INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

X.246

(10/96)

SERIES X: DATA NETWORKS AND OPEN SYSTEM COMMUNICATION

Open System Interconnection – PICS proformas

Information technology – Open Systems Interconnection – Connection-oriented presentation protocol: Protocol Implementation Conformance Statement (PICS) proforma

ITU-T Recommendation X.246

(Previously "CCITT Recommendation")

ITU-T X-SERIES RECOMMENDATIONS

DATA NETWORKS AND OPEN SYSTEM COMMUNICATION

PUBLIC DATA NETWORKS	X.1-X.199
Services and facilities	X.1-X.19
Interfaces	X.20-X.49
Transmission, signalling and switching	X.50-X.89
Network aspects	X.90-X.149
Maintenance	X.150-X.179
Administrative arrangements	X.180-X.199
OPEN SYSTEM INTERCONNECTION	**X.200-X.299**
Model and notation	X.200-X.209
Service definitions	X.210-X.219
Connection-mode protocol specifications	X.220-X.229
Connectionless-mode protocol specification	X.230-X.239
PICS proformas	**X.240-X.259**
Protocol Identification	X.260-X.269
Security Protocols	X.270-X.279
Layer Managed Objects	X.280-X.289
Conformance testing	X.290-X.299
INTERWORKING BETWEEN NETWORKS	X.300-X.399
General	X.300-X.349
Satellite data transmission systems	X.350-X.399
MESSAGE HANDLING SYSTEMS	X.400-X.499
DIRECTORY	X.500-X.599
OSI NETWORKING AND SYSTEM ASPECTS	X.600-X.699
Networking	X.600-X.629
Efficiency	X.630-X.649
Naming, Addressing and Registration	X.650-X.679
Abstract Syntax Notation One (ASN.1)	X.680-X.699
OSI MANAGEMENT	X.700-X.799
Systems Management framework and architecture	X.700-X.709
Management Communication Service and Protocol	X.710-X.719
Structure of Management Information	X.720-X.729
Management functions	X.730-X.799
SECURITY	X.800-X.849
OSI APPLICATIONS	X.850-X.899
Commitment, Concurrency and Recovery	X.850-X.859
Transaction processing	X.860-X.879
Remote operations	X.880-X.899
OPEN DISTRIBUTED PROCESSING	X.900-X.999

For further details, please refer to ITU-T List of Recommendations.

FOREWORD

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. Some 179 member countries, 84 telecom operating entities, 145 scientific and industrial organizations and 38 international organizations participate in ITU-T which is the body which sets world telecommunications standards (Recommendations).

The approval of Recommendations by the Members of ITU-T is covered by the procedure laid down in WTSC Resolution No. 1 (Helsinki, 1993). In addition, the World Telecommunication Standardization Conference (WTSC), which meets every four years, approves Recommendations submitted to it and establishes the study programme for the following period.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC. The text of ITU-T Recommendation X.246 was approved on 5th of October 1996. The identical text is also published as ISO/IEC International Standard 8823-2.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

CONTENTS

Summary

This Recommendation | International Standard describes the protocol implementation conformance statement for the OSI connection-mode presentation protocol (see ITU-T Rec. X.226 | ISO/IEC 8823-1). The PICS presents, in tabular form, the mandatory and optional elements of the TP protocol. The PICS is utilized to represent the choices and features of a particular implementation of the OSI presentation protocol.

Introduction

This Recommendation | International Standard is one of a set of Recommendations | International Standards produced to facilitate the interconnection of information processing systems. It is related to other Recommendations and International Standards in the set as defined by the Reference Model for Open Systems Interconnection (see ITU-T Rec. X.200 | ISO/IEC 7498-1). The Reference Model subdivides the area of standardization for interconnection into a series of layers of specification, each of manageable size.

The goal of Open Systems Interconnection is to allow, with a mimum of technical agreement outside the interconnection standards, the interconnection of information processing systems:

- from different manufacturers;
- under different managements;
- of different levels of complexity; and
- of different technologies.

ITU-T Rec. X.226 | ISO/IEC 8823-1 specifies the connection-oriented presentation protocol. It specifies a common encoding and a number of functional units of presentation protocol procedures to be used to meet the needs of presentation-service-users.

To evaluate the conformance of a particular implementation, it is necessary to have a description of the capabilities and options which have been implemented. Such a description is called a Protocol Implementation Conformance Statement (PICS).

This Recommendation | International Standard includes the PICS proforma for the connection-oriented presentation protocol as defined in ITU-T Rec. X.226 | ISO/IEC 8823-1.

INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION – CONNECTION-ORIENTED PRESENTATION PROTOCOL: PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT (PICS) PROFORMA

1 Scope

This Recommendation | International Standard provides the Protocol Implementation Conformance Statement (PICS) proforma for the connection-oriented presentation protocol specified in ITU-T Rec. X.226 | ISO/IEC 8823-1. This PICS proforma is in compliance with the relevant requirements, and in accordance with the relevant guidance, given in ITU-T Rec. X.296 | ISO/IEC 9646-7. Detail of the use of this proforma is provided in this Recommendation | International Standard.

