PROJECT 802 LOCAL & METROPOLITAN AREA NETWORKS

DRAFT SUPPLEMENT TO ISO/IEC 8802-3 : 1992 [ANSI/IEEE 802.3, 1992] CSMA/CD ACCESS METHOD AND PHYSICAL LAYER SPECIFICATIONS

DRAFT ADDITION TO SECTION 8 - MEDIUM ATTACHMENT UNIT AND BASEBAND MEDIUM SPECIFICATION, TYPE 10BASE5

TYPE 10BASE5 MAU PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT (PICS) PROFORMA (SECTION 8.8)

Draft 3A

Draft 3A is a result of the changes made by the Conformance Test Task Force based on comments from the draft 2 letter ballot and minor formatting changes to more closely match IEEE style. This draft expires November 30, 1993 or earlier if superseded by another draft.

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Revisions to ISO/IEC 8802-3 : 1992 [ANSI/IEEE Std 802.3, 1992]
(These additions are part of ISO/IEC 8802-3 : 1992 [ANSI/IEEE Std 802.3, 1992].)

The following additions add references for the 10BASE5 PICS proforma to the appropriate places in ISO/IEC 8802-3:1992 [ANSI/IEEE Std 802.3,-1992]. The additions do not alter the specifications for existing systems.

1.3 References

Add these references to the list of references:

[21] ISO/IEC 9646-1 : 1991, *Information technology - Open Systems Interconnection - Conformance testing methodology and framework – Part 1: General concepts.*
[22] ISO/IEC 9646-2 : 1991, *Information technology - Open Systems Interconnection - Conformance testing methodology and framework – Part 2: Abstract test suite specification.*

8.8 Type 10BASE5 MAU Protocol Implementation Conformance Statement (PICS) Proforma

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

This PICS proforma defines conformance requirements for Type 10BASE5 MAU implementations. When the supplier completes this proforma this document becomes the PICS for the specified implementation. The PICS is then used to perform a static conformance review of the implementation to determine that all mandatory features are implemented and that all conditional features are correctly supported dependent on the options claimed to be implemented. The PICS is used also as an aid in test case selection and result analysis during the dynamic conformance testing.

8.8.1.1 Scope. Appendix A provides the PICS proforma tables for Type 10BASE5 MAU as specified in ISO/IEC 8802-3:1992 in compliance with the relevant guidance, given in ISO/IEC 9646-2 [22] and ISO/IEC JTC1/SC6 N 7359.

8.8.1.2 Reference sections. Type 10BASE5 MAU requirements referenced in this PICS proforma are found in 8.1 through 8.7 and in 7.3 through 7.6 of this standard. Sections 7.3 through 7.6 and 8.1 through 8.7 take precedence over 8.8 in case of any conflict.

The use and the requirements for PICS proforma are defined in ISO/IEC 9646-1 [21], ISO/IEC 9646-2 [22] and ISO/IEC JTC1/SC6 N 7359.

8.8.1.3 Definitions. This document uses the following terms defined in ISO/IEC 9646-1 [21]:

PICS proforma
protocol implementation conformance statement (PICS)
static conformance review
dynamic conformance testing

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Appendix A[1]
PICS Proforma for 10BASE5 MAU

(This appendix is a part of 802.3r)

A.1 Introduction. The supplier of a MAU that is claimed to conform to ISO/IEC 8802-3 Type 10BASE5 MAU specifications shall complete the following Protocol Implementation Conformance Statement (PICS) proforma.

A completed PICS proforma is the PICS for the implementation in question. The PICS is a statement of which capabilities and options of the protocol have been implemented.

A.2 Abbreviations. The following abbreviations are used in the PICS proforma tables.

A.2.1 Status Symbols.

M	mandatory
O	optional
O <n>	optional, but support of at least one of the group of options labeled by the same numeral <n> is required
X	prohibited
<item>:	conditional-item symbol, dependent upon the support for <item>
¬	logical negation, applied to a conditional item symbol

A.2.2 Other Symbols.

