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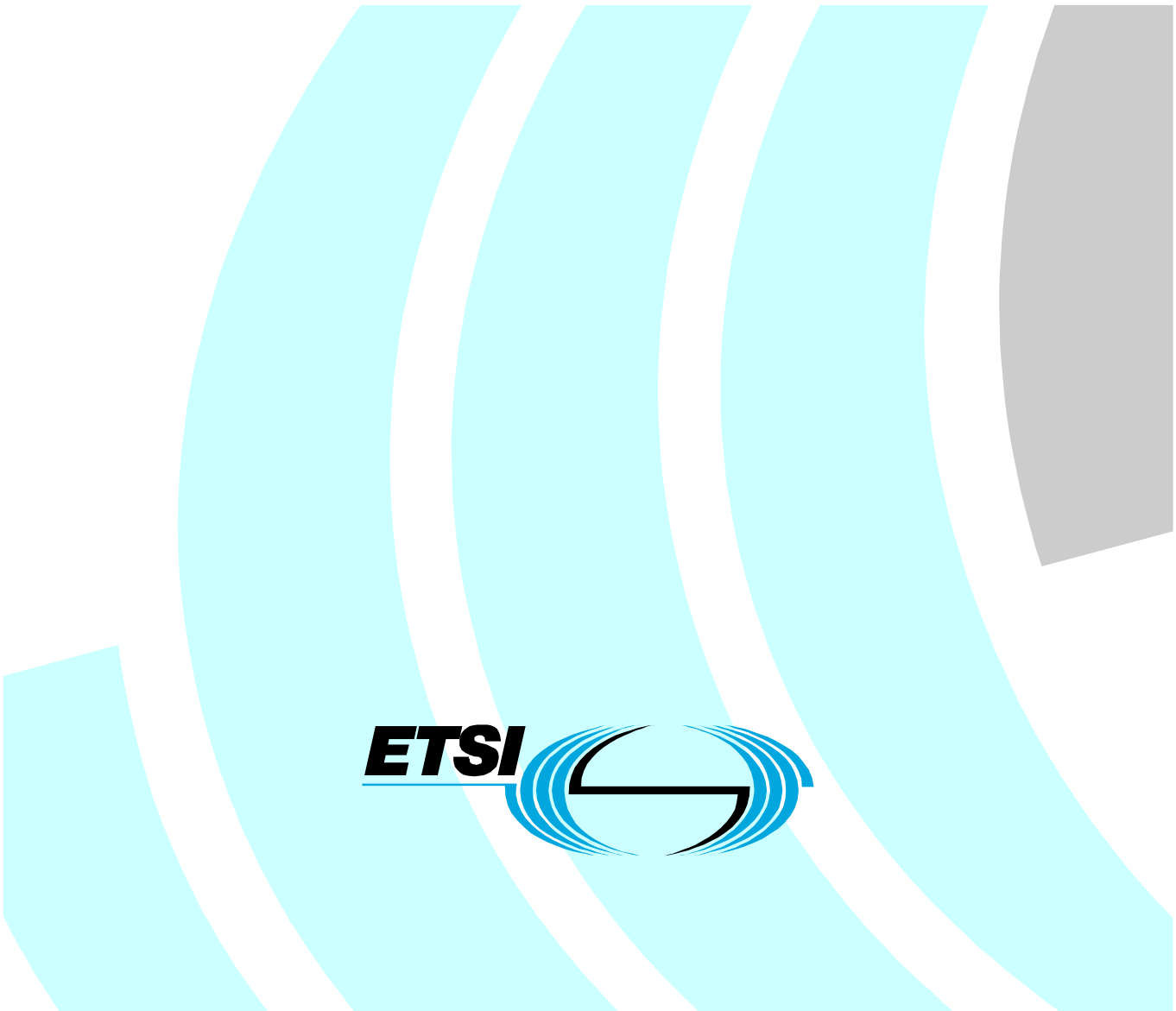
European Standard (Telecommunications series)

**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 3: Test Suite Structure and Test Purposes (TSS&TP)
specification for the user**



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Contents

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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 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".

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1 Scope

The present document specifies the user 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 ETS 300 406: "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

[7] 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]".

[8] ETSI EN 301 067-1: "Broadband Integrated Services Digital Network (B-ISDN); Digital Subscriber Signalling System No. two (DSS2) protocol; Connection characteristics; Negotiation during call/connection establishment phase; Part 1: Protocol specification [ITU-T Recommendation Q.2962 (1996), modified]".

