INTERNATIONAL STANDARD

ISO
8878

Information processing systems — Data communications — Use of X.25 to provide the OSI connection-mode network service

AMENDMENT 3: Conformance

Systèmes de traitement de l'information — Communication de données — Utilisation du protocole X.25 pour fournir le service de réseau OSI en mode connexion

AMENDEMENT 3: Conformance

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Amendment 3 to International Standard ISO 8878 : 1987 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology.*

Introduction

This amendment adds an explicit statement of the static conformance requirements for systems claiming conformance to ISO 8878. In particular, a new clause 13 is to be added (following the new clause 12 added by Defect 8878/005) that specifies the requirements for a system claiming conformance to ISO 8878.

Information processing systems — Data communications — Use of X.25 to provide the OSI connection-mode network service —

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1 Changes to ISO 8878:1987

1.1 Page 1, clause 0, paragraph 2:

This paragraph is replaced by the following two paragraphs.

Clause 13 contains the requirements for systems claiming conformance to this International Standard.

Annex B contains a classification of systems according to whether they implement the procedures defined in the main body of this International Standard, the procedures defined in annex A, or both. In addition, it describes the possibilities and the rules for interworking between the classes of equipment identified.

1.2 Page 2, clause 1, paragraph 2:

Change the beginning of this paragraph (up to and including "requirements" on line 2) as follows:

This International Standard specifies two sets of procedures from which three classes of implementation are described. The requirements of these procedures ....

1.3 Page 2, clause 1, paragraph 3:

Replace the two occurrences of "Conforming-1984" by "System-1984".

1.4 Page 2, clause 1, paragraph 4, sentence 1:

Replace this sentence as follows:

This International Standard also specifies the procedures to be operated by a System-1980 implementation.

1.5 Page 2, clause 1, paragraph 4, sentence 2:

Replace "Conforming-1980" and "Conforming-1984" by "System-1980" and "System-1984", respectively.

1.6 (No changes are made to clauses 2 to 12.)

2 New clause 13

13 Conformance

13.1 Conformance requirements

A system claiming to implement the procedures specified in this International Standard shall

a) satisfy the conformance requirements of ISO 8208;

b) support all the packets and associated fields/facilities specified in table 1 (excluding interrupt packets), table 2 (excluding Expedited Data Negotiation), and tables 4, 5 and 7;

c) support all the Optional User Facilities and CCITT-specified DTE Facilities specified in 5.1 except the EDN Facility;

d) support the negotiation mechanism in 6.2.4, including the case when the EDN Facility is absent, for the Expedited Data Transfer Service;

e) if it supports the optional Expedited Data Transfer Service, support:

— INTERRUPT packets with 32-octet User Data Fields and the procedures and mappings defined in clause 10; and

— the EDN Facility;

f) support the negotiation mechanism in 6.2.3 for the Receipt Confirmation Service;

g) if it supports the optional Receipt Confirmation Service, support:

— the procedures specified in clause 9;

h) support the conveyance of the NSAP Address in the X.25 Called/Calling Address Extension Facilities;

i) support the mapping of Network Service primitives to ISO 8208 packets in clauses 6 through 11;

j) if it supports the conditions defined in 6.2.2.1.1:

— recognize the NSAP Address when it is received in the X.25/PLP-1984 Called/Calling Address Field and the conditions of 6.2.2.1.1 are satisfied.

13.2 Optional features

Clauses 6 to 11 allow certain options for implementations. Claims of conformance shall state

a) whether conformance to annex A of ISO 8878 is also claimed;

b) whether the method of conveying the NSAP Address in the X.25/PLP-1984 Called/Calling Address Field is supported for transmitted packets;

c) whether the conditions defined in 6.2.2.1.1 are ever supported for receipt of NSAP Addresses conveyed in the X.25/PLP-1984 Called/Calling Address Fields;

d) whether Expedited Data Transfer is supported;

e) whether Receipt Confirmation is supported.

3 Replacement text for annex B

This amendment replaces annex B of ISO 8878 with the text following.

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ANNEX B

(normative)

Classification

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B.1 Classification of systems

Three classes of implementation are identified below.

SYSTEM-1984	The system conforms to this International Standard as "A system providing the OSI Network Service using only X.25/PLP-1984 (including later versions) procedures."
SYSTEM-1980	The system conforms to this International Standard as "A system providing the OSI Network Service using only X.25/PLP-1980 (including earlier versions) procedures."
COMPATIBLE	The system conforms to this International Standard as "A system providing the OSI Network Service using either X.25/PLP-1984 or X.25/PLP-1980 procedures."