Ref	reference section

A.3 Instructions for Completing the PICS Proforma.

A.3.1 General Structure of the PICS Proforma. The structure of this PICS proforma is based on the guidelines given in ISO/IEC 9646-2:1991 and ISO/IEC JTC1/SC6 N 7359. The first part of the PICS proforma - Implementation Identification and Protocol Summary - is to be completed as indicated with the information necessary to identify fully both the supplier and the particular MAU.

The main part of the PICS proforma is a fixed-format questionnaire. Each item is identified by an item reference in the first column; the second column contains the question to be asked or parameter to be measured; the third column contains the reference or references to the material that specifies the item in the main body of ISO/IEC 8802-3; the fourth column records the status of the item - whether support is mandatory, optional, prohibited or conditional - and provides space for the answers; the fifth column provides additional comments and/or value(s) for measurable parameters. The tables below group related items into separate sections. This satisfies the requirement of ISO/IEC 9646-2 [22] that all PICS proforma clauses be individually identified.

A supplier wishing to submit a 10BASE5 MAU for conformance testing against this standard, must fill in the column headed “Support” in the PICS proforma tables and submit the resulting PICS with the equipment for test. One of the boxes in this column must be checked, with "Yes", indicating that the implementation is intended to meet the particular mandatory or optional requirement, "No", indicating that the option has not been implemented (or enabled where switchable) or that the requirement is not met, or "N/A" indicating the item is not applicable (for example, an item that is conditional). It should be noted that any instances of “No” checked against a mandatory requirement will result in the implementation failing the static conformance test.

A.3.2 Additional Information. Any additional information that is needed to ensure that the MAU or the coaxial cable submitted for test is configured as a 10BASE5 MAU or coaxial cable should be entered into the PIXIT (Protocol Implementation eXtra Information

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[1]**Copyright release for PICS proformas**. Users of this standard may freely reproduce the PICS proforma in this appendix so that it may be used for its intended purpose and may further publish the completed PICS.

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for Testing) document supplied by the conformance testing organization. Relevant information on 10BASE5 MAUs includes the following:

(1) Enable/disable mechanisms for SQE Test.
(2) Enable/disable mechanisms for features that allow compatibility with nonstandard implementations.
(3) Operational instructions for DTEs or repeaters in cases where the MAU is embedded.
(4) Environmental conditions.
(5) Power supply voltage range.

The above list is illustrative and is not intended to be either mandatory or exhaustive.

A.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 shall write the missing answer into the Support column, together with an X<i> reference to an item of Exception Information, and shall provide the appropriate rational in the Exception item itself.

An implementation for which an Exception item is required in this way does not conform to ISO/IEC 8802-3.

A.3.4 Conditional Items. The PICS proforma contains a number of conditional items. These are items for which both the applicability of the item itself, and its status if it does apply - mandatory, optional or prohibited - are dependent upon whether or not certain other items are supported.

Individual conditional items are indicated by a conditional symbol of the form "<item>: <s>" in the Status column, where "<item>" is the section number and item reference that appears in the first column of the table for some other item, and "<s>" is a status symbol, M, O, O.<n> or X. A "¬" symbol prefixed to an item reference means logical negation.

If the item referred to by the conditional symbol is marked as supported, the conditional item is applicable, and its status is given by "<s>": the support column is to be completed in the usual way. Otherwise, the conditional item is not relevant and the Not Applicable (N/A) answer is to be marked.

Each item whose reference is used in a conditional symbol is indicated by an asterisk in the Item column.

A.4 Identification.

A.4.1 Implementation Identification. The MAU supplier shall complete the relevant fields in this section to identify the supplier and the particular MAU.

Supplier	
Contact point for queries about the PICS	
Implementation Name(s) and Version(s)	

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A.4.2 Protocol Summary. The supplier will complete this section to identify the precise protocol implemented.

