

Implementation of ENV 41103-1 : 1992

Information systems interconnection — Provision of the OSI connection-mode transport service using the OSI connection-mode network service in an end system attached to a LAN

Part 1: LAN subnetwork dependent media independent requirements

To avoid delay in preparing the content of this publication for printing, it was reproduced from the only available copy of the finally agreed document. The resultant poor print quality is very much regretted. The price has been adjusted accordingly.

Interconnexion des systèmes d'information —
Fourniture du service de transport OSI en
mode connexion utilisant le service de réseau
OSI en mode connexion dans un système final
connecté à un réseau local —
Partie 1 : Spécifications dépendant du
sous-réseau RLE et indépendantes du support

Kommunikation von Informationssystemen —
Erbringung des verbindungsorientierten OSI -
Transportdienstes über dem
verbindungsorientierten
OSI-Vermittlungsdienst in einem Endsystem
an einem Lokalen Netz —
Teil 1 : LAN-Teilnetz-abhängige,
Medium-unabhängige Anforderungen

UDC 681.324.01 : 681.327.8

National foreword

This Draft for Development is identical with the European Prestandard ENV 41103-1 : 1992 *Information systems interconnection — Provision of the OSI connection-mode transport service using the OSI connection-mode network service in an end system attached to a LAN — Part 1 : LAN subnetwork dependent media independent requirements*, prepared by CEN/CENELEC whose members have committed themselves to making it available in an appropriate form. In the UK the Draft for Development is the form now chosen for ENVs in the information technology area.

This Draft for Development is published under the direction of the Information Systems Technology Standards Policy Committee whose Technical Committee IST/6 has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any queries on interpretation, or proposals for change, and keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

NOTE. International and European Standards, as well as overseas standards, are available from BSI Sales Department, BSI, Linford Wood, Milton Keynes, MK14 6LE.

After 2 years this ENV will be reviewed by CEN/CENELEC members with a view to its:

- conversion into a European Standard (which would be implemented in the UK as a British Standard);
- extension once for a further 2 years;
- replacement by a revised ENV (which would be published in the UK as a revised Draft for Development);
- withdrawal.

The future of this Draft for Development is therefore bound to that of the ENV and the Draft for Development will not be reviewed or developed separately.

This publication is not to be regarded as a British Standard.

UDC 681.324.01 : 681.327.8

Descriptors: Data processing, information interchange, data transfer, open systems interconnection, network interconnection, local area networks, connection oriented transmission, transport layer, network layer, specification

English version

**Information systems interconnection — Provision of the
OSI connection-mode transport service using the OSI
connection-mode network service in an end system
attached to a LAN —
Part 1 : LAN subnetwork dependent media independent
requirements**

Interconnexion des systèmes d'information —
Fourniture du service de transport OSI en
mode connexion utilisant le service de réseau
OSI en mode connexion dans un système final
connecté à un o réseau local —
Partie 1 : Spécifications dépendant du
sous-réseau RLE et indépendantes du support

Kommunikation von Informationssystemen —
Erbringung des verbindungsorientierten
OSI-Transportdienstes über dem
verbindungsorientierten
OSI-Vermittlungsdienst in einem Endsystem
an einem Lokalen Netz —
Teil 1 : LAN-Teilnetz-abhängige,
Medium-unabhängige Anforderungen

This European Prestandard (ENV) was approved by CEN/CENELEC on 1991-11-20 as a prospective standard for provisional application. The period of validity of this ENV is limited initially to three years. After two years the members of CEN/CENELEC will be requested to submit their comments, particularly on the question whether the ENV can be converted into an European Standard (EN).

CEN/CENELEC members are required to announce the existence of this ENV in the same way as for an EN and to make the ENV available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the ENV) until the final decision about the possible conversion of the ENV into an EN is reached.