B.2 Functionality of classes

The functionality of an implementation claiming to belong to one of these classes is given below.

	SYSTEM -1984	SYSTEM -1980	COMPATIBLE
Fast Select used by DTE	Supported	Optional	Supported
X.25/PLP-1984 DTE Procedures (see Note 1)	Supported	Optional	Supported
1984 CONS Procedures (see Note 2)	Supported	Optional	Supported
X.25/PLP-1980 Fast Select Procedures (see Note 3)	Optional	Optional	Supported
X.25/PLP-1980 Alternative Procedures (see Note 4)	Optional	Supported	Supported

NOTES

1 "X.25/PLP-1984 DTE Procedures" are the Packet Layer procedures of ISO 8208 and include a DTE acting as a DCE for the necessary procedures (e.g., resolution of call collision); these are fully compatible with the requirements of CCITT Recommendation X.25 (1984) for a DTE.

2 "1984 CONS Procedures" are procedures to be followed by an NL entity to provide the CONS using X.25/PLP-1984 without the use of special parameter encodings. They are defined in the body of this International Standard.

3 "X.25/PLP-1980 Fast Select Procedures" are the procedures in annex A of this International Standard but where the Alternative NC Establishment Procedure of annex A is only used if the encoded parameters of an N-CONNECT request primitive exceed 128 octets.

4 "X.25/PLP-1980 Alternative Procedures" are the procedures in annex A of this International Standard but where NC Establishment is always by use of the Alternative NC Establishment Procedure of annex A.

B.3 Scenarios

A System-1984 implementation can operate over a 1984 X.25 subnetwork, as well as other non-packet-switched subnetwork environments, and can directly communicate only with another System-1984 implementation or with a Compatible implementation.

A System-1980 implementation can operate over either a 1984 or 1980 X.25 subnetwork, as well as other non-packet-switched subnetwork environments, and can directly communicate only with another System-1980 implementation or with a Compatible implementation.

A System-1984 implementation and a System-1980 implementation can communicate over interconnected 1980 X.25 and 1984 X.25 subnetworks or over the same 1984 X.25 subnetwork, but the communication requires the use of one or more relays. The relay must implement, in one half, at least a System-1984 implementation and, in the other half, at least a System-1980 implementation.

A Compatible implementation can operate over either a 1984 or 1980 X.25 subnetwork and can communicate directly with any conforming implementation. Compatible implementations are particularly suitable for the provision of relay functions.

B.4 Procedures for selecting class of operation

The use of the X.25/PLP-1984 requires a DTE to use the CCITT-Specified DTE Facility Marker in the Facility Field of the CALL REQUEST packet. If all subnetworks and the called DTE do not recognize this marker as being valid, then the X.25/PLP-1980 with SNDCP is used to provide the CONS. The details are shown in figure 5.

NOTE — An attempt to establish an NC may fail because of use of incompatible protocol options (e.g., use of the CCITT-Specified DTE Facility Marker). If the DTE is capable of retrying the call with different protocol options (e.g., a Compatible DTE), then it need not report the receipt of a CLEAR INDICATION packet as an N-DISCONNECT indication primitive to the NS user. Instead, it may retry establishing the NC by transmitting a CALL REQUEST packet with the different options.

If a DTE receives an INCOMING CALL packet with the CCITT-Specified DTE Facility Marker, then it should use the X.25/PLP-1984 procedures for the CONS. If the marker is not present in the INCOMING CALL packet, then the X.25/PLP-1980 with SNDCP Procedures should be used.

