

Annex C¹⁾
(normative)

PICS Proforma

C.1 General

C.1.1 Symbols used

Status symbols:

M Mandatory.

O Optional to implement. If implemented the feature may or may not be used.

O.<n> Optional but support of at least one of the group of options labelled by the same numeral <n> in this PICS proforma is required.

<index>: This predicate symbol means that the status following it applies only when the PICS states that the feature identified by the index is supported. In the simplest case, <index> is the identifying tag of a single PICS item. <index> may also be a Boolean expression composed of several indices.

<index>:: When this group predicate is true the associated clause should be completed.

Support symbols:

Yes Supported.

No Not supported.

N/A Not applicable.

C.1.2 Instructions for completing the PICS proforma

The main part of the PICS proforma is a fixed-format questionnaire divided into a number of clauses. ANswers to the questionnaire are to be provided in the rightmost column either by simply marking an answer to indicate a restricted choice (such as Yes or No) or by entering a value of a range of values or entering what action is taken.

1) Copyright release for PICS proforma

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

C.2 Identification

C.2.1 Implementation identification

Supplier	
Contact point for queries about the PICS	
Implementation Names(s) and Version(s)	
Other information necessary for full identification – e.g. name(s) and version(s) of 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 (e.g. Type, Series, Model)

C.2.2 Protocol Summary

Identification of protocol specification	ISO/IEC 8073:1992 (E) CCITT X.224 Reference Number: X.224 (1988)
Identification of Amendments and Corrigenda to this PICS proforma which have been completed as part of this PICS	ISO/IEC 8073:1992
Protocol Version(s) supported	Version 1
Have any Exception items been required?	No [] Yes []
(The answer Yes means that the implementation does not conform to ISO/IEC 8073:1992/CCITT X.224)	

Date of statement	
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C.3 Indices used in this annex

A.....	C.6.1	ISO.....	C.5
C.....	C.6.2	N.....	C.7
C4L.....	C.6.2	NAC.....	C.15.1
CCT.....	C.5	NEF.....	C.15.4
DRCC.....	C.14	NC.....	C.15.1
DRCR.....	C.14	NUC.....	C.15.6
DRDR.....	C.14	NUF.....	C.15.7
D1ICC.....	C.13.1	OT.....	C.17
D1ICR.....	C.13.1	PE.....	C.16.1
D1IDR.....	C.13.1	PE4L.....	C.16.1
D2ICC.....	C.13.2	RC.....	C.15.2
D2ICR.....	C.13.2	RC4a.....	C.15.2
D2IDR.....	C.13.2	RN.....	C.12.1.2
D3ICC.....	C.13.3	ROA.....	C.15.11
D3ICR.....	C.13.3	RR.....	C.16.2
D3IDR.....	C.13.3	R4AKch.....	C.12.2
D4ICC.....	C.13.4	R4CCch.....	C.12.2
D4ICR.....	C.13.4	R4DCch.....	C.12.2
D4IDR.....	C.13.4	R4DRch.....	C.12.2
IC.....	C.11.1.2	R4DTch.....	C.12.2
ICR.....	C.11.2	R4EAch.....	C.12.2
IR.....	C.8	R4EDch.....	C.12.2
I0CC.....	C.11.3	R4ERch.....	C.12.2
I0CR.....	C.11.3	SER.....	C.10
I0DR.....	C.11.3	SER4L.....	C.10
I1CC.....	C.11.4	SN.....	C.10
I1CR.....	C.11.4	ST.....	C.10
I1DR.....	C.11.4	TA.....	C.17
I1DT.....	C.11.4	TED.....	C.15.5
I1ER.....	C.11.4	TS.....	C.15.3
I2CC.....	C.11.5	T0F.....	C.9.1
I2CR.....	C.11.5	T0S.....	C.15.3
I2DR.....	C.11.5	T1F.....	C.9.2
I2ER.....	C.11.5	T1S.....	C.15.3
I3CC.....	C.11.6	T2F.....	C.9.3
I3CR.....	C.11.6	T2S.....	C.15.3
I3DR.....	C.11.6	T3F.....	C.9.4
I3DT.....	C.11.6	T3S.....	C.15.3
I3ER.....	C.11.6	T4F.....	C.9.5
I4AK.....	C.11.7	T4S.....	C.15.3
I4CC.....	C.11.7	UI.....	C.16.3
I4CR.....	C.11.7	UNED.....	C.15.9
I4DR.....	C.11.7	UNRC.....	C.15.8
I4DT.....	C.11.7	USA.....	C.15.10
I4ER.....	C.11.7		

C.4 Based standard/recommendation conformance

Does the implementation claim conformance to ISO/IEC 8073?	Yes	No
Does the implementation claim conformance to CCITT X.224?	Yes	No

C.5 General statement of conformance

ISO	Are all mandatory features of ISO/IEC 8073 implemented?	Yes	No
CCT	Are all mandatory features of X.224 implemented?	Yes	No

Note – Answering 'No' to this question indicates non-conformance to the International Standard/Recommendation.

C.6 Protocol implementation**C.6.1 Annex B – NCMS**

Index		References	Status	Support
A1	Network connection management procedures	Annex B	O	Yes No

C.6.2 Classes implemented

Index	Class	References	Status	Support
C0	Class 0	14	ISO:O.1 CCT:M	Yes No
C1	Class 1	14	C0:O	Yes No
C2	Class 2	14	ISO:O.1 CCT:O	Yes No
C3	Class 3	14	C2:O	Yes No
C4	Class 4 operation over CONS	14	C2:O	Yes No
C4L	Class 4 operation over CLNS	14	ISO:C2:O CCT:N/A	Yes No

C.7 NCMS functions

Index	Item	References	Status	Support
N2	Network connection management	B.6.2.1	O	Yes No
N3	Diagnostic	B.7.6.2, B.7.7	O	Yes No
N4	Active network connection recovery	B.7.4.2	O	Yes No