The supplier of an implementation which is claimed to conform to ITU-T Rec. X.226 | ISO/IEC 8823-1 is required to complete a copy of the PICS proforma provided in Annex A, and is required to provide the information necessary to identify both the supplier and the implementation.

2 Normative references

The following Recommendations and International Standards contain provisions which, through reference in this text, constitute provisions of this Recommendation | International Standard. At the time of publication, the editions indicated were valid. All Recommendations and Standards are subject to revision, and the parties to agreements based on this Recommendation | International Standard are encouraged to investigate the possibility of applying the most recent edition of the Recommendations and Standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards. The Telecommunication Standardization Bureau of the ITU maintains a list of currently valid ITU-T Recommendations.

2.1 Identical Recommendations | International Standards

- ITU-T Recommendation X.200 (1994) | ISO/IEC 7498-1:1994, *Information technology – Open Systems Interconnection – Basic Reference Model: The Basic Model.*
- ITU-T Recommendation X.215 (1995) | ISO/IEC 8326:1996, *Information technology – Open Systems Interconnection – Session service definition.*
- ITU-T Recommendation X.226 (1994) | ISO/IEC 8823-1:1994, *Information technology – Open Systems Interconnection – Connection-oriented presentation protocol: Protocol specification.*
- ITU-T Recommendation X.680 (1994) | ISO/IEC 8824-1:1995, *Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation.*
- ITU-T Recommendation X.690 (1994) | ISO/IEC 8825-1:1995, *Information technology – ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER).*

2.2 Paired Recommendations | International Standards equivalent in technical content

- ITU-T Recommendation X.290 (1995), *OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – General concepts.*

  ISO/IEC 9646-1:1994, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 1: General concepts.*

– ITU-T Recommendation X.296 (1995), *OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – Implementation conformance statements.*

ISO/IEC 9646-7:1995, *Information technology – Open Systems Interconnection – Conformance testing methodology and framework – Part 7: Implementation Conformance Statements.*

– CCITT Recommendation X.650 (1992), *Open Systems Interconnection (OSI) – Reference Model for naming and addressing.*

ISO 7498-3:1989, *Information processing systems – Open Systems Interconnection – Basic Reference Model – Part 3: Naming and addressing.*

2.3 Additional references

– CCITT Recommendation X.410 (1984), *Message handling systems: Remote operations and reliable transfer server*.

3 Definitions

For the purposes of this Recommendation | International Standard, the following definitions apply.

3.1 Terms defined in ITU-T Rec. X.226 | ISO/IEC 8823-1

3.2 Terms defined in ITU-T Rec. X.290 | ISO/IEC 9646-1

a) Implementation conformance statement proforma;

b) Implementation conformance statement;

c) Protocol Implementation Conformance Statement (PICS);

d) PICS proforma.

3.3 Additional terms

a) Requestor: the PPM that initiates a particular action;

b) Acceptor: the PPM that accepts a particular action.

4 Abbreviations

ASN.1	Abstract Syntax Notation One
ICS	Implementation Conformance Statement
PCI	Protocol Control Information
PDV	Presentation Data Value
PICS	Protocol Implementation Conformance Statement
PPDU	Presentation Protocol Data Unit

5 Conformance

A conforming PICS proforma shall be technically equivalent to the ITU-T | ISO/IEC published PICS proforma and shall preserve the numbering and ordering of the items in the ITU-T | ISO/IEC PICS proforma.

A PICS which conforms to this Recommendation | International Standard shall:

a) describe an implementation which conforms to ITU-T Rec. X.226 | ISO/IEC 8823-1;

b) be a conforming PICS proforma, which has been completed in accordance with the instruction for completion given in A.2;

c) include the information necessary to uniquely identify both the supplier and the implementation.

Annex A[1)]

Protocol Implementation Conformance Statement (PICS) proforma for the connection-oriented presentation protocol

(This annex forms an integral part of this Recommendation | International Standard)

A.1 Identification of PICS proforma corrigenda

The supplier of the PICS proforma shall identify any corrigenda (i.e. Technical corrigenda or equivalent) to the published proforma that have been applied. Suppliers of the proforma should modify the proforma, or attach relevant additional pages in order to apply the corrigenda, and then record the application of the corrigenda in Table A.1.

Table A.1

Identification of corrigenda applied to this PICS proforma	ITU-T Rec. X.246 (1994) | ISO/IEC 8823-2:1995 Corr: Corr: Corr:

A.2 Instructions

A.2.1 Purpose and structure of the proforma

The purpose of this PICS proforma is to provide suppliers of implementations of ITU-T Rec. X.226 | ISO/IEC 8823-1 with a consistent means of stating which capabilities have been implemented.

The proforma is in the form of a questionnaire and consists of a set of items. An item is provided for each capability for which an implementation choice is allowed. Items are also provided for major mandatory capabilities for which no implementation choice is allowed. Each item includes an item number, an item description, a status value specifying the support requirement, and room for a support answer to be provided by the supplier.

This subclause provides general information and instructions for completion of the proforma.

Subclause A.3 is for identification of the implementation.

Subclause A.4 contains the means of specifying, at a high level, the protocol and corrigenda that have been implemented.

Subclause A.5 contains the global statement of conformance.

Subclause A.6 onwards contain tables in which the supplier specifies details of the implementation options chosen.

