

ETSI EN 301 007-2 V1.2.3 (2000-11)

European Standard (Telecommunications series)

**Integrated Services Digital Network (ISDN);
Signalling System No.7;
Operations, Maintenance and Administration Part (OMAP);
Part 2: Protocol Implementation Conformance
Statement (PICS) proforma specification**



Reference

DEN/SPS-01066-2

Keywords

ISDN, MRVT, OMAP, SS7

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

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Foreword

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

The present document is part 2 of a multi-part deliverable covering the Integrated Services Digital Network (ISDN); Signalling System No.7; Operations, Maintenance and Administration Part (OMAP), as identified below:

Part 1: "Protocol specification";

Part 2: "Protocol Implementation Conformance Statement (PICS) proforma specification".

National transposition dates	
Date of adoption of this EN:	27 October 2000
Date of latest announcement of this EN (doa):	31 January 2001
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 July 2001
Date of withdrawal of any conflicting National Standard (dow):	31 July 2001

1 Scope

To evaluate conformance of a particular implementation, it is necessary to have a statement of which capabilities and options have been implemented for a given Open Systems Interconnection (OSI) protocol. Such a statement is called a Protocol Implementation Conformance Statement (PICS).

The present document provides the Protocol Implementation Conformance Statement (PICS) proforma for the MTP Routeing Verification Test protocol as specified in EN 301 007-1 [1] in compliance with the relevant requirements and in accordance with the relevant guidance given in ISO/IEC 9646-2 [3].

The present document adds to the MTP Routeing Verification Test protocol contained in EN 301 007-1 [1] Operations, Maintenance and Administration Part (OMAP) by defining explicitly the implementation flexibility allowed by the specification of that protocol. Thus it contributes to the definition of the management of international ITU Signalling System No. 7 networks that has been adapted for the support of, for example, the pan-European Cellular Digital Radio System and the Integrated Services Digital Network.

The PICS proforma defines explicitly the implementation flexibility allowed by the protocol specification. It details in a tabular form:

- a) the implementation options, i.e. the functions additional to those which are mandatory to implement; and
- b) the legitimate range of variation of the global parameters controlling the implementation of the functions, as specified in the protocol specification.

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, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

- [1] ETSI EN 301 007-1 (V1.1): "Integrated Services Digital Network (ISDN); Signalling System No.7; Operations, Maintenance and Administration Part (OMAP); Part 1: Protocol specification".
- [2] ISO/IEC 9646-1 (1990): "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 1: General concepts" (see also CCITT Recommendation X.290 (1992)).
- [3] ISO/IEC 9646-2 (1990): "Information technology; Open Systems Interconnection; Conformance testing methodology and framework; Part 2: Abstract Test Suite specification" (see also CCITT Recommendation X.291 (1992)).
- [4] ITU-T Recommendation Q.753 (1997): "Signalling System No. 7 management functions MRVT, SRVT and CVT and definition of the OMASE-user".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply.

excessive length route: MTP route of a length that equals the threshold of the maximum allowed number of Signalling Points crossed (including the initiator of the MTP Routeing Verification Test) before any response to the initiator is sent, the threshold being determined by the initiator of the MTP Routeing Verification Test and enclosed in the test message.

Protocol Implementation Conformance Statement (PICS): statement made by the supplier of an Open Systems Interconnection (OSI) implementation or system, stating which capabilities have been implemented for a given OSI protocol (see ISO/IEC 9646-1 [2]).

PICS proforma: document in the form of a questionnaire, designed by the protocol specifier or conformance test suite specifier, which when completed for an OSI implementation or system becomes the PICS (see ISO/IEC 9646-1 [2]).

Static Conformance Review: review of the extent to which the static conformance requirements are met by the Implementation Under Test (IUT), accomplished by comparing the PICS with the static conformance requirements expressed in the relevant standard(s) (see ISO/IEC 9646-1 [2]).