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

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

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

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

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

[14] 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 [7] 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: 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

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

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

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

3.2 Symbols

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

S_B	Interface Reference Point at S (broadband)
T_B	Interface Reference Point at T (broadband)
U0	Null call/connection state
U1	Call Initiated call/connection state
U3	Outgoing Call Proceeding call/connection state
U4	Call Delivered call/connection state
U7	Call Received call/connection state
U8	Connect Request call/connection state
U9	Incoming Call Proceeding call/connection state
U10	Active call/connection state

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
CLP	Cell Loss Priority
DSS2	Digital Subscriber Signalling System No. two
ICR	Initial Cell Rate
ISDN	Integrated Services Digital Network
IUT	Implementation Under Test
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 (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:	"INDU" for connection INDication, IUT = User
	<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 [6]).

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 [7]. 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.

5.1.5 Validity of Test Purposes

The test purposes below are valid only for IUTs that do not use the negotiation procedure defined in EN 301 067-1 [8]. These procedures are tested in the test specification standards related to EN 301 067-1 [8].

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

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

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

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 [10], modified).

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

INDU_01_01

Ensure that the IUT in U0, in order to initiate a call with additional traffic parameter selection, sends a SETUP message with the ATM traffic descriptor information element (including sustainable cell rate parameter set without traffic options management identifier field) and enters U1.

INDU_01_02

Ensure that the IUT in U3 (having sent a SETUP message with the ATM traffic descriptor information element including sustainable cell rate parameter set without traffic options management identifier field), on receipt of a CONNECT message without ATM traffic descriptor information element, sends a CONNECT ACKNOWLEDGE message and enters U10.

INDU_01_03

Ensure that the IUT in U4 (having sent a SETUP message with the ATM traffic descriptor information element including sustainable cell rate parameter set without traffic options management identifier field), on receipt of a CONNECT message without ATM traffic descriptor information element, sends a CONNECT ACKNOWLEDGE message and enters U10.

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 [10], modified).

INDU_02_01

Ensure that the IUT in U0, in order to initiate a call indicating the support of the local tagging option, sends a SETUP message with the ATM traffic descriptor information element (including the traffic management option field with the Tf value set to "tagging requested") and enters U1".

INDU_02_02

Ensure that the IUT in U0, in order to initiate a call indicating the non-support of the local tagging option, sends a SETUP message with the ATM traffic descriptor information element (including the traffic management option field with the Tf value set to "tagging not allowed") and enters U1.

INDU_02_03

Ensure that the IUT in U3 (having sent a SETUP message with the ATM traffic descriptor information element requesting local tagging including tagging information), on receipt of a CONNECT message including a compatible ATM traffic descriptor information element (with Tf subfield of traffic management option indicating "tagging applied"), sends a CONNECT ACKNOWLEDGE message and enters U10.

INDU_02_04

Ensure that the IUT in U3 (having sent a SETUP message with the ATM traffic descriptor information element requesting local tagging including tagging information), on receipt of a CONNECT message including a compatible ATM traffic descriptor information element (with Tf subfield of traffic management option indicating "tagging not applied"), sends a CONNECT ACKNOWLEDGE message and enters U10.

INDU_02_05

Ensure that the IUT in U3 (having sent a SETUP message with the ATM traffic descriptor information element requesting local tagging including tagging information) on receipt of a CONNECT message without ATM traffic descriptor information element, sends a CONNECT ACKNOWLEDGE message and enters U10.

INDU_02_06

Ensure that the IUT in U4 (having sent a SETUP message with the ATM traffic descriptor information element, requesting local tagging) on receipt of a CONNECT message including a compatible ATM traffic descriptor information element (with Tf subfield of traffic management option indicating "tagging applied"), sends a CONNECT ACKNOWLEDGE message and enters U10.

INDU_02_07

Ensure that the IUT in U4 (having sent a SETUP message with the ATM traffic descriptor information element requesting local tagging including tagging information), on receipt of a CONNECT message including a compatible ATM traffic descriptor information element (with Tf subfield of traffic management option indicating "tagging not applied"), sends a CONNECT ACKNOWLEDGE message and enters U10.

