SLOVENSKI STANDARD
SIST EN 300 745-3:2000

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8][ ]H·bc˙ca fYÿˆY˙n˙]bhY[f]fUb]a]˙ghcf]hj Ua]˙f4G8 BŁ!˙8 cdc`b]˙bU˙ghcf]hYj . ]bX]_UY¶U U_U˙c Y[ U˙gdcfc ]˙U'fA K ±Ł!˙Dfchc_c`˙X][ ]H·bY·bUfc b]ý_Y˙g][bU]nUY¶Y˙ýH¨% fß GG%Ł!˙" "XY˙.˙N[fUXVU˙dfYg_i ýU˙bY[U˙b]nU]b·bUa Yb˙dfYg_i ýUb˙U˙fHGG⁄ HDŁ! GdYW[¶Z]_UY¶U˙nU˙i dcfUVb]_U

Integrated Services Digital Network (ISDN); Message Waiting Indication (MWI) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 3: Test Suite Structure and Test Purposes (TSS&TP) specification for the user

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European Standard (Telecommunications series)

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Signalling Protocols and Switching (SPS).

The present document is part 3 of a multi-part standard covering the Digital Subscriber Signalling System No. one (DSS1) protocol specification for the Integrated Services Digital Network (ISDN) Message Waiting Indication (MWI) supplementary service, as described 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:	18 September 1998
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1 Scope

This third part of EN 300 745 specifies the Test Suite Structure and Test Purposes (TSS&TP) for the User side of the T reference point or coincident S and T reference point (as defined in ITU-T Recommendation I.411 [7]) of implementations conforming to the stage three standard for the Message Waiting Indication (MWI) supplementary service for the pan-European Integrated Services Digital Network (ISDN) by means of the Digital Subscriber Signalling System No. one (DSS1) protocol, EN 300 745-1 [1].

A further part of the present document specifies the Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma based on the present document. Other parts specify the TSS&TP and the ATS and partial PIXIT proforma for the Network side of the T reference point or coincident S and T reference point of implementations conforming to EN 300 745-1 [1].

2 Normative references

References may be made to:

a) specific versions of publications (identified by date of publication, edition number, version number, etc.), in which case, subsequent revisions to the referenced document do not apply; or

b) all versions up to and including the identified version (identified by "up to and including" before the version identity); or

c) all versions subsequent to and including the identified version (identified by "onwards" following the version identity); or

d) publications without mention of a specific version, in which case 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]   EN 300 745-1 (V1.2): "Integrated Services Digital Network (ISDN); Message Waiting Indication (MWI) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

[2]   EN 300 745-2 (V1.2): "Integrated Services Digital Network (ISDN); Message Waiting Indication (MWI) supplementary service; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification".

[3]   ISO/IEC 9646-1 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".

[4]   ISO/IEC 9646-2 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract test suite specification".

[5]   ISO/IEC 9646-3 (1992): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation (TTCN)".

[6]   EN 300 196-1 (V1.2): "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

[7]   ITU-T Recommendation I.411 (1993): "ISDN user-network interfaces - Reference configurations".

[8]   EN 300 403-1: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 1: Protocol specification [ITU-T Recommendation Q.931 (1993), modified]".

[9]   ITU-T Recommendation I.112 (1993): "Vocabulary of terms for ISDNs".

[10]   CCITT Recommendation E.164 (1991): "Numbering plan for the ISDN era".

[11]   ITU-T Recommendation I.210 (1993): "Principles of the telecommunication services supported by an ISDN and the means to describe them".

3   Definitions

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

3.1   Definitions related to conformance testing

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

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

active test: A 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: A test case where the IUT is required to respond to a protocol event (e.g. received message) with another protocol event (e.g. send message) which normally does not require any special operator intervention as 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   Definitions related to EN 300 745-1

component: See EN 300 196-1 [6], subclause 11.2.2.1.

Dummy call reference: See EN 300 403-1 [8], subclause 4.3.

Integrated Services Digital Network (ISDN): See ITU-T Recommendation I.112 [9], definition 308.

ISDN number: A number conforming to the numbering and structure specified in CCITT Recommendation E.164 [10].

invoke component: See EN 300 196-1 [6], subclause 11.2.2.1.

return error component: See EN 300 196-1 [6], subclause 11.2.2.1.

return result component: See EN 300 196-1 [6], subclause 11.2.2.1.

service; telecommunication service: See ITU-T Recommendation I.112 [9], definition 201.

supplementary service: See ITU-T Recommendation I.210 [11], subclause 2.4.

S/T: The DSS1 protocol entity at the User side of the user-network interface where a coincident S and T reference point applies.

T: The DSS1 protocol entity at the User side of the user-network interface where a T reference point applies (User is a Private ISDN).

receiving user: The user that receives the message waiting indication.

controlling user: The user that activates and deactivates the message waiting indication.