Identification of protocol specification	ISO/IEC 8802-3 : 1992, Carrier sense multiple access with collision detection (CSMA/CD) access method and physical layer specifications plus 802.3 Maintenance Ballots 1-3
Identification of amendments and corrigenda to this PICS proforma which have been completed as part of this PICS	ISO/IEC 8802-3 : 1992/ Amd. : Corr. : Amd. : Corr. :
Have any Exception items been required? (The answer Yes means that the implementation does not conform to ISO/IEC 8802-3 : 1992)	No ☐ Yes ☐

Date of Statement	

A.5 Global Statement of Conformance. The supplier must indicate below whether or not the implementation implements all the mandatory requirements. Answering "No" to this question indicates non-conformance to the protocol specification. Non-supported mandatory capabilities are to be identified in the PICS, with an explanation of why the implementation is non-conforming.

This implementation meets all mandatory requirements	Yes ☐ No ☐

A.6 PICS Proforma Tables for MAU

A.6.1 MAU Compatibility

Item	Parameter	Ref.	Status	Support	Value/comment
*1	MAU intended for attachment to repeater		O	Yes ☐ No ☐	
*2	Monitor Function supported		O	Yes ☐ No ☐	
*3	AUI Circuit CO supported		A.6.1/2 :M ¬A.6.1/2:O	N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐	Required for Monitor Function
4	SQE Test supported	9.4.1	A.6.1/1 :X ¬A.6.1/1:M	N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐	Function not performed for MAUs attached to repeaters

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A.6.2 Transmit Function

Item	Parameter	Ref.	Status	Support	Value/comment
1	Transmit path	8.2.1.1	M	Yes ☐ No ☐	DO circuit to coaxial cable
2	Transmit signal polarity	8.2.1.1	M	Yes ☐ No ☐	DO A positive relative to DO B causes more positive voltage on the coaxial medium
3	Start-up bit loss (DO to coaxial cable)	8.2.1.1	M	Yes ☐ No ☐	2 bits max.
4	Transmit settling time	8.2.1.1	M	Yes ☐ No ☐	Second and following bits meet amplitude and jitter specifications
5	Transmit steady-state delay	8.2.1.1	M	Yes ☐ No ☐	1/2 bit times max.
6	Start-up bit loss (DO to coaxial cable) variability	8.2.1.1	M	Yes ☐ No ☐	2 bits max. between packets separated by ≤ 96 BT
7	No extraneous signal on the coaxial media after DO idle	8.2.1.1	M	Yes ☐ No ☐	
8	Start collision presence state	8.2.1.1	M	Yes ☐ No ☐	within 0.6μs to 1.6μs after idle
9	Collision presence state duration	8.2.1.1	M	Yes ☐ No ☐	5 to 15 bit times

A.6.3 Receive Function

Item	Parameter	Ref.	Status	Support	Value/comment
1	Direct coupling of signal from medium to the receiver	8.2.1.2	M	Yes ☐ No ☐	
2	AC coupling from the receiver to AUI interface	8.2.1.2	M	Yes ☐ No ☐	
3	Start-up bit loss (coaxial cable to DI)	8.2.1.2	M	Yes ☐ No ☐	5 bits max.
4	Receive settling time	8.2.1.2	M	Yes ☐ No ☐	Second and following bits meet jitter specifications
5	Receive steady-state delay	8.2.1.2	M	Yes ☐ No ☐	1/2 bit times max.
6	Start-up bit loss (coaxial cable to DI) variability	8.2.1.2	M	Yes ☐ No ☐	5 bits max. between packets separated by ≤ 96 BT

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7	Receive signal polarity	8.2.1.2	M	Yes ☐ No ☐	More positive voltage on the coaxial cable will convert as DI A positive relative to DI B on the DI circuits
8	Edge Jitter	8.2.1.2	M	Yes ☐ No ☐	MAU receiver + cable introduce ≤ 6 ns
9	Receive function while transmitting	8.2.1.2	M	Yes ☐ No ☐	

