Registration & deregistration

5.2.1.1 Subscription registration

Selection: Support of the subscription registration procedure for CTM. PICS MC1.

CTM_RD_SR_V_01 subclause 9.1.1.1 Valid Optional
Ensure that the IUT in Idle state, to request a subscription registration,
sends a CTMAccessRightsRequest invoke component including the following parameters: cTMPortableIdentity, cTMAuthType and cTMPortableCapabilities.

CTM_RD_SR_V_02 subclause 9.1.1.1 Valid Optional
Ensure that the IUT, having requested a subscription registration, on receipt of a valid CTMAccessRightsRequest return result component containing the cTMPortable Identity, the cTMFixedIdentity parameters
accepts the provided information and sends no message.

CTM_RD_SR_V_03 subclause 9.1.1.1 Valid Optional
Ensure that the IUT, having requested a subscription registration, on receipt of a valid CTMAccessRightsRequest return result component containing the cTMPortable Identity, the cTMFixedIdentity parameters and the optional parameter cTMServiceClass
accepts the provided information and sends no message.

CTM_RD_SR_I_01subclause 9.1.1.2 Invalid Optional
Ensure that the IUT, having requested a subscription registration, on receipt of a reject component
accepts the provided information.

CTM_RD_SR_I_02subclause 9.1.1.2 Invalid Optional
Ensure that the IUT, having requested a subscription registration, on receipt of a return error component with the portableIdentityUnknown error
accepts the provided information.

CTM_RD_SR_I_03subclause 9.1.1.2 Invalid Optional
Ensure that the IUT, having requested a subscription registration, on receipt of a return error component with the Unspecified error
accepts the provided information.

CTM_RD_SR_I_04subclause 9.1.1.2 Invalid Optional
Ensure that the IUT, having requested a subscription registration, on receipt of a return error component with the congestion error
accepts the provided information.

CTM_RD_SR_I_05xx subclause 9.1.1.2 Invalid Optional
Ensure that the IUT, having requested a subscription registration, on receipt of a return error component with the networkRejected error with the reject reason value detailed in table 3
accepts the provided information.

Table 3: Reject reason values for test purposes CTM_RD_SR_I_0501 to CTM_RD_SR_I_0524

Test purpose	Reject reason value
CTM_RD_SR_I_0501	TPUI unknown
CTM_RD_SR_I_0502	IPUI unknown
CTM_RD_SR_I_0503	IPEI not accepted
CTM_RD_SR_I_0504	IPUI not accepted
CTM_RD_SR_I_0505	Authentication failed
CTM_RD_SR_I_0506	No authentication algorithm
CTM_RD_SR_I_0507	Authentication algorithm not supported
CTM_RD_SR_I_0508	Authentication key not supported
CTM_RD_SR_I_0509	No cipher algorithm
CTM_RD_SR_I_0510	Cipher algorithm not supported
CTM_RD_SR_I_0511	Cipher key not supported
CTM_RD_SR_I_0512	Incompatible service
CTM_RD_SR_I_0513	False LCE reply (no corresponding service)
CTM_RD_SR_I_0514	Late LCE reply (service already taken)
CTM_RD_SR_I_0515	Invalid TPUI
CTM_RD_SR_I_0516	TPUI assignment limits unacceptable
CTM_RD_SR_I_0517	Insufficient memory
CTM_RD_SR_I_0518	Overload
CTM_RD_SR_I_0519	Invalid message
CTM_RD_SR_I_0520	Information element error
CTM_RD_SR_I_0521	Invalid information element contents
CTM_RD_SR_I_0522	Timer expiry
CTM_RD_SR_I_0523	Location area not allowed
CTM_RD_SR_I_0524	-