4   Abbreviations

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

ATM	Abstract Test Method
ATS	Abstract Test Suite
ISDN	Integrated Services Digital Network
IUT	Implementation Under Test
MWI	Message Waiting Indication
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
TP	Test Purpose
TSS	Test Suite Structure
U00	Null call state
U01	Call Initiated call state
U19	Release Request call state
U31	Bearer Independent Transport call state

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5   Test Suite Structure (TSS)

S/T   **Group**

- · Controlling User
  - · activation   U01
  - · deactivation   U02
- · Receiving User
  - · invocation   U03

T (private ISDN)

- · Controlling User
  - · activation   U04
  - · deactivation   U05
- · Receiving User
  - · activation   U06
  - · deactivation   U07

Figure 1: Test suite structure

6   Test Purposes (TP)

6.1   Introduction

For each test requirement a TP is defined.

6.1.1   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: **<ss>_<iut><group>_<nnn>**
<ss>   =   supplementary service: "MWI"
<iut>   =   type of IUT: U   User
N   Network
<group> =   group   2 digit field representing group reference according to TSS
<nnn>   =   sequential number   (001-999)

6.1.2   Source of TP definition

The TPs are based on EN 300 745-1 [1].

6.1.3   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 and this is illustrated in table 2. This table should be read in conjunction with any TP, i.e. use a TP as an example to fully understand the table.

Table 2: Structure of a single TP for MWI

TP part	Text	Example
Header	<Identifier> *tab* <paragraph number in base ETS> *tab* <condition> *CR.*	see table 1 **subclause 0.0.0** **mandatory, optional (see note 1)**
Stimulus	Ensure that the IUT in the <basic call state> or <MWI state> <trigger> *see below for message structure* *or* <goal>	 U10 etc. receiving a XXXX message to request a ...
Reaction	<action> <conditions> *if the action is sending* *see below for message structure* <next action>, *etc.* and remains in the same state *or* and enters state <state>	sends, saves, does, etc. using en bloc sending, ...
Message structure	<message type> message containing a *a)* <info element> information element with *b)* a <field name> encoded as *or* including <coding of the field> and *back to a or b,*	SETUP, FACILITY, CONNECT, ... Bearer capability, Facility, ...
NOTE 1:	Mandatory TP are always applicable. Optional TPs are applicable according to the configuration options of the IUT. If the configuration option is covered by a PICS item, a selection criteria is indicated, else the selection of the corresponding test cases will depend on test suite parameters (PIXIT) in the ATS.	
NOTE 2:	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.	

6.1.4   Test strategy

As the base standard EN 300 745-1 [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 300 745-2 [2]. The criteria applied include 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.

6.2   User TPs for MWI

All PICS items referred to in this subclause are as specified in EN 300 745-2 [2] unless indicated otherwise by another numbered reference.

Unless specified:

- The messages indicated are valid and contain at least the mandatory information elements and possibly optional information elements.

- The information elements indicated are valid and contain at least the mandatory parameters and possibly optional parameters.

- The FACILITY messages are transmitted using the point-to-point connectionless bearer independent transport mechanism (dummy call reference, DL-DATA-REQUEST) as specified in EN 300 196-1 [6], subclause 8.3.2.2. Where the broadcast connectionless bearer independent transport mechanism applies (dummy call reference, DL-UNIT DATA-REQUEST), the indication of the corresponding subclause of EN 300 196-1 [6] is given (i.e. subclause 8.3.2.4).

6.2.1   S/T

Selection: IUT supports the S and T reference point procedures. PICS: R 3.1.

6.2.1.1   Controlling user

Selection: IUT supports the controlling user procedures. PICS: R 4.1.

6.2.1.1.1   Activation

MWI_U01_001 subclause 9.1.1   mandatory
Ensure that the IUT in the MWI Idle state, to activate the MWI supplementary service,
    transmits a FACILITY message, including a Facility information element with a MWIActivate invoke component
    and enters the MWI Activation Requested state.

MWI_U01_002 subclause 9.1.1   mandatory
Ensure that the IUT in the MWI Activation Requested state, on receipt of a FACILITY message, including a Facility information element with a MWIActivate return result component,
    transmits no message and enters the MWI Idle state.

MWI_U01_003 subclause 9.1.2   mandatory
Ensure that the IUT in the MWI Activation Requested state, on receipt of a FACILITY message, including a Facility information element with a MWIActivate return error component containing the error value "notSubscribed",
    transmits no message and enters the MWI Idle state.

MWI_U01_004 subclause 9.1.2   mandatory
Ensure that the IUT in the MWI Activation Requested state, on receipt of a FACILITY message, including a Facility information element with a MWIActivate return error component containing the error value "invalidReceivingUserNr",
    transmits no message and enters the MWI Idle state.