A.6.4 Collision Function

Item	Parameter	Ref.	Status	Support	Value/comment
1	Collision absence	8.2.1.3	M	Yes ☐ No ☐	IDL signal on the CI circuit, unless sending *mau_not_available*
2	Collision Presence function requirements	8.2.1.3	A.6.1/1: X ¬A.6.1/1:M	N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐	CS0 on CI circuit at BR +25%, -15% with a duty cycle not worse than 40/60 ratio with ≥ 2 MAUs transmitting
3	No collision detection with single transmitter	8.2.1.3 8.2.2.2.4	M	Yes ☐ No ☐	No CS0 on CI
4	Collision assertion after transmission of ≥ 20 bit times	8.2.1.3 8.2.2.2.4	A.6.1/1: X ¬A.6.1/1:M	N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐	CS0 on CI ≤ 17 BT after collision
5	Collision assertion by transmission < 20 bit times	8.2.1.3 8.2.2.2.4	A.6.1/1: X ¬A.6.1/1:M	N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐	CS0 on CI ≤ 29 BT after collision
6	Collision deassertion after end of collision between second MAU	8.2.1.3	M	Yes ☐ No ☐	IDL on CI ≤ 17 BT after arrival of end of transmission
7	Collision deassertion after end of collision between more than two MAUs	8.2.1.3	M	Yes ☐ No ☐	IDL on CI ≤ 29 BT after arrival of end of transmission from all but one MAU

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A.6.5 Monitor Function.

Item	Parameter	Ref.	Status	Support	Value/comment
1	Signal path	8.2.1.4	A.6.1/2 :M	N/A ☐ Yes ☐ No ☐	From DTE to MAU through CO circuit
2	Transmit disable delay	8.2.1.4	A.6.1/2 :M	N/A ☐ Yes ☐ No ☐	≤ 20 ms
3	MAU function in isolated state	8.2.1.4	A.6.1/2 :M	N/A ☐ Yes ☐ No ☐	Receive and collision functions are normal, XMIT disabled

A.6.6 Jabber Function

Item	Parameter	Ref.	Status	Support	Value/comment
1	Jabber Function implementation	8.2.1.5	M	Yes ☐ No ☐	Self-interruption of the transmitter
2	Frame timer range	8.2.1.5	M	Yes ☐ No ☐	20 ms min., 150 ms max.
3	CI circuit during jabber	8.2.1.5 8.2.2.2.4	A.6.1/1: X ¬A.6.1/ 1:M	N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐	CS0 signal
4	Collision presence function activated after transmit disable	8.2.1.5	M	Yes ☐ No ☐	No extraneous signal on the coaxial media
5	Unjab timer range	8.2.1.5	O	Yes ☐ No ☐	0.5 s ± 50%
6	MAU unjab (reset) with monitor function	8.2.1.5	A.6.1/2 :M	N/A ☐ Yes ☐ No ☐	isolate message
7	MAU Jabber Lockup Protection	9.4.1	A.6.1/1 :M ¬A.6.1/ 1:O	N/A ☐ Yes ☐ No ☐ N/A ☐ Yes ☐ No ☐	Jabber function not activated under worst case conditions in 9.6.5

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A.6.7 MAU to Coaxial Cable Interface

