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SERIES Q: SWITCHING AND SIGNALLING

Specifications of Signalling System No. 7 – ISDN user part

Signalling System No. 7 – Application Transport Mechanism: Test Suite Structure and Test Purposes (TSS & TP)

ITU-T Recommendation Q.765 *bis*

(Previously CCITT Recommendation)

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ITU-T RECOMMENDATION Q.765 *bis*

SIGNALLING SYSTEM No. 7 – APPLICATION TRANSPORT MECHANISM: TEST SUITE STRUCTURE AND TEST PURPOSES (TSS & TP)

Summary

This Recommendation contains the conformance test specification for ISUP'97 application transport mechanism. The main body of this Recommendation presents the requirements regarding the chosen test method, the test suite structure and the test purposes.

Source

ITU-T Recommendation Q.765 *bis* was prepared by ITU-T Study Group 11 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on 3 December 1999.

FOREWORD

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NOTE

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Recommendation Q.765 bis

SIGNALLING SYSTEM No. 7 – APPLICATION TRANSPORT MECHANISM: TEST SUITE STRUCTURE AND TEST PURPOSES (TSS & TP)

(Geneva, 1999)

1 Scope

This Recommendation contains the validation (conformance) test specification for the Application Transport Mechanism defined in Recommendation Q.765 [1]. This Recommendation applies only to exchanges having implemented the ISUP'97 protocol specification for the Application Transport Mechanism of the exchange. It is applicable for validation testing of all types of exchanges as defined in the ISUP'97 protocol specification. It does not deal with compatibility testing.

The main body of this Recommendation presents the Test Suite Structure and Test Purposes (TSS & TP) for the Application Transport Mechanism (APM).

Annex A provides the Protocol Implementation Conformance Statement (PICS) proforma for the Application Transport Mechanism defined in compliance with the relevant requirements and in accordance with the guidance given in ISO/IEC 9646-7 [8]. This statement indicates which capabilities and options of a telecommunication specification have been implemented. It is necessary for evaluating the conformance of a particular implementation.

The supplier of an implementation that is claimed to comply with the reference specification for the Signalling System No. 7, Application Transport Mechanism [1], is required to complete a copy of the PICS proforma provided in Annex A.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

- [1] ITU-T Recommendation Q.765 (1998), *Signalling System No. 7 – Application transport mechanism*.
- [2] ITU-T Recommendation Q.763 (1997), *Signalling System No. 7 – ISDN User Part formats and codes*.
- [3] ITU-T Recommendation Q.764 (1997), *Signalling System No. 7 – ISDN User Part signalling procedures*.
- [4] ISO/IEC 9646-1:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 1: General concepts*.
- [5] ISO/IEC 9646-2:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 2: Abstract Test Suite specification*.
- [6] ISO/IEC 9646-3:1998, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 3: The Tree and Tabular Combined Notation (TTCN)*.

- [7] ISO/IEC 9646-5:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 5: Requirements on test laboratories and clients for the conformance assessment process.*
- [8] ISO/IEC 9646-7:1995, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 7: Implementation Conformance Statements.*
- [9] ITU-T Recommendation Q.784.1 (1996), *ISUP basic call test specification: Validation and compatibility for ISUP'92 and Q.767 protocols.*
- [10] CCITT Recommendation E.164 (1988), *Numbering plan for the ISDN era.*

3 Definitions

For the purposes of the ATS specification, the following definitions apply:

- terms defined in ISDN User Part (ISUP) reference specification [1] to [3];
- terms defined in ISO/IEC 9646-1 [4], ISO/IEC 9646-3 [6] and in ISO/IEC 9646-7 [8].

In particular, the following terms apply:

3.1 Abstract Test Case (ATC): A complete and independent specification of the actions required to achieve a specific test purpose, defined at the level of abstraction of a particular Abstract Test Method, starting in a stable testing state and ending in a stable testing state (see [4], § 3.3.3).

3.2 Abstract Test Method (ATM): The description of how an IUT is to be tested, given at an appropriate level of abstraction to make the description independent of any particular realization of a Means of Testing, but with enough detail to enable abstract test cases to be specified for this method (see [4], § 3.3.5).

3.3 Implementation Under Test (IUT): An implementation of one or more OSI protocols in an adjacent user/provider relationship, being part of a real open system which is to be studied by testing (see [4], § 3.3.43).

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

3.5 Means of Testing (MOT): The combination of equipment and procedures that can perform the derivation, selection, parameterization and execution of test cases, in conformance with a reference standardized ATS, and can produce a conformance log (see [4], § 3.3.54).

3.6 point of control and observation: A point within a testing environment where the occurrence of test events is to be controlled and observed, as defined in an Abstract Test Method (see [4], § 3.3.64).

3.7 pre-test condition: A setting or state in the IUT which cannot be achieved by providing stimulus from the test environment.

3.8 Protocol Implementation Conformance Statement (PICS): A statement made by the supplier of a protocol claimed to conform to a given specification, stating which capabilities have been implemented (see [4], § 3.3.39 and § 3.3.80).

3.9 Protocol Implementation eXtra Information for Testing (PIXIT): A statement made by a supplier or implementor of an IUT (protocol) which contains or references all of the information related to the IUT and its testing environment, which will enable the test laboratory to run an appropriate test suite against the IUT (see [4], § 3.3.41 and § 3.3.81).

3.10 System Under Test (SUT): The real open system in which the IUT resides (see [4], § 3.3.103).

4 Abbreviations

This Recommendation uses the following abbreviations:

APM	Application Transport Mechanism
ASE	Application Service Entity
ASP	Abstract Service Primitive
ATM	Abstract Test Method
ATS	Abstract Test Suite
ICS	Implementation Conformance Statement
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
IUT	Implementation Under Test
LT	Lower Tester
MOT	Means Of Testing
MTC	Main Test Component
MTP	Message Transfer Part
PAN	Public Addressed Node
PCO	Point of Control and Observation
PICS	Protocol Implementation Conformance Statement
PIN	Public Initiating Node
PIXIT	Protocol Implementation eXtra Information for Testing
PSS1	Private network Q reference point Signalling System No. 1
PTC	Parallel Test Component
SP	Signalling Point
SUT	System Under Test
TCP	Test Coordination Procedures
TE_P	Transit Exchange PIN/PAN
TP	Test Purpose (context dependent)
TSS	Test Suite Structure
TSS & TP	Test Suite Structure and Test Purposes
TTCN	Tree and Tabular Combined Notation
UCEH	Unidentified Context and Error Handling
UT	Upper Tester
VPN	Virtual Private Network