3.2 Symbols

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

S.<i>	Supplementary Information number <i>
X.<i>	Exceptional Information number <i>
Yes:_No:_X:_	Tick "Yes" if item is supported, tick "No" if item is not supported, and insert additional information at "X" where necessary (see also annex B, clause B.3)
Yes:_No:_X:_	Value(s): Tick "Yes" if item is supported, tick "No" if item is not supported, insert additional information at "X" where necessary (see also annex B, clause B.3), and insert value(s) where appropriate

3.3 Abbreviations

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

ISDN	Integrated Services Digital Network
IUT	Implementation Under Test
MRVA	MTP Routeing Verification Acknowledgement message
MRVR	MTP Routeing Verification Result message
MRVT	MTP Routeing Verification Test function or message
MTP	Message Transfer Part
N/A	Not Applicable
OMAP	Operations, Maintenance and Administration Part
OSI	Open Systems Interconnection
PC	Prefix for the index number of the Protocol Capabilities group
PD	Prefix for the index number of the Protocol Data Units group
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
PP	Prefix for the index number of the Protocol Parameter group
SCS	System Conformance Statement
SP	Signaling Point
STP	Signaling Transfer Point
SUT	System Under Test

4 Conformance

The supplier of a MRVT protocol implementation which is claimed to conform to the MRVT protocol specification provided in EN 301 007-1 [1] is required to complete a copy of the PICS proforma provided in the present document and is required to provide the information necessary to identify both the supplier and the implementation.

Annex A (normative): PICS proforma

Notwithstanding the provisions of the copyright clause related to the text of the present document, ETSI grants that users of the present document may freely reproduce the PICS proforma in this annex so that it can be used for its intended purposes and may further publish the completed PICS.
--

A.1 Identification of the implementation

A.1.1 Implementation Under Test (IUT) identification

IUT name:

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.....

IUT version:

.....

A.1.2 System Under Test (SUT) identification

SUT name:

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Hardware configuration:

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.....

Operating System:

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.....

A.1.3 Product supplier

Name:

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Address:

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.....
.....

Telephone number:

.....

Facsimile number:

.....

Additional information:

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A.1.4 Client

Name:

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Address:

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.....

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Telephone number:

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Facsimile number:

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Additional information:

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A.1.5 PICS contact person

Name:

.....

Telephone number:

.....

Facsimile number:

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Additional information:

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.....

A.1.6 PICS/System Conformance Statement (SCS)

Provide the relationship of the PICS with the SCS for the system:

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A.2 Identification of the protocol

This PICS proforma applies to the following standard:

EN 301 007-1: "Integrated Services Digital Network (ISDN); ITU Signalling System No. 7; Operations, Maintenance and Administration Part (OMAP); Part 1: Protocol specification".

A.3 Global statement of conformance

The implementation described in this PICS meets all the mandatory requirements of the referenced standard.

☐ Yes

☐ No:

.....

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.....

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

A.4 Protocol capabilities

The common reference in the tables is subclause 7.3.1 of EN 301 007-1 [1]. Unless otherwise indicated all the qualifying numbers in the reference column are to the numbering of the replacement subclause to ITU-T Recommendation Q.753 [4] that is recorded therein.

