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*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**

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**Reference**

REN/SPAN-130275-5

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TSS&TP, UNI**ETSI**

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## Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN), and is now submitted for the ETSI standards One-step Approval Procedure.

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".

<b>Proposed national transposition dates</b>	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

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# 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.

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# 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), Q.2961.6 (1998), 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 - 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 traffic parameters: 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 staus 0
N3	Network staus 3
N6	Network staus 6
N7	Network staus 7
N9	Network staus 9
N10	Network staus 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

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## 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)

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## 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.

**INDN\_02\_03**

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 not accepted, sends a CONNECT message including an ATM traffic descriptor information element (with Tf subfield of traffic management option set to "tagging not applied"), or sends a CONNECT message without ATM traffic descriptor information element and enters N10.

**INDN\_02\_04**

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 not allowed"), sends a CALL PROCEEDING message and enters N3.

**INDN\_02\_05**

Ensure that the IUT, having received the SETUP message including a compatible ATM traffic descriptor information element (with Tf subfield of traffic management option indicating "tagging not allowed"), on receipt a connection indication, sends a CONNECT message without ATM traffic descriptor information element and enters N10.

**5.2.1.1.3 Broadband Bearer Capability (03)**

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.2 [9], modified).

**INDN\_03\_01**

Ensure that the IUT in N0, on receipt of a SETUP message indicating the ATM transfer capability in a valid broadband bearer capability (i. e. valid combination of the bearer class and the broadband transfer capability values), sends a CALL PROCEEDING message and enters N3.

**5.2.1.1.4 Available Bit Rate set-up parameter (04)**

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.3 [10], modified).

**INDN\_04\_01**

Ensure that the IUT in N0, on receipt of a SETUP message requesting ABR transfer capability, including a compatible ABR set-up parameter information element, and the IUT is able to provide a PCR which at least equals the requested MCR, sends a CALL PROCEEDING message and enters N3.

**INDN\_04\_02**

Ensure that the IUT in N0, on receipt of a SETUP message requesting ABR transfer capability, including a compatible ABR set-up parameter information element (without optional parameters: ICR, TBE, RIF RDF), sends a CALL PROCEEDING message and enters N3.

**INDN\_04\_03**

Ensure that the IUT in N0, on receipt of a SETUP message requesting ABR transfer capability, including valid ABR set-up parameter and ATM traffic descriptor information elements, and the IUT is not able to provide a PCR greater or equal to the MCR sends a RELEASE COMPLETE message with the cause value 37 "User cell rate not available" and remains in N0.

**INDN\_04\_04**

Ensure that the IUT, having received the SETUP message requesting an ABR transfer capability, and the IUT is able to provide the requested PCR, on receipt a connection indication, sends a CONNECT message (ABR set-up parameters and ATM traffic descriptor information elements included) and enters N10.

**INDN\_04\_05**

Ensure that the IUT, having received the SETUP message requesting an ABR transfer capability, and the IUT is not able to provide the requested PCR but able to provide a PCR which at least equals to the MCR, on receipt a connection indication, sends a CONNECT message (ABR set-up parameters and adjusted ATM traffic descriptor information elements included) and enters N10.

**5.2.1.1.5 ATM Block Transfer capability (05)**

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.4 [11], modified).

**INDN\_05\_01**

Ensure that the IUT in N0, on receipt of a SETUP with ABT-IT transfer capability, including Broadband bearer capability information element ("ABT-IT", "point-to-point"), and with a valid ATM traffic descriptor (including forward and backward RM PCR parameters, not including forward and backward SCR and MBS parameters) sends a CALL PROCEEDING message and enters N3.

**INDN\_05\_02**

Ensure that the IUT in N0, on receipt of a SETUP with ABT-DT transfer capability, including Broadband bearer capability information element ("ABT-DT", "point-to-point"), and with a valid ATM traffic descriptor (including forward and backward RM PCR parameters, not including forward and backward SCR and MBS parameters) sends a CALL PROCEEDING message and enters N3.

**INDN\_05\_03**

Ensure that the IUT in N0, on receipt of a SETUP with ABT-IT transfer capability, including Broadband bearer capability information element ("ABT-IT", "point-to-point"), and with a valid ATM traffic descriptor (forward and backward RM PCR, forward and backward SCR and MBS parameters are included) sends a CALL PROCEEDING message and enters N3.