CEN/CENELEC members are the national standards bodies and national electrotechnical committees, respectively, of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN/CENELEC

Central Secretariat: rue de Stassart 36, B-1050 Brussels

© 1992 Copyright reserved to CEN/CENELEC members

Ref. No. EN 41103-1 : 1992 E

 **Documents**
Document Sharing Hub

Contents

	Page
1	4
2	4
3	5
4	5
5	6
5.1	6
5.2	6
5.2.1	6
5.2.2	6
5.2.3	6
5.2.4	7
5.3	7
5.3.1	7
5.3.2	8
5.3.3	9
Annex A (normative) ISPICS requirements list	11
Annex B (normative) Assumed base standard PICS proformas	16
Annex C (informative) Recommendations	59
Annex D (informative) Defect reports	62

FOREWORD

This European Prestandard was prepared by EWOS EG/LL as part of a five-part ENV and was presented to the CEN/CS for formal vote. The result of the formal vote was positive.

The formal vote for this ENV was concluded on 1991-11-20. Comments of an editorial nature received during this ballot period and accepted by EWOS EG/LL have been included in this European Prestandard.

The complete European Prestandard - ENV 41103:1992 Parts 1-5 - covers profiles T/611 and T/613 which were previously covered by ENV 41103:1987 and ENV 41108:1988 respectively.

Those two ENVs were subject to the Two-Year Enquiry procedure in accordance with Clause 7.7 of the CEN/CENELEC Internal Regulations Part 2, Revised Edition 2, April 1990. The Enquiry on ENV 41103:1987 was concluded on 1991-02-06 and the one for ENV 41108:1988 on 1991-07-10.

The outcome of the Two-Year Enquiries was for both documents to be revised and sent out for formal vote as ENVs to supersede the previous ones. For technical reasons it was decided by EWOS to combine the revisions of ENV 41103 and 41108, thus creating a single new multipart European Prestandard.

ENV 41103:1992 Parts 1-5 supersedes ENV 41103:1987 and ENV 41108:1988 which will be withdrawn.

Introduction

This Functional Standard is defined in accordance with the principles specified by ISO/IEC TR 10000. The context of Functional Standardization is one part of the overall field of Information Technology (IT) standardization activities, covering *base standards*, *profiles*, and *registration mechanisms*. A profile defines a combination of base standards that collectively perform a specific well-defined IT function. Profiles standardize the use of options and other variations in the base standards, and provide a basis for the development of uniform, internationally recognized system tests.

One of the most important rôles for a Functional Standard is to serve as the basis for the development (by organizations other than ISO and IEC) of internationally recognized tests and test centres. Functional Standards are produced not simply to 'legitimize' a particular choice of base standards and options, but to promote real system interoperability. The development and widespread acceptance of tests based on this and other Functional Standards is crucial to the successful realization of this goal.

This Functional Standard consists of several parts, these cover:

- subnetwork dependent media independent requirements
- subnetwork dependent media dependent requirements
- the definition of the specific profiles

This part specifies Local Area Network (LAN) subnetwork dependent media independent requirements.

1 Scope

This Functional Standard is applicable to end systems concerned with operating in the Open Systems Interconnection (OSI) environment. It specifies a combination of OSI standards, which collectively provide the connection-mode Transport Service using the Connection-mode Network Service.

This Functional Standard part is applicable to the provision of the connection-mode Transport Service in end systems attached to a Local Area Network (LAN) subnetwork from which the standardized connection-mode Network Service can be made available.

2 Normative References

The following documents contain provisions which, through reference in this text, constitute provisions of this Functional Standard. At the time of publication, the editions indicated were valid. All documents are subject to revision and parties to agreements based on this Functional Standard are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by Functional Standards to such documents is that they may be specific to a particular edition. Members of IEC and ISO maintain registers of currently valid International Standards and ISPs, and CCITT maintains published editions of its current Recommendations.

ISO/IEC 8208 : 1990, *Information technology - Data communications - X.25 Packet Layer Protocol for Data Terminal Equipment*.

ISO/IEC 8208 : 1990/Amd.3 : 1991, *Information technology - Data communications - X.25 Packet Layer Protocol for Data Terminal Equipment*.

ISO/IEC 8881 : 1989, *Information processing systems - Data communications - Use of the X.25 Packet Level Protocol for local area networks*.

ISO 8878 : 1987, *Information processing systems - Data communications - Use of the X.25 to provide the OSI connection-mode Network Service*.

ISO 8802-2 : 1989, *Information processing systems - Local area networks - Part 2: Logical link control*.