The following is mandatory if the predicate is true

Index	Item	References	Status	Support
N5	Passive network connection recovery	B.7.4.3	N2 OR N4: M	Yes No
N6	Is an NCM TPDU with assignment right set to RA always rejected with N-DISCONNECT request?	B.6.3	O	Yes No

C.8 Initiator/responder capability for protocol classes 0 - 4

Index		References	Status	Support
IR1	Initiating CR TPDU	14.5 a)	O.2	Yes No
IR2	Responding to CR TPDU	14.5 a)	O.2	Yes No

C.9 Supported functions

C.9.1 Supported functions for class 0 (C0::)

The following functions are mandatory if class 0 is supported

Index	Function	References	Status	Support
T0F1	Assignment to network connection when operating over CONS	6.1.1	M	Yes
T0F2	TPDU transfer	6.2	M	Yes
T0F3	Segmenting	6.3	M	Yes
T0F4	Reassembling	6.3	M	Yes
T0F5	Connection establishment	6.5	M	Yes
T0F6	Connection refusal	6.6	M	Yes
T0F7	Normal release when operating over CONS (implicit)	6.7.1	M	Yes
T0F8	Error release when operating over CONS	6.8	M	Yes
T0F9	Association of TPDU's with Transport connection when operating over CONS	6.9.1	M	Yes
T0F10	Treatment of protocol errors when operating over CONS	6.22.1	M	Yes

C.9.2 Supported functions for class 1 (C1::)

The following functions are mandatory if class 1 is supported

Index	Function	References	Status	Support
T1F1	Assignment to network connection when operating over CONS	6.1.1	M	Yes
T1F2	TPDU transfer	6.2	M	Yes
T1F3	Segmenting	6.3	M	Yes
T1F4	Reassembling	6.3	M	Yes
T1F5	Separation	6.4	M	Yes
T1F6	Connection establishment	6.5	M	Yes
T1F7	Connection refusal	6.6	M	Yes
T1F8	Normal release when operating over CONS (explicit)	6.7.1	M	Yes
T1F9	Association of TPDU's with Transport connections when operating over CONS	6.9.1	M	Yes
T1F10	Data TPDU numbering (normal)	6.10	M	Yes
T1F11	Expedited data transfer when operating over CONS (Network normal)	6.11.1	M	Yes
T1F12	Reassignment after failure when operating over CONS	6.12	M	Yes
T1F13	Retention and acknowledgement of TPDU's Retention until acknowledgement of TPDU's (AK)	6.13.4.1	M	Yes
T1F14	Resynchronization	6.14	M	Yes
T1F15	Frozen references	6.18	M	Yes
T1F16	Treatment of protocol errors when operating over CONS	6.22.1	M	Yes

The following functions are mandatory if class 1 is supported

Index	Function	References	Status	Support
T1F17	Concatenation	6.4	O	Yes No
T1F18	Expedited data transfer when operating over CONS (Network expedited)	6.11.1	O	Yes No
T1F19	Retention and acknowledgement of TPDU's Confirmation of Receipt	6.13.4.2	not T1F20: O	Yes No
T1F20	Retention and acknowledgement of TPDU's Use of request acknowledgement	6.13.4.3	not T1F19: O	Yes No

C.9.3 Supported functions for class 2 (C2::)

The following functions are mandatory if class 2 is supported

Index	Function	References	Status	Support
T2F1	Assignment to network connection when operating over CONS	6.1.1	M	Yes
T2F2	TPDU transfer	6.2	M	Yes
T2F3	Segmenting	6.3	M	Yes
T2F4	Reassembling	6.3	M	Yes
T2F5	Separation	6.4	M	Yes
T2F6	Connection establishment	6.5	M	Yes
T2F7	Connection refusal	6.6	M	Yes
T2F8	Normal release when operating over CONS (explicit)	6.7.1	M	Yes
T1F9	Error release when operating over CONS	6.8	M	Yes
T2F10	Association of TPDU with Transport connections when operating over CONS	6.9.1	M	Yes
T2F11	Data TPDU numbering (normal)	6.10	M	Yes
T2F12	Expedited data transfer when operating over CONS (Network normal)	6.11.1	M	Yes
T2F13	Demultiplexing when operating over CONS	6.15	M	Yes
T2F14	Explicit flow control (with)	6.16	M	Yes
T2F15	Treatment of protocol errors when operating over CONS	6.22.1	M	Yes
T2F16	Multiplexing when operating over CONS	6.15	M	Yes

The following functions or elements of procedure are optional if class 2 is supported

Index	Function	References	Status	Support
T2F17	Concatenation	6.4	O	Yes No
T2F18	Data TPDU numbering (extended)	6.10	O	Yes No
T2F19	Expedited flow control (without)	6.16	O	Yes No

C.9.4 Supported functions for class 3 (C3::)

The following functions are mandatory if class 3 is supported

Index	Function	References	Status	Support
T3F1	Assignment to network connection when operating over CONS	6.1.1	M	Yes
T3F2	TPDU transfer	6.2	M	Yes
T3F3	Segmenting	6.3	M	Yes
T3F4	Reassembling	6.3	M	Yes
T3F5	Separation	6.4	M	Yes
T3F6	Connection establishment	6.5	M	Yes
T3F7	Connection refusal	6.6	M	Yes
T3F8	Normal release when operating over CONS (explicit)	6.7.1	M	Yes
T3F9	Association of TPDU's with Transport connections when operating over CONS	6.9.1	M	Yes
T3F10	Data TPDU numbering (normal)	6.10	M	Yes
T3F11	Expedited data transfer when operating over CONS (Network normal)	6.11.1	M	Yes
T3F12	Reassignment after failure when operating over CONS	6.12	M	Yes
T3F13	Retention and acknowledgement of TPDU's Retention until acknowledgement of TPDU's (AK)	6.13.4.1	M	Yes
T3F14	Resynchronization	6.14	M	Yes
T3F15	Demultiplexing when operating over CONS	6.15	M	Yes
T3F16	Explicit flow control	6.16	M	Yes
T3F17	Frozen references	6.18	M	Yes
T3F18	Treatment of protocol errors when operating over CONS	6.22.1	M	Yes
T3F19	Multiplexing when operating over CONS	6.15	M	Yes