A.2.2 Symbols, terms and abbreviations

A.2.2.1 Introduction

Notations have been introduced in order to reduce the size of tables in the PICS proforma. These have allowed the use of multi-column layout where the columns are headed ‘Status’, and ‘Support’. The definition of each is given below.

Additionally, the following definitions apply:

A.2.2.1.1 (PICS) item: A row in a PICS proforma table.

A.2.2.1.2 (PICS) question: The question to be answered in the intersection of a PICS item and either a support column (i.e. “Is this item supported in the context applying to this table and column”) or supported values column (i.e. “What values are supported for this item in the context applying to this table and column”) in a PICS proforma table.

---

1) **Copyright release for PICS proforma**

Users of this Recommendation | International Standard 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.2.2.1.3 status (value): An allowed entry in the status column for an item in a PICS proforma table.

A.2.2.1.4 (support) answer: An allowed entry in the support or supported values columns for an item in a PICS, in answer to a PICS question.

A.2.2.2 Prerequisite notation

If a predicate applies to a whole ICS proforma table, a prerequisite line may be specified in front of the table to which it applies. A prerequisite line takes the form:

Prerequisite: <predicate>

The meaning of such a line is that if <predicate> is True, then the table applies, else it is not-applicable.

A.2.2.3 Item numbering

Each line within the PICS proforma which requires implementation detail to be entered is given an item number in the first column. The item number column provides a means of uniquely referencing each possible answer within the PICS proforma. Such referencing is necessary for specifying predicates, conditional expressions, test suite parameters, and test suite selection expressions.

The means of referencing individual answers is to specify the following sequence:

a) If, and only if, the reference is being made from another Specification, then start with an unambiguous identifier for the relevant ICS proforma specification, enclosed in parentheses – this identifier is stated in the PICS proforma specification and is updated whenever the PICS proforma is updated – it is recommended that this identifier be the relevant Specification number and year of publication, as is used in a Normative references clause, and this is the default for such identifiers.

b) The number of the relevant table or, if the tables are not numbered, of the smallest subclause enclosing the relevant table.

c) A solidus character, “/”.

d) The item number or mnemonic reference to the item, to identify the row in which the answer appears.

e) If, and only if, more than one question occurs in the row identified by the item number or mnemonic reference, then each possible answer is implicitly labelled a, b, c, etc., from left to right, and this letter is appended to the sequence, prefixed by a solidus character (“/”) if a mnemonic reference is used.

If mnemonic references are specified and each uniquely identify an item in the PICS proforma, then entries b) and c) in the above sequence may be omitted.

A.2.2.4 Status column

‘Status’ as defined in ITU-T Rec. X.226 | ISO/IEC 8823-1. This column indicates the level of support required for conformance to ITU-T Rec. X.226 | ISO/IEC 8823-1.

A.2.2.4.1 Definitions applying to the table in A.7

The values are as follows:

‘m’ Mandatory support is required.

‘o’ Optional support is permitted for conformance to ITU-T Rec. X.226 | ISO/IEC 8823-1. If implemented, it must conform to the specifications and restrictions contained in ITU-T Rec. X.226 | ISO/IEC 8823-1. These restrictions may affect the optionality of other items.

‘o.*n*’ Selectable options among a set of items (where *n* is the number which identifies the group of optional items that are grouped together). The definitions for the qualified optional statements used are written under the tables, and are indexed in Annex B.

‘c*n*’ The item is conditional (where *n* is the number which identifies the condition which is applicable). The definitions for the conditional statements used are written under the tables, and are indexed in Annex B.

‘n/a’ The item is not applicable.

If support is claimed for the sending of a PPDU, then the implementation shall be able to:

– build the PPDU (i.e. build correctly the heading, all mandatory parameters, and all supported optional parameters) in the situations required by the protocol specification;

– encode the PPDU according to a valid encoding format.

If support is claimed for receiving of a PPDU, then the implementation shall be able to:

– syntactically identify the PPDU and parse all valid instances of the PDU, including all valid PDU parameters. Supporting the receipt of a PDU whilst having no ability to parse one of its valid parameters is non-conformant.

A.2.2.4.2 Definitions applying to the tables in A.8

The values for the sender of a PDU are as follows:

‘m’ Mandatory support is required. The implementation shall be able to build and encode this parameter within the PPDU.

‘o’ Optional support is permitted for conformance to ITU-T Rec. X.236 | ISO/IEC 9576-1.

‘c*n*’ The item is conditional (where *n* is the number which identifies the condition which is applicable). The definitions for the conditional statements used are written under the tables, and are indexed in Annex B.

‘n/a’ The item is not applicable.

The values for the receiver of a PDU are as follows:

‘m’ Mandatory support is required. The implementation shall be able to parse this parameter within the PPDU, and also perform the actions required by the semantics of the parameter.

‘o’ Optional support is permitted for conformance to ITU-T Rec. X.236 | ISO/IEC 9576-1. If support is claimed, the implementation shall support the semantics of the parameter.

‘c*n*’ The item is conditional (where *n* is the number which identifies the condition which is applicable). The definitions for the conditional statements used are written under the tables, and are indexed in Annex B.

‘n/a’ The item is not applicable.

