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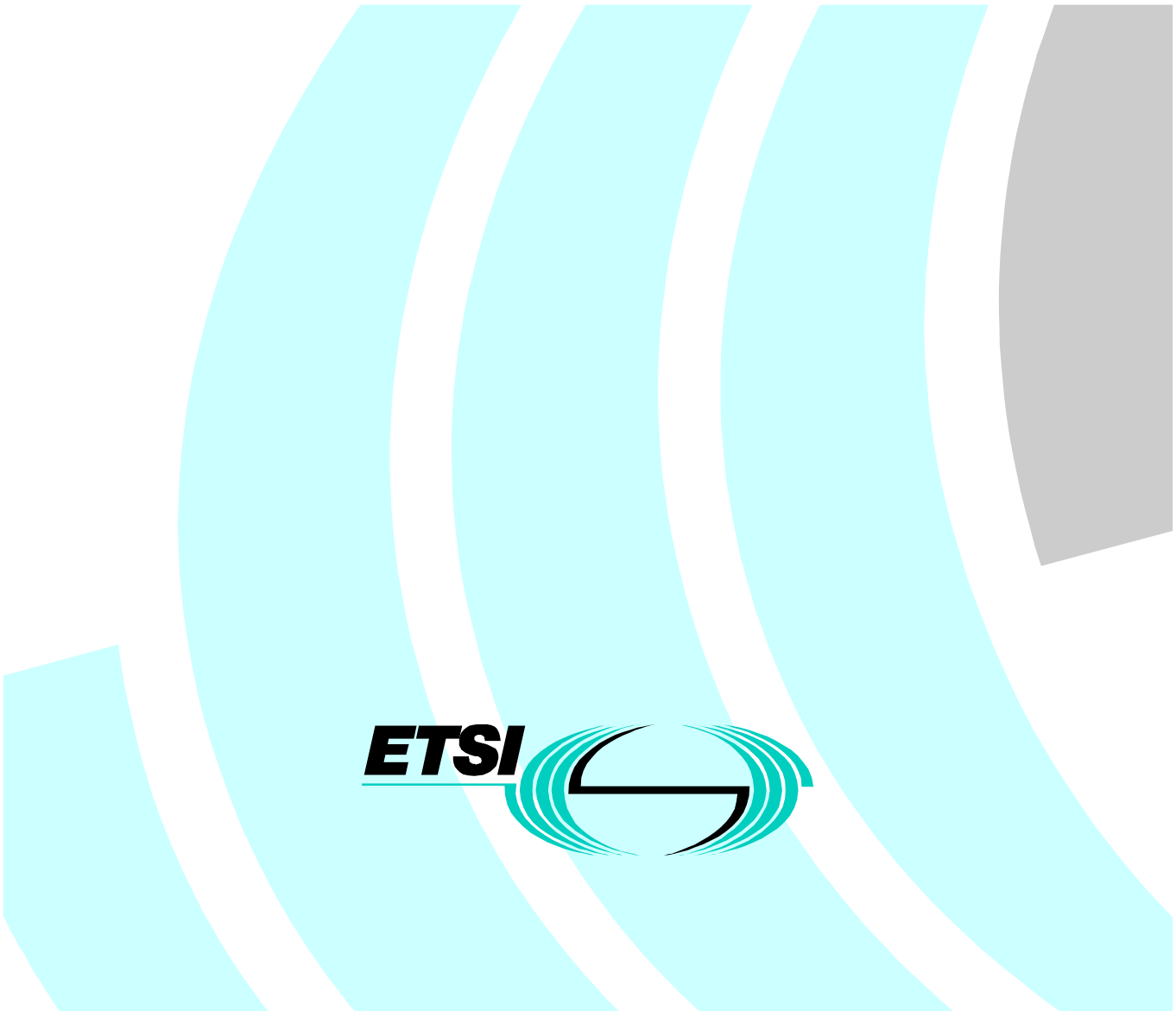
European Standard (Telecommunications series)

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



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Contents

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Foreword

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

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".