Table 1

Index	Protocol feature	Status	Reference	Support
PC1	Does the SUT's MTP have the signalling transfer capability?	O	[refer to MTP PICS]	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC2...	Does the IUT serve as			
A	- the Point Initiating the Procedure?	O	2.2.4.1	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
B	- Intermediate Point?	C.1	2.2.4.2	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
C	- Test Destination?	M	2.2.4.3	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC3	Is the IUT independent from MTP routing policy (i.e. it does not rely on particular assumptions concerning the priorities of different routes)?	M	2.2 a)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC4	Is the IUT independent from link set failures (i.e. the IUT does not rely on the availability of particular link sets)?	M	2.2 b)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC5	Is the IUT independent from the network structure (i.e. the IUT does not preclude any structural particularities)?	M	2.2 e)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC6	Does the IUT use the MTP without modifications?	M	2.2 c)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC7	Does the IUT respond to all tests (i.e. irrespective whether the response is positive or negative)?	M	2.2 d)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC8	Does the IUT detect loops in MTP routing?	C.2	2.2 f)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC9	Does the IUT detect excessive length routes (i.e., routes, where more signalling points had already been traversed than the test initiator had predetermined)?	C.2	2.2 f)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC10	Does the IUT detect unknown destinations (i.e. non-existent destinations, missing routing entries and routing corruptions)?	C.2	2.2 f)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC11	Does the IUT check the bidirectionality of signalling relations?	M	2.2 f)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC12	Does the IUT stop when an error is detected?	M	2.2.1	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC13	Does the IUT alert the initiator when an inconsistency or failure is detected?	M	2.2.1	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
C.1:	If Yes to PC1 then M else O.			
C.2:	If Yes to PC1 then M else N/A.			
PC14	Does the IUT transmit unchanged any unknown optional parameters that may be contained in a received MRVA, MRVR, or MRVT message?	C.3	2.2.1.4	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC15	Does the IUT pass unknown ErrorTag values (it received in an MRVR) to the management?	C.4	2.2.1.4	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC16	Does the IUT pass unknown FailureString values (it received in an MRVA) to the management?	C.4	2.2.1.4	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC17	Does the IUT pass back unknown FailureString values (it received in an MRVA)?	C.3	2.2.1.4	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
C.3:	If Yes to PC2B then M else N/A.			
C.4:	If Yes to PC2A then M else N/A.			
Comment:				
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.....				
.....				

Table 2

Index	Protocol feature	Status	Reference	Support
Actions at the point initiating the MRVT				
PC18	Does the IUT refuse the MRV Test if the maximum number n_T of parallel tests is exceeded?	C.4	2.2.4.1.1	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC19	Does the IUT refuse an MRV Test for a destination for which an MRV Test is already running?	C.4	2.2.4.1.1	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC20	Does the IUT send an MRVT message for each configured signalling route to the test destination?	C.4	2.2.4.1.1	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC21	Does the IUT start the OMASE-User timer T_1 after initiation of the MRV Test?	C.4	2.2.4.1.1	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC22	Does the IUT stop the OMASE-User timer T_1 after reception of the last MRVA message?	C.4	2.2.4.1.2.1	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC23	Does the IUT pass the applicable result to the SP management after the OMASE-User timer T_1 has been stopped?	C.4	2.2.4.1.2.1	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC24	Does the IUT pass the applicable result to the SP management after the OMASE-User timer T_1 has expired?	C.4	2.2.4.1.2.1	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC25	Does the IUT ignore MRVA messages it receives after expiry of their TC timer T_1 ?	C.4	2.2.4.1.2.1	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC26	Does the IUT pass information contained in a received MRVR message to the SP management (regardless of whether or not IUT was the initiator)?	C.4	2.2.4.1.2.2	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC26bis	Does the IUT refuse the MRV Test if the maximum number n_T of parallel tests is exceeded?	C.3	2.2.4.1.1	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
Comment:				