A.2.2.5 Support column

The ‘Support’ column shall be completed by the supplier or implementor to indicate the level of implementation of each feature. The proforma has been designed such that the only entries required in the ‘Support’ column are:

‘Y’ Yes, the feature has been implemented.

‘N’ No, the feature has not been implemented.

‘–’ No answer required – it is unnecessary to answer the question with a Yes or a No because the question has a status value of not-applicable.

A.2.3 Instructions for completion

The supplier shall complete all entries in the column marked ‘Support’. In certain clauses of the PICS proforma further guidance for completion may be necessary. Such guidance shall supplement the guidance given in this A.2 and shall have a scope restricted to the clause in which it appears. In addition, other specifically identified information shall be provided by the implementor where requested. No changes shall be made to the proforma except the completion as required. Recognizing that the level of detail required may, in some instances, exceed the space available for responses, a number of responses specifically allow for the addition of appendices to the PICS.

A.3 Identification of the implementation

A.3.1 Date of statement

1	Date of statement? (yy-mm-dd)

A.3.2 Implementation details

The supplier of the protocol implementation shall specify the information necessary to uniquely identify the implementation and the system in which it may reside. This may include details of:

a) supplier, implementation name, operating system, suitable hardware;

b) system supplier and/or client of the test laboratory that is to test the implementation;

c) information on whom to contact if there are queries concerning the content of the PICS.

1	

A.4 Protocol Identification

A.4.1 ITU-T Rec. X.226 | ISO/IEC 8823-1 protocol details

	Identification of Protocol Specification	Support
1	ITU-T Rec. X.226 (1994) | ISO/IEC 8823-1:1994	
2		
3		
4		

A.4.2 ITU-T Rec. X.226 | ISO/IEC 8823-1 technical corrigenda implemented

Identification of corrigenda applied to the implementation	ITU-T Rec. X.226 (1994) | ISO/IEC 8823-1:1994 Corr: Corr: Corr: Corr: Corr:

A.5 Global statement of conformance

1	Are all mandatory features implemented? (Yes or No)

NOTE – If a positive response is not given to this box, then the implementation does not conform to ITU-T Rec. X.226 | ISO/IEC 8823-1.

A.6 Protocol mechanisms and functional units

A.6.1 Protocol mechanisms

	Mode	Status	Support	Mnemonic
1	X.410 (1984)	o.1		
2	Normal	o.1		
o.1:	either Normal mode or X.410 (1984) mode or both shall be supported. If only X.410 (1984) mode is supported, then the remainder of the proforma shall be ignored.			

A.6.2 Functional units

	Presentation functional units	Status	Support	Mnemonic
1	Kernel	m		
2	Presentation Context Management	o		P-FU(CM)
3	Presentation Context Restoration	c0		P-FU(CR)
c0:	if [P-FU(CM)] then o else n/a.			

	Pass through to Session functional units	Status	Support	Mnemonic
4	Negotiated Release	o		S-FU(NR)
5	Half Duplex	o.2		S-FU(HD)
6	Duplex	o.2		S-FU(FD)
7	Expedited Data	o		S-FU(EX)
8	Typed Data	o		S-FU(TD)
9	Capability Data Exchange	c1		S-FU(CD)
10	Minor Synchronize	o		S-FU(SY)
11	Symmetric Synchronize	o		S-FU(SS)
12	Data Separation	o		S-FU(DS)
13	Major Synchronize	o		S-FU(MA)
14	Resynchronize	o		S-FU(RESYNC)
15	Exceptions	c2		S-FU(EXCEP)
16	Activity Management	o		S-FU(ACT)
o.2: pass through for at least one of the Session functional units Duplex and Half Duplex shall be supported. c1: if [S-FU(ACT)] then o else n/a. c2: if [S-FU(HD)] then o else n/a.				

A.7 Elements of procedure related to the PICS

A.7.1 Kernel functional unit

A.7.1.1 Supported roles

A.7.1.1.1 Presentation connection

	Role	Status	Support	Mnemonic
1	Initiator	o.3		P-CON_initiator
2	Responder	o.3		P-CON_responder
o.3: a conforming implementation shall support at least one of the above roles.				

A.7.1.1.2 Normal data

	Role	Status	Support	Mnemonic
1	Requestor	o		P-DATA_requestor
2	Acceptor	o		P-DATA_acceptor

A.7.1.1.3 Orderly release

	Role	Status	Support	Mnemonic
1	Requestor	o		P-REL_requestor
2	Acceptor	o		P-REL_acceptor

A.7.1.2 Supported PPDUs associated with the kernel services

	PPDU	Sender		Receiver		Reference	Comment
		Status	Support	Status	Support		
1	CP	c3		c4			
2	CPA	c4		c3			
3	CPR	c4		c3			
4	ARP	m		m			
5	ARU	o		m			
6	TD	c5		c6			
c3: if [P-CON_initiator] then m else n/a. c4: if [P-CON_responder] then m else n/a. c5: if [P-DATA_requestor] then m else n/a. c6: if [P-DATA_acceptor] then m else n/a.							