The following functions are optional if class 3 is supported

Index	Function	References	Status	Support
T3F20	Concatenation	6.4	O	Yes No
T3F21	Data TPDU numbering (extended)	6.10	O	Yes No
T3F22	Retention and acknowledgement of TPDU's Use of request acknowledgement	6.13.4.3	O	Yes No

C.9.5 Supported functions for class 4 (C4 or C4L::)

The following functions are mandatory

Index	Function	References	Status	Support
T4F1	TPDU transfer	6.2	M	Yes
T4F2	Segmenting	6.3	M	Yes
T4F3	Reassembling	6.3	M	Yes
T4F4	Separation	6.4	M	Yes
T4F5	Connection establishment	6.5	M	Yes
T4F6	Connection refusal	6.6	M	Yes
T4F7	Data TPDU numbering (normal)	6.10	M	Yes
T4F8	Retention and acknowledgement of TPDU Retention until acknowledgement of TPDU (AK)	6.13.4.1	M	Yes
T4F9	Explicit flow control	6.16	M	Yes
T4F10	Checksum	6.17	M	Yes
T4F11	Frozen references	6.18	M	Yes
T4F12	Retransmission on time-out	6.19	M	Yes
T4F13	Resequencing	6.20	M	Yes
T4F14	Inactivity control	6.21	M	Yes

The following functions are mandatory if class 4 is operated over CONS

Index	Function	References	Status	Support
T4F15	Assignment to network connection when operating over CONS	6.1.1	M	Yes
T4F16	Normal release when operating over CONS (explicit)	6.7.1	M	Yes
T4F17	Association of TPDU with Transport connections when operating over CONS	6.9.1	M	Yes
T4F18	Expedited data transfer when operating over CONS (Network normal)	6.11.1	M	Yes
T4F19	Multiplexing when operating over CONS	6.15	M	Yes
T4F20	Demultiplexing when operating over CONS	6.15	M	Yes
T4F21	Treatment of protocol errors when operating over CONS	6.22.1	M	Yes
T4F22	Recombining when operating over CONS	6.23	M	Yes

The following functions are mandatory if class 4 is operated over CLNS

Index	Function	References	Status	Support
T4F23	Transmission over CLNS	6.1.2	M	Yes
T4F24	Normal release when operating over CLNS (explicit)	6.7.2	M	Yes
T4F25	Association of TPDU with Transport connection when operating over CLNS	6.9.2	M	Yes
T4F26	Expedited data transfer when operating over CLNS (Network normal)	6.11.2	M	Yes
T4F27	Treatment of protocol errors when operating over CLNS	6.22.2	M	Yes

The following functions are optional

Index	Function	References	Status	Support
T4F28	Data TPDU numbering (extended)	6.10	O	Yes No
T4F29	Non-use of checksum	6.17	O	Yes No
T4F30	Concatenation	6.4	O	Yes No
T4F31	Retention and acknowledgement of TPDU Use of selective acknowledgement	6.13.4.4	O	Yes No
T3F32	Retention and acknowledgement of TPDU Use of request acknowledgement	6.13.4.3	O	Yes No

The following functions are optional if class 4 is operated over CONS

Index	Function	References	Status	Support
T4F33	Splitting when operating over CONS	6.23	O	Yes No

C.10 Supported TPDUs

The following TPDUs and the parameters which constitute their fixed parts are mandatory if a corresponding predicate in the status column is true

Index	TPDUs		References	Status	Support
ST1	CR	supported on transmission	13.1	IR1:M	Yes No
ST2	CR	supported on receipt	13.1	IR2:M	Yes No
ST3	CC	supported on transmission	13.1	IR2:M	Yes No
ST4	CC	supported on receipt	13.1	IR1:M	Yes No
ST5	DR	supported on transmission	13.1	IR2:M	Yes No
ST6	DR	supported on receipt	13.1	IR1:M	Yes No
ST7	DC	supported on transmission	13.1	C1 OR C2 OR C3 OR C4 OR C4L:M	Yes No
ST8	DC	supported on receipt	13.1	C1 OR C2 OR C3 OR C4 OR C4L:M	Yes No
ST9	DT	supported on transmission	13.1	M	Yes
ST10	DT	supported on receipt	13.1	M	Yes
ST11	ED	supported on transmission	13.1	C1 OR C2 OR C3 OR C4 OR C4L:M	Yes No
ST12	ED	supported on receipt	13.1	C1 OR C2 OR C3 OR C4 OR C4L:M	Yes No
ST13	AK	supported on transmission	13.1	C1 OR C2 OR C3 OR C4 OR C4L:M	Yes No
ST14	AK	supported on receipt	13.1	C1 OR C2 OR C3 OR C4 OR C4L:M	Yes No
ST15	EA	supported on transmission	13.1	C1 OR C2 OR C3 OR C4 OR C4L:M	Yes No
ST16	EA	supported on receipt	13.1	C1 OR C2 OR C3 OR C4 OR C4L:M	Yes No
ST17	RJ	supported on transmission	13.1	C1 OR C3:M	Yes No
ST18	RJ	supported on receipt	13.1	C1 OR C3:M	Yes No
ST19	ER	supported on receipt	13.1	M	Yes

State for which classes, if any, ER is supported on transmission

Index	Class	References	Status	Support
SER0	Class 0	6.22.1	O	Yes No
SER1	Class 1	6.22.1	O	Yes No
SER2	Class 2	6.22.1	O	Yes No
SER3	Class 3	6.22.1	O	Yes No
SER4	Class 4 over CONS	6.22	O	Yes No
SER4L	Class 4 over CLNS	6.22	O	Yes No

The following TPDU's are mandatory if a corresponding predicate in the status column is true.

