

# ISO/IEC 8073:1997-08 (E)

## Information technology - Open Systems Interconnection - Protocol for providing the connection-mode transport service

---

<b>Contents</b>		<b>Page</b>
<b>1</b>	<b>Scope</b> .....	<b>1</b>
<b>2</b>	<b>References</b> .....	<b>1</b>
2.1	Identical Recommendations   International Standards .....	2
2.2	Paired Recommendations   International Standards equivalent in technical content.....	2
<b>3</b>	<b>Definitions</b> .....	<b>2</b>
<b>4</b>	<b>Abbreviations</b> .....	<b>4</b>
4.1	Data Units.....	4
4.2	Types of Transport Protocol data units .....	4
4.3	TPDU fields .....	4
4.4	Times and associated variables .....	4
4.5	Miscellaneous .....	5
<b>5</b>	<b>Overview of the Transport Protocol</b> .....	<b>5</b>
5.1	Service provided by the Transport Layer .....	5
5.2	Service assumed from the Network Layer.....	5
5.3	Functions of the Transport Layer .....	6
5.4	Classes and options when operating Over CONS .....	8
5.5	Characteristics of class 4 transport protocol when operating over CLNS .....	10
5.6	Model of the Transport Layer.....	10
<b>6</b>	<b>Elements of procedure</b> .....	<b>10</b>
6.1	Use of the network service 1 .....	1
6.2	Transport Protocol Data Unit (TPDU) transfer .....	12
6.3	Segmenting and reassembling .....	13
6.4	Concatenation and Separation .....	13
6.5	Connection establishment .....	13
6.6	Connection refusal.....	19
6.7	Normal release.....	20
6.8	Error release when operating over CONS .....	22
6.9	Association of TPDU's with transport connections .....	22
6.10	Data TPDU numbering .....	25
6.11	Expedited data transfer .....	26
6.12	Reassignment after failure when operating over CONS .....	27
6.13	Retention and acknowledgement of TPDU's.....	28
6.14	Resynchronization .....	30
6.15	Multiplexing and demultiplexing when operating over CONS.....	32
6.16	Explicit flow control .....	32
6.17	Checksum .....	33
6.18	Frozen references.....	34
6.19	Retransmission on time-out.....	34
6.20	Resequencing.....	35
6.21	Inactivity control.....	35
6.22	Treatment of protocol errors .....	35
6.23	Splitting and recombining when operating over CONS .....	36
<b>7</b>	<b>Protocol classes</b> .....	<b>37</b>
<b>8</b>	<b>Spedfication for class 0 - Simple class</b> .....	<b>37</b>
8.1	Functions of class 0 .....	37

8.2	Procedures for class 0 .....	37
9	Specification for class 1 - Basic error recovery class .....	39
10	Specification for class 2 - Multiplexing class .....	40
11	Specification for class 3 - Error recovery and multiplexing class.....	42
12	Specification for class 4 - Error detection and recovery class .....	43
13	Structure and encoding of TPDU .....	55
13.1	Validity .....	55
13.2	Structure .....	55
13.3	Connection Request (CR) TPDU .....	57
13.4	Connection Confirm (CC) TPDU.....	62
13.5	Disconnect Request (DR) TPDU.....	62
13.6	Disconnect Confirm (DC) TPDU .....	63
13.7	Data (DT) TPDU .....	64
13.8	Expedited Data (ED) TPDU.....	65
13.9	Data Acknowledgement (AK) TPDU.....	66
13.10	Expedited Data Acknowledgement (EA) TPDU.....	68
13.11	Reject (RJ) TPDU .....	68
13.12	TPDU Error (ER) TPDU .....	69
14	Conformance.....	70
14.5	Claims of conformance shall State.....	71
Annex A - State tables .....		72
A.1	General .....	72
A.2	Conventions.....	72
A.3	Tables .....	73
A.4	State tables for classes 0 and 2.....	75
A.5	State tables for classes 1 and 3.....	78
A.6	State tables for class 4 over CONS .....	80
A.7	State tables for class 4 Over CLNS .....	89
Annex B - Network connection management subprotocol .....		92
B.1	Introduction .....	92
B.2	Scope.....	92
B.3	Definitions .....	92
B.4	Abbreviations .....	93
B.5	Overview of the protocol .....	93
B.6	Elements of procedure .....	94
B.7	Protocol Operation.....	98
B.8	Structure and encoding of TPDU.....	102
B.9	Conformance .....	104
B.10	State table .....	105
B.11	Diagram for NCMS protocol Operation .....	107
Annex C - PICS Proforma.....		110
C.1	General .....	110
C.2	Identification .....	110
C.3	Indices used in this Annex.....	111
C.4	Based Recommendation   International Standard conformance .....	113
C.5	General Statement of conformance .....	113
C.6	Protocol implementation .....	113
C.7	NCMS functions.....	113
C.8	Initiator/responder capability for protocol classes 0-4 .....	114
C.9	Supported functions .....	114
C.10	Supported TPDU.....	120
C.11	Supported parameters of issued TPDU .....	121
C.12	Supported parameters for received TPDU .....	128

<b>C.13 User data in issued TPDU</b> .....	<b>128</b>
<b>C.14 User data in received TPDU</b> .....	<b>130</b>
<b>C.15 Negotiation</b> .....	<b>130</b>
<b>C.16 Error handling</b> .....	<b>134</b>
<b>C.17 Timers and protocol parameters</b> .....	<b>135</b>
<b>Annex D - Checksum Algorithms</b> .....	<b>137</b>
<b>D.1 Symbols</b> .....	<b>137</b>
<b>D.2 Arithmetic Conventions</b> .....	<b>137</b>
<b>D.3 Algorithm for generating checksum parameters</b> .....	<b>137</b>
<b>D.4 Algorithm for checking checksum parameters</b> .....	<b>138</b>
<b>Annex E - State tables for operation of class 4 over connection-mode and connectionless-mode network services</b> .....	<b>139</b>
<b>E.1 General</b> .....	<b>139</b>
<b>E.2 Conventions</b> .....	<b>139</b>
<b>E.3 Tables</b> .....	<b>139</b>
<b>E.4 State tables for class 4</b> .....	<b>139</b>