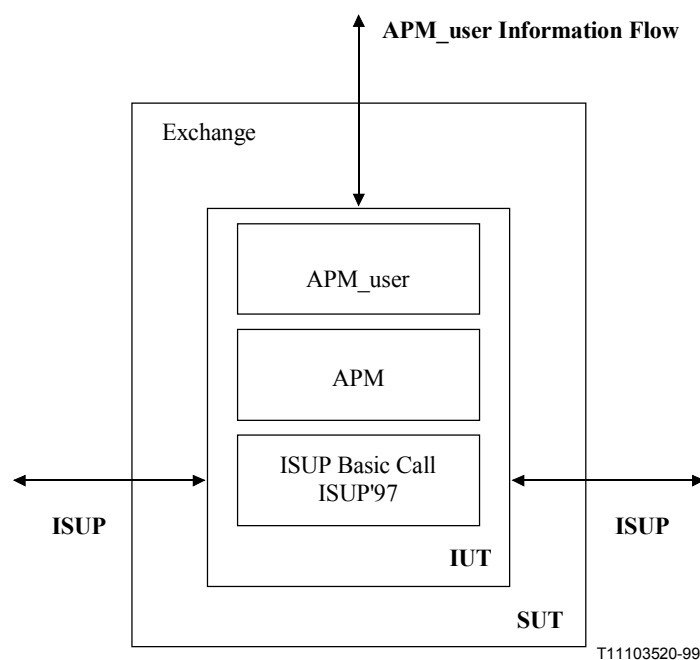
The ISUP message acronyms can be found in Table 2/Q.762. The APM primitives acronyms can be found in the different tables of Q.765 [1]. The following abbreviations apply for ISUP parameters and parameter values:

ACI	Application Context Identifier
APP	Application Transport Parameter
ATII	Application Transport Instruction Indicator
PRI	Pre-Release
SLR	Segmentation Local Reference

5 Implementation under test and test methods

5.1 Identification of the system and implementation under test

The System Under Test (SUT) is an exchange. The Implementation Under Test (IUT) is the ISUP'97 implementation in this exchange, mainly the part responsible for the Application Transport Mechanism (APM), as shown in Figure 1.



APM_user	Application Transport Mechanism user Protocol Control, e.g. PSS1
APM	Application Transport Mechanism Protocol Control
ISUP	ISDN User Part
IUT	Implementation Under Test
SUT	System Under Test

Figure 1/Q.765 bis – The system under test

The protocol functions for the Application Transport Mechanism relates to the signalling associations with a bearer (ISUP). Therefore the defined ISUP Basic Call and its associated formats and codes are required to support the Application Transport Mechanism. The following main subjects have to be considered in this area:

- a) APM-user Protocol Control (APM-user Application Service Element).
- b) Application Transport Mechanism Protocol Control (APM Application Service Element).
- c) ISUP Basic Call (ISUP Application Service Element).

The APM user primitives or APM user information flow can be observed through the individual reference point defined for each APM user or application process, respectively. In case of a PSS1 ASE (APM-user ASE for the VPN application) for example, the Q reference point is applicable.

The ISUP signalling protocol can be observed on the SS No. 7 link on the Network Nodal Interface (NNI).

From the ISUP/APM reference standard several types of exchanges (or roles) can be identified:

- Local Exchanges in case of a Public Initiating Node (PIN) or a Public Addressed Node (PAN) with several APM-users.
- Transit Exchanges in the role of a PIN or PAN with several APM-users.
- National Transit Exchanges as defined in Recommendation Q.761.

The National Transit Exchanges pass on the APM messages without checking the messages. In the case of a PIN or PAN the messages related to an APM call are checked according to the corresponding APM user. If the peer APM user is not residing in the exchange the call is passed on to the destination or to the addressed location (PAN).

5.2 ATM and testing configuration for ISUP'97 – Application Transport Mechanism

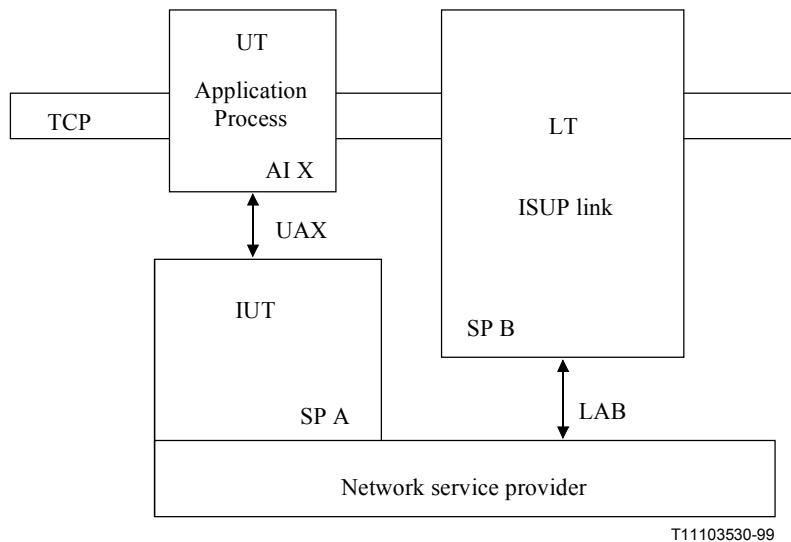
The Abstract Test Method (ATM) chosen for the Application Transport Mechanism specification is the distributed multi-party test method. The ATM is defined at an appropriate level of abstraction so that the test cases may be specified appropriately, without adding restrictions to the implementation under test.

The ATS is written in concurrent TTCN.

5.3 Local exchanges – PIN/PAN

As mentioned above, the IUT can be tested within different configurations. The following text describes the test configuration for the IUT where the software for ISUP V3 and also the APM part reside in a local exchange.

Figure 2 shows the logical test components of the adopted test configuration. The main test component is located on the right side of the IUT; it contains the ISUP part. On the left side there is a parallel test component which covers the APM part.



AI	Application Interface for the APM-user	SP	Signalling Point
IUT	Implementation Under Test	TCP	Test Coordination Procedures
LAB	PCO for signalling link AB	UAX	Access to an APM-user
LT	Lower Test	UT	Upper Tester
PCO	Point of Control and Observation		

Figure 2/Q.765 bis – APM test configuration for local exchanges

To observe and control the message flow on the ISUP and APM side for each side a Point of Control and Observation (PCO) is needed. The PCO for the ISUP link is abbreviated with an "L" followed by two letters indicating the interface. The naming convention for the PCO, specifying the Upper Tester, is the same but having an "U" instead of the "L" as the first character.

There is no defined interface from ISUP (the IUT) towards the APM user side. For testing the primitives specified in [1], which are sent between the APM Application Service Element (ASE) and the APM user ASE, the above-mentioned Upper Tester (UT) is needed. It is therefore necessary to make use of an Application Interface (AI) including a PCO and to use the specified primitive names given in [1] for the Abstract Service Primitives (ASPs) to be used on this PCO.

The LAB PCO is used by the Lower Tester (LT) to control and observe the ISUP on the signalling to the exchange. The other UAX PCO is needed to check if the expected primitives for the APM user are correctly generated by the exchange. The PDUs on this PCO are chosen at an appropriate level of abstraction.