Item	Parameter	Ref.	Status	Support	Value/comment
1	Input impedance	8.3.1.1	M	Yes ☐ No ☐	R ≥ 100kΩ
2	Total capacitive load	8.3.1.1	M	Yes ☐ No ☐	C ≤ 4pF
3	Bias current	8.3.1.2	M	Yes ☐ No ☐	max. +2μA and min. -25μA
4	Transmit offset current	8.3.1.3	M	Yes ☐ No ☐	-37mA to -45mA
5	Transmit ac component.	8.3.1.3	M	Yes ☐ No ☐	+28mA to offset value
6	Transmitter sink current during collision	8.3.1.3	M	Yes ☐ No ☐	no more than -25μA at -7V, no more than ±250μA at -10V
7	Rise and fall time at 10 Mb/s	8.3.1.3	M	Yes ☐ No ☐	25 ± 5 ns (10-90%)
8	Rise and fall time match	8.3.1.3	M	Yes ☐ No ☐	within 2 ns at 10Mb/s
9	Harmonic content at BR	8.3.1.3	M	Yes ☐ No ☐	2nd and 3rd harmonics ≥ 20 dB below fundamental, 4th and 5th harmonics ≥ 30 dB below fundamental, 6th and 7th harmonics ≥ 40 dB below fundamental, all higher harmonics ≥ 50 dB below fundamental
10	Transmit signal polarity	8.3.1.4	M	Yes ☐ No ☐	no inversion of signal from PLS to coaxial cable
11	Transmit signal edge jitter	8.3.1.4	M	Yes ☐ No ☐	MAU introduce no more than 2ns of edge jitter
12	Receive collision detection threshold	8.3.1.5	M	Yes ☐ No ☐	-1.448V to -1.59V
13	Receive collision detection threshold, large impulse response	8.3.1.5	M	Yes ☐ No ☐	-1293mV * [1+impulse response] if filter impulse response is larger than nominal
14	No negative edge transmission	8.3.1.4	M	Yes ☐ No ☐	After cessation of CD output stream on DO or before first edge of next frame on DO

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A.6.8 MAU Electrical Characteristics

Item	Parameter	Ref.	Status	Support	Value/comment
1	Isolation impedance between MDI and AUI cable (each conductor, including shields)	8.3.2.1	M	Yes ☐ No ☐	> 250kΩ at 60Hz, < 15Ω for 3MHz to 30MHz
2	Breakdown voltage	8.3.2.1	M	Yes ☐ No ☐	≥ 1.5kV ac, rms
3	Current drawn from AUI sources	8.3.2.2	M	Yes ☐ No ☐	≤ 0.5A
4	Operation over VP voltage range	8.3.2.2	M	Yes ☐ No ☐	11.28-15.75V, any permissible AUI cable
5	Low VP circuit behavior	8.3.2.2	M	Yes ☐ No ☐	no disruption of media
6	MAU current labeling	8.3.2.2	M	Yes ☐ No ☐	current consumption shall be labeled externally
7	Reliability	8.3.2.3	M	Yes ☐ No ☐	MTBF ≥ 1 million hours of continuous operation

A.6.9 MAU-DTE Requirements

Item	Parameter	Ref.	Status	Support	Value/comment
1	AUI electrical characteristics	8.3.3	M	Yes ☐ No ☐	As specified in section 7; refer to A.7.1-5
2	AUI mechanical connection	8.3.4	M	Yes ☐ No ☐	As specified in section 7; refer to A.7.6

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A.6.10 MAU to Coaxial Cable Connection

Item	Parameter	Ref.	Status	Support	Value/comment
1	Standard N type connector	8.5	O.1	Yes ☐ No ☐	50Ω and according to IEC Publication 169-16[4]
*2	Coaxial tap connector	8.5.3	O.1	Yes ☐ No ☐	
3	Capacitance	8.5.3.1	A.6.10/ 2:M	N/A ☐ Yes ☐ No ☐	2pF nominal at 10 MHz
4	Contact resistance	8.5.3.1	A.6.10/ 2:M	N/A ☐ Yes ☐ No ☐	≤ 50 mΩ for shield and center conductor
5	Voltage rating	8.5.3.1	A.6.10/ 2:M	N/A ☐ Yes ☐ No ☐	600V dc or ac rms max.
6	dc leakage resistance between braid and external conductors	8.5.3.1	A.6.10/ 2:M	N/A ☐ Yes ☐ No ☐	> 1 GΩ
7	Probe current rating	8.5.3.1	A.6.10/ 2:M	N/A ☐ Yes ☐ No ☐	0.1 A per contact (probe and shield)
8	Shield current rating	8.5.3.1	A.6.10/ 2:M	N/A ☐ Yes ☐ No ☐	1 A surge for 1 s
9	Connector housing	8.5.3.2.1	A.6.10/ 2:M	N/A ☐ Yes ☐ No ☐	shielding > 40dB at 50 MHz
10	Shield probe characteristics	8.5.3.2.3	A.6.10/ 2:M	N/A ☐ Yes ☐ No ☐	effective capture of outer braid