ISO/IEC 8802-2/Add.1 : 1990, *Information processing systems - Local area networks - Part 2: Logical link control - Addendum 1: Flow control techniques for bridged local area networks (ISO/IEC JTC1/SC6 N 5395)*.

ISO/IEC TR 10 000-1 : 1990, *Information technology - Framework and taxonomy of International Standardized Profiles. Part 1: Framework*.

ISO/IEC TR 10 000-2 : 1990, *Information technology - Framework and taxonomy of International Standardized Profiles. Part 2: Taxonomy of Profiles*.

M-IT-02 (Issue 5) : *CEN/CENELEC/ETSI Memorandum on Taxonomy of Profiles and Directory of Functional Standards (For interworking in an OSI environment)*.

3 Definitions

The terms used in this Functional Standard are defined in the referenced base standards (see clause 2).

4 Abbreviations

Abbreviations used in this Functional Standard are defined in the referenced base standards (see clause 2).

5 Subnetwork-type dependent media independent requirements

5.1 General

The requirements in this clause specify the subnetwork-type dependent media independent requirements for end system operation when the end system is attached to a Local Area Network.

5.2 Static conformance requirements

5.2.1 Overall requirements

An implementation conforming to this part of this Functional Standard shall:

- a) meet the requirements for ISO 8878 in clause 5.2.2 below
- b) meet the requirements for ISO 8208, as constrained by ISO 8881, in clause 5.2.3 below
- c) meet the requirements for ISO 8802-2 in clause 5.2.4 below
- d) implement all the features identified as requirements in the ISPICS Requirements List in Annex A.

5.2.2 ISO 8878

The implementation shall:

- a) meet the requirements for the provision of the OSI Network Service as defined in ISO 8878 excluding: the Receipt Confirmation Service (clause 9), the Expedited Data Transfer Service (clause 10), and Annex A
- b) be capable of using the source and destination OSI network addresses of any of the formats and values defined in ISO 8348/Add.2

5.2.3 ISO 8208

5.2.3.1 General requirements

The implementation shall:

- a) meet the static conformance requirements specified in clause 17 of ISO 8208/Add.3
- b) implement the Virtual Call Service
- c) implement the following capabilities identified in Table 23 of ISO 8208/Add.3:
 - Virtual Call (VC) set-up; initiating an outgoing VC, with subsequent acceptance or rejection, or receiving an incoming VC and responding by acceptance, and receiving an incoming VC and responding by rejection
 - Note - An implementation may do one or the other or both.
 - Aborting an outgoing VC attempt by clearing
 - Clearing an established VC as initiator and as responder
 - Resetting a logical channel as responder
- d) implement the following options from clause 17.1.2 of ISO 8208/Add.3:
 - support of transfer of user data in call set-up packets, for both transmission and reception
 - support of DATA packet transfer
 - support of DATA packets with M-bit set to 1 for reception
 - transmit updated window rotation information
 - transmit RR packets

- e) be capable of accepting incoming VCs as fast select calls
- f) support the following optional facilities:
 - Throughput Class Negotiation
 - Fast Select
 - Fast Select Acceptance
 - Transit Delay Selection and Indication
 - Calling Address Extension
 - Called Address Extension
 - Minimum Throughput Class Negotiation
 - End-to-End Transit Delay Negotiation
 - Expedited Data Negotiation
- g) meet the requirements on network addresses in clause 5.2.3.2 below

5.2.3.2 Network addresses

A system conforming to this Functional Standard shall be capable of using source and destination OSI network addresses of any of the formats and values defined in ISO 8348/Add.2.

The calling, called and responding NSAP addresses shall be conveyed in their entirety, using the preferred binary encoding, in the facility parameter field of the Called and Calling Address Extension Facility.

Note - If a conformant implementation receives an INCOMING CALL packet which does not conform to this specification, it is recommended that a CLEAR REQUEST packet is transmitted, using cause code 'DTE Originated' and either diagnostic code 235 or diagnostic code 232.