The Test Coordination Procedures (TCP) allow for communication between the testers. The test components are mostly implicitly coordinated (asynchronously); the TCPs are only used when it is necessary to obtain the verdict from the parallel test component.

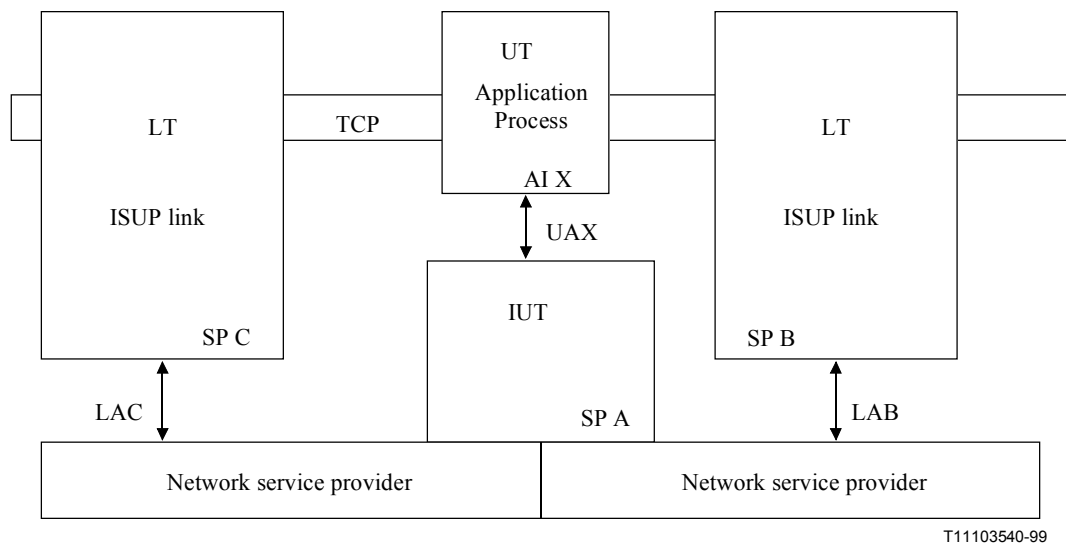
This configuration to test the local exchanges is presented in Figure 2.

5.4 Transit exchanges – PIN/PAN

For this configuration the same rules and definitions are applicable as used in 5.3, Local exchanges.

5.5 Transit exchanges – ISUP

The configuration proposed for testing transit exchanges is shown in Figure 3. In order to test the protocol and functionality of transit exchanges, one needs to consider the incoming and outgoing side of the SUT.



AI	Application Interface for the APM-user	PCO	Point of Control and Observation
IUT	Implementation Under Test	SP	Signalling Point
LAB	PCO for signalling link AB	TCP	Test Coordination Procedures
LAC	Access signalling PCO (e.g. PSS1 signalling)	UAX	Access to an APM-user
LT	Lower Tester	UT	Upper Tester

Figure 3/Q.765 bis – APM test configuration for transit exchanges

The IUT is observed and controlled from two ISUP links with associated circuits. The Points of Control and Observation (PCO) are labelled LAB on the one side and LAC on the other.

The LAB and LAC PCOs are used by the Lower Testers (LT) for controlling the ISUP signalling links.

The underlying network service provider is the Message Transfer Part (MTP) protocol as specified in Recommendations Q.701 to Q.707.

The Test Coordination Procedures (TCP) allow for communication between the testers. The test components are mostly implicitly coordinated (asynchronously); the TCPs are only used when it is necessary to obtain the verdict from the parallel test component.

The Upper Tester (UT) and its UAX PCO is not used in this configuration.

6 Test Suite Structure (TSS)

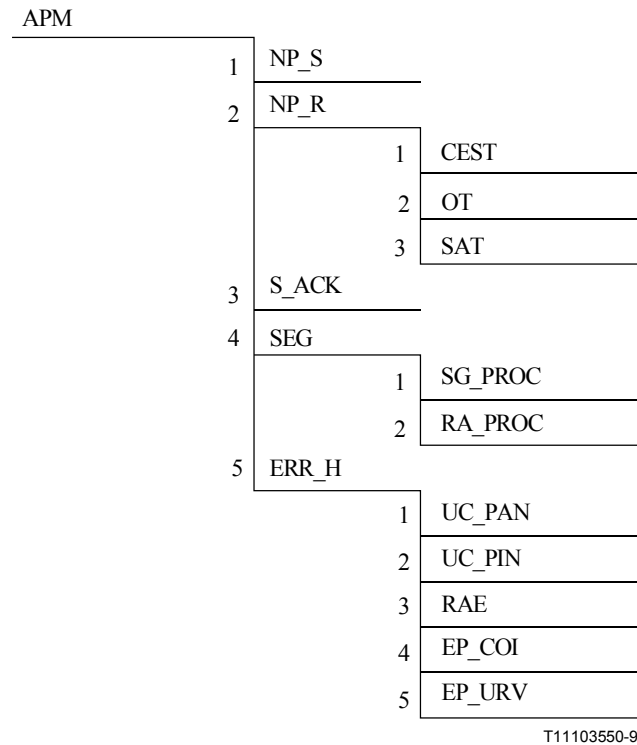


Figure 4/Q.765 bis – Test suite structure

Test Suite Structure (TSS) naming conventions are:

NP_S	Normal Procedures Sending
NP_R	Normal Procedures Receiving
CEST	Call Establishment
OT	Procedures at Other Times
SAT	Send_APM_Transit
S_ACK	Sending of ACKnowledgement
SEG	SEGmentation
SG_PROC	PROCedures for SeGmentation
RA_PROC	PROCedures for ReAssembly
ERR_H	ERROR Handling with UCEH
UC_PAN	Unidentified Context Handling (PAN)
UC_PIN	Unidentified Context Handling (PIN)
RAE	ReAssembly Error Handling
EP_COI	Exceptional Procedures – Context identifier error
EP_URV	Exceptional Procedures – Unrecognized Reason value
V	Valid behaviour stimulus

7 Test Purposes (TP)

7.1 Introduction

For each test requirement a Test Purpose (TP) is defined.

7.2 Test Purpose (TP) naming convention

Test Purposes are numbered ascending within each group. Groups are organized according to the TSS down to the last but one level. The classification in the V/I groups is done by the inclusion of V or I in the test case name. Additional qualifiers, in form of lower case letters, are added to identify variants within one generic test case (see Table 1).

Table 1/Q.765 bis – TP Identifier naming convention scheme

Identifier:	APM_<group>_<N>_<n>_{<n>}_{<a>}
APM	= Application Transport Mechanism
<group>	= One character representing the test group: V: Valid stimulus I: Inopportune stimulus
<N>	= Sequence number in the test suite structure
<n>	= Sequence number used within the group
{<n>}	= Optional additional number used
{<a>}	= Optional lower-case character distinguishing tests with same reference number

7.2.1 Source of test purpose definition

The test purposes cover validation testing aspects and were developed within ETSI.