Index	TPDU's		References	Status	Support
SN3	NCM	supported on transmission	B.8.1	N2:M	Yes No
SN4	NCM	supported on receipt	B.8.1	N2:M	Yes No
SN5	DIAG	supported on transmission	B.8.1	N3:M	Yes No
SN6	DIAG	supported on receipt	B.8.1	N3:M	Yes No
SN7	NCMC	supported on transmission	B.8.1	SN4 AND NOT N6:M	Yes No
SN8	NCMC	supported on receipt	B.8.1	P1:M	Yes No

P1: SN3 and the only supported value in IC5 is "receiver".

C.11 Supported parameters of issued TPDU's

C.11.1 Supported parameters for NCMS (A1::)

C.11.1.2 NCM TPDU (SN3::)

What are the allowed values of the following parameters for a NCM TPDU?

Index	Supported parameters	References	Allowed values	Supported values
IC1	NC-type	B.8.3.3 c)	New, My, Yours	
IC2	NC-preference	B.8.3.3 d)	Highest, Medium, Lowest	
IC3	NC-collision	B.8.3.3 e)	Resolution	
IC4	NC-recovery	B.8.3.3 f)	Do not, Do	
IC5	NC-assignment right	B.8.3.3 g)	Receiver, Sender, All	

C.11.2 Parameter values for CR TPDU (C1:: OR C2:: OR C3:: OR C4:: or C4L::)

If the additional options selection parameter is issued in a CR TPDU it is mandatory that

Index		References
ICR1	Bits 8 and 7 shall be set to zero	13.3.4 g)

If the preferred class in the CR is 2, 3 or 4

Index		References	Status	Support
ICR2	Is class 0 always offered as an alternative class?	14.4	O CCT:M	Yes No Yes No

C.11.3 Supported parameters for class 0 TPDU (C0::)

The following parameters are optional if a CR TPDU is issued with preferred class 0

Index	Supported parameters	References	Status	Support
I0CR6	Called TSAP-ID	13.3.4 a)	O	Yes No
I0CR7	Calling TSAP-ID	13.3.4 a)	O	Yes No
I0CR8	TPDU size	13.3.4 b)	O	Yes No
I0CR9	Preferred maximum TPDU size	13.3.4 c)	O	Yes No

The following parameters are optional if a CC TPDU is issued in class 0

Index	Supported parameters	References	Status	Support
I0CC6	Called TSAP-ID	13.4.4	O	Yes No
I0CC7	Calling TSAP-ID	13.4.4	O	Yes No
I0CC8	TPDU size	13.4.4	O	Yes No
I0CC9	Preferred maximum TPDU size	13.4.4	I0CR9:O	Yes No

The following parameter is optional if a DR TPDU is issued in class 0

Index	Supported parameter	References	Status	Support
I0DR4	Additional information	13.5.4 a)	O	Yes No

C.11.4 Supported parameters for class 1 TPDU (C1::)

The following parameters are optional if a CR TPDU is issued with preferred class 1

Index	Supported parameters	References	Status	Support
I1CR6	Called TSAP-ID	13.3.4 a)	O	Yes No
I1CR7	Calling TSAP-ID	13.3.4 a)	O	Yes No
I1CR8	TPDU size	13.3.4 b)	O	Yes No
I1CR9	Version number	13.3.4 d)	O	Yes No
I1CR10	Protection parameters	13.3.4 e)	O	Yes No
I1CR11	Additional option selection	13.3.4 g)	O	Yes No
I1CR12	Alternative protocol class	13.3.4 h)	O	Yes No
I1CR13	Throughput	13.3.4 k)	O	Yes No
I1CR14	Residual error rate	13.3.4 m)	O	Yes No
I1CR15	Priority	13.3.4 n)	O	Yes No
I1CR16	Transit delay	13.3.4 p)	O	Yes No
I1CR17	Reassignment time	13.3.4 q)	O	Yes No
I1CR18	Preferred maximum TPDU size	13.3.4 c)	O	Yes No

The following parameters are optional if a CC TPDU is issued in class 1

Index	Supported parameters	References	Status	Support
I1CC6	Called TSAP-ID	13.4.4	O	Yes No
I1CC7	Calling TSAP-ID	13.4.4	O	Yes No
I1CC8	TPDU size	13.4.4	O	Yes No
I1CC9	Protection parameters	13.4.4	O	Yes No
I1CC10	Additional option selection	13.4.4	O	Yes No
I1CC11	Throughput	13.4.4	O	Yes No
I1CC12	Residual error rate	13.4.4	O	Yes No
I1CC13	Priority	13.4.4	O	Yes No
I1CC14	Transit delay	13.4.4	O	Yes No
I1CC15	Preferred maximum TPDU size	13.4.4	I1CR18:O	Yes No

The following parameter is optional if a DR TPDU is issued in class 1

Index	Supported parameter	References	Status	Support
I1DR4	Additional information	13.5.4 a)	O	Yes No

The following parameter is optional if a ER TPDU is issued in class 1

Index	Supported parameter	References	Status	Support
I1ER3	Invalid TPDU	13.12.4 a)	O	Yes No

The following parameter is mandatory in a DT TPDU if request of acknowledgement has been selected

Index	Supported parameter	References	Status	Support
I1DT4	ROA	13.7.3 a)	M	Yes No

C.11.5 Supported parameters for class 2 TPDU (C2::)

The following parameters are optional if a CR TPDU is issued with preferred class 2

Index	Supported parameters	References	Status	Support
I2CR6	Called TSAP-ID	13.3.4 a)	O	Yes No
I2CR7	Calling TSAP-ID	13.3.4 a)	O	Yes No
I2CR8	TPDU size	13.3.4 b)	O	Yes No
I2CR9	Version number	13.3.4 d)	O	Yes No
I2CR10	Protection parameters	13.3.4 e)	O	Yes No
I2CR11	Additional option selection	13.3.4 g)	O	Yes No
I2CR12	Alternative protocol class	13.3.4 h)	O	Yes No
I2CR13	Throughput	13.3.4 k)	O	Yes No
I2CR14	Residual error rate	13.3.4 m)	O	Yes No
I2CR15	Priority	13.3.4 n)	O	Yes No
I2CR16	Transit delay	13.3.4 p)	O	Yes No
I2CR17	Preferred maximum TPDU size	13.3.4 c)	O	Yes No