A.7.2 Presentation context management functional unit

Prerequisite: P-FU(CM)

A.7.2.1 Supported roles

Does the implementation support the Context Management functional unit as:

	Role	Status	Support	Mnemonic
1	Requestor	o.4		P-ALTER-C_requestor
2	Acceptor	o.4		P-ALTER-C_acceptor
o.4: a conforming implementation shall support at least one of the above roles if the functional unit is supported.				

A.7.2.2 Supported PPDUs associated with the context management services

	PPDU	Sender		Receiver		Reference	Comment
		Status	Support	Status	Support		
1	AC	c7		c8			
2	ACA	c8		c7			
c7: if [P-ALTER-C_requestor] then m else n/a. c8: if [P-ALTER-C_acceptor] then m else n/a.							

A.7.3 Presentation context restoration functional unit

No additional PPDUs.

A.7.4 Pass through to session functional units

A.7.4.1 Negotiated Release

The role supported by the implementation for the Session Negotiated Release functional unit is the same as for the Orderly Release.

A.7.4.2 Half Duplex

Prerequisite: S-FU(HD)

	Role	Status	Support	Mnemonic
1	Requestor	m		
2	Acceptor	m		

A.7.4.3 Duplex

There is no additional pass through functionality associated with this Session functional unit. This subclause is present for completeness only.

A.7.4.4 Expedited Data

Prerequisite: S-FU(EX)

	Role	Status	Support	Mnemonic
1	Requestor	o.5		S-XDATA_requestor
2	Acceptor	o.5		S-XDATA_acceptor
o.5: a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.				

A.7.4.5 Typed Data

Prerequisite: S-FU(TD)

	Role	Status	Support	Mnemonic
1	Requestor	o.6		S-TDATA_requestor
2	Acceptor	o.6		S-TDATA_acceptor
o.6:	a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.			

A.7.4.6 Capability Data

Prerequisite: S-FU(CD)

	Role	Status	Support	Mnemonic
1	Requestor	o.7		S-CAP_requestor
2	Acceptor	o.7		S-CAP_acceptor
o.7:	a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.			

A.7.4.7 Minor Synchronize

Prerequisite: S-FU(SY)

	Role	Status	Support	Mnemonic
1	Requestor	o.8		S-MIN_requestor
2	Acceptor	o.8		S-MIN_acceptor
o.8:	a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.			

A.7.4.8 Symmetric Synchronize

Prerequisite: S-FU(SS)

	Role	Status	Support	Mnemonic
1	Requestor	m		
27	Acceptor	m		

A.7.4.9 Data Separation

Prerequisite: S-FU(DS)

	Role	Status	Support	Mnemonic
1	Requestor	m		
2	Acceptor	m		

A.7.4.10 Major Synchronize

Prerequisite: S-FU(MA)

	Role	Status	Support	Mnemonic
1	Requestor	o.9		S-MAJ_requestor
2	Acceptor	o.9		S-MAJ_acceptor
o.9:	a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.			

A.7.4.11 Resynchronize

Prerequisite: S-FU(RESYNC)

	Role	Status	Support	Mnemonic
1	Requestor	m		
2	Acceptor	m		

A.7.4.12 Exceptions

Prerequisite: S-FU(EXCEP)

	Role	Status	Support	Mnemonic
1	Requestor	m		
2	Acceptor	m		

A.7.4.13 Activity Management

Prerequisite: S-FU(ACT)

A.7.4.13.1 Activity start

	Role	Status	Support	Mnemonic
1	Requestor	o.10		S-ACTS_requestor
2	Acceptor	o.10		S-ACTS_acceptor
o.10:	a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.			

A.7.4.13.2 Activity resume

	Role	Status	Support	Mnemonic
1	Requestor	o.11		S-ACTR_requestor
2	Acceptor	o.11		S-ACTR_acceptor
o.11:	a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.			

A.7.4.13.3 Activity interrupt

	Role	Status	Support	Mnemonic
1	Requestor	o.12		S-ACTI_requestor
2	Acceptor	o.12		S-ACTI_acceptor
o.12:	a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.			

A.7.4.13.4 Activity discard

	Role	Status	Support	Mnemonic
1	Requestor	o.13		S-ACTD_requestor
2	Acceptor	o.13		S-ACTD_acceptor
o.13:	a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.			

A.7.4.13.5 Activity end

	Role	Status	Support	Mnemonic
1	Requestor	o.14		S-ACTE_requestor
2	Acceptor	o.14		S-ACTE_acceptor
o.14:	a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.			

A.7.4.13.6 Give tokens confirm

	Role	Status	Support	Mnemonic
1	Requestor	o		S-GTC_requestor
2	Acceptor	o		S-GTC_acceptor

A.8 Supported PPDU parameters

A.8.1 Connect presentation (CP) PPDU

	Parameter	Sender		Receiver	
		Status	Support	Status	Support
1	Calling presentation selector	c9		c12	
2	Called presentation selector	c9		c12	
3	Mode selector	c3		c4	
4	Presentation context definition list	c9		c4	
5	Default context name	c9		c12	
6	Protocol version	c9		c4	
7	Presentation requirements	c9		c14	
8	User session requirements	c10		c12	
9	User data	c9		c4	
10	CPC Type	c11		c12	

c3: if [P-CON_initiator] then m else n/a.
c4: if [P-CON_responder] then m else n/a.
c9: if [P-CON_initiator] then o else n/a.
c10: if [P-CON_initiator and P-FU(CM)] then o else n/a.
c11: if [P-CON_initiator and A.8.1/4a] then o else n/a.
NOTE – A definition of the numbering notation used in this Recommendation | International Standard is given in A.2.2.3.
c12: if [P-CON_responder] then o else n/a.
c14: if [not P-CON_responder] then n/a else if [P-FU(CM)] then m else o.