A.6.11 Safety Requirements

Item	Parameter	Ref.	Status	Support	Value/comment
1	MAU labeling	8.6.3	O	Yes ☐ No ☐	Data rate, current, any applicable safety warnings (recommended)
2	General safety	8.7.1	M	Yes ☐ No ☐	Conforms to IEC 380, 435, or 950
3	Susceptibility levels	8.7.3.1	M	Yes ☐ No ☐	Either ambient plane wave field of 2 V/m from 10 kHz through 30 MHz, 5 V/m from 30 MHz through 1 GHz or interference voltage of 1 V/ns peak slope, between coaxial cable shield and DTE earth connection
4	Emission levels	8.7.3.2	M	Yes ☐ No ☐	Comply with applicable local and national standards

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A.7 PICS Proforma Tables for MAU AUI Characteristics.

A.7.1 Signal Characteristics

Item	Parameter	Ref.	Status	Support	Value/comment
1	Signaling rate (stated on label)	7.3.2	M	Yes ☐ No ☐	10 Mb/s
2	CS0 signal frequency (on CI)	7.3.1.2	M	Yes ☐ No ☐	10 MHz +25%, -15%
3	CS0 signal duty cycle	7.3.1.2	M	Yes ☐ No ☐	60:40 worst case

A.7.2 DI and CI Driver Characteristics

Item	Parameter	Ref.	Status	Support	Value/comment
1	Differential output voltage, loaded	7.4.1.1	M	Yes ☐ No ☐	Fig 7-11
2	Differential output voltage, idle state	7.4.1.1	M	Yes ☐ No ☐	≤ 40 mV into test load
3	Differential output voltage, start of idle	7.4.1.1	M	Yes ☐ No ☐	Fig 7-12
4	Current into test load while idle	7.4.1.1	M	Yes ☐ No ☐	4 mA max. after 80 BT
5	Requirements after idle	7.4.1.2	M	Yes ☐ No ☐	Second bit to Fig 7-11
6	Common-mode output voltage, AC	7.4.1.3	M	Yes ☐ No ☐	≤ 40 mV peak. Fig 7-13
7	Differential output voltage, open circuit	7.4.1.4	M	Yes ☐ No ☐	13 V peak max.
8	Common-mode output voltage, DC	7.4.1.5	M	Yes ☐ No ☐	≤ 5.5 V. Fig 7-13
9	Fault tolerance	7.4.1.6	M	Yes ☐ No ☐	Fig 7-14
10	Fault current	7.4.1.6	M	Yes ☐ No ☐	≤ 150 mA, any Fig 7-14 state

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A.7.3 DO Receiver Characteristics

Item	Parameter	Ref.	Status	Support	Value/comment
1	Unsquelched threshold	7.4.2.1	M	Yes ☐ No ☐	160 mV max. differential
2	High-to-idle transition on DO circuit	7.4.1.1	M	Yes ☐ No ☐	Must not cause output
3	Differential input impedance at 10 MHz	7.4.2.2	M	Yes ☐ No ☐	Real part: 77.83 Ω ± 6%; 0 ≤ phase angle (deg) ≤ real part × 0.0338
4	Common-mode range, AC	7.4.2.3	M	Yes ☐ No ☐	3 V min. 30 Hz to 40 kHz, 100 mV min. 40 kHz to 10 MHz
5	Total common-mode range	7.4.2.4	M	Yes ☐ No ☐	Magnitude of 0 to 5.5 V AC + DC
6	Common-mode current limit	7.4.2.4	M	Yes ☐ No ☐	≤ 1 mA
7	IDL detection	7.3.1.1	M	Yes ☐ No ☐	≤ 1.6 bit times
8	Requirements after idle	7.4.2.5	M	Yes ☐ No ☐	Receiver in spec after start-up delay
9	Receiver fault tolerance	7.4.2.6	M	Yes ☐ No ☐	Fig 7-16
10	Input fault current	7.4.2.6	M	Yes ☐ No ☐	3 mA max.