The following parameters are optional if a CC TPDU is issued in class 2

Index	Supported parameters	References	Status	Support
I2CC6	Called TSAP-ID	13.4.4	O	Yes No
I2CC7	Calling TSAP-ID	13.4.4	O	Yes No
I2CC8	TPDU size	13.4.4	O	Yes No
I2CC9	Protection parameters	13.4.4	O	Yes No
I2CC10	Additional option selection	13.4.4	O	Yes No
I2CC11	Throughput	13.4.4	O	Yes No
I2CC12	Residual error rate	13.4.4	O	Yes No
I2CC13	Priority	13.4.4	O	Yes No
I2CC14	Transit delay	13.4.4	O	Yes No
I2CC15	Preferred maximum TPDU size	13.4.4	I2CR17:O	Yes No

The following parameter is optional if a DR TPDU is issued in class 2

Index	Supported parameter	References	Status	Support
I2DR4	Additional information	13.5.4 a)	O	Yes No

The following parameter is optional if an ER TPDU is issued in class 2

Index	Supported parameter	References	Status	Support
I2ER3	Invalid TPDU	13.12.4 a)	O	Yes No

C.11.6 Supported parameters for class 3 TPDU (C3::)

The following parameters are optional if a CR TPDU is issued with preferred class 3

Index	Supported parameters	References	Status	Support
I3CR6	Called TSAP-ID	13.3.4 a)	O	Yes No
I3CR7	Calling TSAP-ID	13.3.4 a)	O	Yes No
I3CR8	TPDU size	13.3.4 b)	O	Yes No
I3CR9	Version number	13.3.4 d)	O	Yes No
I3CR10	Protection parameters	13.3.4 e)	O	Yes No
I3CR11	Additional option selection	13.3.4 g)	O	Yes No
I3CR12	Alternative protocol class	13.3.4 h)	O	Yes No
I3CR13	Throughput	13.3.4 k)	O	Yes No
I3CR14	Residual error rate	13.3.4 m)	O	Yes No
I3CR15	Priority	13.3.4 n)	O	Yes No
I3CR16	Transit delay	13.3.4 p)	O	Yes No
I3CR17	Reassignment time	13.3.4 q)	O	Yes No
I3CR18	Preferred maximum TPDU size	13.3.4 c)	O	Yes No

The following parameters are optional if a CC TPDU is issued in class 3

Index	Supported parameters	References	Status	Support
I3CC6	Called TSAP-ID	13.4.4	O	Yes No
I3CC7	Calling TSAP-ID	13.4.4	O	Yes No
I3CC8	TPDU size	13.4.4	O	Yes No
I3CC9	Protection parameters	13.4.4	O	Yes No
I3CC10	Additional option selection	13.4.4	O	Yes No
I3CC11	Throughput	13.4.4	O	Yes No
I3CC12	Residual error rate	13.4.4	O	Yes No
I3CC13	Priority	13.4.4	O	Yes No
I3CC14	Transit delay	13.4.4	O	Yes No
I3CC15	Preferred maximum TPDU size	13.4.4	I3CR18:O	Yes No

The following parameter is optional if a DR TPDU is issued in class 3

Index	Supported parameter	References	Status	Support
I3DR4	Additional information	13.5.4 a)	O	Yes No

The following parameter is optional if a ER TPDU is issued in class 3

Index	Supported parameter	References	Status	Support
I3ER3	Invalid TPDU	13.12.4 a)	O	Yes No

The following parameter is mandatory in a DT TPDU if request of acknowledgement has been selected

Index	Supported parameter	References	Status	Support
I3DT4	ROA	13.7.3 a)	M	Yes No

C.11.7 Supported parameters for class 4 TPDU (C4 OR C4L:)

The following parameters are optional if a CR TPDU is issued with preferred class 4

Index	Supported parameters	References	Status	Support
I4CR7	Called TSAP-ID	13.3.4 a)	O	Yes No
I4CR8	Calling TSAP-ID	13.3.4 a)	O	Yes No
I4CR9	TPDU size	13.3.4 b)	O	Yes No
I4CR10	Version number	13.3.4 d)	O	Yes No
I4CR11	Protection parameters	13.3.4 e)	O	Yes No
I4CR12	Additional option selection	13.3.4 g)	O	Yes No
I4CR13	Throughput	13.3.4 k)	O	Yes No
I4CR14	Residual error rate	13.3.4 m)	O	Yes No
I4CR15	Priority	13.3.4 n)	O	Yes No
I4CR16	Transit delay	13.3.4 p)	O	Yes No
I4CR17	Acknowledge time	13.3.4 j)	O	Yes No
I4CR18	Preferred maximum TPDU size	13.3.4 c)	O	Yes No
I4CR19	Inactivity time	13.3.4 r)	O	Yes No

The following parameters are optional if a CR TPDU is issued with preferred class 4 over CONS

Index	Supported parameter	References	Status	Support
I4CR20	Alternative protocol class	13.3.4 h)	O	Yes No

The following parameters are optional if a CC TPDU is issued in class 4

Index	Supported parameters	References	Status	Support
I4CC6	Called TSAP-ID	13.4.4	O	Yes No
I4CC7	Calling TSAP-ID	13.4.4	O	Yes No
I4CC8	TPDU size	13.4.4	O	Yes No
I4CC9	Protection parameters	13.4.4	O	Yes No
I4CC10	Additional option selection	13.4.4	O	Yes No
I4CC11	Acknowledge time	13.4.4	O	Yes No
I4CC12	Throughput	13.4.4	O	Yes No
I4CC13	Residual error rate	13.4.4	O	Yes No
I4CC14	Priority	13.4.4	O	Yes No
I4CC15	Transit delay	13.4.4	O	Yes No
I4CC16	Preferred maximum TPDU size	13.4.4	I4CR18:O	Yes No
I4CC17	Inactivity time	13.4.4	O	Yes No