A.8.2 Connect presentation accept (CPA)

	Parameter	Sender		Receiver	
		Status	Support	Status	Support
1	Responding presentation selector	c12		c9	
2	Mode selector	c4		c3	
3	Presentation context definition result list	c4		c15	
4	Protocol version	c12		c3	
5	Presentation requirements	c14		c16	
6	User session requirements	c13		c17	
7	User data	c12		c3	

c3: if [P-CON_initiator] then m else n/a.
c4: if [P-CON_responder] then m else n/a.
c9: if [P-CON_initiator] then o else n/a.
c12: if [P-CON_responder] then o else n/a.
c13: if [P-CON_responder and P-FU(CM)] then o else n/a.
c14: if [not P-CON_responder] then n/a else if [P-FU(CM)] then m else o.
c15: if [P-CON_initiator and A.8.1/4a] then m else n/a.
c16: if [P-CON_initiator and A.8.1/7a] then o else n/a.
c17: if [P-CON_initiator and A.8.1/8a] then o else n/a.

A.8.3 Connect presentation reject (CPR) PPDU

	Parameter	Sender		Receiver	
		Status	Support	Status	Support
1	Responding presentation selector	c12		c9	
2	Presentation context definition result list	c4		c11	
3	Protocol version	c12		c9	
4	Default context result	c12		c18	
5	Provider reason	c12		c9	
6	User data	c12		c9	

c4: if [P-CON_responder] then m else n/a.
c9: if [P-CON_initiator] then o else n/a.
c11: if [P-CON_initiator and A.8.1/4a] then o else n/a.
c12: if [P-CON_responder] then o else n/a.
c18: if [P-CON_initiator and A.8.1/5a] then o else n/a.

A.8.4 Abnormal release user (ARU) PPDU

	Parameter	Sender		Receiver	
		Status	Support	Status	Support
1	Presentation context identifier list	o		o	
2	User data	o		o	

A.8.5 Abnormal release provider (ARP) PPDU

	Parameter	Sender		Receiver	
		Status	Support	Status	Support
1	Provider reason	o		o	
2	Event identifier	o		o	

A.8.6 Alter context (AC) PPDU

Prerequisite: P-FU(CM)

	Parameter	Sender		Receiver	
		Status	Support	Status	Support
1	Presentation context addition list	c19		c8	
2	Presentation context deletion list	c19		c8	
3	User data	c19		c20	
c8: if [P-ALTER-C_acceptor] then m else n/a. c19: if [P-ALTER-C_requestor] then o else n/a. c20: if [P-ALTER-C_acceptor] then o else n/a.					

A.8.7 Alter context acknowledge (ACA) PPDU

Prerequisite: P-FU(CM)

	Parameter	Sender		Receiver	
		Status	Support	Status	Support
1	Presentation context addition result list	c8		c21	
2	Presentation context deletion result list	c8		c22	
3	User data	c20		c19	
c8: if [P-ALTER-C_acceptor] then m else n/a. c19: if [P-ALTER-C_requestor] then o else n/a. c20: if [P-ALTER-C_acceptor] then o else n/a. c21: if [A.8.6/1a] then m else n/a. c22: if [A.8.6/2a] then m else n/a.					

A.8.8 Presentation data (TD) PPDU

	Parameter	Sender		Receiver	
		Status	Support	Status	Support
1	User data	c5		c6	

c5: if [P-DATA_requestor] then m else n/a.
c6: if [P-DATA_acceptor] then m else n/a.

A.8.9 Presentation typed data (TTD) PPDU

Prerequisite: S-FU(TD)

	Parameter	Sender		Receiver	
		Status	Support	Status	Support
1	User data	c23		c24	

c23: if [S-TDATA_requestor] then m else n/a.
c24: if [S-TDATA_acceptor] then m else n/a.

A.8.10 Expedited data (TE) PPDU

Prerequisite: S-FU(EX)

	Parameter	Sender		Receiver	
		Status	Support	Status	Support
1	User data	c25		c26	

c25: if [S-XDATA_requestor] then m else n/a.
c26: if [S-XDATA_acceptor] then m else n/a.

A.8.11 Capability data (TC) PPDU

Prerequisite: S-FU(CD)

	Parameter	Sender		Receiver	
		Status	Support	Status	Support
1	User data	c27		c28	

c27: if [S-CAP_requestor] then m else n/a.
c28: if [S-CAP_acceptor] then m else n/a.

A.8.12 Capability data acknowledge (TCC) PPDU

Prerequisite: S-FU(CD)

	Parameter	Sender		Receiver	
		Status	Support	Status	Support
1	User data	c28		c27	
c27: if [S-CAP_requestor] then m else n/a. c28: if [S-CAP_acceptor] then m else n/a.					