5.2.4 ISO 8802-2

The implementation shall:

- a) implement the functions required by ISO 8802-2 for the support of the Logical Link Control Type 2 protocol
- b) in order to achieve intercommunication agree the values of N1 and the Ack Timer on a LAN-wide basis
- c) support an Ack Timer value of 5 ± 1 seconds, and it is recommended that the Ack Timer should be configurable

5.3 Dynamic conformance requirements

5.3.1 Overall requirements

An implementation conforming to this part of this Functional Standard shall:

- a) meet the requirements for ISO 8208 in clause 5.3.2 below
- b) meet the requirements for ISO 8802-2 in clause 5.3.3 below
- c) behave in accordance with the requirements of the ISPICS Requirements List in Annex A.

5.3.2 ISO 8208

5.3.2.1 General requirements

The implementation shall:

- a) carry out the supported ISO 8208 functions in accordance with the procedures for the X.25 Packet Level Protocol of ISO 8208, as modified for operation over LLC type 2 in a LAN environment by sections 1 and 2 of ISO 8881
- b) not make use of the procedures for the operation of ISO 8208 over LLC type 1 defined in Section 3 of ISO 8881, as they are prohibited by this Functional Standard
Note - This does not apply to the use of ISO 10030 routing protocol which can make use of LLC type 1 in a LAN environment.
- c) support the method for determining the range of logical channels detailed in clause 5.3.2.4 below
- d) meet the requirements on Expedited data in clause 5.3.2.2 below
- e) meet the requirements on Receipt confirmation in clause 5.3.2.3 below

The implementation may:

- a) ignore the X.25 PLP called-DTE and calling-DTE addresses as this Functional Standard does not require their use

5.3.2.2 Expedited data

The Expedited Data Service is not supported.

The expedited data negotiation (EDN) facility of the X.25/PLP - 1984 is used to negotiate non-use of expedited data service.

- i When a network layer entity receives an N-CONNECT request primitive from an Network Service user, the CALL REQUEST packet sent may contain the EDN facility set to 'no use of expedited data' or, alternatively, the EDN facility may be omitted, this implies 'no-use' of the facility.
- ii When a network layer entity receives an N-CONNECT response primitive from an Network Service user, the CALL ACCEPTED packet sent may contain the EDN facility set to 'no use of expedited data' or, alternatively, the EDN facility may be omitted, this implies 'no-use' of the facility.

Notes

- 1 If an implementation, operating according to this Functional Standard, receives an INTERRUPT packet during the data transfer phase, it is recommended that the virtual call is cleared using the CLEAR REQUEST packet (and associated procedures defined in ISO 8208) using the cause code 'DTE Originated' and diagnostic code 44.
- 2 When operating certain other profiles, for instance to support X.29 terminal access, then the support of single octet INTERRUPT packets will be required.

5.3.2.3 Receipt confirmation

The Receipt Confirmation Service is not supported.

Bit 7 of Octet 1 (the D-bit) in the GFI of the X.25/PLP - 1984 call set-up packet is used to negotiate the non-use of the receipt confirmation service.

- i CALL REQUEST packets sent by the DTE shall have the D-bit set to 0.
- ii When a network layer entity receives a CONNECT response primitive, the receipt confirmation selection parameter shall be set to 'No use of Receipt Confirmation' and consequently Bit 7 of the GFI in the CALL ACCEPTED packet is set to 0.

Note - If a conformant implementation receives a DATA packet with the D-bit set to 1, it is recommended that the virtual call is cleared using the CLEAR REQUEST packet (and associated procedures defined in ISO 8208) using the cause code 'DTE Originated' and either the diagnostic code 225 or diagnostic code 166.

5.3.2.4 Method for the determination of the range of logical channels

The logical channel ranges (LIC, HIC, LTC, HTC, LOC and HOC) to be used are determined by local knowledge. If local knowledge is not available, then by default only a single two-way logical channel will be used (ie LTC and HTC will be set to 1, while LIC, HIC, LOC and HOC will be set to zero). If more than one channel is available, a higher value of HTC may be negotiated using the On-line Facility Registration Facility.

If a DTE is capable of initiating a REGISTRATION REQUEST packet, then the registration parameter fields shall be set as follows.

The LIC, HIC, LOC and HOC parameters shall be set to zero. The LTC shall be set to the value 1. The value in the total number of logical channels parameter field shall be set equal to the value in the HTC parameter field.