Table 3

Index	Protocol feature	Status	Reference	Support
Actions in an intermediate point (on reception of an MRVT message)				
PC27	Does the IUT fill up the route priority list, if its length is less than the number of the traversed point codes?	C.5	Q.753 2.2.4.2.1 a)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC28..	Does the IUT stop the test & inform SP management & send an MRVR & acknowledge the received MRVT message by an MRVA with applicable contents, if there is routing to the initiator and the		2.2.4.2.1 ...	
A	- intermediate point does not have the MTP transfer function? (or there is no authorization for transfer)	C.3	a)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
B	- test cannot be run due to local conditions?	C.3	b)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
C	- number of MRV Tests already running is n_T ?	C.3	c)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC29..	Does the IUT inform management & stop test & send applicable MRVA, if		2.2.4.2.1	
A	- there is no routing information for the initiating SP?	C.3	d) 1)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
B	- there is no routing information for the destination?	C.3	d) 2)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
C	- the direct route was requested and there is routing information for the initiating SP, but not directly via the preceding SP?	C.3	Q.753 2.2.4.2.1 e) 3)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC30	If there is no routing information for the destination, does the IUT send an MRVR message to the initiator?	C.3	2.2.4.2.1 d) 2)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC31..	Does the IUT inform management & stop test & send applicable MRVA & send MRVR(s) to the initiator, if there is sufficient routing information, but		2.2.4.2.1 d) 3)	
A	- a loop is detected?	C.3	i) [a]	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
B	- excessive length route is detected?	C.3	i) [b]	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
C	- it is impossible to route any MRVT message?	C.3	i) [c]	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC32..	For all other cases (i.e. cases not covered by items PC28 - PC31):		2.2.4.2.1 d) 3) i) [d]	
A	- Does the IUT start a timer T_1 ?	C.3	[1]	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
B	- Does the IUT send MRVT messages to all accessible adjacent SPs?	C.3	[2]	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
C	- Does the IUT send MRVR messages concerning all inaccessible adjacent SPs?	C.3	[3]	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC33	For all other cases (i.e. cases not covered by items PC28 - PC31): The IUT does not send an MRVR message, when all adjacent SPs are accessible?	C.3	2.2.4.2.1 d) 3) i) [d] [4]	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
Actions in an intermediate point (on reception of an MRVA/rejection of an MRVT message)				
PC34	Does the IUT stop the timer T_1 when receiving the last MRVA expected?	C.3	2.2.4.2.2 a)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>

Index	Protocol feature	Status	Reference	Support
PC35	Does the IUT send an MRVA comprising all the results from received MRVAs plus any noted SP inaccessibility after reception of the last MRVA expected?	C.3	2.2.4.2.2 b)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC36	Does the IUT send an MRVR when receiving an MRVA with the result "unknown initiating SP"?	C.3	2.2.4.2.2 c)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC37.. A B	When timer T_1 expires, does the IUT		2.2.4.2.2 d)	
	- send an MRVR to the initiator? - send an MRVA to the prompter of the test?	C.3 C.3		Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC38	The IUT does no action if an MRVA message cannot be sent.	C.3	2.2.4.2.2 e)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC39	Does the IUT ignore MRVA messages it receives after expiry of the timer T_1 ?	C.3	2.2.4.2.2 f)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC40	Does the IUT consider a remote node unable to run the test, when an MRVT message is rejected by its SCCP or TC, or by a newly prohibited remote OMAP? (includes sending of MRVR to initiator and of MRVA to prompter)	C.3	2.2.4.2.2 g)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
C.5: If Yes to PC2B then O else N/A.				
Comment:				
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.....				
.....				
.....				

Table 4

Index	Protocol feature	Status	Reference	Support
Actions at the test destination receiving an MRVT message				
PC41	Does the IUT fill up the route priority list, if its length is less than the number of the traversed point codes?	C.7	Q.753 2.2.4.3 a)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC42.	Does the IUT send an MRVA message with the applicable content to the point which had sent the MRVT message,		2.2.4.3 a)...	
A	- if there is no routing information for the test initiator?	C.6	1)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
B	- if there is routing information for the test initiator?	C.6	2) i) & ii)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC43	If trace is expected, does the IUT send an MRVR message with the applicable content to the test initiator?	C.6	2.2.4.3 a) 2) i)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC44	The IUT does no action if an MRVA message cannot be sent.	C.6	2.2.4.3 b)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC45	Does the IUT inform management & send applicable MRVA & send applicable MRVR to the test initiator, if the direct route was requested and there is routing information for the initiating SP, but not directly via the preceding SP?	C.7	Q.753 2.2.4.3 b) 2)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
Reception of a message for an Unknown Destination				
PC46	Does the IUT respond with an applicable MRVR to the originator of a message for an unknown destination?	C.8	2.3	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC47	Does the IUT give an indication to the SP management, if it receives an unexpected MRVR message relating to an unknown destination?	M	2.3	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PC48	Does the IUT start an MRV Test, if it receives an unexpected MRVR message relating to an unknown destination?	O	2.3	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
C.6:	If Yes to PC2C then M else N/A.			
C.7:	If Yes to PC2C then O else N/A.			
C.8:	If (Yes to PC2A) or (Yes to PC2B) then M else N/A.			
Comment:				
.....				
.....				
.....				
.....				