INDU_02_08

Ensure that the IUT in U4 (having sent a SETUP message with the ATM traffic descriptor information element requesting local tagging including tagging information), on receipt of a CONNECT message without ATM traffic descriptor information element, sends a CONNECT ACKNOWLEDGE message and enters U10.

INDU_02_09

Ensure that the IUT in U3 (having sent a SETUP message with the ATM traffic descriptor information element not allowing local tagging) on receipt of a CONNECT message without ATM traffic descriptor information element, sends a CONNECT ACKNOWLEDGE message and enters U10.

INDU_02_10

Ensure that the IUT in U4 (having sent a SETUP message with the ATM traffic descriptor information element not allowing local tagging) on receipt of a CONNECT message without ATM traffic descriptor information element, sends a CONNECT ACKNOWLEDGE message and enters U10.

5.2.1.1.3 Broadband Bearer Capability (03)

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.2 [11], modified).

INDU_03_01

Ensure that the IUT in U0, in order to initiate 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 U1.

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 [12], modified).

INDU_04_01

Ensure that the IUT in U0, in order to initiate a call with ABR transfer capability, sends a SETUP message with a corresponding Broadband bearer capability information element ("ABR", "point-to-point") and with a valid ABR set-up parameter information element and enters U1.

INDU_04_02

Ensure that the IUT in U3, (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 U10.

INDU_04_03

Ensure that the IUT in U4, (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 U10.

5.2.1.1.5 ATM Block Transfer capability (05)

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.4 [13], modified).

INDU_05_01

Ensure that the IUT in U0, in order to initiate 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 U1.

INDU_05_02

Ensure that the IUT in U0, in order to initiate 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 U1.

INDU_05_03

Ensure that the IUT in U0, in order to initiate a call with ABT-IT transfer capability with negotiation allowed, 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 a valid corresponding Minimum acceptable ATM traffic descriptor and enters U1.

INDU_05_04

Ensure that the IUT in U0, in order to initiate a call with ABT-DT transfer capability with negotiation allowed, 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 a valid corresponding Minimum acceptable ATM traffic descriptor and enters U1.

5.2.1.1.6 SBR ATM transfer capability (06)

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.6 [14], modified).

INDU_06_01

Ensure that the IUT in U0, in order to initiate a call with SBR2 ATM 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 U1.

INDU_06_02

Ensure that the IUT in U0, in order to initiate a call with SBR3 ATM 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 U1.

5.2.1.1.7 Handling of error conditions (07)

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.3 [12], modified).

INDU_07_01

Ensure that the IUT in U3, (having sent a SETUP message requesting ABR transfer capability), on receipt of a incompatible 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 U1.

INDU_07_02

Ensure that the IUT in U3, (having sent a SETUP message requesting ABR transfer capability), on receipt of a incompatible 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 U1.

INDU_07_03

Ensure that the IUT in U4, (having sent a SETUP message requesting ABR transfer capability), on receipt of a incompatible 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 U1.

INDU_07_04

Ensure that the IUT in U4, (having sent a SETUP message requesting ABR transfer capability), on receipt of a incompatible 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 U1.

INDU_07_05

Ensure that the IUT in U3 (having sent a SETUP message with the ATM traffic descriptor information element including sustainable cell rate parameter set without the traffic management options subfield)), on receipt of a CONNECT message including a compatible ATM traffic descriptor information element, optionally sends a STATUS message (cause value = 99, call state value = 10) followed by a CONNECT ACKNOWLEDGE message and enters U10.

INDU_07_06

Ensure that the IUT in U4 (having sent a SETUP message with the ATM traffic descriptor information element including sustainable cell rate parameter set without the traffic management options subfield), on receipt of a CONNECT message including a compatible ATM traffic descriptor information element, optionally sends a STATUS message (cause value = 99, call state value = 10) followed by a CONNECT ACKNOWLEDGE message and enters U10.

INDU_07_07

Ensure that the IUT in U3 (having sent a SETUP message with the ATM traffic descriptor information element including sustainable cell rate parameter set with the traffic management options subfield indicating Tf value "0"), on receipt of a CONNECT message including an ATM traffic descriptor information element, optionally sends a STATUS message (cause value = 99, call state value = 10) followed by a CONNECT ACKNOWLEDGE message and enters U10.

