SLOVENSKI STANDARD
SIST EN 301 068-5 V1.2.1:2003

01-november-2003

Širokopasovno digitalno omrežje z integriranimi storitvami (B-ISDN) - Protokol digitalne naročniške signalizacije št. 2 (DSS2) - Priključne karakteristike - Prenosna zmogljivost in indikacija prometnega parametra ATM - 5. del: Specifikacija zgradbe preskuševalnega niza in namenov preskušanja (TSS&TP) za omrežje

Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; Connection characteristics; ATM transfer capability and traffic parameter indication; Part 5: Test Suite Structure and Test Purposes (TSS&TP) specification for the network

Ta slovenski standard je istoveten z: **EN 301 068-5 Version 1.2.1**

ICS:

33.080	Digitalno omrežje z integriranimi storitvami (ISDN)	Integrated Services Digital Network (ISDN)

SIST EN 301 068-5 V1.2.1:2003 **en**

ETSI EN 301 068-5 V1.2.1 (2002-08)

European Standard (Telecommunications series)

Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; Connection characteristics; ATM transfer capability and traffic parameter indication; Part 5: Test Suite Structure and Test Purposes (TSS&TP) specification for the network

Reference
REN/SPAN-130275-5

Keywords
ATM, ATS, B-ISDN, DSS2, layer 3, network,
TSS&TP, UNI

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Sous-Préfecture de Grasse (06) N° 7803/88

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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 deliverable covering the Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; Connection characteristics; ATM transfer capability and traffic parameter indication, as identified below:

Part 1: "Protocol specification [ITU-T Recommendations Q.2961.1 (1995), Q.2961.2 (1997), Q.2961.3 (1997), Q.2961.4 (1997), Q.2961.6 (1998), modified]";

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 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:	2 August 2002
Date of latest announcement of this EN (doa):	30 November 2002
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 May 2003
Date of withdrawal of any conflicting National Standard (dow):	31 May 2003

1 Scope

The present document specifies the network Test Suite Structure and Test Purposes (TSS&TP) for the T_B reference point or coincident S_B and T_B reference point (as defined in ITU-T Recommendation I.413 [5]) of implementations conforming to the standards for the signalling user-network layer 3 specification for ATM transfer capability and traffic parameter indication of the Digital Subscriber Signalling System No. two (DSS2) protocol for the pan-European Broadband Integrated Services Digital Network (B-ISDN), EN 301 068-1 [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.

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 and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

[1] ETSI EN 301 068-1: "Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; Connection characteristics; ATM transfer capability and traffic parameter indication; Part 1: Protocol specification [ITU-T Recommendations Q.2961.1 (1995), Q.2961.2 (1997), Q.2961.3 (1997), Q.2961.4 (1997) and Q.2961.6 (1997), modified]".

[2] ETSI EN 301 068-2: "Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; Connection characteristics; ATM transfer capability and traffic parameter indication; 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] ITU-T Recommendation I.413 (1993): "B-ISDN user-network interface".

[6] ETSI EN 300 443-1: "Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; B-ISDN user-network interface layer 3 specification for basic call/bearer control; Part 1: Protocol specification [ITU-T Recommendation Q.2931 (1995), modified]".

[7] ITU-T Recommendation Q.2961: "Digital subscriber signalling system No. 2 (DSS 2) - Additional traffic parameters".

[8] ITU-T Recommendation Q.2961.1: "Additional signalling capabilities to support traffic parameters for the tagging option and the sustainable cell rate parameter set".

[9] ITU-T Recommendation Q.2961.2: "Support of ATM transfer capability in the broadband bearer capability information element".

[10] ITU-T Recommendation Q.2961.3: "Signalling capabilities to support traffic parameters for the available bit rate (ABR) ATM transfer capability".

[11] ITU-T Recommendation Q.2961.4: "Signalling capabilities to support traffic parameters for the ATM Block Transfer (ABT) ATM transfer capability".

[12] ITU-T Recommendation Q.2961.6: "Additional signalling procedures for the support of the SBR2 and SBR3 ATM transfer capabilities".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in EN 301 068-1 [1], EN 300 443-1 [6] and the following apply:

3.1.1 Definitions related to conformance testing

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

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

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

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

Lower Tester (LT): See ISO/IEC 9646-1 [3].

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

PICS proforma: See ISO/IEC 9646-1 [3].

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

PIXIT proforma: See ISO/IEC 9646-1 [3].

Test Purpose (TP): See ISO/IEC 9646-1 [3].