No other optional user facilities shall be identified in the REGISTRATION REQUEST packet, and may be ignored by a responder if they are present.

If a DTE is capable of responding with a REGISTRATION CONFIRMATION packet, the maximum number of two-way logical channels allowed between the two DTEs shall be indicated in the HTC parameter field. The value in the HTC parameter field shall be less than or equal to the value requested in the HTC parameter field in the REGISTRATION REQUEST packet.

Registration of facilities normally applies in one direction only for the DTE/DCE case (ie registration of facilities is performed independently for each direction), but for the logical channel range negotiation it applies to both directions.

Note - REGISTRATION REQUEST packet may be ignored by a responder. However, it is recommended that DTEs are capable of responding with a REGISTRATION CONFIRMATION packet even if they support only a single two-way logical channel. This will prevent unnecessary delays for the initiator in transmitting a CALL REQUEST packet. Such delays are determined by the initiator's values for timer T28 and retry counter R28.

5.3.3 ISO 8802-2

5.3.3.1 General requirements

The implementation shall:

- a) carry out the supported ISO 8802-2 functions in accordance with the procedures specified in ISO 8802-2
- b) use the LLC actual address value of '111 1110'. Table 3 illustrates the coding of the DSAP and the SSAP address fields

Table 3 - LLC address values

	DSAP address field	SSAP address field
Field format	Address type designator bit (Individual/Group) ↓ I/G Actual address ← D D D D D D D →	Command/response identifier bit ↓ C/R Actual address ← S S S S S S S →
Value	0 1 1 1 1 1 1 0	C/R 1 1 1 1 1 1 0

- c) if a value of K other than 7 is to be used, negotiate the value to be used by XID frames according to the procedures in clause 5.3.3.2 below

5.3.3.2 Use of XID

This Functional Standard does not require an implementation to transmit XID command frames, except for the negotiation of values of K other than 7.

Note - ISO 8802-2 requires that the receipt of an XID command frame is responded to with an XID response frame. An implementation receiving an XID command frame addressed to the individual actual address value specified in clause 5.3.3.1b) is required to respond with an XID response frame using the individual actual address. The implementation shall act as follows.

- i) Take note of the initiator's Receive Window Size, if the default value is in use this would be 7. However if the value is different, the implementation shall not use a transmit window size greater than the value indicated in the received XID command. If a transmit window size is used which is greater than the receive window size, it can lead to LLC connection resets. There is no requirement to actually use the full window size indicated in the receive XID command.
- ii) The information field in the XID response should contain the responder's receive window size. The default window size (specified in ISO 8881) is 7.
- iii) The initiator receiving the XID response shall note and act on the receive window size as indicated in i).

An implementation receiving an XID command frame addressed to the null address shall respond with an XID response frame using the null address in both the DSAP and SSAP fields. The implementation shall act as follows.

- i) The value of received window size shall be ignored.
- ii) It is recommended that the information field in the XID response should contain: the value of the LLC types/Class set to the value indicating 'Class II', and the receive window size set to '000 0000'.

Notes -

1. The value for Class II is defined in ISO 8802-2 and is '11000'.
2. The receive window size in an XID frame associated with the null address has no meaning. Therefore, its value must be ignored. Whilst any value could be used for this field, the value '000 0000' is suggested.

ANNEX A (Normative)

ISPICS Requirements List

A.1 Introduction

ISO TR 10000-1 identifies 3 items to be included in an ISPICS requirements list. These are:

- general options of the profile;
- list of standards selected in the profile;
- constraints on the allowable answers in the PICS proforma of each such standard.

The first two items relate to the profile as a whole, and so are included only in those parts of this Functional Standard which are specific to individual profiles. However, each part of this Functional Standard contains the identification of those PICS proforma constraints which are within its scope.

ISO TR 10000-1 indicates that an ISPICS proforma may consist either of a simple list of constraints or of amended copies of the base PICS proforma. In this Functional Standard the former method is used.

