INTERNATIONAL STANDARD

ISO/IEC 8880-3

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Information technology — Telecommunications and information exchange between systems — Protocol combinations to provide and support the OSI Network Service —

Part 3:
Provision and support of the connectionless-mode Network Service

Technologies de l'information — Télécommunications et échange d'informations entre systèmes — Combinaisons de protocoles pour fournir et supporter le service réseau OSI —

Partie 3: Fourniture et support du service de réseau en mode sans connexion

Reference number
ISO/IEC 8880-3 : 1990 (E)

Contents

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.

International Standard ISO/IEC 8880-3 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

ISO/IEC 8880-3 consists of the following parts, under the general title *Information technology — Telecommunications and information exchange between systems — Protocol combinations to provide and support the OSI Network Service*:

- *Part 1: General principles*
- *Part 2: Provision and support of the connection-mode Network Service*
- *Part 3: Provision and support of the connectionless-mode Network Service*

Annex A is for information only.

Introduction

ISO/IEC 8880 provides the framework for understanding the set of International Standards that deal with the provision and support of the OSI Network Service.

In some layers of the OSI Reference Model Architecture, it is possible to refer to a single layer protocol standard specification as the place in which all information necessary to understand how to provide the layer service can be found. This is not possible in the Network Layer since the number of different subnetwork technologies and interconnection strategies that must be accommodated is too large to permit the specification of a single OSI Network Layer Protocol. It is therefore the intention of ISO/IEC 8880 to serve as a single point of reference for information concerning the ways in which Network Layer protocols can be used to provide the OSI Network Service in various environments.

ISO 8348/Add.1 defines the OSI Connectionless-mode Network Service. ISO 8348/Add.2 [1] covers network layer addressing. ISO 8648 outlines the architectural framework for the definition of Network Layer protocols and for describing the relationship of the various real world components which can participate in the provision of the Network Service. ISO/IEC 8880 describes the application of the Network Layer architecture in ISO 8648 and the International Standard Network Layer protocols to the provision of the Network Service in real instances of use.

This part of ISO/IEC 8880 describes the provision and support of the Connectionless–mode Network Service by Internationally Standardized Network Layer Protocols within the framework provided by ISO/IEC 8880–1.

This part of ISO/IEC 8880 identifies the environments to which it applies and specifies the sets of individual standards which describe the use of protocol combinations in those environments.

It states the conformance requirements for equipment claiming to provide the OSI Connection–mode Network Service.

For each environment, one or more combinations of protocols may be described; only one is specified for conformance. Other environments and combinations of protocols may be added as addenda to ISO/IEC 8880.

Figure 1 illustrates the relationship between the parts of ISO/IEC 8880. It also shows the other International Standards that describe or define the Network Layer.