**INDN\_05\_04**

Ensure that the IUT in N0, on receipt of a SETUP with ABT-DT transfer capability, including Broadband bearer capability information element ("ABT-DT", "point-to-point"), and with a valid ATM traffic descriptor (forward and backward RM PCR parameters, forward and backward SCR and MBS parameters are not included) sends a CALL PROCEEDING message and enters N3".

**5.2.1.1.6 SBR ATM transfer capability (06)****INDN\_06\_01**

Ensure that the IUT in N0, on receipt of a SETUP with SBR2 transfer capability, including a Broadband bearer capability information element ("SBR2") and with a valid ATM traffic descriptor (including forward and backward PCR (CLP = 0 + 1) and SCR/MBS (CLP = 0) parameters, traffic management options field not present), sends a CALL PROCEEDING message and enters N3".

**INDN\_06\_02**

Ensure that the IUT in N0, on receipt of a SETUP with SBR3 transfer capability, including a Broadband bearer capability information element ("SBR3") and with a valid ATM traffic descriptor (including forward and backward PCR (CLP = 0 + 1) and SCR/MBS (CLP = 0) parameters, traffic management options field not present), sends a CALL PROCEEDING message and enters N3".

**INDN\_06\_03**

Ensure that the IUT in N0, on receipt of a SETUP with SBR2 transfer capability, when the IUT is not able to provide the SBR2 capability, sends a RELEASE COMPLETE message with cause value 65 "Bearer capability not implemented" and remains in N0.

**INDN\_06\_04**

Ensure that the IUT in N0, on receipt of a SETUP with SBR3 transfer capability, when the IUT is not able to provide the SBR3 capability, sends a RELEASE COMPLETE message with cause value 65 "Bearer capability not implemented" and remains in N0.

**5.2.1.1.7 Handling of error conditions (07)**

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961 [7], modified).

**INDN\_07\_01**

Ensure that the IUT in N0, on receipt of a SETUP message including a incompatible ATM traffic descriptor information element (Combination of traffic parameters not allowed, with IE instruction field flag set to "not significant"), sends a RELEASE COMPLETE message with a cause value 100 "invalid information element contents", and remains in N0.

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.2 [9], modified).

**INDN\_07\_02**

Ensure that the IUT in N0, on receipt of a SETUP message indicating the ATM transfer capability including a not supported broadband bearer capability (i. e. a not supported combination of the bearer class and the broadband transfer capability values), sends a RELEASE COMPLETE message with a cause value 65 "bearer capability not supported", and remains in N0.

**INDN\_07\_03**

Ensure that the IUT in N0, on receipt of a SETUP message indicating a valid broadband bearer capability and valid ATM traffic descriptor information element, the combination of the two is valid but not supported by the IUT, sends a RELEASE COMPLETE message with a cause value 73 "Unsupported combination of traffic parameters" and remains in N0.

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.3 [10], modified).

**INDN\_07\_04**

Ensure that the IUT in N0, on receipt of a SETUP message requesting ABR transfer capability, but including an invalid ATM traffic descriptor information element (with IE instruction field flag set to "not significant"), sends a RELEASE COMPLETE message with a cause value 100 "invalid information element contents" and remains in N0.

**INDN\_07\_05**

Ensure that the IUT in N0, on receipt of a SETUP message requesting ABR transfer capability, but including an invalid ABR set-up parameter information element (with IE instruction field flag set to "not significant"), sends a RELEASE COMPLETE message with a cause value 100 "invalid information element contents" and remains in N0.

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.4 [11], modified).

**INDN\_07\_06**

Ensure that the IUT in N0, on receipt of a SETUP message requesting ABT transfer capability, but including an invalid ATM traffic descriptor information element (with IE instruction field flag set to "not significant"), sends a RELEASE COMPLETE message with a cause value 100 "invalid information element contents" and remains in N0.

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.6 [12], modified).

**INDN\_07\_07**

Ensure that the IUT in N0, on receipt of a SETUP message requesting SBR2 transfer capability, but including an invalid ATM traffic descriptor information element (with IE instruction field flag set to "not significant"), sends a RELEASE COMPLETE message with a cause value 100 "invalid information element contents" and remains in N0.