A.2 Notation and conventions

A.2.1 Introduction

In many cases the constraints imposed by the IPRL are expressed in the form of symbols indicating the status in the context of this Functional Standard of those base standard PICS proforma items to which the constraints apply. The symbols used are defined in the following two subclauses.

A.2.2 Notation for Static Conformance

The following symbols are used to identify constraints on the capabilities to be supported by a conforming implementation:

a) Symbols directly specifying status	
<u>Symbol</u>	<u>Meaning</u>
m	mandatory
o	optional
x	prohibited
-	not applicable
i	outside the scope of this Functional Standard

It should be noted that, in the context of received PDUs or fields or parameters of received PDUs, the capability to support them is the ability to interpret the significance of the PDU or field and act upon it in accordance with the dynamic conformance requirements of the protocol (which may in some cases mean generating an error report). PDUs or fields which are not supported are those whose receipt is ignored and has no impact on the protocol operation.

b) Other associated notation	
<u>Symbol</u>	<u>Meaning</u>
(n/c)	Where it is desired to keep the format in which constraints are specified parallel to that of the corresponding item within a PICS proforma, but the IPRL imposes extra constraints only on a subset of

the entries covered by that item, this symbol (meaning 'no constraint') is used for those entries on which constraints are not imposed.

c<number> conditional (see below)
<item>:<status> conditional (see below)

Symbols of the form c<n> are used when the status of an item is dependent on the support of other items. In this case, <n> is a number which refers to a definition at the end of the subclause in which it is used. That definition specifies the conditional status, which may, for example, be in a form such as 'if ABC then m else x', which would indicate the status is mandatory if the item in the PICS proforma with reference ABC is supported, and otherwise is prohibited.

Symbols of the form <item>:<status> are used as an abbreviated way of expressing a condition wherein the status is as identified if the specified item is supported, and otherwise the status is not applicable. So, for example, 'ABC:m' would be equivalent to a conditional status 'if ABC then m else -'.

A.2.3 Notation for Dynamic Conformance

In some cases it is necessary to specify constraints not only on the capabilities which are implemented, but on whether they are used. When this is necessary the static conformance status symbol from A.2.a.a) above is followed by an additional symbol to create a two-character status definition. The second symbol specifies the dynamic constraints, and the meanings are as follows:

<u>Symbol</u>	<u>Meaning</u>
m	mandatory - the implementation is required to use the capability whenever applicable
o	optional - use of the capability is optional
x	prohibited - use of the capability is not permitted
-	not applicable
i	outside the scope of this Functional Standard

Thus, for example, a status of 'mm' would mean that it is mandatory to provide the capability indicated by the PICS proforma item and that it is also mandatory to use that capability wherever applicable.

Where only a single status character is used, it specifies the static requirement and indicates that no additional constraint is placed upon the dynamic use of the capability.

A.2.4 Identification to PICS Proforma Items

PICS proforma items are identified by using the subclause number followed by a solidus followed by the item reference of the relevant PICS proforma line. When identifying an item which is within the same subclause, the subclause number and solidus are not necessarily present.

A.3 IPRL for ISO 8208

The relevant base standard PICS proforma is given in Annex C of ISO 8208/Amd.3. This part of this Functional Standard imposes the following additional constraints:

General DTE characteristics:

Base Item	Description	Constraint
Vs	Virtual Call service	m
Ec/4	DTE/DCE (1984) operation	x
Ec/0	DTE/DCE (1980) operation	x
S1c	Non-Fast-Select	i
S2a	Fast-Select with acceptance possible	m
S2c	Non-Fast-Select with acceptance possible	i
C2a	Call clearing to abort outgoing VC attempt	m
C2b	Call clearing to reject incoming VC	m
C2c	Originating clearing of an established VC	m
RSr	Resetting as responder	m
DS1	Sending DATA packets	m
DS2	Send-window rotation on receiving updated P(R) values	m
DS5a	Sending Q=0 in DATA packets	m
DR1	Receiving DATA packets	m
DR2	Receive window rotation by sending updated P(R) values	m
DR4b	Receiving M=1 in DATA packets	m
DR5a	Receiving Q=0 in DATA packets	m

Facilities Sent During Call Set-up and Clearing:

Base Item	Description	Constraint
FS2i,FS2r	Throughput Class Negotiation	m
FS6a	Fast Select	m
FS12	Transit Delay Selection and Indication	m
FS20i,FS20r, FS20d	Facility Marker, CCITT-specified DTE facilities	m
FS21i,FS21d	Calling Address Extension	m
FS22i,FS22r, FS22d	Called Address Extension	m
FS23i,FS23d	Minimum Throughput Class Negotiation	m
FS24i,FS24r, FS24d	End-to-End Transit Delay Negotiation	m
FS25i,FS25r, FS25d	Expedited Data Negotiation	m

Facilities Received During Call Set-up and Clearing:

Base Item	Description	Constraint
FR2i,FR2r	Throughput Class Negotiation	m
FR6a	Fast Select	m
FR12i,FR12r	Transit Delay Selection and Indication	m
FR20i,FR20r,		
FR20d	Facility Marker, CCITT-specified DTE facilities	m
FR21	Calling Address Extension	m
FR22i,FR22r,		
FR22d	Called Address Extension	m
FR23	Minimum Throughput Class Negotiation	m
FR24i,FR24r	End-to-End Transit Delay Negotiation	m
FR25i,FR25r	Expedited Data Negotiation	m

A.4 IPRL for ISO 8802-2

Since the base standard does not itself have a stable PICS proforma, interim base standard PICS proforma information is provided in Annex B. This part of this Functional Standard imposes the following constraints:

LLC type 1

General characteristics:

Base Item	Description	Constraint
X7/UV1	UI_CMD Transmission	i
X7/UV2	UI_CMD Receipt	i
X7/XID/3	XID_CMD Transmission	c1
X7/XID/6	XID_RSP Receipt	c1
X7/TEST/7	TEST_CMD Transmission	i

Procedures, PDU types and Formats:

Base Item	Description	Constraint
X8/DTS/14a	- <s> UI_CMD with P=0	i
X8/DTS/15	- <r> UI_CMD with P=0	i
X8/UIP/17a	Discard UI with P=1	i
X8/UIP/17b	Retain UI with P=1	i
X8/XID/22a	Initiate XID_CMD P=0	c2
X8/XID/22b	Initiate XID_CMD P=1	c3
X8/TST/33a	Initiate TEST_CMD P=0	i
X8/TST/33b	Initiate TEST_CMD P=1	i

Parameters and Parameter Values:

Base Item	Description	Constraint
X9/MXU/40	Max octets in UI PDU	i
X9/MIN/41	Min octets in UI PDU	i

LLC type 2

Parameters and Parameter Values:

Base Item	Description	Constraint
X18/ACKT/119b	Ack Timer Default Value	the value 5 ±1 seconds shall be supported
X18/MXTU/124b	Max Number of outstanding I PDU (K)	the value 7 shall be supported

Definition of conditional status items

c1	if a value of k other than 7 supported then m else o
c2	if a value of k other than 7 supported AND NOT X8/XID/22b then m else x
c3	if a value of k other than 7 supported AND NOT X8/XID/22a then m else x

ANNEX B (Normative)

Assumed base standard PICS proformas

B.1 Introduction

This Annex contains the PICS proforma information for those base standards which do not already have an internationally stable PICS proforma.

B.2 ISO 8802-2

B.2.1 Introduction

Where base standard PICS proformas are not adequate for profile definition purposes, ISO TR 10000 provides for the necessary material to be supplied within the profile definition either by supplying the specific questions needed in addition to whatever may be available, or by supplying a complete PICS pro forma. In the case of ISO 8802-2 the approach of supplying a complete PICS pro forma has been adopted.

B.2.2 Abbreviations and Symbols

B.2.2.1 Status symbols

M	Mandatory
O	Optional
O.<1>	Optional but support of at least one of the group of options labelled in sequential order is required
X	Prohibited
<item>:	Simple-predicate condition, dependent on the support marked for the <item>

B.2.2.2 Other symbols

<s>	Send (PDU, or field of PDU)
<r>	Receive (PDU, or field of PDU)
N/A	Not Applicable

The classifications used by the implementor in the support column are of the following form:

Y	Supported	- the item is supported by the implementation
N	Not Supported	- the item is not supported by the implementation.