B.5 Interworking by relay system

The procedure outlined in clause B.4 accomplishes interworking by having the DTE implement additional procedures. It is also possible to accomplish interworking by providing a relay system to provide the mapping between the X.25/PLP-1984 and X.25/PLP-1980 with SNDCP. The operation of the relay system is depicted in figure 6.
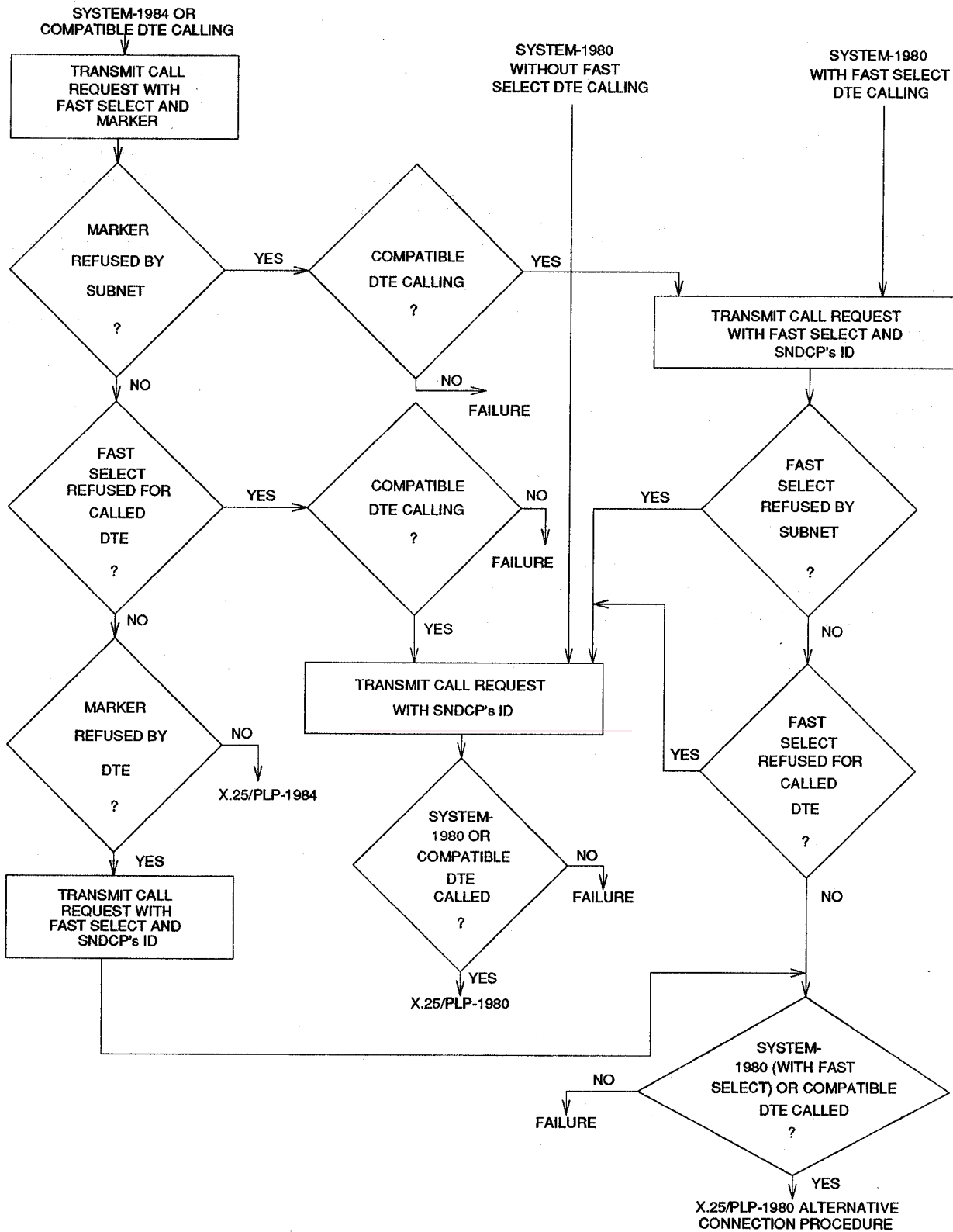
SYSTEM-1984 OR
COMPATIBLE DTE CALLING

TRANSMIT CALL
REQUEST WITH
FAST SELECT AND
MARKER

SYSTEM-1980
WITHOUT FAST
SELECT DTE CALLING

SYSTEM-1980
WITH FAST SELECT
DTE CALLING

MARKER
REFUSED BY
SUBNET
?

YES

COMPATIBLE
DTE CALLING
?

YES

TRANSMIT CALL REQUEST
WITH FAST SELECT AND
SNDCP's ID

NO

NO

FAILURE

FAST
SELECT
REFUSED FOR
CALLED
DTE
?

YES

COMPATIBLE
DTE CALLING
?

NO

YES

FAST
SELECT
REFUSED BY
SUBNET
?

FAILURE

NO

NO

YES

TRANSMIT CALL REQUEST
WITH SNDCP's ID

MARKER
REFUSED BY
DTE
?