INDU_07_08

Ensure that the IUT in U4 (having sent a SETUP message with the ATM traffic descriptor information element including sustainable cell rate parameter set with the traffic management options subfield indicating Tf value "0"), on receipt of a CONNECT message including an ATM traffic descriptor information element, optionally sends a STATUS message (cause value = 99, call state value = 10) followed by a CONNECT ACKNOWLEDGE message and enters U10.

5.2.1.2 Additional parameter procedures at the destination interface

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 [10], modified).

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

INDU_08_01

Ensure that the IUT in U0, on receipt of a SETUP message with additional traffic parameters, including a compatible ATM traffic descriptor information element (with sustainable cell rate parameter set without a traffic management options field), sends any of a CALL PROCEEDING, ALERTING or CONNECT message (without ATM traffic descriptor information element) and enters the relevant call state U9, U7 or U8.

INDU_08_02

Ensure that the IUT, having received a SETUP message including an ATM traffic descriptor information element without traffic management option field, to accept the call, sends a CONNECT message without ATM traffic descriptor information element and enters U8.

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 [10], modified).

INDU_09_01

Ensure that the IUT in U0, on receipt of a SETUP message including a compatible ATM traffic descriptor information element (with Tb subfield of traffic management option indicating "tagging supported"), to indicate call confirmation or acceptance, sends any of a CALL PROCEEDING, ALERTING or a CONNECT message and enters the relevant call state U9, U7 or U8.

INDU_09_02

Ensure that the IUT in U0, on receipt of a SETUP message including a compatible ATM traffic descriptor information element (with Tb subfield of traffic management option indicating "tagging not supported"), to indicate call confirmation or acceptance, sends any of a CALL PROCEEDING, ALERTING, or a CONNECT (without ATM traffic descriptor information element) message and enters the relevant call state U9, U7 or U8.

INDU_09_03

Ensure that the IUT, having received a SETUP message including an ATM traffic descriptor information element with Tb subfield of traffic management option indicating "tagging supported", to accept the call with tagging request, sends a CONNECT message including an ATM traffic descriptor information element (with Tb subfield of traffic management option set to "tagging requested") and enters U8.

INDU_09_04

Ensure that the IUT, having received a SETUP message including an ATM traffic descriptor information element with Tb subfield of traffic management option indicating "tagging supported", to accept the call with tagging not allowed, sends a CONNECT message including an ATM traffic descriptor information element (with Tb subfield of traffic management option set to "tagging not allowed") or sends a CONNECT message without ATM traffic descriptor information element and enters U8.

INDU_09_05

Ensure that the IUT, having received a SETUP message including an ATM traffic descriptor information element with Tb subfield of traffic management option indicating "tagging not supported", to accept the call, sends a CONNECT message without ATM traffic descriptor information element and enters U8.

5.2.1.2.3 Broadband Bearer Capability (10)

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.2 [11], modified).

INDU_10_01

Ensure that the IUT in U0, on receipt of a SETUP message indicating the ATM transfer capability in a valid broadband bearer capability (i.e. e. valid combination of the bearer class and the broadband transfer capability values), sends any of a CALL PROCEEDING, ALERTING, or CONNECT message and enters the relevant call state U9, U7 or U8.

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 [12], modified).

INDU_11_01

Ensure that the IUT in U0, on receipt of a SETUP message requesting ABR transfer capability, including compatible ATM traffic parameters and ABR set-up parameter information elements, and the IUT is able to provide a PCR which at least equals the requested MCR, sends any of a CALL PROCEEDING, ALERTING, or a CONNECT message and enters the relevant call state U9, U7 or U8.

INDU_11_02

Ensure that the IUT in U0, on receipt of a SETUP message requesting ABR transfer capability and the IUT is not able to provide a PCR which is greater or equal to the requested MCR, sends a RELEASE COMPLETE message with the cause value 47 "resources unavailable, unspecified" and enters U0.

INDU_11_03

Ensure that the IUT, having received of a SETUP message requesting ABR transfer capability, and the IUT is able to provide the requested PCR, to accept the call sends a CONNECT message (with ATM traffic parameters and ABR set-up parameter information elements and same set of parameters as in the SETUP) and enters U8.

INDU_11_04

Ensure that the IUT, having received of a SETUP message requesting ABR transfer capability, and the IUT is not able to provide the requested PCR but is able to provide a PCR which at least equals the requested MCR, to accept the call sends a message CONNECT (with ATM traffic parameters and ABR set-up parameter information elements including the same set of parameters as in the SETUP message but PCR adjusted) and enters U8.

