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Digitalno omrežje z integriranimi storitvami (ISDN) - Protokola digitalne naročniške signalizacije št. 1 (DSS1) in signalizacije št. 7 (SS7) - Aplikacija signalizacije za storitev upravljanja mobilnosti v vmesniku alfa - 5. del: Zgradba preskusnega niza in namen preskušanja (TSS&TP) - 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 5: Test Suite Structure and Test Purposes (TSS&TP) specification for the network

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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 5: Test Suite Structure and Test Purposes (TSS&TP) 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 5 of a multi-part standard 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 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.

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 (V1.1): "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".

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 Implementation Under Test (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
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	Invalid
ISDN	Integrated Services Digital Network
IUT	Implementation Under Test
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
TP	Test Purpose
TSS	Test Suite Structure
V	Valid

4 Test Suite Structure (TSS)

CTM
- Registration and deregistration (RD)
  - Subscription registration (SR)
    - Valid
    - Invalid
  - Subscription deregistration (SD)
    - Valid
    - Invalid
- Activation and deactivation (AD)
  - Location registration (LR)
    - Valid
    - Invalid
  - Location cancellation (LC)
    - Valid
    - Invalid
- Invocation and 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 and deactivation (AD)
  - Location registration (LR)
    - Valid
    - Invalid
  - Location cancellation (LC)
    - Valid
    - Invalid
  - Detach (D)
    - Valid
    - Invalid
- Invocation and 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 01, 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>_<nn>**	
<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 and 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
<nn>	=	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. the reader should 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 built from the TP is not considered.

5.2 CTM mode

Selection: Support of network requirements. PICS R2.2
AND
Support of the CTM mode. PICS R1.1

5.2.1 Registration and deregistration

5.2.1.1 Subscription registration

Selection: Support of the subscription registration procedure. PICS MC5

CTM_RD_SR_V_01 **subclause 9.1.1.1**
Ensure that the IUT in Idle state, on receipt of a CTMAccessRightsRequest invoke component
sends back a valid CTMAccessRightsRequest return result component containing the cTMPortable Identity, the cTMFixedIdentity parameters and optionally containing the cTMServiceClass parameter.

CTM_RD_SR_I_01 **subclause 9.1.1.2**
Ensure that the IUT, having received a CTMAccessRightsRequest invoke component and having sent back a valid CTMAccessRightsRequest return result component, on receipt of a reject component
does not take any action.

CTM_RD_SR_I_02 **subclause 9.1.1.2**
Ensure that the IUT, having received a CTMAccessRightsRequest invoke component containing a wrong cTMPortableIdentity
sends back a CTMAccessRightsRequest return error component with the portableIdentityUnknown error value.

CTM_RD_SR_I_03 **subclause 9.1.1.2**
Ensure that the IUT, having received a CTMAccessRightsRequest invoke component and when the network is overloaded
sends back a CTMAccessRightsRequest return error component with the congestion error value.

CTM_RD_SR_I_04 **subclause 9.1.1.2**
Ensure that the IUT, having received a CTMAccessRightsRequest invoke component and when the requested procedure fails for unspecified reason different from congestion and portable identity unknown
sends back a CTMAccessRightsRequest return error component with the Unspecified error value.

CTM_RD_SR_I_05 **subclause 9.1.1.2**
Ensure that the IUT, having received a CTMAccessRightsRequest invoke component and when the network rejects the requested procedure
sends back a CTMAccessRightsRequest return error component with the networkRejected error value.

5.2.1.2 Subscription deregistration

Selection: Support of the subscription deregistration procedure. PICS MC6

CTM_RD_SD_V_01 **subclause 9.1.2.1**
Ensure that the IUT in Idle state, to request a location de-registration
sends a CTMAccessRightTerminate invoke component with the following parameters: cTMPortableIdentity,.and cTMFixedIdentity.

CTM_RD_SD_V_02 **subclause 9.1.2.1**
Ensure that the IUT having sent a CTMAccessRightTerminate invoke component, on receipt of the CTMAccessRightsTerminate return result
considers the subscription de-registration procedure as completed and stops timer T-MM.

CTM_RD_SD_I_01 **subclause 9.1.2.2**
Ensure that the IUT having sent a CTMAccessRightTerminate invoke component, on receipt of a reject component
stops timer T-MM.

CTM_RD_SD_I_02 **subclause 9.1.2.2**
Ensure that the IUT having sent a CTMAccessRightTerminate invoke component containing a wrong cTMPortableIdentity parameter, on receipt of the CTMAccessRightsTerminate return error component with the error value: portableIdentityUnknown
stops timer T-MM.