A.5 MRVT Messages - Protocol Data Units and information elements

The common reference in the tables is subclause 7.3.1 of EN 301 007-1 [1]. Unless otherwise indicated all the qualifying numbers in the reference column are to the numbering of the replacement subclause to ITU-T Recommendation Q.753 [4] that is recorded therein.

Table 5

Index	Protocol feature	Status	References	Support
PD1	Does the IUT send MRVT messages?	C.9	2.2.4.1.1; 2.2.4.2.1 d) 3) i) [d]	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD2	Does the IUT receive and process MRVT messages?	M	2.2.4.2.1; 2.2.4.3	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD3	Does the IUT send MRVA messages?	M	2.2.4.2.1 a) to d) 2.2.4.2.2 b) d) & g) 2.2.4.3 a)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD4	Does the IUT receive and process MRVA messages?	C.8	2.2.4.1.2.1; 2.2.4.2.2	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD5	Does the IUT send MRVR messages?	M	2.2.4.2.1 a) to d) 2.2.4.2.2 c) d) & g) 2.2.4.3 a)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD6	Does the IUT receive and process MRVR messages?	C.10	2.2.4.1.2.2	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
C.9: If (Yes to PC2A) or (Yes to PC2B) then M else O.				
C.10: If (Yes to PC2A) then M else O.				
Comments:				
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.....				
.....				

Table 6

Index	Protocol feature	Status	References	Support
MTP Routeing Verification Test (MRVT) message - information elements				
PD7	Does the IUT employ the MRVT message indication?	C.10	2.2.2.1 a)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/> Value _____
PD8	Does the IUT recognize the MRVT message indication?	C.12	2.2.2.1 a)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/> Value _____
PD9	Does the IUT employ the Point Code of the test destination?	C.10	2.2.2.1 b)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD10	Does the IUT recognize the Point Code of the test destination?	C.12	2.2.2.1 b)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD11	Does the IUT employ the initiator Point Code?	C.10	2.2.2.1 c)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD12	Does the IUT recognize the initiator Point Code?	C.12	2.2.2.1 c)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD13	Does the IUT employ the threshold <i>N</i> of the maximum allowed number of SPs crossed?	C.10	2.2.2.1 d)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/> Values _____
PD14	Does the IUT recognize the threshold <i>N</i> of the maximum allowed number of SPs crossed?	C.12	2.2.2.1 d)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/> Values _____
PD15	Does the IUT employ the trace request?	C.10	2.2.2.1 e)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD16	Does the IUT recognize the trace request?	C.12	2.2.2.1 e)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD17	Does the IUT employ the list of point codes traversed?	C.10	2.2.2.1 f)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD18	Does the IUT recognize the list of point codes traversed?	C.12	2.2.2.1 f)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD19	Does the IUT employ the info request?	C.10	2.2.2.1 g); 2.2.2.3	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD20	Does the IUT recognize the info request?	C.12	2.2.2.1 g); 2.2.2.3	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD21	Does the IUT employ the return unknown parameters indication?	C.11	2.2.2.1 h)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD22	Does the IUT recognize the return unknown parameters indication?	C.13	2.2.2.1 h)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD23	Does the IUT employ the route priority list?	C.11	Q.753 2.2.2.1 g)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD24	Does the IUT recognize the route priority list?	C.13	Q.753 2.2.2.1 g)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD25	Does the IUT employ the request for direct route check?	C.11	Q.753 2.2.2.1 j)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD26	Does the IUT recognize the request for direct route check?	C.13	Q.753 2.2.2.1 j)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD27	Does the IUT not generate the info request or the return unknown parameters indication, if they were not present in the received MRVT message?	C.3	2.2.2.1	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
C.10:	If Yes to PD1 then M else N/A.			
C.11:	If Yes to PD1 then O else N/A.			
C.12:	If Yes to PD2 then M else N/A.			
C.13:	If Yes to PD2 then O else N/A.			
Comments:				
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Table 7