A.8.13 Resynchronize (RS) PPDU

Prerequisite: S-FU(RESYNC)

	Parameter	Sender		Receiver	
		Status	Support	Status	Support
1	Presentation context identifier list	c48		c48	
2	User data	o		o	
c48: if [P-FU(CR)] then o else n/a.					

A.8.14 Resynchronize acknowledge (RSA) PPDU

Prerequisite: S-FU(RESYNC)

	Parameter	Sender		Receiver	
		Status	Support	Status	Support
1	Presentation context identifier list	c48		c48	
2	User data	o		o	
c48: if [P-FU(CR)] then o else n/a.					

A.8.15 Session service primitives not carrying Presentation PCI

	Primitive	Sender		Receiver	
		Status	Support	Status	Support
1	S-REL-req/ind	c29		c30	
2	S-REL-rsp/cnf	c30		c29	
3	S-TG-req/ind	c31		c31	
4	S-TP-req/ind	c31		c31	
5	S-CG-req/ind	c32		c32	
6	S-SYNm-req/ind	c33		c34	
7	S-SYNm-rsp/cnf	c34		c33	
8	S-SYNM-req/ind	c35		c36	
9	S-SYNM-rsp/cnf	c36		c35	
10	S-PER-ind	–		c37	
11	S-UER-req/ind	c37		c37	
12	S-ACTS-req/ind	c38		c39	
13	S-ACTR-req/ind	c40		c41	
14	S-ACTI-req/ind	c42		c43	
15	S-ACTI-rsp/cnf	c43		c42	
16	S-ACTD-req/ind	c44		c45	
17	S-ACTD-rsp/cnf	c45		c44	
18	S-ACTE-req/ind	c46		c47	
19	S-ACTE-rsp/cnf	c47		c46	

c29: if [P-REL_requestor] then m else n/a.
c30: if [P-REL_acceptor] then m else n/a.
c31: if [S-FU(NR) or S-FU(HD) or S-FU(SY) or S-FU(MA) or S-FU(ACT)] then m else n/a.
c32: if [S-FU(ACT)] then m else n/a.
c33: if [S-MIN_requestor] then m else n/a.
c34: if [S-MIN_acceptor] then m else n/a.
c35: if [S-MAJ_requestor] then m else n/a.
c36: if [S-MAJ_acceptor] then m else n/a.
c37: if [S-FU(EXCEP)] then m else n/a.
c38: if [S-ACTS_requestor] then m else n/a.
c39: if [S-ACTS_acceptor] then m else n/a.
c40: if [S-ACTR_requestor] then m else n/a.
c41: if [S-ACTR_acceptor] then m else n/a.
c42: if [S-ACTI_requestor] then m else n/a.
c43: if [S-ACTI_acceptor] then m else n/a.
c44: if [S-ACTD_requestor] then m else n/a.
c45: if [S-ACTD_acceptor] then m else n/a.
c46: if [S-ACTE_requestor] then m else n/a.
c47: if [S-ACTE_acceptor] then m else n/a.

A.9 Support of syntaxes

A.9.1 Transfer syntaxes supported

This subclause shall be used to indicate which transfer syntaxes the implementation supports. For each transfer syntax supported, a reference to the definition of the transfer syntax shall be given. Implementation restrictions with respect to the encoding variations as offered by the transfer syntax shall be stated separately and referenced in the following table where applicable. If the number of transfer syntaxes supported by the implementation exceeds the space available in the table, then details of support shall be given in an appendix to the PICS using a table with the equivalent layout.

NOTE – The definition of the ASN.1 basic encoding rules are given in ITU-T Rec. X.690 | ISO/IEC 8825-1. To complete the specification of a transfer syntax, it is necessary to indicate the abstract syntax specification to which the encoding rules should be applied.

	Type	Detail	Support	Reference to definition	Reference to restriction
1	Object identifier	{joint-iso-ccitt asn1(1) basic-encoding(1)}			

A.9.2 Abstract syntaxes supported

This subclause shall be used to indicate which abstract syntaxes the implementation supports. If the number of abstract syntaxes supported by the implementation exceeds the space available in the table, then details of support shall be given in an appendix to the PICS using a table with the equivalent layout.

NOTE – From the Presentation standard point of view, an implementation is required to support any standardized abstract syntax. However, for technical and economic reasons, an implementation may only support a limited number of abstract syntaxes.

	Type	Detail	Support
1	Object identifier	{joint-iso-ccitt association control(2) abstract-syntax(1) apdus(0) version1(1)}	

A.9.3 Use of ASN.1 basic encoding

This subclause shall be used to indicate whether any encoding restrictions exist for sending:

a) the Presentation PCI of PPDUs;

b) abstract syntaxes using ASN.1 which are stated as supported in A.9.2.

Any restrictions given are assumed to apply to a) and b) unless explicitly stated. In the case that more than one set of restrictions apply, the table shall be replicated and it shall be clearly stated to which abstract syntax each set of restrictions apply.

	Restriction	Support	Comment
1	Only definite form of length encoding used		
2	Indefinite form of length encoding used for all constructed types		
3	Only minimal number of octets used for definite form of length encoding		
4	Only primitive encoding used for OCTETSTRING		
5	Only primitive encoding used for BITSTRING		

A.9.4 PDV structure of User Data parameters

This subclause shall be used to indicate whether particular restrictions exist for the encoding of multiple Presentation data value in abstract syntaxes using ASN.1, which are stated as supported in A.9.2.