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A.7.4 CO Receiver Characteristics

Item	Parameter	Ref.	Status	Support	Value/comment
1	Unsquelched threshold	7.4.2.1	A.6.1/3 :M	N/A ☐ Yes ☐ No ☐	160 mV max. differential
2	High-to-idle transition on DO circuit	7.4.1.1	A.6.1/3 :M	N/A ☐ Yes ☐ No ☐	Must not cause output
3	Differential input impedance at 10 MHz	7.4.2.2	A.6.1/3 :M	N/A ☐ Yes ☐ No ☐	Real part: 77.83 Ω ± 6%; 0 ≤ phase angle (deg) ≤ real part × 0.0338
4	Common-mode range, AC	7.4.2.3	A.6.1/3 :M	N/A ☐ Yes ☐ No ☐	3 V min. 30 Hz to 40 kHz, 100 mV min. 40 kHz to 10 MHz
5	Total common-mode range	7.4.2.4	A.6.1/3 :M	N/A ☐ Yes ☐ No ☐	Magnitude of 0 to 5.5 V AC + DC
6	Common-mode current limit	7.4.2.4	A.6.1/3 :M	N/A ☐ Yes ☐ No ☐	≤ 1 mA
7	IDL detection	7.3.1.1	A.6.1/3 :M	N/A ☐ Yes ☐ No ☐	≤ 1.6 bit times
8	Requirements after idle	7.4.2.5	A.6.1/3 :M	N/A ☐ Yes ☐ No ☐	Receiver in spec after start-up delay
9	Receiver fault tolerance	7.4.2.6	A.6.1/3 :M	N/A ☐ Yes ☐ No ☐	Fig 7-16
10	Input fault current	7.4.2.6	A.6.1/3 :M	N/A ☐ Yes ☐ No ☐	3 mA max.

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A.7.5 Circuit Termination

Item	Parameter	Ref.	Status	Support	Value/comment
1	Common-mode termination	7.5.2.6	M	Yes ☐ No ☐	If used must be to VC
2	Pins 1,4,8,11,14 impedance to VC circuit	7.5.2.8	M	Yes ☐ No ☐	≤ 5 Ω at 5 MHz
3	Pins 1,4,8,11,14 coupling to VC circuit	7.5.2.8	M	Yes ☐ No ☐	Capacitive

A.7.6 Mechanical Characteristics

Item	Parameter	Ref.	Status	Support	Value/comment
1	D-type connector dimensions	7.6.2	M	Yes ☐ No ☐	IEC 807-2 [7] 15-pole male
2	Shell plating material	7.6.2	M	Yes ☐ No ☐	Conductive
3	Shell multiple contact points	7.6.2	O	Yes ☐ No ☐	Number not defined (recommended)
4	Shell life expectancy	7.6.2	M	Yes ☐ No ☐	≤ 5 mΩ / 500 matings
5	Locking posts and mounting	7.6.1	M	Yes ☐ No ☐	Figs 7-18, 7-20
	Pin connections:				Circuit
6	3	7.6.3	M	Yes ☐ No ☐	Data out A
7	10	7.6.3	M	Yes ☐ No ☐	Data out B
8	11	7.6.3	M	Yes ☐ No ☐	Capacitor to VC
9	5	7.6.3	M	Yes ☐ No ☐	Data in A
10	12	7.6.3	M	Yes ☐ No ☐	Data in B
11	4	7.6.3	M	Yes ☐ No ☐	Capacitor to VC
12	7	7.6.3	M	Yes ☐ No ☐	Control out A
13	15	7.6.3	M	Yes ☐ No ☐	Control out B
14	8	7.6.3	M	Yes ☐ No ☐	Capacitor to VC
15	2	7.6.3	M	Yes ☐ No ☐	Control in A
16	9	7.6.3	M	Yes ☐ No ☐	Control in B
17	1	7.6.3	M	Yes ☐ No ☐	Capacitor to VC
18	6	7.6.3	M	Yes ☐ No ☐	Voltage common
19	13	7.6.3	M	Yes ☐ No ☐	Voltage plus
20	14	7.6.3	M	Yes ☐ No ☐	Capacitor to VC
21	Shell	7.6.3	M	Yes ☐ No ☐	Protective ground (conductive shell)