7.2.2 Test purpose structure

The test purpose structure overlaps with the Test Suite Structure (TSS).

Test purposes that test normal behaviour have been grouped in the **V** – Valid behaviour group.

Test purposes that test the IUT behaviour in situations that are not normal operation have been grouped in the **I** – Inopportune stimulus group.

7.3 Test purposes for the Signalling System No. 7, Application Transport Mechanism (APM)

All of the following test purposes belong to the main group ISUP_97_APM. Each test purpose is presented in a separate table. The first row of the table contains the following items:

TSS	Identifier in the test suite structure (test group/subgroup identifier).
TP	Identifier of the test purpose.
Q.765 reference	The reference to the requirement in the Signalling System No. 7, application transport mechanism [1], which led to the test purpose.
Selection expression	Selection criterion for the test purpose taking into account the exchange's role and the answers to the specified PICS questions (see Annex A). If there is no selection expression specified, the TP is valid for all roles of exchanges.
Configuration	This is a reference to the test configuration used.

The next row defines the test purpose itself, each having a *title* in *italics* and a text body.

The ISUP **messages**, **parameters**, the APM **primitives** are highlighted in **bold** to ease the readability.

In order to check the specified behaviour for some test purposes, a special prerequisite test condition has to be fulfilled. If such a condition is needed, it is presented after the test purpose under the heading "Pre-test conditions".

7.3.1 Application Transport Mechanism (APM ASE)

7.3.1.1 Normal procedures – Sending

TSS /NP_S/	TP APM_V_1_1	Q.765 reference 10.2.1/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Mapping of application transport parameter</i> To verify that the IUT can successfully construct the Application Transport Parameter (APP) in case of reception of an APM_Data request primitive from the APM-user and map this in an Initial Address Message (IAM). Pre-test conditions: Do nothing, keep quiet!!				

TSS /NP_S/	TP APM_V_1_2	Q.765 reference 10.2.1/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Pass on of an APM Transit primitive</i> To verify that the IUT can successfully pass on the APM_Transit request from the APM user and does not change the contents which is mapped into an Application Transport Message (APM). Pre-test conditions: None				

7.3.1.2 Normal procedures – Receiving

TSS /NP_R/CEST	TP APM_V_2_1_3	Q.765 reference 10.2.2.1/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Mapping of the application transport parameter – Context supported/no reassembly</i> To verify that the IUT can successfully map the Application Transport Parameter (APP) in the received Initial Address Message (IAM) into an APM_Data indication primitive which is sent to the APM-user. Note that the Application Transport Parameter (APP) contains the following data: – Application Context Identifier: specified by the person who executes the test e.g. 1 (PSS1); – APM segmentation indicator: 0 (final segment); – Sequence indicator field: 0 (Subsequent segment to first segment). Pre-test conditions: None				

TSS /NP_R/CEST	TP APM_V_2_1_4	Q.765 reference 10.2.2.1/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Mapping of the application transport parameter – Context not supported/no reassembly</i> To verify that the IUT can successfully map the Application Transport Parameter (APP) with the Application Context Identifier set to '63' (spare value) in the received Initial Address Message (IAM) into an APM_UCEH_Error indication primitive which is sent to the APM-user. The Application Context and Application Transport Instruction Indicators (ATII) are set as received in the APM_Transfer primitive and the Reason is set to 'Unidentified Context'. Note that the Application Transport Parameter (APP) contains the following data: – Application Context Identifier: 63 (spare)/the context should not be supported; – APM segmentation indicator: 0 (final segment); – Sequence indicator field: 0 (Subsequent segment to first segment). Pre-test conditions: None				

7.3.1.2.1 Procedures at other times

TSS /NP_R/OT	TP APM_V_2_2_5	Q.765 reference 10.2.2.2/Q.765	Selection expression	Configuration Transit
Test purpose <i>Pass on of the application transport parameter</i> To verify that the IUT can successfully pass on the received Application Transport Parameter (APP) in an Initial Address Message (IAM) if the context does not belong to this node. The IUT shall not verify and change the contents of the Transit_Data parameter of the APM_Transfer indication primitive. Pre-test conditions: None				

TSS /NP_R/OT	TP APM_V_2_2_6	Q.765 reference 10.2.2.2/Q.765 10.2.4/Q.765 7.2.3.3.1/Q.765	Selection expression PICS A1/3	Configuration Local/TE_P
Test purpose <i>Context supported – Segmentation applies/PIN is not sending any APM messages before acknowledgement received</i> To verify that the IUT (PIN) shall not send subsequent segments to an Initial Address Message (IAM) until a Address Complete Message (ACM) is received containing an Application Transport Parameter (APP), which implicitly indicates that a path has been successfully routed to the PAN. To trigger that behaviour, an APM_Data primitive with the parameter set to: – Application Context Identifier: specified by a person who executes the test, e.g. 1 (PSS1); – Application Transport Instruction Indicator: 0 (do not release call); – Application Information: some garbage data with more than 2048 bytes, is sent from the tester to the IUT. Pre-test conditions: None				

TSS /NP_R/OT	TP APM_V_2_2_7	Q.765 reference 10.2.2.2/Q.765 7.2.3.3.1/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Context supported – Segmentation reassembly applies/PAN</i> To verify that the IUT can successfully map the Initial Address Message (IAM) with an Application Transport Parameter (APP) set to: – Application Context Identifier (ACI): specified by a person who execute the test, e.g. 1 (PSS1 ASE); – Application Transport Instruction Indicators (ATII): 0 (do not release); – APM segmentation indicator: 2 (indicates 2 following segments); – Sequence indicator (SI): 1 (New sequence), into a More_APP_Info primitive and send it to the APM-user. Pre-test conditions: None				

TSS /NP_R/OT	TP APM_V_2_2_8	Q.765 reference 10.2.2.2/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Context supported – Segmentation applies</i> To verify that the IUT sends the completely reassembled Application Information in an APM_Data indication primitive to the APM-user, after reception of an Application Transport Message (APM) which contains an Application Transport Parameter (APP) indicating the APM segmentation indicator set to 'final segment'. Pre-test conditions: None				

TSS /NP_R/OT	TP APM_V_2_2_9	Q.765 reference 10.2.2.2/Q.765	Selection expression	Configuration Transit
Test purpose <i>Context not supported – Pass-on node</i> To verify that the IUT can successfully map the Initial Address Message (IAM) with the Application Transport Parameter (APP) indicating an unsupported context into an APM_Transit indication primitive including the same Application Transport Parameter (APP) and send it to the PAN. Pre-test conditions: None				

