

**Implementation of
ENV 41801-7:1992**

Information systems interconnection — Relaying the connectionless-mode network service —

**Part 7: PSDN subnetwork dependent
media dependent requirements for
virtual calls over a permanent access**

UDC 681.3.01/.02

NO COPYING WITHOUT BSI PERMISSION EXCEPT AS PERMITTED BY COPYRIGHT LAW

BSI
Documents

AVA

Document Sharing Hub

Cooperating organizations

The Joint European Standards Institution (CEN/CENELEC), under whose supervision this European Prestandard was prepared, comprises the National Committees of the following countries:

Austria	Italy
Belgium	Luxembourg
Denmark	Netherlands
Finland	Norway
France	Portugal
Germany	Spain
Greece	Sweden
Iceland	Switzerland
Ireland	United Kingdom

This Draft for Development was published under the authority of the Standards Board and comes into effect on 15 November 1992

© BSI 04-2000

The following BSI reference relates to the work on this Draft for Development:
Committee reference IST/6

ISBN 0 580 21388 9

Amendments issued since publication

Amd. No.	Date	Comments

Contents

	Page
Cooperating organizations	Inside front cover
National foreword	ii
Foreword	2
Text of ENV 41801-7	3

National foreword

This Draft for Development is identical with the European Prestandard ENV 41801-7:1992 *“Information system interconnection — Relaying the connectionless-mode network service — Part 7: PSDN subnetwork dependent media dependent requirements for virtual calls over a permanent access”*, prepared by CEN/CENELEC whose members have committed themselves to making it available in appropriate form. In the UK the Draft for Development is the form now chosen for ENVs in the information technology area.

This Draft for Development is published under the direction of the Information Systems Technology Standards Policy Committee whose Technical Committee IST/6 has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any queries on interpretation, or proposals for change, and to keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

NOTE International and European Standards, as well as overseas standards, are available from BSI Sales Department, BSI, Linford Wood, Milton Keynes, MK14 6LE.

After two years this ENV will be reviewed by CEN/CENELEC members with a view to its:

- conversion into a European Standard (which would be implemented in the UK as a British Standard);
- extension once for a further two years;
- replacement by a revised ENV (which would be published in the UK as a revised Draft for Development);
- withdrawal.

The future of this Draft for Development is therefore bound to that of the ENV and the Draft for Development will not be reviewed or developed separately.

This publication is not to be regarded as a British Standard.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the ENV title page, pages 2 to 25 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

UDC 681.3.01/.02

Descriptors: Data processing, network interconnection, transmission, connectionless mode transmission, services, specifications

English version

Information systems interconnection — Relaying the connectionless-mode network service — Part 7: PSDN subnetwork dependent media dependent requirements for virtual calls over a permanent access

Interconnexion de systèmes d'information —
Relais du service de réseau en mode sans
connexion —
Partie 7: Spécifications dépendant du
sous-réseau RDCP et dépendant du support
pour les circuits virtuels commutés sur un
accès permanent

Kommunikation von Informationssystemen —
Relais für den verbindungslosen
Vermittlungsdienst —
Teil 7: PSDN-Teilnetz-abhängige,
Medium-abhängige Anforderungen für
virtuelle Verbindungen über einer
festgeschalteten Netzzugangsverbindung

This European Prestandard (ENV) was approved by CEN/CENELEC on 1991-10-17 as a prospective standard for provisional application. The period of validity of this ENV is limited initially to three years. After two years the members of CEN/CENELEC will be requested to submit their comments, particularly on the question whether the ENV can be converted into a European Standard (EN).

CEN/CENELEC members are required to announce the existence of this ENV in the same way as for an EN and to make the ENV available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the ENV) until the final decision about the possible conversion of the ENV into an EN is reached.

CEN/CENLEC members are the national standards bodies and national electrotechnical committees, respectively, of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN/CENELEC

The Joint European Standards Institution
Organisation Commune Européenne de Normalisation
Die Gemeinsame Europäische Normungsorganisation

Central Secretariat: rue de Stassart 36, B-1050 Brussels

© 1992 Copyright reserved to CEN/CENELEC members

Foreword

This European Prestandard (ENV) was elaborated by the EWOS Expert Group Lower Layer (EWOS/EG LL).

It was submitted for formal vote by the CEN Central Secretariat to the members of CEN/CENELEC on 1991-07-17 with the deadline of 1991-10-17. The result of the formal vote was positive.

This ENV forms part of a six-part prestandard the remaining parts of which are:

- Part 1: General overview and subnetwork independent requirements;
- Part 2: LAN subnetwork dependent media independent requirements;
- Part 3: ISO 8802-3 CSMA/CD subnetwork dependent media dependent requirements;
- Part 5: Profile RA51.51 (M-IT-02 R/21);
- Part 8: Profile RA51.1111 (M-IT-02 R/22 over PSDN leased line);
- Part 9: Profile RA 51.1121 (M-IT-02 R/22 over digital data circuit/CSDN leased line).