5.2.1.2.5 ATM Block Transfer capability (12)

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.4 [13], modified).

INDU_12_01

Ensure that the IUT in U0, 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) sends any of a CALL PROCEEDING, ALERTING, or CONNECT message and enters the relevant call state U9, U7 or U8.

INDU_12_02

Ensure that the IUT in U0, 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) sends any of a CALL PROCEEDING, ALERTING, or CONNECT message and enters the relevant call state U9, U7 or U8.

INDU_12_03

Ensure that the IUT in U0, 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), and a valid corresponding Minimum acceptable ATM traffic descriptor, sends any of a CALL PROCEEDING, ALERTING, or CONNECT message and enters the relevant call state U9, U7 or U8.

INDU_12_04

Ensure that the IUT in U0, 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) and a valid corresponding Minimum acceptable ATM traffic descriptor, sends any of a CALL PROCEEDING, ALERTING, or CONNECT message and enters the relevant call state U9, U7 or U8.

5.2.1.2.6 SBR ATM transfer capability (13)

INDU_13_01

Ensure that the IUT in U0, 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 any of a CALL PROCEEDING, ALERTING, or CONNECT message and enters the relevant call state U9, U7 or U8.

INDU_13_02

Ensure that the IUT in U0, 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 any of a CALL PROCEEDING, ALERTING, or CONNECT message and enters the relevant call state U9, U7 or U8.

INDU_13_03

Ensure that the IUT in U0, on receipt of a SETUP with SBR2 transfer capability, when the IUT is incompatible to the SBR2 capability, sends a RELEASE COMPLETE message with cause value 88 "incompatible destination" and remains in U0.

INDU_13_04

Ensure that the IUT in U0, on receipt of a SETUP with SBR3 transfer capability, when the IUT is incompatible to the SBR3 capability, sends a RELEASE COMPLETE message with cause value 88 "incompatible destination" and remains in U0.

5.2.1.2.7 Handling of error conditions (14)

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961 [9], modified).

INDU_14_01

Ensure that the IUT in U0, on receipt of a SETUP message including an 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 U0.

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.2 [11], modified).

INDU_14_02

Ensure that the IUT in U0, on receipt of a SETUP message indicating the ATM transfer capability including a not supported broadband bearer capability (i.e. 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 U0.

INDU_14_03

Ensure that the IUT in U0, on receipt of a SETUP message indicating the ATM transfer capability including an invalid broadband bearer capability (i.e. e. an invalid combination of the bearer class and the broadband transfer capability values), sends a RELEASE COMPLETE message with a cause value 100 "invalid information element contents" and remains in U0.

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.3 [12], modified).

INDU_14_04

Ensure that the IUT in U0, 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.

INDU_14_05

Ensure that the IUT in U0, on receipt of a SETUP message requesting ABR transfer capability, but including an ATM traffic descriptor information element with a combination of parameters that is 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 U0.

INDU_14_06

Ensure that the IUT in U0, on receipt of a SETUP message requesting ABR transfer capability, but including a incomplete ABR set-up parameter information element (with IE instruction field flag set to "not significant": ICR, TBE, RIF, RDF), sends a RELEASE COMPLETE message with a cause value 100 "invalid information element contents" and remains in U0.

INDU_14_07

Ensure that the IUT in U0, on receipt of a SETUP message requesting ABR transfer capability, but including an incomplete ATM traffic descriptor information element (ABR minimum cell rate fields absent, 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 U0.

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.4 [13], modified).

INDU_14_08

Ensure that the IUT in U0, on receipt of a SETUP message requesting ABT transfer capability, but including an ATM traffic descriptor information element with a combination of parameters that is 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 U0.

Test purposes for EN 301 068-1 [1] (ITU-T Recommendation Q.2961.6 [14], modified).

INDU_14_09

Ensure that the IUT in U0, on receipt of a SETUP message requesting SBR2 transfer capability, but including an ATM traffic descriptor information element with a combination of parameters that is 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 U0.

INDU_14_10

Ensure that the IUT in U0, on receipt of a SETUP message requesting SBR3 transfer capability, but including an ATM traffic descriptor information element with a combination of parameters that is 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 U0.

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.

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].

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)".

History

Document history		
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