TSS /NP_R/OT	TP APM_V_2_2_10	Q.765 reference 10.2.2.2/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Context not supported – 1st segment of sequence</i> To verify that the IUT sends an APM_UCEH_Error indication primitive with the Application Context and Application Transport Instruction Indicators (ATII) set as received in the APM_Transfer primitive and the Reason indicates 'Unidentified Context' to the APM-user in case of receiving an Initial Address Message (IAM) with the Application Transport Parameter (APP) indicating a context which is not supported by the IUT. Pre-test conditions: None				

TSS /NP_R/OT	TP APM_V_2_2_11	Q.765 reference 10.2.2.2/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Context not supported – 2nd segment of sequence</i> To verify that the IUT discards an APM_Transfer primitive which is a subsequent segment to an Initial Address Message (IAM) containing an Application Transport Parameter (APP) with a context which was not supported by the IUT. Note that the tester sends the Application Transport Message (APM) for the second segment. Pre-test conditions: None				

7.3.1.2.2 Reception of the Send_APM_Transit primitive

TSS /NP_R/SAT	TP APM_V_2_3_12	Q.765 reference 10.2.2.3/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Send_APM_Transit – Pass on transparently</i> To verify that the IUT can successfully pass on unchanged the contents of the Send_APM_Transit primitive send by the APM-user to an APM_Transit primitive which is mapped into an Application Transport Message (APM) on the ISUP side. Pre-test conditions: None				

7.3.1.3 Send of acknowledgement

TSS /S_ACK	TP APM_V_3_1	Q.765 reference 10.2.3/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>APM_Acknowledgement request – Construction of related APP</i> To verify that the IUT is able to construct the appropriate Application Transport Parameter (APP) to a given context (e.g. VPN) received in an APM_Acknowledgement request primitive and send it in an APM_Transfer request primitive or Application Transport Message (APM), respectively to the PAN. The Application Transport Parameter (APP) shall be coded as follows: Application Transport Instruction Indicator (ATII): Bit A=1 (release call) Bit B=0 (do not send notification) The Application Information field shall be empty. Pre-test conditions: None				

7.3.1.4 Segmentation

7.3.1.4.1 Procedures for segmentation

TSS /SEG/SG_PROC	TP APM_V_4_1_1	Q.765 reference 10.2.4.1 a)/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Segmentation – Splitting into 3 segments</i> To verify that the IUT can successfully apply the segmentation procedure, an APM_Data request primitive is received by the APM-user with an application data parameter containing 3 segments (about 4200 bytes). The IUT should map this primitive into an Initial Address Message (IAM) which is followed by the Application Transport Messages (APM). Pre-test conditions: None				

TSS /SEG/SG_PROC	TP APM_V_4_1_2	Q.765 reference 10.2.4.1 a)/Q.765	Selection expression NOT PICS A1/4	Configuration Local/TE_P
Test purpose <i>Segmentation – Discarding of IAM</i> To verify that the IUT discards an APM_Data request primitive containing an Application Data parameter which is greater than 10 segments, e.g. >2 Mbytes. Pre-test conditions: None				

TSS /SEG/SG_PROC	TP APM_V_4_1_3	Q.765 reference 10.2.4.1 a)/Q.765	Selection expression PICS A1/4	Configuration Local/TE_P
Test purpose <i>Segmentation – Discarding of IAM</i> To verify that the IUT discards an APM_Data request primitive containing an Application Data parameter which is greater than 9 segments, e.g. >1.8 Mbytes. Pre-test conditions: None				

TSS /SEG/SG_PROC	TP APM_V_4_1_4	Q.765 reference 10.2.4.1 b)/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Segmentation – Generation of IAM with appropriate application transport parameter</i> To verify that the IUT can successfully map the application data parameter of the APM_Data request primitive into an Initial Address Message (IAM) followed by associated Application Transport Messages (APM). The IAM should include the Application Transport Parameter (APP) containing the Segmentation indicator field with 'new sequence' and the Number of Segments Remaining field indicating the number of segments that remains to be sent to the PAN with the appropriated Application Transport Messages (APM). Pre-test conditions: None				

TSS /SEG/SG_PROC	TP APM_V_4_1_5	Q.765 reference 10.2.4.1 c)/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Segmentation – Segmentation indicator field set to 'subsequent segment to first segment'</i> To verify that the IUT can successfully segment the received APM_Data request primitive into an Initial Address Message (IAM) and the associated Application Transport Messages (APM) with the following coding rules: The encapsulated information field in each Application Transport Message (APM) shall begin with the first octet following the last octet transmitted in the previous segment. The APM segmentation indicator field shall indicate 'subsequent segment to first segment' and the Number of Segments Remaining field shall be decremented to indicate the number of segments that remain to be sent. The Segmentation Local Reference (SLR) shall have the same value as sent in the Initial Address Message (IAM) or first Application Transport Message (APM). Pre-test conditions: None				

TSS /SEG/SG_PROC	TP APM_V_4_1_6	Q.765 reference 10.2.4.1 f)/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Segmentation – Continuity of the ATII parameter</i> To verify that the IUT is able to provide the Application Transport Instruction Indicators (ATII) parameter as received in the APM_Data request primitive from the APM-user. This is applicable for the first and all subsequent segments, i.e. the Initial Address Message (IAM) and the following Application Transport Messages (APM) send by the IUT to the PAN. Pre-test conditions: None				

7.3.1.4.2 Procedures for reassembly

TSS /SEG/RA_PROC	TP APM_V_4_2_1	Q.765 reference 10.2.4.2 a), b), d)/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Reassembly – Basic rules</i> To verify that the IUT can successfully apply the reassembly function, on receiving of an Initial Address Message (IAM) which is followed by a sequence of two associated Application Transport Message (APM) where the first Application Transport Message (APM) is received with the Sequence Indicator field indicating 'subsequent segment to first segment' and the Number of Segments Remaining field set to a value one less than the value in the previously received segment and the same Segmentation Local Reference (SLR) value as received in the Initial Address Message (IAM). The second Application Transport Message (APM) includes the Application Transport Parameter (APP) with the Number of Segments Remaining field having value equal to zero and 'final segment'; then the IUT shall deliver the accumulated segments, including the last segment, as the complete Application Information to the APM-user with the APM_Data indication primitive. Note that the Initial Address Message (IAM) and Application Transport Messages (APM) are sent by the tester. Pre-test conditions: None				

TSS /SEG/RA_PROC	TP APM_V_4_2_2	Q.765 reference 10.2.4.2 e)/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Reassembly – No reassembly active/Send APM_UCEH_Error Indication (Subsequent segment to first segment)</i> To verify that the IUT sends an APM_UCEH_Error Indication primitive indicating 'reassembly error' in case no reassembly process is active and an Application Transport Message (APM) is received with a Sequence Indicator coded 'Subsequent segment to first segment'. Note that the previous message, e.g. an Initial Address Message (IAM), to this Application Transport Message (APM) indicates 'final segment' in the APM segmentation indicator. Pre-test conditions: None				