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

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

A.1 Identification of the implementation

A.1.1 Implementation Under Test (IUT) identification

IUT name:

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IUT version:

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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:

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Facsimile number:

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Additional information:

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A.1.4 Client

Name:

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Address:

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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:

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Telephone number:

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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 ☐ No ☐ X ☐
PC2...	Does the IUT serve as			
A	- the Point Initiating the Procedure?	O	2.2.4.1	Yes ☐ No ☐ X ☐
B	- Intermediate Point?	C.1	2.2.4.2	Yes ☐ No ☐ X ☐
C	- Test Destination?	M	2.2.4.3	Yes ☐ No ☐ X ☐
PC3	Is the IUT independent from MTP routeing policy (i.e. it does not rely on particular assumptions concerning the priorities of different routes)?	M	2.2 a)	Yes ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
PC5	Is the IUT independent from the network structure (i.e. the IUT does not preclude any structural particularities)?	M	2.2 e)	Yes ☐ No ☐ X ☐
PC6	Does the IUT use the MTP without modifications?	M	2.2 c)	Yes ☐ No ☐ X ☐
PC7	Does the IUT respond to all tests (i.e. irrespective whether the response is positive or negative)?	M	2.2 d)	Yes ☐ No ☐ X ☐
PC8	Does the IUT detect loops in MTP routeing?	C.2	2.2 f)	Yes ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
PC10	Does the IUT detect unknown destinations (i.e. non-existent destinations, missing routeing entries and routeing corruptions)?	C.2	2.2 f)	Yes ☐ No ☐ X ☐
PC11	Does the IUT check the bidirectionality of signalling relations?	M	2.2 f)	Yes ☐ No ☐ X ☐
PC12	Does the IUT stop when an error is detected?	M	2.2.1	Yes ☐ No ☐ X ☐
PC13	Does the IUT alert the initiator when an inconsistency or failure is detected?	M	2.2.1	Yes ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
PC15	Does the IUT pass unknown ErrorTag values (it received in an MRVR) to the management?	C.4	2.2.1.4	Yes ☐ No ☐ X ☐
PC16	Does the IUT pass unknown FailureString values (it received in an MRVA) to the management?	C.4	2.2.1.4	Yes ☐ No ☐ X ☐
PC17	Does the IUT pass back unknown FailureString values (it received in an MRVA)?	C.3	2.2.1.4	Yes ☐ No ☐ X ☐
C.3: If Yes to PC2B then M else N/A. C.4: If Yes to PC2A then M else N/A.				
Comment:				

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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 routeing 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 ☐ No ☐ X ☐
B	- test cannot be run due to local conditions?	C.3	b)	Yes ☐ No ☐ X ☐
C	- number of MRV Tests already running is n_T?	C.3	c)	Yes ☐ No ☐ X ☐
PC29..	Does the IUT inform management & stop test & send applicable MRVA, if		2.2.4.2.1	
A	- there is no routeing information for the initiating SP?	C.3	d) 1)	Yes ☐ No ☐ X ☐
B	- there is no routeing information for the destination?	C.3	d) 2)	Yes ☐ No ☐ X ☐
C	- the direct route was requested and there is routeing information for the initiating SP, but not directly via the preceding SP?	C.3	**Q.753** 2.2.4.2.1 e) 3)	Yes ☐ No ☐ X ☐
PC30	If there is no routeing information for the destination, does the IUT send an MRVR message to the initiator?	C.3	2.2.4.2.1 d) 2)	Yes ☐ No ☐ X ☐
PC31..	Does the IUT inform management & stop test & send applicable MRVA & send MRVR(s) to the initiator, if there is sufficient routeing information, but		2.2.4.2.1 d) 3)	
A	- a loop is detected?	C.3	i) [a]	Yes ☐ No ☐ X ☐
B	- excessive length route is detected?	C.3	i) [b]	Yes ☐ No ☐ X ☐
C	- it is impossible to route any MRVT message?	C.3	i) [c]	Yes ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
B	- Does the IUT send MRVT messages to all accessible adjacent SPs?	C.3	[2]	Yes ☐ No ☐ X ☐
C	- Does the IUT send MRVR messages concerning all inaccessible adjacent SPs?	C.3	[3]	Yes ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐

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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
PC37..	When timer T_1 expires, does the IUT		2.2.4.2.2 d)	
A	- send an MRVR to the initiator?	C.3		Yes ☐ No ☐ X ☐
B	- send an MRVA to the prompter of the test?	C.3		Yes ☐ No ☐ X ☐
PC38	The IUT does no action if an MRVA message cannot be sent.	C.3	2.2.4.2.2 e)	Yes ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐

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 ☐ No ☐ X ☐
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 routeing information for the test initiator?	C.6	1)	Yes ☐ No ☐ X ☐
B	- if there is routeing information for the test initiator?	C.6	2) i) & ii)	Yes ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
PC44	The IUT does no action if an MRVA message cannot be sent.	C.6	2.2.4.3 b)	Yes ☐ No ☐ X ☐
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 routeing information for the initiating SP, but not directly via the preceding SP?	C.7	Q.753 2.2.4.3 b) 2)	Yes ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
PC48	Does the IUT start an MRV Test, if it receives an unexpected MRVR message relating to an unknown destination?	O	2.3	Yes ☐ No ☐ X ☐

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:

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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 ☐ No ☐ X ☐
PD2	Does the IUT receive and process MRVT messages?	M	2.2.4.2.1; 2.2.4.3	Yes ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
PD4	Does the IUT receive and process MRVA messages?	C.8	2.2.4.1.2.1; 2.2.4.2.2	Yes ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
PD6	Does the IUT receive and process MRVR messages?	C.10	2.2.4.1.2.2	Yes ☐ No ☐ X ☐

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 ☐ No ☐ X ☐ Value _____
PD8	Does the IUT recognize the MRVT message indication?	C.12	2.2.2.1 a)	Yes ☐ No ☐ X ☐ Value _____
PD9	Does the IUT employ the Point Code of the test destination?	C.10	2.2.2.1 b)	Yes ☐ No ☐ X ☐
PD10	Does the IUT recognize the Point Code of the test destination?	C.12	2.2.2.1 b)	Yes ☐ No ☐ X ☐
PD11	Does the IUT employ the initiator Point Code?	C.10	2.2.2.1 c)	Yes ☐ No ☐ X ☐
PD12	Does the IUT recognize the initiator Point Code?	C.12	2.2.2.1 c)	Yes ☐ No ☐ X ☐
PD13	Does the IUT employ the threshold *N* of the maximum allowed number of SPs crossed?	C.10	2.2.2.1 d)	Yes ☐ No ☐ X ☐ Values _____
PD14	Does the IUT recognize the threshold *N* of the maximum allowed number of SPs crossed?	C.12	2.2.2.1 d)	Yes ☐ No ☐ X ☐ Values_____
PD15	Does the IUT employ the trace request?	C.10	2.2.2.1 e)	Yes ☐ No ☐ X ☐
PD16	Does the IUT recognize the trace request?	C.12	2.2.2.1 e)	Yes ☐ No ☐ X ☐
PD17	Does the IUT employ the list of point codes traversed?	C.10	2.2.2.1 f)	Yes ☐ No ☐ X ☐
PD18	Does the IUT recognize the list of point codes traversed?	C.12	2.2.2.1 f)	Yes ☐ No ☐ X ☐
PD19	Does the IUT employ the info request?	C.10	2.2.2.1 g); 2.2.2.3	Yes ☐ No ☐ X ☐
PD20	Does the IUT recognize the info request?	C.12	2.2.2.1 g); 2.2.2.3	Yes ☐ No ☐ X ☐
PD21	Does the IUT employ the return unknown parameters indication?	C.11	2.2.2.1 h)	Yes ☐ No ☐ X ☐
PD22	Does the IUT recognize the return unknown parameters indication?	C.13	2.2.2.1 h)	Yes ☐ No ☐ X ☐
PD23	Does the IUT employ the route priority list?	C.11	**Q.753** 2.2.2.1 g)	Yes ☐ No ☐ X ☐
PD24	Does the IUT recognize the route priority list?	C.13	**Q.753** 2.2.2.1 g)	Yes ☐ No ☐ X ☐
PD25	Does the IUT employ the request for direct route check?	C.11	**Q.753** 2.2.2.1 j)	Yes ☐ No ☐ X ☐
PD26	Does the IUT recognize the request for direct route check?	C.13	**Q.753** 2.2.2.1 j)	Yes ☐ No ☐ X ☐
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 ☐ No ☐ X ☐