3.1.2 Definitions related to EN 301 068-1

network: DSS2 protocol entity at the Network side of the user-network interface where a T_B reference point or coincident S_B and T_B reference point applies

network (S_B/T_B): DSS2 protocol entity at the Network side of the user-network interface where a coincident S_B and T_B reference point applies

network (T_B): DSS2 protocol entity at the Network side of the user-network interface where a T_B reference point applies (user is the private ISDN)

3.2 Symbols

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

N0	Network status 0
N3	Network status 3
N6	Network status 6
N7	Network status 7
N9	Network status 9
N10	Network status 10
S_B	Interface Reference Point at S (broadband)
T_B	Interface Reference Point at T (broadband)

3.3 Abbreviations

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

ABR	Available Bit Rate
ABT-DT	ATM Block Transfer with Delayed Transmission
ABT-IT	ATM Block Transfer with Immediate Transmission
ATM	Abstract Test Method
ATS	Abstract Test Suite
B-ISDN	Broadband Integrated Services Digital Network
DSS2	Digital Subscriber Signalling System No. two
ICR	Initial Cell Rate
IUT	Implementation Under Test
MBS	Maximum Burst Size
N0	Null call/connection state
N3	Outgoing Call Proceeding call/connection state
N6	Call Present call/connection state
N7	Call Received call/connection state
N9	Incoming Call Proceeding call/connection state
N10	Active call/connection state
PCR	Peak Cell Rate
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
RDF	Rate Decrease Factor
RIF	Rate Increase Factor
RM	Resource Management
SBR	Statistical Bit Rate ATC
TBE	ABR Transient Buffer Exposure
TP	Test Purpose
TSS	Test Suite Structure

4 Test Suite Structure (TSS)

- Signalling procedures at the coincident S_B/T_B and at the T_B reference points
  - Additional parameter procedures at the originating interface.
    - Sustainable cell rate parameter set (01)
    - Traffic management option for support of tagging (02)
    - Broadband bearer capability (03)
    - Available bit rate setup parameter (04)
    - ATM transfer block capability (05)
    - SBR ATM transfer capability (06)
    - Handling of error conditions (07)

- Additional parameter procedures at the destination interface.
  - Sustainable cell rate parameter set (08)
  - Traffic management option for support of tagging (09)
  - Broadband bearer capability (10)
  - Available bit rate setup parameter (11)
  - ATM transfer block capability (12)
  - SBR ATM transfer capability (13)
  - Handling of error conditions (14)

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 (see table 1).

Table 1: TP identifier naming convention scheme

Identifier:	<suite_id>_<group>_<nnn>		
	<suite_id>=	service + type of IUT:	"INDN" for connection INDication, IUT = Network
	<group> =	group number:	two-character field representing the group reference according to TSS
	<nn> =	sequential number:	(01-99)

5.1.2 Source of TP definition

The TPs are based on EN 301 068-1 [1].

5.1.3 Test strategy

As the base standard EN 301 068-1 [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 301 068-2 [2].

The TPs are only based on conformance requirements related to the externally observable behaviour of the IUT, and are limited to conceivable situations to which a real implementation is likely to be faced (see ETS 300 406 in bibliography).

5.1.4 Test of call states

Many TPs include a reference to the IUT's final call state after the realization of the TP. In these cases the TP includes the requirement to ensure that the IUT has entered this particular final call state. Ensuring that the IUT is in a particular call state shall be realized by following the procedures described in clause 5.6.11 of EN 300 443-1 [6]. According to these procedures, the IUT on receipt of a STATUS ENQUIRY message, shall respond with a STATUS message indicating, in the fifth octet of the Call state information element, the current call state of the IUT. This exchange of messages is not mentioned explicitly in each TP but is considered to be implicit in the reference to the final call state. This way of phrasing the TPs has been used to avoid over-complicating the text and structure of the TPs and to improve the readability.

5.2 TPs for the ATM transfer capability and traffic parameter indication, network

All PICS items referred to in this clause are as specified in EN 301 068-2 [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.

5.2.1 Signalling procedures at the coincident S_B/T_B and at the T_B reference points

NOTE: Unless otherwise specified, the connection defined by the requested ATM traffic descriptor is available for use.

5.2.1.1 Additional parameter procedures at the originating interface.

5.2.1.1.1 Sustainable Cell Rate parameter set (01)

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.1 [8], modified).

NOTE: In the following test purpose Sustainable cell rate parameter set includes Sustainable cell rate and Maximum Burst size.

INDN_01_01

Ensure that the IUT in N0, on receipt of a SETUP message including a compatible ATM traffic descriptor information element (sustainable cell rate parameter set without traffic management options identifier field), sends a CALL PROCEEDING message, and enters N3.

INDN_01_02

Ensure that the IUT, having received the SETUP message including a compatible ATM traffic descriptor information element (sustainable cell rate parameter set without traffic management options identifier field), on receipt a connection indication, sends a CONNECT message (without ATM traffic descriptor information element) and enters N10.

5.2.1.1.2 Traffic management option for support of tagging (02)

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.1 [8], modified).

INDN_02_01

Ensure that the IUT in N0, on receipt of a SETUP message including a compatible ATM traffic descriptor information element (with Tf subfield of traffic management option indicating "tagging requested"), sends a CALL PROCEEDING message and enters N3.

INDN_02_02

Ensure that the IUT in N3, having received a SETUP message including a compatible ATM traffic descriptor information element (with Tf subfield of traffic management option indicating "tagging requested"), to indicate the request of tagging is accepted, sends a CONNECT message (with Tf subfield of traffic management option set to "tagging applied") and enters N10.