TSS /SEG/RA_PROC	TP APM_V_4_2_3	Q.765 reference 10.2.4.2 e)/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Reassembly – No reassembly active/Send APM_UCEH_Error Indication (number of segments >9)</i> To verify that the IUT sends an APM_UCEH_Error Indication primitive indicating 'reassembly error' in case no reassembly process is active and an Application Transport Message (APM) is received with a Number of Segments Remaining field value exceeding 9. Pre-test conditions: None				

TSS /SEG/RA_PROC	TP APM_V_4_2_4	Q.765 reference 10.2.4.2 f)/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Reassembly – Reassembly active/Send APM_UCEH_Error Indication (decrementation error)</i> To verify that the IUT sends an APM_UCEH_Error Indication primitive indicating 'reassembly error' and discards the received and any saved segments on receipt of an Application Transport Message (APM) including an Application Transport Parameter (APP) with a Number of Segments Remaining field value that is not decremented from the value of the previous messages. There shall be no APM_Data indication primitive sent to the APM-user. Pre-test conditions: None				

TSS /SEG/RA_PROC	TP APM_V_4_2_5	Q.765 reference 10.2.4.2 f)/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Reassembly – Reassembly active/Send APM_UCEH_Error Indication (different Segmentation Local Reference)</i> To verify that the IUT sends an APM_UCEH_Error Indication primitive indicating 'reassembly error' and discards the received and any saved segments on receipt of an Application Transport Message (APM) including an Application Transport Parameter (APP) with a Segmentation Local Reference (SLR) which differs from the received Segmentation Local Reference (SLR) in the first messages [e.g. an Initial Address Message (IAM)]. There shall be no APM_Data indication primitive sent to the APM-user. Pre-test conditions: None				

TSS /SEG/RA_PROC	TP APM_V_4_2_6	Q.765 reference 10.2.4.2 g)/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Reassembly – Reassembly active/Send APM_UCEH_Error Indication (Segments with a Sequence Indicator indicating 'New sequence')</i> To verify that the IUT sends an APM_UCEH_Error Indication primitive indicating 'reassembly error' and discards the received and any saved segments on receipt of an Application Transport Message (APM) including an Application Transport Parameter (APP) with a Sequence Indicator coded 'New Sequence'. There shall be no APM_Data indication primitive sent to the APM-user. Note that the first message of the sequence, e.g. an Initial Address Message (IAM), shall include the Sequence Indicator indicating 'New Sequence', the following Application Transport Messages (APM) shall indicate 'Subsequent segment to first segment' in that parameter. Pre-test conditions: None				

TSS /SEG/RA_PROC	TP APM_V_4_2_7	Q.765 reference 10.2.4.2 h)/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Reassembly – No reassembly active/Send APM_UCEH_Error Indication</i> To verify that the IUT sends an APM_UCEH_Error Indication primitive indicating 'reassembly error' and discard all received segments for the current sequence on expiry of timer T-reass. There shall be no APM_Data indication primitive sent to the APM-user. Pre-test conditions: None				

7.3.2 Unidentified Context and Error Handling (UCEH ASE)

7.3.2.1 Unidentified Context handling (PAN)

TSS /ERR_H/UC_PAN	TP APM_V_5_1_1	Q.765 reference 13.1.1/Q.765 7.2.3.3.2/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Unidentified Context handling – Unidentified context identifier, release call/Send APM_UCEH_Error Indication</i> To verify that the IUT (PAN) sends an APM_UCEH_Error indication primitive to the APM-user in case of receiving an Initial Address Message (IAM) which includes an unknown context identifier and an Application Transport Instruction Indicator (ATII) set to 'release call' in the Application Transport Parameter (APP). The IUT shall release the call with a Release (REL) message. The value of the Reason in the UCEH_Release indication primitive is be mapped into the Cause parameter of the Release (REL) message, indicating the cause value #79, 'Unidentified Context'. Also an UCEH_Release indication primitive shall be sent to the APM-user (application). Note that before the Release (REL) is sent, a Pre_Release (PRI) message is sent which carries the Application Transport Parameter (APP) with the appropriate data. Pre-test conditions: None				

TSS /ERR_H/UC_PAN	TP APM_V_5_1_2	Q.765 reference 13.1.1/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Unidentified Context handling – Unidentified context identifier, allowed to proceed/Send APM_UCEH_Error Indication</i> To verify that the IUT (PAN) sends an APM_UCEH_Error indication primitive to the APM-user in case of receiving an Initial Address Message (IAM) which includes an unknown context identifier and an Application Transport Instruction Indicator (ATII) set to 'do not release call' in the Application Transport Parameter (APP). The IUT shall not release the call. Pre-test conditions: None				

TSS /ERR_H/UC_PAN	TP APM_V_5_1_3	Q.765 reference 13.1.1/Q.765 7.2.3.3.2/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Unidentified Context handling – Unidentified context identifier, do not send notification/Send APM_UCEH_Error Indication</i> To verify that the IUT (PAN) sends an APM_UCEH_Error indication primitive to the APM-user in case of receiving an Initial Address Message (IAM) which includes an unknown context identifier and an Application Transport Instruction Indicator (ATII) set to 'release call' and 'do not send notification' in the Application Transport Parameter (APP). The IUT shall release the call with a Release (REL) message. The value of the Reason in the UCEH_Release indication primitive is be mapped into the Cause parameter of the Release (REL) message, indicating the cause value #79, 'Unidentified Context'. The IUT shall not send an Application Transport Message (APM) including an Application Context Identifier indicating 'Unidentified Context and Error Handling (UCEH) ASE' in the Application Transport Parameter (APP). Note that before the Release (REL) is sent, a Pre_Release (PRI) message is sent which carries the Application Transport Parameter (APP) with the appropriate data. Pre-test conditions: None				

TSS /ERR_H/UC_PAN	TP APM_V_5_1_4	Q.765 reference 13.1.1/Q.765 7.2.3.3.2/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Unidentified Context handling – Unidentified context identifier, send notification/Send APM_UCEH_Error Indication</i> To verify that the IUT (PAN) sends an APM_UCEH_Error indication primitive to the APM-user in case of receiving an Initial Address Message (IAM) which includes an unknown context identifier and an Application Transport Instruction Indicator (ATII) set to 'release call' and 'send notification' in the Application Transport Parameter (APP). The IUT shall release the call with a Release (REL) message. The value of the Reason in the UCEH_Release indication primitive is be mapped into the Cause parameter of the Release (REL) message, indicating the cause value #79, 'Unidentified Context'. The IUT shall send the Application Transport Parameter (APP) set as below, in an backward message [Application Transport Message (APM)] to the PIN. Application Transport Parameter (APP) settings: – Application Context Identifier: 0 [Unidentified Context and Error Handling (UCEH)] ASE; – Application Transport Instruction Indicator: Bit A=1 (release call) Bit B=0 (do not send notification). The Encapsulated Application Information includes the 'Application Transport Notification Information' with the abused 'Application Context Identifier' and the reason set to 'Unidentified Context'. An APM_Data indication primitive shall be sent to the APM-user (application). Note that before the Release (REL) is sent, a Pre_Release (PRI) message is sent which carries the Application Transport Parameter (APP) with the appropriate data. Pre-test conditions: None				