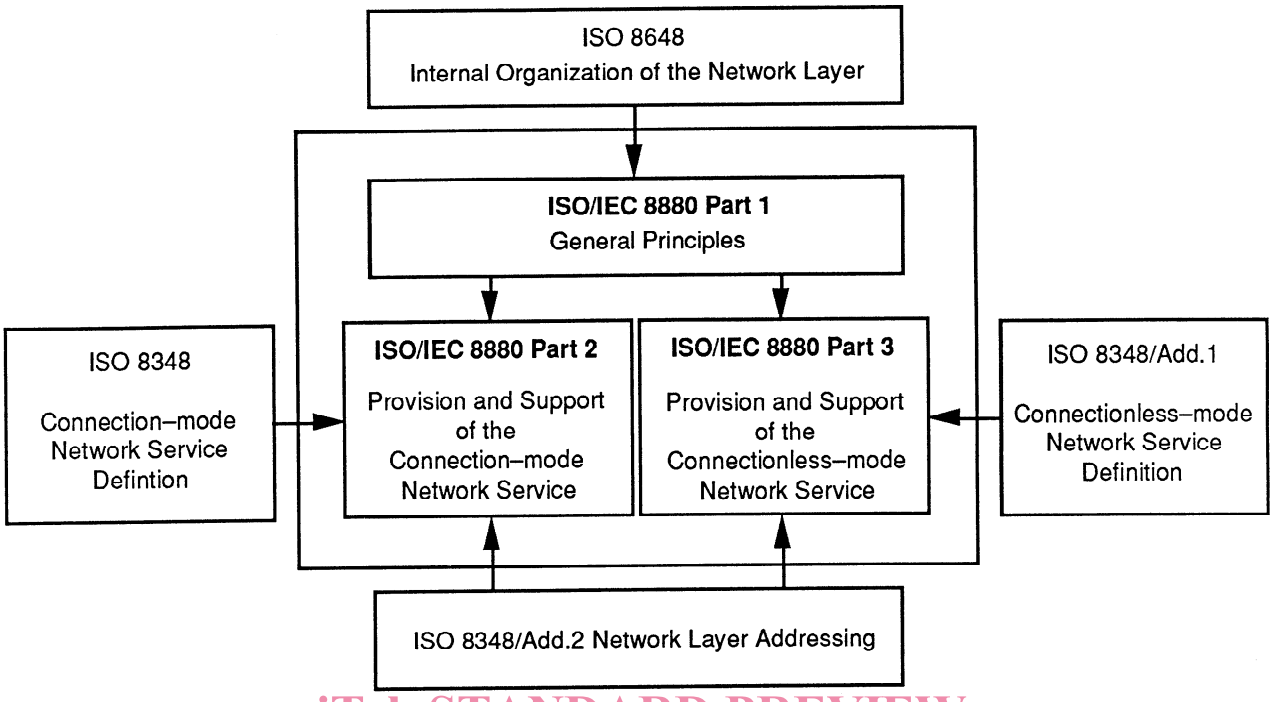

Figure 1 – Organization of ISO/IEC 8880

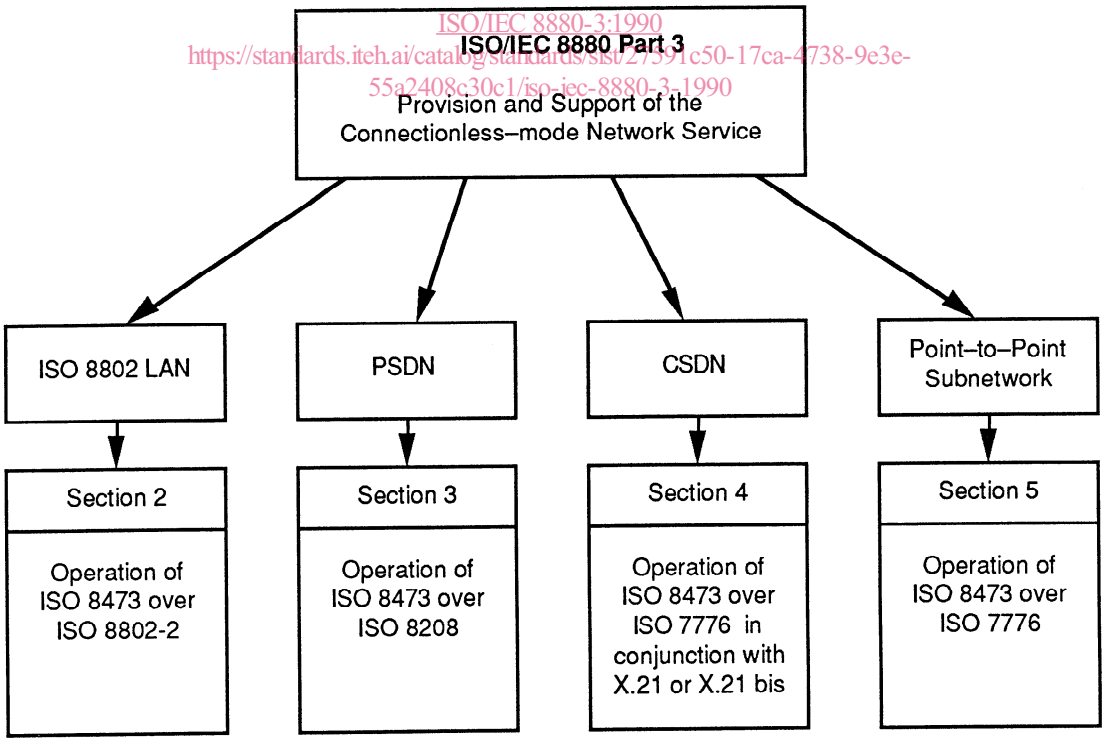

Figure 2 – Protocols to provide and support the connectionless-mode Network Service