Index	Protocol feature	Status	References	Support
MTP Routing Verification Acknowledgement (MRVA) message - information elements				
PD28	Does the IUT employ the MRVA message indication?	C.14	2.2.2.2 a)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/> Value _____
PD29	Does the IUT recognize the MRVA message indication?	C.16	2.2.2.2 a)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/> Value _____
PD30	Does the IUT employ the MRVR has been sent indication?	C.14	2.2.2.2 b)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD31	Does the IUT recognize the MRVR has been sent indication?	C.16	2.2.2.2 b)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD32..	Does the IUT use the reason for failure indication?		2.2.2.2 c) ...	
A	- detected loop	C.14	i)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
B	- detected excessive length route	C.14	ii)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
C	- unknown Destination Point Code	C.14	iii)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
D	- MRVT not sent due to inaccessibility	C.14	iv)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
E	- timer expired	C.14	v)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
F	- unknown initiator Point Code	C.14	vi)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
G	- test cannot be run due to local conditions	C.14	vii)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
H	- MTP transfer function or authorization missing	C.14	viii)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
I	- indirect route detected	C.15	Q.753 2.2.2.2 ix)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
J	- maximum number of MRVTs already running	C.14	ix)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD33..	Does the IUT recognize the reason for failure indication?		2.2.2.2 c)	
A	- detected loop	C.16	...	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
B	- detected excessive length route	C.16	i)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
C	- unknown Destination Point Code	C.16	ii)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
D	- MRVT not sent due to inaccessibility	C.16	iii)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
E	- timer expired	C.16	iv)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
F	- unknown initiator Point Code	C.16	v)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
G	- test cannot be run due to local conditions	C.16	vi)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
H	- MTP transfer function or authorization missing	C.16	vii)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
I	- indirect route detected	C.17	viii)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
J	- maximum number of MRVTs already running	C.16	Q.753 2.2.2.2 ix)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD34	The IUT does not generate the "MRVR has been sent" indication or the reason for failure indication in case of success.	C.14	2.2.2.2	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD35	Does the IUT use the SCCP class 1 service with the sequence information the same as that for any associated MRVR message sent out?	C.14	2.2.2.2	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
C.14: If Yes to PD3 then M else N/A.				
C.15: If Yes to PD3 then O else N/A.				
C.16: If Yes to PD4 then M else N/A.				
C.17: If Yes to PD4 then O else N/A.				
Comments:				
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Table 8

Index	Protocol feature	Status	References	Support
MTP Routing Verification Result (MRVR) message - information elements				
PD36	Does the IUT employ the MRVR message indication?	C.18	2.2.2.3 a)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/> Value _____
PD37	Does the IUT recognize the MRVR message indication?	C.20	2.2.2.3 a)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/> Value _____
PD38	Does the IUT employ the Point Code of the tested destination?	C.18	2.2.2.3 b)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD39	Does the IUT recognize the Point Code of the tested destination?	C.20	2.2.2.3 b)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD40	Does the IUT employ the result of the test information?	C.18	2.2.2.3 c)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD41	Does the IUT recognize the result of the test information?	C.20	2.2.2.3 c)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD42	Does the IUT employ the information field?	C.18	2.2.2.3 d)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD43	Does the IUT recognize the information field?	C.20	2.2.2.3 d)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD44	Does the IUT employ the copy Data parameter?	C.19	2.2.2.3 e)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD45	Does the IUT recognize the copy Data parameter?	C.21	2.2.2.3 e)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD46	Does the IUT use the SCCP class 1 service with the sequence information the same as that for any associated MRVA message sent out?	C.18	2.2.2.3	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD47	Does the information field of the MRVR message sent by the IUT contain the Point Codes traversed parameter from the received MRVT message, if result is "success"?	C.22	2.2.2.3 d) i)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD48	Does the information field of the MRVR sent by the IUT contain the route priority list from the received MRVT, if result is "success"?	C.23	Q.753 2.2.2.3 d) i)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD49	Does the information field of the MRVR sent by the IUT contain the Point Codes of STPs in the loop, if the result is "loop detected"?	C.22	2.2.2.3 d) ii)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD50	Does the information field of the MRVR sent by the IUT contain the route priority list from the received MRVT, if result is "loop detected"?	C.23	Q.753 2.2.2.3 d) ii)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD51	Does the information field of the MRVR sent by the IUT contain the Point Codes traversed parameter from the received MRVT, if result is "detected excessive length route"?	C.22	2.2.2.3 d) iii)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD52	Does the information field of the MRVR sent by the IUT contain the route priority list from the received MRVT, if result is "detected excessive length route"?	C.23	Q.753 2.2.2.3 d) iii)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD53	Does the information field of the MRVR sent by the IUT contain the Point Codes traversed parameter from the received MRVT, if result is "unknown Destination Point Code"?	C.22	2.2.2.3 d) iv)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD54	Does the information field of the MRVR sent by the IUT contain the route priority list from the received MRVT, if result is "unknown Destination Point Code", only if the prompting MRVT message contained the infoRequest parameter requesting it?	C.23	Q.753 2.2.2.3 d) iv)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>