7.3.2.2 Unidentified Context handling (PIN)

TSS /ERR_H/UC_PIN	TP APM_V_5_2_1	Q.765 reference 13.1.2/Q.765	Selection expression	Configuration Transit
Test purpose <i>Unidentified Context handling – APP 'pass on' to the APM-user</i> To verify that the IUT (PIN) is able to pass on unchanged the Application Transport Parameter (APP) of the received Application Transport Message (APM), if the IUT is a 'pass on' node for the Context Identifier. Pre-test conditions: None				

TSS /ERR_H/UC_PIN	TP APM_V_5_2_2	Q.765 reference 13.1.2/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Unidentified Context handling – APP not 'pass on' to the APM-user</i> To verify that the IUT (PIN) is able to send an APM_Error indication primitive to the APM-user identified by the Context Identifier in the Application Transport Parameter (APP) of the received Application Transport Message (APM). The APM_Error indication primitive is indicating that the reason for the error was that the peer APM-user was not present at the PAN. Pre-test conditions: None				

7.3.2.3 Reassembly Error Handling

TSS /ERR_H/RA	TP APM_V_5_3_1	Q.765 reference 13.2/Q.765 7.2.3.3.2/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Reassembly – Reassembly active/Send APM_UCEH_Error Indication (different Segmentation Local Reference)</i> To verify that the IUT sends an APM_UCEH_Error Indication primitive indicating 'reassembly error' and discards the received and any saved segments on receipt of an Application Transport Message (APM) including an Application Transport Parameter (APP) with an Application Transport Instruction Indicator (ATII) set to 'release call' and a Segmentation Local Reference (SLR) which differs from the received Segmentation Local Reference (SLR) in the first messages [e.g. an Initial Address Message (IAM)]. There shall be no APM_Data indication primitive send to the APM-user. The IUT shall release the call with a Release (REL) message. The value of the Reason parameter in the UCEH_Release indication primitive is be mapped into the Cause parameter of the Release (REL) message indicating the cause value #111 (reassembly error). Also, an UCEH_Release indication primitive shall be sent to the APM-user (application). Note that before the Release (REL) is sent, a Pre_Release (PRI) message is sent which carries the Application Transport Parameter (APP) with the appropriate data. Pre-test conditions: None				

TSS /ERR_H/RA	TP APM_V_5_3_2	Q.765 reference 13.2/Q.765 13.4.2/Q.765 7.2.3.3.2/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Reassembly – Reassembly active/Send APM_UCEH_Error Indication (different Segmentation Local Reference)</i> To verify that the IUT sends an APM_UCEH_Error Indication primitive indicating 'reassembly error' and discards the received and any saved segments on receipt of an Application Transport Message (APM) including an Application Transport Parameter (APP) with an Application Transport Instruction Indicator (ATII) set to 'release call', 'send notification' and a Segmentation Local Reference (SLR) which differs from the received Segmentation Local Reference (SLR) in the first messages [e.g. an Initial Address Message (IAM)]. No APM_Data indication primitive shall be sent to the APM-user. The IUT shall release the call with a Release (REL) message. The value of the Reason parameter in the UCEH_Release indication primitive is be mapped into the Cause parameter of the Release (REL) message indicating the cause value #111. The IUT shall send the Application Transport Parameter (APP) set as below, in a backward message [PRE-Release (PRI)] to the PIN. Application Transport Parameter (APP) settings: – Application Context Identifier: 0 [Unidentified Context and Error Handling (UCEH)] ASE; – Application Transport Instruction Indicator: Bit A=1 (release call) Bit B=0 (do not send notification). The Encapsulated Application Information includes the 'Application Transport Notification Information' with the abused 'Application Context Identifier' and the reason set to 'Reassembly Error'. An APM_Data indication primitive shall be sent to the APM-user (application). Note that before the Release (REL) is sent, a Pre_Release (PRI) message is sent which carries the Application Transport Parameter (APP) with the appropriate data. Pre-test conditions: None				

7.3.2.4 Exceptional Procedures – Context identifier error

TSS /ERR_H/EP_COI	TP APM_V_5_4_1	Q.765 reference 13.4.3/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Context identifier error – Context identifier set to 'no information'</i> To verify that the IUT (PIN) discards the 'Application Transport Notification Information' if it indicates a context identifier with 'no information' in the Encapsulated Application Information of an Application Transport Parameter (APP). The Application Transport Parameter (APP) is received from the PAN in an Application Transport Message (APM). Note that the tester sends the Application Transport Message (APM) to the IUT. Pre-test conditions: None				

7.3.2.5 Exceptional Procedures – Unrecognized Reason value

TSS /ERR_H/EP_URV	TP APM_V_5_5_1	Q.765 reference 13.4.4/Q.765	Selection expression	Configuration Local/TE_P
Test purpose <i>Context identifier error – Context identifier with unrecognized Reason</i> To verify that the IUT (PIN) discards the 'Application Transport Notification Information' if it indicates a Reason with 'spare' in the Encapsulated Application Information of an Application Transport Parameter (APP). The Application Transport Parameter (APP) is received from the PAN in an Application Transport Message (APM). Note that the tester sends the Application Transport Message (APM) to the IUT. Pre-test conditions: None				

8 Test coverage

The test purposes defined in this test specification cover most main capabilities of the Application Transport Mechanism (APM). For this purpose, the essential components of the Q.765 specification, i.e. the Application Transport Mechanism protocol control (APM Application Service Element), the ISUP Basic Call (ISUP Application Service Element, the Unidentified Context and Error Handling control (UCEH ASE), and the associated procedures are tested.

A list containing the number of test purposes for the related requirements of Recommendation Q.765 is provided in Table 2.

Whenever it was possible, the test purposes have been described such that they bundle related requirements of Recommendation Q.765. Due to this fact, a test purpose may lead to implementing several test cases for the ATS.

The test purposes concentrate on valid behaviour. This means that there is no invalid behaviour test purposes specified. An expansion of the invalid behaviour test purposes is left for further study.

Table 2/Q.765 bis – Number of tests for the Application Transport Mechanism (APM)

Item	APM procedures	Group	Number of test purposes
	APM ASE		
1	Normal procedures	NP	12
2	Send of acknowledgement	S_ACK	1
3	Procedures for Segmentation	SG_PROC	6
4	Procedures for Reassembly	RA_PROC	7
	Error Handling with UCEH ASE		
5	Unidentified Context handling (PAN)	UC_PAN	4
6	Unidentified Context handling (PIN)	UC_PIN	2
7	Reassembly Error Handling	RA	2
8	Exceptional Procedures	EP	2
Grand total			36

9 Conformance to the PICS proforma specification

A PICS proforma that conforms to this PICS proforma specification shall be technically equivalent to Annex A, and shall preserve the numbering and ordering of the items in Annex A.