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Information technology — Telecommunications and information exchange between systems — Protocol combinations to provide and support the OSI Network Service —

Part 3:
Provision and support of the connectionless-mode Network Service

Section 1: General

1.1 Scope

This part of ISO/IEC 8880 describes is the provision and support of the Connectionless-mode Network Service defined in ISO 8348. The field of application of ISO/IEC 8880–2 is the environments defined in 1.5.

1.2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 8880. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 8880 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 7498:1984, *Information processing systems – Open Systems Interconnection – Basic reference model.*

ISO 7498/Add.1:1987, *Information processing systems – Open Systems Interconnection – Basic reference model – Addendum 1: Connectionless-mode transmission.*

ISO 7776:1986, *Information processing systems – Data communications. – High-level data-link control procedures – Description of the X.25 LAPB-compatible DTE data-link procedures.*

ISO 7809:1984, *Information processing systems – Data communication – High-level data-link control procedures – Consolidation of classes of procedures.*

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

ISO 8348:1987, *Information processing systems – Data communications – Network service definition.*

ISO 8348/Add.1:1987, *Information processing systems – Data communications – Network service definition – Addendum 1: Connectionless-mode transmission.*

ISO 8473:1988, *Information processing systems – Data communications – Protocol for providing the connectionless-mode Network Service.*

ISO 8648:1988, *Information processing systems – Open Systems Interconnection – Internal organization of the Network layer.*

ISO 8802:1989, *Information processing systems – Data communication – Local Area Networks.*

ISO/IEC 8880-1 : 1990, *Information technology — Telecommunications and information exchange between systems — Protocol combinations to provide and support the OSI Network Service — Part 1: General principles.*

ISO/IEC 8880-2 : 1990, *Information technology — Telecommunications and information exchange between systems — Protocol combinations to provide and support the OSI Network Service — Part 2: Provision and support of the connection-mode Network Service.*

CCITT Recommendation X.21, *Interface between Data Terminal Equipment (DTE) and Data Circuit Terminating Equipment (DCE) for Operation on Public Data Networks.*

CCITT Recommendation X.21 bis, *Use on Public Data Networks of Data Terminal Equipment (DTE) which is designed for interfacing to synchronous V-Series modems.*

1.3 Definitions

1.3.1 Reference model definitions

This part of ISO/IEC 8880 makes use of the following terms defined in ISO 7498 and ISO 7498/Add.1:

a) OSI Network Layer;

b) OSI Network Service;

c) Service;

d) Protocol;

e) Connectionless-mode;

f) Intermediate System;

g) End-system.

1.3.2 Network Layer architecture definitions

This part of ISO/IEC 8880 makes use of the following term defined in ISO 8648:

a) Subnetwork.

1.3.3 Local area network definitions

This part of ISO/IEC 8880 makes use of the following terms defined in ISO 8802:

a) Local Area Network;

b) Logical Link Control;

c) Medium Access Control.

1.4 Abbreviations

The following abbreviations are used in this part of ISO/IEC 8880:

BAC	Balanced Asynchronous Class
CCITT	International Telegraph and Telephone Consultative Committee
CLNS	Connectionless-mode Network Service
CSDN	Circuit-Switched Data Network
HDLC	High-level Data-link Control
LAN	Local Area Network
LAPB	Link Access Procedures Balanced
LLC	Logical Link Control
MAC	Medium Access Control
NSAP	Network Service Access Point
OSI	Open Systems Interconnection
PLP	Packet Level Protocol
PSDN	Packet Switched Data Network

1.5 Identification of environments and related protocol combinations

1.5.1 General

The following clauses identify the environments for which support and provision of the CLNS is specified in this part of ISO/IEC 8880. Each clause refers to one or more subsequent sections which specify the use of a particular protocol combination.