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A.8 PICS Proforma Tables for 10BASE5 Coaxial Cable

A.8.1 10BASE5 Coaxial Cable Characteristics

Item	Parameter	Ref.	Status	Support	Value/comment
1	Characteristic impedance	8.4.1.1	M	Yes ☐ No ☐	50 ± 2Ω, measured according to IEC publication 96-1[2] and 96-1A[3]
2	Impedance variation per 2m segment	8.4.1.1	O	Yes ☐ No ☐	±3Ω
3	Attenuation of 500m segment	8.4.1.2	M	Yes ☐ No ☐	≤8.5 dB with 10 MHz sine wave, ≤ 6.0 dB with 5 MHz sine wave
4	Velocity of propagation	8.4.1.3	M	Yes ☐ No ☐	Min. 0.77 c
5	Edge jitter of 500m cable	8.4.1.4	M	Yes ☐ No ☐	≤7 ns
6	Transfer impedance	8.4.1.5	M	Yes ☐ No ☐	According to Fig 8-7
7	Cable DC loop resistance (center conductor plus shield)	8.4.1.6	M	Yes ☐ No ☐	≤10 mΩ/m at 20 °C
	Coaxial cable properties:				
8	a) Center conductor, dielectric, shield system, insulating jacket	8.4.2.1.1	M	Yes ☐ No ☐	
9	b) Concentricity	8.4.2.1.1	M	Yes ☐ No ☐	≥ 92%
10	c) Jacket, shield, dielectric	8.4.2.1.1	M	Yes ☐ No ☐	pierceable
11	d) Cable flexibility	8.4.2.1.1	M	Yes ☐ No ☐	support bend radius of 254 mm
12	Center conductor	8.4.2.1.2	M	Yes ☐ No ☐	2.17 mm ± 0.013 mm
13	Dielectric material	8.4.2.1.3	M	Yes ☐ No ☐	meets 8.4.1.2, 8.4.1.3 and 8.4.2.1.1(3)
	Shielding system:				
14	a) Inside diameter	8.4.2.1.4	M	Yes ☐ No ☐	≥ 6.15 mm
15	b) Outside diameter	8.4.2.1.4	M	Yes ☐ No ☐	8.28 mm ± 0.178 mm
16	c) Outermost shield	8.4.2.1.4	M	Yes ☐ No ☐	> 90% coverage
17	Jacket material	8.4.2.1.5	M	Yes ☐ No ☐	meets 8.4.1 and 8.4.2 specs
18	Jacket dimensions, Polyvinyl Chloride	8.4.2.1.5	O.2	Yes ☐ No ☐	OD of 10.287 mm ± 0.178 mm
19	Jacket dimensions, Fluropolymer	8.4.2.1.5	O.2	Yes ☐ No ☐	OD of 9.525 mm ± 0.254 mm
20	Flammability and smoke criteria	8.4.2.1.5	M	Yes ☐ No ☐	meet applicable local and national codes
21	Jacket Marking	8.4.2.2	M	Yes ☐ No ☐	Annular rings spaced 2.5 m ± 5 cm

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22	Color of Jacket	8.4.2.2	O	Yes ☐ No ☐	Bright (example, yellow)
	Total segment DC loop resistance:				
23	a) Sum of center conductor, connector and shield	8.4.3	M	Yes ☐ No ☐	≤5Ω at 20° C
24	b) Inline connector pair or MAU	8.4.3	M	Yes ☐ No ☐	≤10mΩ at 20° C
25	Inline coaxial extension connector	8.5.1	M	Yes ☐ No ☐	Type N plug connector
26	Coaxial cable termination	8.5.2.1	M	Yes ☐ No ☐	50Ω±1% at 0-20MHz, phase angle ≤ 5°, power rating ≥1 W.

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