A PICS that conforms to this PICS proforma specification shall:

- describe an implementation which is claimed to conform to ISDN User part 1997 (ISUP'97) reference specification [1] to [3];
- be a conforming PICS proforma which has been completed in accordance with the instructions for completion given in A.1;
- include the information necessary to uniquely identify both the supplier and the implementation.

ANNEX A¹

PICS proforma for ISDN User Part 1997 (ISUP'97) – Signalling System No. 7, Application Transport Mechanism

A.1 Instructions for completing the PICS proforma

The supplier of the implementation shall complete the PICS proforma in each of the spaces provided. If necessary, the supplier may provide additional comments separately.

More detailed instructions are given at the beginning of the different subclauses of the PICS proforma.

¹ **Copyright release for PICS proforma**

Users of this Recommendation may freely reproduce the PICS proforma in this annex so that it can be used for its intended purpose, and may further publish the completed PICS.

A.1.1 Purposes and structure

The purpose of this PICS proforma is to provide a mechanism whereby a supplier of an implementation of the requirements defined in ISDN User Part 1997 (ISUP'97) reference specification [1] to [3] may provide information about the implementation in a standardized manner.

The PICS proforma is subdivided into subclauses for the following categories of information:

- instructions for completing the PICS proforma;
- identification of the implementation;
- identification of the reference protocol specification;
- PICS proforma tables (containing the global statement of conformance).

A.1.2 Abbreviations and conventions

The PICS proforma contained in this annex is composed of information in tabular form in accordance with the guidelines presented in ISO/IEC 9646-7 [8].

Item column

It contains a number that identifies the item in the table.

Item description column

It describes each respective item (e.g. parameters, timers, etc.).

Reference column

It gives reference to the ISUP'97 specification for the Application Transport Mechanism [1], except where explicitly stated otherwise.

Status column

The following notations, defined in ISO/IEC 9646-7 [8], are used for the status column:

- | | |
|-----|---|
| m | mandatory – The capability is required to be supported. |
| n/a | not applicable – In the given context, it is impossible to use the capability. No answer in the support column is required. |
| o | optional – The capability may or may not be supported. |
| o.i | qualified optional – For mutually exclusive or selectable options from a set. "i" is an integer which identifies a unique group of related optional items and the logic of their selection which is defined immediately following the table. |
| ci | conditional – The requirement on the capability ("m", "o" or "n/a") depends on the support of other optional or conditional items. "i" is an integer identifying a unique conditional status expression that is defined immediately following the table. For nested conditional expressions, the syntax "IF ... THEN (IF ... THEN ... ELSE...) ELSE ..." shall be used to avoid ambiguities. If an ELSE clause is omitted, "ELSE n/a" shall be implied. |

NOTE – Support of a capability means that the capability is implemented in conformance to the ISUP'97 specification [1] to [3].

Support column

The support column shall be filled in by the supplier of the implementation. The following common notations, defined in ISO/IEC 9646-7 [8], are used for the support column:

- | | |
|----------|---|
| Y or y | Supported by the implementation. |
| N or n | Not supported by the implementation. |
| N/A or – | No answer required (allowed only if the status is N/A, directly or after evaluation of a conditional status). |

Values allowed column

This column contains the values or the ranges of values allowed.

Values supported column

The support column shall be filled in by the supplier of the implementation. In this column the values or the ranges of values supported by the implementation shall be indicated.

References to items

For each possible item answer (answer in the support column) within the PICS proforma a unique reference exists. It is defined as the table identifier, followed by a slash character "/", followed by the item number in the table. If there is more than one support column in a table, the columns shall be discriminated by letters (a, b, etc.) respectively.

Example 1: A.5/4 would indicate the reference to the answer of item 4 in Table A.5 of Annex A.

Example 2: A.6/3b would indicate the reference to the second answer (i.e. in the second support column) of item 3 in Table A.6 of Annex A.

A.2 Identification of the implementation

Identification of the Implementation Under Test (IUT) and the system in which it resides – the System Under Test (SUT) should be filled in so as to provide as much detail as possible regarding version numbers and configuration options.

The product supplier information and client information should both be filled in if they are different.

A person who can answer queries regarding information supplied in the ICS should be named as the contact person.

A.2.1 Date of the statement

Date of the statement:	
------------------------	--

A.2.2 Implementation Under Test (IUT) identification

IUT name:	
IUT version:	

A.2.3 System Under Test (SUT) identification

SUT name:	
Hardware configuration:	
Operating system:	

A.2.4 Product supplier

Name:	
Address:	
Telephone number:	
Facsimile number:	
Additional information:	

A.2.5 Client

Name:	
Address:	
Telephone number:	
Facsimile number:	
Additional information:	

A.2.6 ICS contact person

Name:	
Telephone number:	
Facsimile number:	
Additional information:	

A.3 Identification of the reference specification

This PICS proforma applies to the following standard: ITU-T Recommendations Q.73x (1997).

Note that as prerequisite it is necessary to support the basic services described in [9]. A separate PICS proforma has been specified for ISUP'92 basic services [9].

A.4 PICS proforma tables

A.4.1 Global statement of conformance

	(Yes/No)
Are all mandatory capabilities implemented?	

NOTE – Answering "No" to this question indicates non-conformance to the reference protocol specification. Non-supported mandatory capabilities are to be identified in the PICS, with an explanation of why the implementation is non-conforming.

A.4.2 Roles

Table A.1/Q.765 bis – Roles

Item	Is the implementation ...	Reference	Status	Support
1	Local – Local exchange PIN or PAN?	6.1/Q.765	o.1	
2	TE_P – National transit exchange PIN or PAN?	6.1/Q.765	o.1	
3	Transit – National transit exchange?	Q.761	o.1	
o.1: It is mandatory to support at least one of these items.				

A.4.3 Capabilities

Table A.2/Q.765 bis – APM major capabilities

Item	Is the exchange able to ...	Reference	Status	Support
1	carry data in the first message (Initial Address Message (IAM)) during the establishment phase? (no segmentation necessary)	7.2.1/Q.765		
2	acknowledge the receipt of an IAM with an Address Complete Message (ACM) as the first backward message?	7.2.3.3.1/ Q.765		
3	transport the data in the initial segment if the segmentation procedure applies? (This means the size is not of zero length)	10.2.4.1/ Q.765		
4	reassemble the message of the first segment if there are more than zero octets of Encapsulated Application Information?	10.2.4.2/ Q.765		
5	send an early Address Complete Message?			
o.1: It is mandatory to support at least one of these items.				

Table A.3/Q.765 bis – APM timers

Item	Use of ...	Reference	Status	Support	Values in seconds	
					Allowed	Supported
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