**INDN\_07\_08**

Ensure that the IUT in N0, on receipt of a SETUP message requesting SBR3 transfer capability, but including an invalid ATM traffic descriptor information element (with IE instruction field flag set to "not significant"), sends a RELEASE COMPLETE message with a cause value 100 "invalid information element contents" and remains in N0.

**5.2.1.2 Additional parameter procedures at the destination interface**

Test purposes for EN 301 068-1 [1].

**5.2.1.2.1 Sustainable Cell Rate parameter set (08)**

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\_08\_01**

Ensure that the IUT in N0, to indicate the arrival of a call with additional traffic parameter selection, sends a SETUP message with the ATM traffic descriptor information element (including sustainable cell rate parameter set) and enters N6.

**INDN\_08\_02**

Ensure that the IUT, having sent a SETUP message with the ATM traffic descriptor information element including sustainable cell rate parameter set), on receipt of a CONNECT message without ATM traffic descriptor information element, sends a CONNECT ACKNOWLEDGE message and enters N10.

**5.2.1.2.2 Traffic management option for support of tagging (09)**

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

**INDN\_09\_01**

Ensure that the IUT in N0, to indicate the arrival of a call and tagging option supported, sends a SETUP message with the ATM traffic descriptor information element (including the traffic management option field with Tb subfield "tagging supported") and enters N6.

**INDN\_09\_02**

Ensure that the IUT in N0, to indicate the arrival of a call and tagging option not supported, sends a SETUP message with the ATM traffic descriptor information element (including the traffic management option field with Tb subfield "tagging not supported") and enters N6.

**INDN\_09\_03**

Ensure that the IUT in N6 (having sent a SETUP message with the ATM traffic descriptor information element including backward tagging information indicating "tagging supported"), on receipt of a CONNECT message including a compatible ATM traffic descriptor information element (with Tb subfield of traffic management option indicating "tagging requested"), sends a CONNECT ACKNOWLEDGE message and enters N10.

**INDN\_09\_04**

Ensure that the IUT in N6 (having sent a SETUP message with the ATM traffic descriptor information element including backward tagging information indicating "tagging supported"), on receipt of a CONNECT message including a compatible ATM traffic descriptor information element (with Tb subfield of traffic management option indicating "tagging not allowed"), sends a CONNECT ACKNOWLEDGE message and enters N10.

**INDN\_09\_05**

Ensure that the IUT in N6 (having sent a SETUP message with the ATM traffic descriptor information element including backward tagging information indicating "tagging supported") on receipt of a CONNECT message without ATM traffic descriptor information element, sends a CONNECT ACKNOWLEDGE message and enters N10.

**INDN\_09\_06**

Ensure that the IUT in N9 (having sent a SETUP message with the ATM traffic descriptor information element including backward tagging information indicating "tagging supported"), on receipt of a CONNECT message including a compatible ATM traffic descriptor information element (with Tb subfield of traffic management option indicating "tagging requested"), sends a CONNECT ACKNOWLEDGE message and enters N10.

**INDN\_09\_07**

Ensure that the IUT in N9 (having sent a SETUP message with the ATM traffic descriptor information element including backward tagging information indicating "tagging supported"), on receipt of a CONNECT message including a compatible ATM traffic descriptor information element (with Tb subfield of traffic management option indicating "tagging not allowed"), sends a CONNECT ACKNOWLEDGE message and enters N10.

**INDN\_09\_08**

Ensure that the IUT in N9 (having sent a SETUP message with the ATM traffic descriptor information element including backward tagging information indicating "tagging supported") on receipt of a CONNECT message without ATM traffic descriptor information element, sends a CONNECT ACKNOWLEDGE message and enters N10.

**INDN\_09\_09**

Ensure that the IUT in N7 (having sent a SETUP message with the ATM traffic descriptor information element including backward tagging information indicating "tagging supported"), on receipt of a CONNECT message including a compatible ATM traffic descriptor information element (with Tb subfield of traffic management option indicating "tagging requested"), sends a CONNECT ACKNOWLEDGE message and enters N10.