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 Routeing Verification Acknowledgement (MRVA) message - information elements			
PD28	Does the IUT employ the MRVA message indication?	C.14	2.2.2.2 a)	Yes ☐ No ☐ X ☐ Value _____
PD29	Does the IUT recognize the MRVA message indication?	C.16	2.2.2.2 a)	Yes ☐ No ☐ X ☐ Value _____
PD30	Does the IUT employ the MRVR has been sent indication?	C.14	2.2.2.2 b)	Yes ☐ No ☐ X ☐
PD31	Does the IUT recognize the MRVR has been sent indication?	C.16	2.2.2.2 b)	Yes ☐ No ☐ X ☐
PD32..	Does the IUT use the reason for failure indication?		2.2.2.2 c) ...	
A	- detected loop	C.14	i)	Yes ☐ No ☐ X ☐
B	- detected excessive length route	C.14	ii)	Yes ☐ No ☐ X ☐
C	- unknown Destination Point Code	C.14	iii)	Yes ☐ No ☐ X ☐
D	- MRVT not sent due to inaccessibility	C.14	iv)	Yes ☐ No ☐ X ☐
	- timer expired	C.14	v)	Yes ☐ No ☐ X ☐
E	- unknown initiator Point Code	C.14	vi)	Yes ☐ No ☐ X ☐
F	- test cannot be run due to local			
G	conditions	C.14	vii)	Yes ☐ No ☐ X ☐
	- MTP transfer function or authorization			
H	missing	C.14	viii)	Yes ☐ No ☐ X ☐
	- indirect route detected	C.15	**Q.753** 2.2.2.2 ix)	Yes ☐ No ☐ X ☐
I				
	- maximum number of MRVTs		ix)	
J	already running	C.14		Yes ☐ No ☐ X ☐
PD33..	Does the IUT recognize the reason for failure indication?		2.2.2.2 c) ...	
A	- detected loop	C.16	i)	Yes ☐ No ☐ X ☐
B	- detected excessive length route	C.16	ii)	Yes ☐ No ☐ X ☐
C	- unknown Destination Point Code	C.16	iii)	Yes ☐ No ☐ X ☐
D	- MRVT not sent due to inaccessibility	C.16	iv)	Yes ☐ No ☐ X ☐
	- timer expired	C.16	v)	Yes ☐ No ☐ X ☐
E	- unknown initiator Point Code	C.16	vi)	Yes ☐ No ☐ X ☐
F	- test cannot be run due to local			
G	conditions	C.16	vii)	Yes ☐ No ☐ X ☐
	- MTP transfer function or authorization			
H	missing	C.16	viii)	Yes ☐ No ☐ X ☐
	- indirect route detected	C.17	**Q.753** 2.2.2.2 ix)	Yes ☐ No ☐ X ☐
I				
	- maximum number of MRVTs already		ix)	
J	running	C.16		Yes ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐

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 Routeing Verification Result (MRVR) message - information elements				
PD36	Does the IUT employ the MRVR message indication?	C.18	2.2.2.3 a)	Yes ☐ No ☐ X ☐ Value _____
PD37	Does the IUT recognize the MRVR message indication?	C.20	2.2.2.3 a)	Yes ☐ No ☐ X ☐ Value _____
PD38	Does the IUT employ the Point Code of the tested destination?	C.18	2.2.2.3 b)	Yes ☐ No ☐ X ☐
PD39	Does the IUT recognize the Point Code of the tested destination?	C.20	2.2.2.3 b)	Yes ☐ No ☐ X ☐
PD40	Does the IUT employ the result of the test information?	C.18	2.2.2.3 c)	Yes ☐ No ☐ X ☐
PD41	Does the IUT recognize the result of the test information?	C.20	2.2.2.3 c)	Yes ☐ No ☐ X ☐
PD42	Does the IUT employ the information field?	C.18	2.2.2.3 d)	Yes ☐ No ☐ X ☐
PD43	Does the IUT recognize the information field?	C.20	2.2.2.3 d)	Yes ☐ No ☐ X ☐
PD44	Does the IUT employ the copy Data parameter?	C.19	2.2.2.3 e)	Yes ☐ No ☐ X ☐
PD45	Does the IUT recognize the copy Data parameter?	C.21	2.2.2.3 e)	Yes ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐

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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐

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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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 ☐ No ☐ X ☐
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:				

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