1.5.2 ISO 8802 LAN

In the ISO 8802 LAN environment the protocol combination specified in the following section of this part of ISO/IEC 8880 is applicable:

Section 2: Operation of ISO 8473 over ISO 8802–2

1.5.3 PSDN

In a PSDN environment the protocol combination specified in the following section of this part of ISO/IEC 8880 is applicable:

Section 3: Operation of ISO 8473 over ISO 8208

1.5.4 CSDN

In a CSDN environment the protocol combination specified in the following section of this part of ISO/IEC 8880 is applicable.

Section 4: Operation of ISO 8473 over ISO 7776 in conjunction with CCITT X.21 or X.21 bis

1.5.5 Point-to-point subnetwork

In a Point-to-Point subnetwork environment the protocol combination specified in the following section of this part of ISO/IEC 8880 is applicable.

Section 5: Operation of ISO 8473 over ISO 7776

1.6 Identification of protocols providing the CONS

1.6.1 General

The following clauses identify the protocols used to provide the CLNS. Each clause refers to the protocol combinations that use the protocol, which are specified in subsequent sections of this part of ISO/IEC 8880.

1.6.2 ISO 8473

ISO 8473 is used to provide the CLNS in the following section(s) of this part of ISO/IEC 8880:

Section 2: Operation of ISO 8473 over ISO 8802–2

Section 3: Operation of ISO 8473 over ISO 8208

Section 4: Operation of ISO 8473 over ISO 7776 in conjunction with CCITT X.21 or X.21 bis

Section 5: Operation of ISO 8473 over ISO 7776

1.7 Conformance of End-systems in each environment

1.7.1 General

Conformance in this sub-clause refers to a combination of both static and dynamic requirements, unless explicitly indicated otherwise in the sections identified in this clause. This part of ISO/IEC 8880 assumes that the referenced standards contain the dynamic conformance requirements for operation as indicated in Sections 2, 3, 4, and 5.

Conformance to this part of ISO/IEC 8880 refers to the ability of equipment operating as an End-system to provide the CLNS in one of the following environments.

1.7.2 Conformance in an ISO 8802 LAN environment

Equipment claiming conformance to this part of ISO/IEC 8880 for the provision of the CLNS in an ISO 8802 LAN environment shall use the protocol combination specified in Section 2.

1.7.3 Conformance in a PSDN environment

Equipment claiming conformance to this part of ISO/IEC 8880 for the provision of the CLNS in a PSDN environment shall use the protocol combination specified in Section 3.

1.7.4 Conformance in a CSDN environment

Equipment claiming conformance to this part of ISO/IEC 8880 for the provision of the CLNS in a CSDN environment shall use the protocol combination specified in Section 4.

1.7.5 Conformance in a point-to-point environment

Equipment claiming conformance to this part of ISO/IEC 8880 for the provision of the CLNS in a point-to-point subnetwork environment shall use the protocol combination specified in Section 5.

Section 2: Operation of ISO 8473 over ISO 8802-2

2.1 Applicability

This section of ISO/IEC 8880–3 applies when the protocol for providing the CLNS as standardized in ISO 8473, operating over ISO 8802–2 is used to provide the CLNS at an NSAP in an End-system attached to an ISO 8802 LAN.

2.2 Procedures for operation

When providing the OSI Connectionless-mode Network Service in the configuration identified in 2.1 above, the following shall apply independently of the type of MAC procedures used:

a) the definition of the Connectionless-mode Network Service is as specified in ISO 8348/Add. 1;

b) the conformance requirements of the Protocol for Providing the Connectionless-mode Network Service are as required by the conformance clause of ISO 8473;

c) the mapping of the service used by ISO 8473 onto the service provided by ISO 8802–2 is as required by the conformance clause of ISO 8473; and

d) the general procedures and formats of LLC are as specified in ISO 8802–2.