Any restrictions given are assumed to apply to all abstract syntaxes unless explicitly stated. In the case that more than one set of restrictions apply, the table shall be replicated and it shall be clearly stated to which abstract syntax each set of restrictions apply.

	Restriction	Support	Limit	Comment
1	Limit on number of PDVs in User Data parameter			
2	Limit on number of PDVs in a single PDV-list value			

End of PICS proforma

Annex B

Summary of conditions

(This annex does not form an integral part of this Recommendation | International Standard)

o.1: either Normal mode or X.410 (1984) mode or both shall be supported. If only X.410 (1984) mode is supported, then the remainder of the proforma shall be ignored.

o.2: pass through for at least one of the Session functional units Duplex and Half Duplex shall be supported.

o.3: a conforming implementation shall support at least one of the above roles.

o.4: a conforming implementation shall support at least one of the above roles if the functional unit is supported.

o.5: a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.

o.6: a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.

o.7: a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.

o.8: a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.

o.9: a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.

o.10: a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.

o.11: a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.

o.12: a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.

o.13: a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.

o.14: a conforming implementation shall support at least one of the above roles if the pass through functional unit is supported.

c0: if [P-FU(CM)] then o else n/a.

c1: if [S-FU(ACT)] then o else n/a.

c2: if [S-FU(HD)] then o else n/a.

c3: if [P-CON_initiator] then m else n/a.

c4: if [P-CON_responder] then m else n/a.

c5: if [P-DATA_requestor] then m else n/a.

c6: if [P-DATA_acceptor] then m else n/a.

c7: if [P-ALTER-C_requestor] then m else n/a.

c8: if [P-ALTER-C_acceptor] then m else n/a.

c9: if [P-CON_initiator] then o else n/a.

c10: if [P-CON_initiator and P-FU(CM)] then o else n/a.

c11: if [P-CON_initiator and A.8.1/4a] then o else n/a.

c12: if [P-CON_responder] then o else n/a.

c13: if [P-CON_responder and P-FU(CM)] then o else n/a.

c14: if [not P-CON_responder] then n/a else if [P-FU(CM)] then m else o.

c15: if [P-CON_initiator and A.8.1/4a] then m else n/a.

c16: if [P-CON_initiator and A.8.1/7a] then o else n/a.

c17: if [P-CON_initiator and A.8.1/8a] then o else n/a.

c18: if [P-CON_initiator and A.8.1/5a] then o else n/a.

c19: if [P-ALTER-C_requestor] then o else n/a.

c20: if [P-ALTER-C_acceptor] then o else n/a.

c21: if [A.6/1a] then m else n/a.

c22: if [A.6/2a] then m else n/a.

c23: if [S-TDATA_requestor] then m else n/a.

c24: if [S-TDATA_acceptor] then m else n/a.

c25: if [S-XDATA_requestor] then m else n/a.

c26: if [S-XDATA_acceptor] then m else n/a.

c27: if [S-CAP_requestor] then m else n/a.

c28: if [S-CAP_acceptor] then m else n/a.

c29: if [P-REL_requestor] then m else n/a.

c30: if [P-REL_acceptor] then m else n/a.

c31: if [S-FU(NR) or S-FU(HD) or S-FU(SY) or S-FU(MA) or S-FU(ACT)] then m else n/a.

c32: if [S-FU(ACT)] then m else n/a.

c33: if [S-MIN_requestor] then m else n/a.

c34: if [S-MIN_acceptor] then m else n/a.

c35: if [S-MAJ_requestor] then m else n/a.

c36: if [S-MAJ_acceptor] then m else n/a.

c37: if [S-FU(EXCEP)] then m else n/a.

c38: if [S-ACTS_requestor] then m else n/a.

c39: if [S-ACTS_acceptor] then m else n/a.

c40: if [S-ACTR_requestor] then m else n/a.

c41: if [S-ACTR_acceptor] then m else n/a.

c42: if [S-ACTI_requestor] then m else n/a.

c43: if [S-ACTI_acceptor] then m else n/a.

c44: if [S-ACTD_requestor] then m else n/a.

c45: if [S-ACTD_acceptor] then m else n/a.

c46: if [S-ACTE_requestor] then m else n/a.

c47: if [S-ACTE_acceptor] then m else n/a.

c48: if [P-FU(CR)] then o else n/a.

ITU-T RECOMMENDATIONS SERIES

Series A	Organization of the work of the ITU-T
Series B	Means of expression
Series C	General telecommunication statistics
Series D	General tariff principles
Series E	Telephone network and ISDN
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media
Series H	Transmission of non-telephone signals
Series I	Integrated services digital network
Series J	Transmission of sound-programme and television signals
Series K	Protection against interference
Series L	Construction, installation and protection of cables and other elements of outside plant
Series M	Maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits
Series N	Maintenance: international sound-programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Telephone transmission quality
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	Terminal equipments and protocols for telematic services
Series U	Telegraph switching
Series V	Data communication over the telephone network
Series X	**Data networks and open system communication**
Series Z	Programming languages