Index	Protocol feature	Status	References	Support
PD55	Does the information field of the MRVR sent by the IUT contain the Point Code of the inaccessible SP, if result is "MRVT not sent due to inaccessibility"?	C.22	2.2.2.3 d) v)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD56	Does the information field of the MRVR sent by the IUT contain the list of all inaccessible SPs, if result is "MRVT not sent due to inaccessibility", only if the prompting MRVT requested it with the infoRequest parameter and if more than one SP were inaccessible?	C.23	2.2.2.3 d) v)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD57	Does the information field of the MRVR sent by the IUT contain the identity of the SP(s) from which an MRVA was not received when expected, if result is "MRVA not received"?	C.22	2.2.2.3 d) vi)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD58	Does the information field of the MRVR sent by the IUT contain the Point Code of the SP whose MRVA triggered the MRVR, if result is "unknown initiator Point Code"?	C.22	2.2.2.3 d) vii)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD59	Does the information field of the MRVR sent by the IUT contain the Point Code of the SP where the test could not be run, if result is "test cannot be run due to local conditions", only if the prompting MRVT message contained the infoRequest parameter requesting it?	C.23	2.2.2.3 d) viii)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD60	Does the information field of the MRVR sent by the IUT contain the Point Codes traversed parameter from the received MRVT, if result is "intermediate SP does not have the MTP transfer function"?	C.22	2.2.2.3 d) ix)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD61	Does the information field of the MRVR sent by the IUT contain the route priority list from the received MRVT, if result is "intermediate SP does not have the MTP transfer function"?	C.23	Q.753 2.2.2.3 d) ix)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD62	Does the information field of the MRVR sent by the IUT contain the Point Code of the SP where the test could not be run, if result is "maximum number of MRV Tests already running at the SP"?	C.22	2.2.2.3 d) x)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PD63	Does the information field of the MRVR sent by the IUT contain the Point Code of the SP from which the prompting MRVT was sent, through which no direct return route is available, if result is "indirect route", only if the prompting MRVT message contained the infoRequest parameter requesting it?	C.23	Q.753 2.2.2.3 d) x)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
C.18:	If Yes to PD5 then M else N/A.			
C.19:	If Yes to PD5 then O else N/A.			
C.20:	If Yes to PD6 then M else N/A.			
C.21:	If Yes to PD6 then O else N/A.			
C.22:	If Yes to PD42 then M else N/A.			
C.23:	If Yes to PD42 then O else N/A.			
Comments:				
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A.6 Protocol parameters

The common reference in the table is subclause 7.3.1 of EN 301 007-1 [1]. Unless otherwise indicated all the qualifying numbers in the reference column are to the numbering of the replacement subclause to ITU-T Recommendation Q.753 [4] that is recorded in table 9.