The following parameter is optional if a DR TPDU is issued in class 4

Index	Supported parameter	References	Status	Support
I4DR4	Additional information	13.5.4 a)	O	Yes No

The following parameter is mandatory in a DT TPDU if request of acknowledgement has been selected

Index	Supported parameter	References	Status	Support
I4DT4	ROA	13.7.3 a)	M	Yes No

The following parameter is mandatory in an AK TPDU if issued in class 4

Index	Supported parameter	References	Status	Support
I4AK4	Flow control confirmation	13.9.4 c)	O	Yes No

If the implementation can reduce credit and does so in the manner outlined in ISO/IEC 8073 clause 12.2.3.8.2 then subsequence number in AK TPDU is mandatory. Otherwise complete item I4AK5

Index	Supported parameter	References	Status	Support
I4AK5	Subsequence number	13.9.4 b)	O	Yes No

The following parameter is optional in an AK TPDU if selective acknowledgement has been negotiated.

Index	Supported parameter	References	Status	Support
I4AK6	Selective acknowledgement parameters	13.9.4 d)	O	Yes No

The following parameter is optional if an ER TPDU is issued in class 4

Index	Supported parameter	References	Status	Support
I4ER3	Invalid TPDU	13.12.4 a)	O	Yes No

C.12 Supported parameters for received TPDU

Implementors should be aware that implementations shall be capable of receiving and processing all possible parameters for all possible TPDU, dependent upon the class and optional functions implemented.

C.12.1 Supported parameters for NCMS (A1::)

C.12.1.2 NCM TPDU (SN4::)

What are the allowed receive values of the following parameters for a NCM TPDU?

Index	Supported parameters	References	Allowed values	Supported values
RN1	NC-type	B.8.3.3 c)	New, My, Yours	
RN2	NC-preference	B.8.3.3 d)	Highest, Medium, Lowest	
RN3	NC-collision	B.8.3.3 e)	Resolution	
RN4	NC-recovery	B.8.3.3 f)	Do not, Do	
RN5	NC-assignment right	B.8.3.3 g)	Receiver, Sender, All	

C.12.2 TPDUs in class 4 (C4 OR C4L::)

If use of checksum has been selected then it is mandatory to process a checksum parameter in the following TPDUs

Index	TPDUs	References	Status	Support
R4CCch	CC TPDU	13.4.4	M	Yes
R4DRch	DR TPDU	13.5.4 b)	M	Yes
R4DCch	CD TPDU	13.6.4	M	Yes
R4DTch	DT TPDU	13.7.4	M	Yes
R4EDch	ED TPDU	13.8.4	M	Yes
R4AKch	AK TPDU	13.9.4 a)	M	Yes
R4EAch	EA TPDU	13.10.4	M	Yes
R4ERch	ER TPDU	13.12.4 b)	M	Yes

C.13 User data in issued TPDUs

A TS-user may issue data with a T-CONNECT request, T-CONNECT response or T-DISCONNECT request. Then it shall be possible to send user data as follows:

C.13.1 Class 1 (C1::)

Index	User data	References	Status	Support
D1ICR	User data of up to 32 octets in a CR with preferred class 1	13.3.5	M	Yes
D1ICC	User data of up to 32 octets in a CC	13.4.5	M	Yes
D1IDR	User data of up to 64 octets in a DR	13.5.5	M	Yes

C.13.2 Class 2 (C2::)

Index	User data	References	Status	Support
D2ICR	User data of up to 32 octets in a CR with preferred class 1	13.3.5	M	Yes
D2ICC	User data of up to 32 octets in a CC	13.4.5	M	Yes
D2IDR	User data of up to 64 octets in a DR	13.5.5	M	Yes

C.13.3 Class 3 (C3::)

Index	User data	References	Status	Support
D3ICR	User data of up to 32 octets in a CR with preferred class 1	13.3.5	M	Yes
D3ICC	User data of up to 32 octets in a CC	13.4.5	M	Yes
D3IDR	User data of up to 64 octets in a DR	13.5.5	M	Yes

C.13.4 Class 4 (C4 or C4L::)

Index	User data	References	Status	Support
D4ICR	User data of up to 32 octets in a CR with preferred class 1	13.3.5	M	Yes
D4ICC	User data of up to 32 octets in a CC	13.4.5	M	Yes
D4IDR	User data of up to 64 octets in a DR	13.5.5	M	Yes

C.14 User data in received TPDU

For classes 1 to 4, if it is possible to initiate a CR TPDU then it shall be possible to receive the following.

Index	User data	References
DRCC	32 octets of user data in a CC TPDU	13.4.5
DRDR	64 octets of user data in a DR TPDU	13.5.5

For classes 1 to 4, if it is possible to respond to a CR TPDU then it shall be possible to receive the following.

Index	User data	References
DRCR	32 octets of user data in a CR TPDU	13.3.5

C.15 Negotiation

C.15.1 Class negotiation – initiator

If it is possible to initiate a CR TPDU in a particular class then the following holds.