**INDN\_09\_10**

Ensure that the IUT in N7 (having sent a SETUP message with the ATM traffic descriptor information element including backward tagging information indicating "tagging supported"), on receipt of a CONNECT message including a compatible ATM traffic descriptor information element (with Tb subfield of traffic management option indicating "tagging not allowed"), sends a CONNECT ACKNOWLEDGE message and enters N10.

**INDN\_09\_11**

Ensure that the IUT in N7 (having sent a SETUP message with the ATM traffic descriptor information element including backward tagging information indicating "tagging supported") on receipt of a CONNECT message without ATM traffic descriptor information element, sends a CONNECT ACKNOWLEDGE message and enters N10.

**INDN\_09\_12**

Ensure that the IUT in N6 (having sent a SETUP message with the ATM traffic descriptor information element including backward tagging information "tagging not supported") on receipt of a CONNECT message without ATM traffic descriptor information element, sends a CONNECT ACKNOWLEDGE message and enters N10.

**INDN\_09\_13**

Ensure that the IUT in N9 (having sent a SETUP message with the ATM traffic descriptor information element including backward tagging information "tagging not supported") on receipt of a CONNECT message without ATM traffic descriptor information element, sends a CONNECT ACKNOWLEDGE message and enters N10.

**INDN\_09\_14**

Ensure that the IUT in N7 (having sent a SETUP message with the ATM traffic descriptor information element including backward tagging information "tagging not supported") on receipt of a CONNECT message without ATM traffic descriptor information element, sends a CONNECT ACKNOWLEDGE message and enters N10."

### 5.2.1.2.3 Broadband Bearer Capability (10)

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.2 [9], modified).

#### INDN\_10\_01

Ensure that the IUT in N0, to indicate the arrival of a call including ATM transfer capability information, sends a SETUP message with a valid Broadband bearer capability information element (broadband transfer capability field present) and enters N6.

### 5.2.1.2.4 Available Bit Rate set-up parameter (11)

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.3 [10], modified).

#### INDN\_11\_01

Ensure that the IUT in N0, to indicate the arrival of a call with ABR transfer capability, sends a SETUP message with a corresponding Broadband bearer capability information element ("ABR", "point-to-point"), with a valid ABR set-up parameter information element and a valid ATM traffic descriptor information element and enters N6.

#### INDN\_11\_02

Ensure that the IUT in N0, to indicate the arrival of a call with ABR transfer capability (without specification of optional parameter in ABR set-up parameter information element: ICR, TBE, RIF RDF), sends a SETUP message with a corresponding Broadband bearer capability information element ("ABR", "point-to-point"), default value for ABR setup parameter information element, and a valid ATM traffic descriptor information element and enters N6.

#### INDN\_11\_03

Ensure that the IUT in N6, (having sent a SETUP message requesting ABR transfer capability), on receipt of a compatible CONNECT message (including ABR set-up parameter information element, ATM traffic descriptor information element) sends a CONNECT ACKNOWLEDGE message and enters N10.

### 5.2.1.2.5 ATM Block Transfer capability (12)

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.4 [11], modified).

#### INDN\_12\_01

Ensure that the IUT in N0, to indicate the arrival of a call with ABT-IT transfer capability, sends a SETUP message with a corresponding Broadband bearer capability information element ("ABT-IT", "point-to-point"), and with a valid ATM traffic descriptor (including forward and backward RM PCR parameters) and enters N6.

#### INDN\_12\_02

Ensure that the IUT in N0, to indicate the arrival of a call with ABT-DT transfer capability, sends a SETUP message with a corresponding Broadband bearer capability information element ("ABT-DT", "point-to-point"), and with a valid ATM traffic descriptor (including forward and backward RM PCR parameters) and enters N6.

### 5.2.1.2.6 SBR ATM transfer capability (13)

#### INDN\_13\_01

Ensure that the IUT in N0, to indicate the arrival of a call with SBR2 transfer capability, sends a SETUP message with a corresponding Broadband bearer capability information element ("SBR2"), and with a valid ATM traffic descriptor (including forward and backward PCR (CLP = 0 + 1) and SCR/MBS (CLP = 0) parameters, traffic management options field not present) and enters N6.

#### INDN\_13\_02

Ensure that the IUT in N0, to indicate the arrival of a call with SBR3 transfer capability, sends a SETUP message with a corresponding Broadband bearer capability information element ("SBR3"), and with a valid ATM traffic descriptor (including forward and backward PCR (CLP = 0 + 1) and SCR/MBS (CLP = 0) parameters, traffic management options field not present) and enters N6.