B.2.3 Instructions for completing the PICS pro forma

B.2.3.1 General structure of the PICS pro forma

The first part of the PICS pro forma Implementation Identification and Protocol Summary - is to be completed as indicated with the information necessary to identify fully both the supplier and the implementation.

The main part of the PICS pro forma is a fixed format questionnaire, divided into a number of subclauses each containing a group of individual items. Answers to the questionnaire are to be provided in the rightmost column, either by marking an answer to indicate a restricted choice (usually Yes or No), or entering a value or a set or range of values. (Note that there are some items where two or more choices from a set of possible answers can apply: all relevant choices are to be marked.)

Each item is identified by an item reference in the first column; the second column contains the question to be answered; the third column contains the reference or references to the material that specifies the item in the main body of the standard. The remaining columns record the status of the item - whether support is mandatory, optional or conditional - and provide the space for answers:

A supplier may also provide, or be required to provide, further information, categorized as either Additional Information or Exception Information. When present, each kind of additional information is to be provided in a further subclause of items labelled A.<i> or X.<i> respectively for cross-referencing purposes, where <i> is any unambiguous identification for the item (eg simply a numeral): there are no other restrictions on its format and presentation.

A completed PICS pro forma, including any Additional Information and Exception Information, is the Protocol Implementation Conformance Statement for the implementation in question.

Note - Where an implementation 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 and clearer presentation of the information.

B.2.3.2 Additional information

Items of Additional information allow a supplier to provide additional information intended to assist the interpretation of the PICS. It is not intended or expected that a large quantity will be supplied, and a PICS can be considered complete without any such information. Examples might be an outline of the ways in which a (single) implementation can be set up to operate in a variety of environments and configurations; or a brief rationale - based perhaps upon specific application needs - for the exclusion of features which, although optional, are nonetheless commonly present in implementations of the ISO 8802-2 protocol. References to items of Additional information may be entered next to any answer in the questionnaire, and may be included in items of Exception information.

B.2.3.3 Exception information

It may occasionally happen that a supplier will wish to answer an item with mandatory or prohibited status (after any conditions have been applied) in a way that conflicts with the indicated requirement. No pre-printed answer will be found in the support column for this: instead, the supplier is required to write into the support column an X<i> reference to an item of Exception Information, and to provide the appropriate rationale in the Exception item itself.

An implementation for which an Exception item is required in this way does not conform to ISO/IEC 8802-2.

Note - A possible reason for the situation above is that a defect in the standard has been reported, a correction for which is expected to change the requirement not met by the implementation.

When completing the questionnaire, note that there are several items where two or more choices from a set of answers can apply: all relevant choices should be marked.

B.2.3.4 Identification of Requirements

The information in the PICS pro forma does not supersede or augment the conformance requirements referenced in the main body of this Standard.

Section One. Identification Information

B.2.4 Identification

B.2.4.1 Implementation Identification

Supplier	
Contact point for queries about the PICS	
Implementation Name(s) and Versions	
Other information necessary for full identification - eg, name(s) and version(s) for machines and/or operating systems; System Name(s)	

Notes

- 1 Only the first three items are required for all implementations; other information may be completed as appropriate in meeting the requirement for full identification.
- 2 The terms Name and Version should be interpreted appropriately to correspond with a supplier's terminology (eg, Type, Series, Model).

B.2.4.2 Protocol Summary, ISO/IEC DIS 8802-2:1987

Protocol Version	
Addenda Implemented (if applicable)	
Amendments Implemented	
Have any Exception items been required (see A.3.3) ? No ☐ Yes ☐	
(The answer Yes means that the implementation does not conform to ISO/IEC DIS 8802-2:1987)	

Date of Statement	
-------------------	--

B.2.4.3 Claimed conformance to ISO/IEC DIS 8802-2:1987

Item	Question	References	Status	N/A	Support
Cls/18a	Class I supported	4	M		Y[] N[]
Cls/18b	Are all mandatory features implemented	6	M		Y[] N[]
Cls/19a	Class II supported	4	O		Y[] N[]
Cls/19b	Are all mandatory features implemented	7	Cls/19a: M	[]	Y[] N[]