NO

X.25/PLP-1984

YES

TRANSMIT CALL
REQUEST WITH
FAST SELECT AND
SNDCP's ID

SYSTEM-
1980 OR
COMPATIBLE
DTE
CALLED
?

NO

FAILURE

YES

FAST
SELECT
REFUSED FOR
CALLED
DTE
?

NO

YES
X.25/PLP-1980

NO

FAILURE

SYSTEM-
1980 (WITH FAST
SELECT) OR COMPATIBLE
DTE CALLED
?

YES
X.25/PLP-1980 ALTERNATIVE
CONNECTION PROCEDURE

Figure 5 —
Procedure for Selecting Class of Operation

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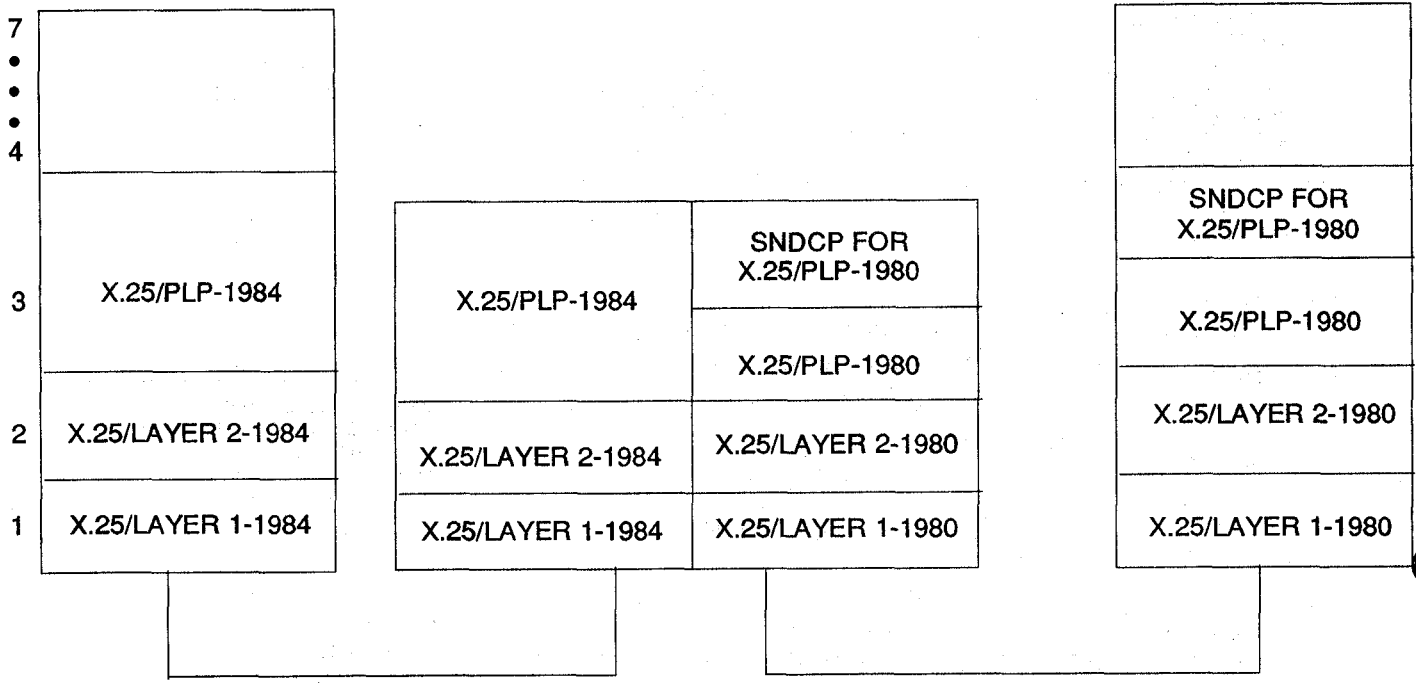|			
7 • • • 4			
3	X.25/PLP-1984	X.25/PLP-1984	SNDCP FOR X.25/PLP-1980
			X.25/PLP-1980
2	X.25/LAYER 2-1984	X.25/LAYER 2-1984	X.25/LAYER 2-1980
1	X.25/LAYER 1-1984	X.25/LAYER 1-1984	X.25/LAYER 1-1980

Figure 6 —

**Operation of a Relay System Mapping Between
the X.25/PLP-1984 and the X.25/PLP-1980 With SNDCP**