Table 9

Index	Protocol feature	Status	References	Support
PP1	Does the value of timer T_1 satisfy the equation for a near end signalling point?	C.4	2.4.1, 2.4.2 (note)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PP2	Does the value of timer T_1 satisfy the equation for an intermediate signalling point?	C.3	2.4.1, 2.4.2 (note)	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
PP3	Does the IUT keep the maximum number n_T (2 for the European part of the international network) of parallel tests?	O	2.4.3	Yes <input type="checkbox"/> No <input type="checkbox"/> X <input type="checkbox"/>
NOTE: EN 301 007-1 [1] replacement subclause 2.4.3 to ITU-T Recommendation Q.753 [4] overrides the note in 2.4.2 saying that the "performance times are network dependent, and care should be taken, in networks with many routes, to set a sufficiently high value". For the scope of EN 301 007-1 [1], the time D to perform the actions for a complete MRV Test in one node is based on restricting the network structure to allow not more than 32 different routes between initiator and destination. Therefore, D is set to 8 seconds (for all international gateway exchanges using MRVT).				
Comments:				
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Annex B (informative): Instructions for completing the PICS proforma

B.1 Identification of the implementation

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

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

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

The System Conformance Statement (SCS) as defined in ISO/IEC 9646-1 [2] is a document supplied by the client or product supplier that summarizes which OSI International Standards, ITU-T (CCITT) Recommendations or other standards are implemented and to which conformance is claimed. The PICS/SCS subclause should describe the relationship of the PICS to the SCS.

B.2 Global statement of conformance

If the answer to the statement in this subclause is "Yes", all subsequent subclauses should be completed to facilitate selection of test cases for optional functions.

If the answer to the statement in this subclause is "No", all subsequent subclauses should be completed, and all non-supported mandatory capabilities are to be identified and explained. Explanations may be entered in the comments field at the bottom of each table or on attached sheets of paper.

B.3 General note on tabulations

A supplier may also provide additional information, categorized as either Exceptional Information or Supplementary Information (other than PIXIT). When present, each kind of additional information is to be provided as items labelled X.<i> or S.<i>, respectively, for cross reference purposes, where <i> is an unambiguous identification of an item. An exception item should contain the appropriate rationale. The Supplementary Information is not mandatory and the PICS is complete without such information. The presence of optional Supplementary or Exceptional Information should not affect test execution, and will in no way affect static conformance verification.

NOTE: Where an information is capable of being configured in more than one way, a single PICS may be able to describe all such configurations. However, the supplier has the choice of providing more than one PICS, each covering some subset of the implementation's configuration capabilities, in case this makes for easier or clearer presentation of the information.

In the case in which an IUT does not implement a condition listed, such as in PC6, where an implementation may not support the detection of loops, the Support column of the PICS proforma table should be completed as:

"Yes:_No:_X:X.2". The entry of the exceptional information would read: "X.2 This implementation does not support the detection of loops".

B.4 Protocol capabilities

Each question in this subclause refers to a major function of the protocol. Answering "Yes" to a particular question states that the implementation supports all the mandatory procedures for that function defined in the referenced subclauses of the standard. Answering "No" to a particular question in this subclause states that the implementation does not support that function of the protocol. Some of the items are optional and in some cases the option depends on the implementation of other items. In these cases, if the invoking capability is supported, the ability to support the item is mandatory. These conditions are made clear in the text of each item.

B.5 MRVT Messages - Protocol Data Units and information elements

Indicating support for an item in this subclause states that the implementation has the capability to support the MRVT Messages or Protocol Data Units (PDUs) and parameters that may exist.

B.6 Protocol parameters

Indicating support for an item in this subclause states that the implementation has a parameter that operates in accordance with the description in the standard. Specific values for the parameters implemented should be stated here, or, where appropriate in the PIXIT.

History

Document history		
V1.2.2	August 1999	Public Enquiry PE 9955: 1999-08-18 to 1999-12-17
V1.2.3	August 2000	Vote V 20001027: 2000-08-28 to 2000-10-27
V1.2.3	November 2000	Publication