Index		References
NC	The preferred class in the CR TPDU may contain any of the classes supported by the implementation	6.5.4 h)

What class(es) is (are) contained in the alternative class parameter if the preferred class is:

Index	Preferred class	References	Allowed values	Supported values
NAC1	Class 1	6.5.4 h)	None, 0, 1	
NAC2	Class 2	6.5.4 h)	None, 0, 2	
NAC3	Class 3	6.5.4 h)	None, 0, 1, 2, 3	
NAC4	Class 4 over CONS	6.5.4 h)	None, 0, 1, 2, 3, 4	
NAC5	Class 4 over CLNS	6.5.5 h)	None	

C.15.2 Class negotiation – responder

Index	Preferred class	References	Allowed response	Supported response
RC0	What classes can you respond with if CR proposes only class 0?	6.5.4 h) Table 3	0 or connection refused depending on classes supported	
RC1	What classes can you respond with if CR proposes only class 1?	6.5.4 h) Table 3	0, 1 or connection refused depending on classes supported	
RC1a	What classes can you respond with if CR proposes class 1 as preferred class and the alternative class parameter is present?	6.5.4 h) Table 3	0, 1 or connection refused depending on classes supported	
RC2	What classes can you respond with if CR proposes only class 2?	6.5.4 h) Table 3	2 or connection refused depending on classes supported	
RC2a	What classes can you respond with if CR proposes class 2 as preferred class and the alternative class parameter is present?	6.5.4 h) Table 3	0, 2 or connection refused depending on classes supported and coding of alternative class	
RC3	What classes can you respond with if CR proposes only class 3?	6.5.4 h) Table 3	2, 3 or connection refused depending on classes supported	
RC3a	What classes can you respond with if CR proposes class 3 as preferred class and the alternative class parameter is present?	6.5.4 h) Table 3	0, 1, 2, 3 or connection refused depending on classes supported and coding of alternative class	
RC4	What classes can you respond with if CR proposes only class 4?	6.5.4 h) Table 3	2, 4 or connection refused depending on classes supported	
RC4a	What classes can you respond with if CR proposes class 4 as preferred class and the alternative class parameter is present?	6.5.4 h) Table 3	0, 1, 2, 3, 4 or connection refused depending on classes supported and coding of alternative class	

C.15.3 TPDU size negotiation

Index		References	Status	Support
TS1	If maximum TPDU size is proposed in a CR TPDU then the initiator shall support all TPDU sizes from 128 octets to the maximum proposed.	14.6	M	Yes
TS2	If the preferred maximum TPDU size parameter is used in a CR TPDU then the initiator shall support all TPDU sizes, except 0, that are multiples of 128 octets up to the preferred maximum proposed.	14.6 e)	I4CR18:M	Yes No

Index		References	Allowed values	Supported values
TS3	What is the largest value of the preferred maximum TPDU size parameter in a CR TPDU	14.6 e)	any multiple of 128 octets	
TS4	What is the largest value of the preferred maximum TPDU size parameter in a CC TPDU	14.6 e)	any multiple of 128 octets	

Index	TPDU size	References	Allowed values	Supported values
T0S1	What is the largest value of the maximum TPDU size parameter in a CR TPDU with preferred class 0?	14.6 e)	NOT I0CR9: One of 128, 256, 512, 1024, 2048 I0CR9: One of nx128 with n = 1, 2, 3, ...	
T0S2	What is the largest value of the maximum TPDU size parameter which may be sent in a CC TPDU when class 0 is selected?	14.6 e)	NOT I0CC9: One of 128, 256, 512, 1024, 2048 I0CC9: One of nx128 with n = 1, 2, 3, ...	
T1S1	What is the largest value of the maximum TPDU size parameter in a CR TPDU with preferred class 1?	14.6 e)	NOT I1CR18: One of 128, 256, 512, 1024, 2048, 4096, 8192 I1CR18: One of nx128 with n = 1, 2, 3, ...	
T1S2	What is the largest value of the maximum TPDU size parameter which may be sent in a CC TPDU when class 1 is selected?	14.6 e)	NOT I1CC18: One of 128, 256, 512, 1024, 2048, 4096, 8192 I1CC18: One of nx128 with n = 1, 2, 3, ...	
T2S1	What is the largest value of the maximum TPDU size parameter in a CR TPDU with preferred class 2?	14.6 e)	NOT I2CR17: One of 128, 256, 512, 1024, 2048, 4096, 8192 I2CR17: One of nx128 with n = 1, 2, 3, ...	
T2S2	What is the largest value of the maximum TPDU size parameter which may be sent in a CC TPDU when class 2 is selected?	14.6 e)	NOT I2CC16: One of 128, 256, 512, 1024, 2048, 4096, 8192 I2CC16: One of nx128 with n = 1, 2, 3, ...	
T3S1	What is the largest value of the maximum TPDU size parameter in a CR TPDU with preferred class 3?	14.6 e)	NOT I3CR18: One of 128, 256, 512, 1024, 2048, 4096, 8192 I3CR18: One of nx128 with n = 1, 2, 3, ...	
T3S2	What is the largest value of the maximum TPDU size parameter which may be sent in a CC TPDU when class 3 is selected?	14.6 e)	NOT I3CC18: One of 128, 256, 512, 1024, 2048, 4096, 8192 I3CC18: One of nx128 with n = 1, 2, 3, ...	
T4S1	What is the largest value of the maximum TPDU size parameter in a CR TPDU with preferred class 4?	14.6 e)	NOT I4CR18: One of 128, 256, 512, 1024, 2048, 4096, 8192 I4CR18: One of nx128 with n = 1, 2, 3, ...	
T4S2	What is the largest value of the maximum TPDU size parameter which may be sent in a CC TPDU when class 4 is selected?	14.6 e)	NOT I4CC16: One of 128, 256, 512, 1024, 2048, 4096, 8192 I4CC16: One of nx128 with n = 1, 2, 3, ...	

C.15.4 Use of extended format

Index	Extended format	References	Allowed values	Supported values
NEF1	What formats can you propose in the CR TPDU in class 2?	6.5.4 k)	normal, extended	
NEF2	What formats can you propose in the CR TPDU in class 3?	6.5.4 k)	normal, extended	
NEF3	What formats can you propose in the CR TPDU in class 4?	6.5.4 k)	normal, extended	
NEF4	What formats can you select in CC when extended has been proposed in CR in class 2?	6.5.4 k)	normal, extended	
NEF5	What formats can you select in CC when extended has been proposed in CR in class 3?	6.5.4 k)	normal, extended	
NEF6	What formats can you select in CC when extended has been proposed in CR in class 4?	6.5.4 k) 6.5.4 j)	normal, extended	

C.15.5 Expedited data transport service

Index	References	Status	Support
TED1	6.5.4 r)	M	Yes

C.15.6 Non-use of checksum ((C4 OR C4L) AND T4F29::)