### 5.2.1.2.7 Handling of error conditions (14)

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.3 [10], modified).

#### **INDN\_14\_01**

Ensure that the IUT in N6, (having sent a SETUP message requesting ABR transfer capability), on receipt of a incomplete CONNECT message (not including ABR set-up parameter information element) sends a STATUS message with a cause value 96 "mandatory information element missing" and remains in N6.

#### **INDN\_14\_02**

Ensure that the IUT in N6, (having sent a SETUP message requesting ABR transfer capability), on receipt of a incomplete CONNECT message (not including ATM traffic descriptor information element) sends a STATUS message with a cause value 96 "mandatory information element missing" and remains in N6.

#### **INDN\_14\_03**

Ensure that the IUT in N6 (having sent a SETUP message with the ATM traffic descriptor information element including sustainable cell rate parameter set without the traffic management options field), on receipt of a CONNECT message including an ATM traffic descriptor information element, ignores the wrong information element (resulting in the sending of a CONNECT message without ATM traffic descriptor information element to the originating side), optionally sends a STATUS message (cause value = 99, call state = 8 or 10 dependant on the order of transmission), sends a CONNECT ACKNOWLEDGE message and enters N10.

#### **INDN\_14\_04**

Ensure that the IUT in N6 (having sent a SETUP message with the ATM traffic descriptor information element including backward tagging information "tagging not supported") on receipt of a CONNECT message with ATM traffic descriptor information element, ignores the wrong information element (resulting in the sending of a CONNECT message without ATM traffic descriptor information element to the originating side), optionally sends a STATUS message (cause value = 99, call state = 8 or 10 dependant on the order of transmission), sends a CONNECT ACKNOWLEDGE message and enters N10.

#### **INDN\_14\_05**

Ensure that the IUT in N7 (having sent a SETUP message with the ATM traffic descriptor information element including backward tagging information "tagging not supported") on receipt of a CONNECT message with ATM traffic descriptor information element, ignores the wrong information element (resulting in the sending of a CONNECT message without ATM traffic descriptor information element to the originating side), optionally sends a STATUS message (cause value = 99, call state = 8 or 10 dependant on the order of transmission), sends a CONNECT ACKNOWLEDGE message and enters N10.

#### **INDN\_14\_06**

Ensure that the IUT in N9 (having sent a SETUP message with the ATM traffic descriptor information element including backward tagging information "tagging not supported") on receipt of a CONNECT message with ATM traffic descriptor information element, ignores the wrong information element (resulting in the sending of a CONNECT message without ATM traffic descriptor information element to the originating side), optionally sends a STATUS message (cause value = 99, call state = 8 or 10 dependant on the order of transmission), sends a CONNECT ACKNOWLEDGE message and enters N10.

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## 6 Compliance

An ATS which complies with this TSS&TP specification shall:

- a) consist of a set of test cases corresponding to the set or to a subset of the TPs specified in clause 5;
- b) use a TSS which is an appropriate subset of the whole of the TSS specified in clause 4;
- c) use the same naming conventions for the test groups and test cases;



- d) maintain the relationship specified in clause 5 between the test groups and TPs and the entries in the PICS proforma to be used for test case deselection;
- e) comply with ISO/IEC 9646-2 [4].

In the case of a) or b) above, a subset shall be used only where a particular Abstract Test Method (ATM) makes some TPs untestable. All testable TPs from clause 5 shall be included in a compliant ATS.

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## 7 Requirements for a comprehensive testing service

As a minimum the Remote test method, as specified in ISO/IEC 9646-2 [4], shall be used by any organization claiming to provide a comprehensive testing service for network equipment claiming conformance to EN 301 068-1 [1].

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## Annex A (informative): Bibliography

ISO/IEC 9646-3 (1998): "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 3: The Tree and Tabular Combined Notation (TTCN)".

ETSI ETS 300 406: "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

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## History

<b>Document history</b>		
V1.1.2	May 2000	Publication
V1.2.1	April 2002	One-step Approval Procedure OAP 20020802: 2002-04-03 to 2002-08-02