Index	Non-use of checksum	References	Allowed values	Supported values
NUC1	What proposals can you make in the CR?	6.5.4 m) 6.5.5 k)	non-use, use	
NUC2	What proposals can you make in CC when non-use of checksum has been proposed in CR?	6.5.4 m) 6.5.5 k)	non-use, use	

C.15.7 Non-use of explicit flow control (C2 and T2F20::)

Index	Non-use of explicit flow control	References	Allowed values	Supported values
NUF1	What proposals can you make in the CR?	6.5.4 p)	non-use, use	
NUF2	What proposals can you make in CC when non-use of explicit flow control has been proposed in CR?	6.5.4 p)	non-use, use	

C.15.8 Use of network receipt conformation (C1 and T1F21::)

Index	Network receipt confirmation	References	Allowed values	Supported values
UNRC1	What proposals can you make in the CR?	6.5.4 q)	non-use, use	
UNRC2	What proposals can you make in CC when use of network receipt confirmation has been proposed in CR?	6.5.4 q)	non-use, use	

C.15.9 Use of network expedited data (C1 and T1F20::)

Index	Network expedited data	References	Allowed values	Supported values
UNED1	What proposals can you make in the CR?	6.5.4 q)	non-use, use	
UNED2	What proposals can you make in CC when use of network expedited data has been proposed in CR?	6.5.4 q)	non-use, use	

C.15.10 Use of selective acknowledgement

Index	selective acknowledgement	References	Allowed values	Supported values
USA1	Is use of selective acknowledgement proposed in CR TPDUs?	6.5.4 u)	Yes, No	
USA2	Is use of selective acknowledgement selected in a CC when it has been proposed in a CR?	6.5.4 u)	Yes, No	

C.15.11 Use of request acknowledgement

Index	Request of acknowledgement	References	Allowed values	Supported values
ROA1	Is use of request of acknowledgement proposed in CR TPDUs?	6.5.4 v)	Yes, No	
ROA2	Is use of request of acknowledgement selected in a CC when it has been proposed in a CR?	6.5.4 v)	Yes, No	

C.16 Error handling

C.16.1 Action on receipt of a protocol error

Index	Item	References	Allowed values	Supported values
PE0	Class 0	6.22.3	C0: ER, NDISreq, NRSTreq, Discard	
PE1	Class 1	6.2.3	C1: ER, DR, NDISreq, NRSTreq, Discard	
PE2	Class 2	6.22.3	C2: ER, DR, NDISreq, NRSTreq, Discard	
PE3	Class 3	6.22.3	C3: ER, DR, NDISreq, NRSTreq, Discard	
PE4	Class 4 over CONS	6.22.3	C4: ER, DR, NDISreq, NRSTreq, Discard	
PE4L	Class 4 over CLNS	6.22.3	C4L: ER, DR, Discard	

C.16.2 Actions on receipt of an invalid or undefined parameter in a CR TPDU

Index	Event	References	Status	Support
RR1	A parameter not defined in ISO 8073 shall be ignored	13.2.3	M	Yes
RR2	An invalid value in the alternative protocol class parameter shall be treated as a protocol error	13.2.3	M	Yes
RR3	An invalid value in the class and option parameter shall be treated as a protocol error	13.2.3	M	Yes
RR4	On receipt of the additional option selection parameter bits 8 to 5, and bits 4 to 1 if not meaningful for the proposed class shall be ignored.	13.3.4	M	Yes
RR5	If non-use of explicit flow control is proposed and bit 1 of the additional option selection parameter equals 1, it shall be treated as an protocol error.	13.2.3	M	Yes
RR6	On receipt of the class option paramter bits 4 to 1 if not meaningful for the proposed class shall be ignored	13.3.3	M	Yes

What action is supported on receipt of the following?

Index	Event	References	Allowed actions	Supported actions
RR7	A paramter defined in ISO/IEC 8073 (other than those covered above) and have an invalid value	13.2.3	Ignore, protocol error	

C.16.3 Actions on receipt of an invalid or undefined parameter in a TPDU other than a CR TPDU

The following actions are mandatory

Index	Event	References	Status	Support
UI1	A parameter not defined in ISO/IEC 8073 shall be treated as a protocol error	13.2.3	M	Yes
UI2	A parameter which has an invalid value as defined in ISO/IEC 8073 shall be treated as a protocol error	13.2.3	M	Yes
UI3 (class 4 only)	A TPDU received with a checksum which does not satisfy the defined formula shall be discarded.	6.17.3	M	Yes

C.17 Timers and protocol parameters

The following are mandatory if class 4 is supported.

Index		References	Status	Support
TA1	T1	12.2.1	M	Yes
TA2	N	12.2.1	M	Yes
TA3	I _L	12.2.1	M	Yes
TA4	W	12.2.1	M	Yes
TA5	L	12.2.1	M	Yes

Index		References	Status	Support
OT1	Does IUT support optional timer TS1 when operating in class 0?	6.5.4	O	Yes No
OT2	Does IUT support optional timer TS1 when operating in class 1?	6.5.4	O	Yes No
OT3	Does IUT support optional timer TS1 when operating in class 2?	6.5.4	O	Yes No
OT4	Does IUT support optional timer TS1 when operating in class 3?	6.5.4	O	Yes No
OT5	Does IUT support optional timer TS2 when operating in class 0?	6.7.5	O	Yes No
OT6	Does IUT support optional timer TS2 when operating in class 1?	6.7.5	O	Yes No
OT7	Does IUT support optional timer TS2 when operating in class 2?	6.7.5	O	Yes No
OT8	Does IUT support optional timer TS2 when operating in class 3?	6.7.5	O	Yes No
OT9	Does IUT support optional timer TS2 when operating in class 4?	6.22	O	Yes No

The following are mandatory if class 1 or 3 is supported.

Index		References	Status	Support
TA6	TTR	6.12.3 6.12.4	M	Yes
TA7	TWR	6.12.3 6.12.4	M	Yes