According to the CEN/CENELEC Common Rules, the following countries are bound to announce the existence of this European Prestandard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

Contents

	Page
Foreword	2
Introduction	3
1 Scope	3
2 Normative References	3
3 Definitions	4
4 Abbreviations	4
5 Subnetwork-type Dependent Media Dependent Requirements for use of virtual calls over a permanent access to a PSDN	4
5.1 Static Conformance Requirements	4
5.1.1 Overall Requirements	4
5.1.2 ISO 8473	4
5.1.3 ISO 9542	4
5.1.4 ISO 8208	4
5.1.5 ISO 7776	5
5.1.6 X.25 Physical Layer	5
5.2 Dynamic Conformance Requirements	5
5.2.1 Overall Requirements	5
5.2.2 ISO 8473	5
Annex A (normative) ISPICS Requirements List	6
Annex B (normative) Assumed Base Standard PICS Proformas	8
Annex C (informative) Recommendations	25
Table 1 — Connectors	5

Introduction

This Functional Standard is defined in accordance with the principles specified by ISO TR 10000. The context of Functional Standardization is one part of the overall field of Information Technology (IT) standardization activities, covering base standards, profiles, and registration mechanisms. A profile defines a combination of base standards that collectively perform a specific well-defined IT function. Profiles standardize the use of options and other variations in the base standards, and provide a basis for the development of uniform, internationally recognised system tests.

One of the most important roles for a Functional Standard is to serve as the basis for the development (by organizations other than ISO and IEC) of internationally recognised tests and test centres. Functional Standards are produced not simply to “legitimise” a particular choice of base standards and options, but to promote real system interoperability. The development and widespread acceptance of tests based on this and other Functional Standards is crucial to the successful realisation of this goal.

This Functional Standard consists of several parts, of which this is Part 7. Part 1 defines the overall structure of the R/Ap.q profiles, and specifies the profile requirements that are subnetwork independent. There are further parts which specify subnetwork dependent and media dependent requirements. In addition for each individual profile there is a part of this Functional Standard which identifies the specific requirements of that profile, making reference to appropriate material from Part 1 and from the subnetwork dependent parts.

1 Scope

This Functional Standard is applicable to interworking units concerned with operating in the Open Systems Interconnection (OSI) environment. It specifies a combination of OSI base standards that collectively provide a Network-relay function for the Connectionless-mode Network Service.

This part of the Functional Standard specifies subnetwork-type dependent media dependent requirements applicable to an interworking unit using virtual calls over a permanent access to a PSDN. The operation of an interworking unit may involve relaying from one subnetwork to another, and those subnetworks need not be of the same type. This part of the Functional Standard applies only to communications using PSDN subnetworks with permanent access on which virtual calls are used.

2 Normative References

The following documents contain provisions which, through reference in this text, constitute provisions of this Functional Standard. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this Functional Standard are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by functional standards to these documents is such that they may be specific to a particular edition. Members of IEC and ISO maintain registers of currently valid International Standards and ISPs, and CCITT maintains published editions of its current Recommendations.

ISO/IEC TR 10000-1:1990, *Information processing systems — Framework and Taxonomy of International Standardized Profiles — Part 1: Framework*.

ISO/IEC TR 10000-2:1990, *Information processing systems — Framework and Taxonomy of International Standardized Profiles — Part 2: Taxonomy*.

ISO 2110:1989, *Information technology — Data communication — 25-pole DTE/DCE interface connector and contact number assignments*.

ISO 2593:19nn, *Information technology — Data Communication — 34-pole DTE/DCE interface connector and contact number assignments (DIS text)*.

ISO 4902:1989, *Information technology — Data communication — 37-pole DTE/DCE interface connector and contact number assignments*.

ISO 4903:1989, *Information technology — Data communication — 15-pole DTE/DCE interface connector and contact number assignments*.

ISO 8473:1988, *Information processing systems — Data communications — Protocol for providing the Connectionless-mode Network service*.

ISO 9542:1988, *Information processing systems — Telecommunications and information exchange between systems — End system to Intermediate system routeing exchange protocol for use in conjunction with the Protocol for providing the connectionless-mode network service*.

ISO 9542/Cor.1:1991, *Information processing systems — Telecommunications and information exchange between systems — End system to Intermediate system routeing exchange protocol for use in conjunction with the Protocol for providing the connectionless-mode network service — TECHNICAL CORRIGENDUM 1*.

ISO/IEC 8208:1990, *Information processing systems — Data Communications — X.25 Packet Level Protocol for Data Terminal Equipment*.

ISO/IEC 8208/Amd.3:1990, *Information processing systems — Data Communications — X.25 Packet Level Protocol for Data Terminal Equipment*.

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*.

CCITT recommendation X.25:1988, *Interface between Data Terminal Equipment (DTE) and Data Circuit Terminating Equipment (DCE) for terminals operating in the packet mode and connected to Public Data Networks by Dedicated Circuit*.

ISO/IEC 9646-1:1991, *Information Technology — Open Systems Interconnection — Conformance Testing Methodology and Framework, Part 1: General Concepts*.

ISO/IEC 9646-2:1991, *Information Technology — Open Systems Interconnection — Conformance Testing Methodology and Framework, Part 2: Abstract Test Suite Specification*.

ENV 41801-1:1992, *Relaying the Connectionless-mode Network Service, Part 1: General overview and subnetwork independent requirements*.

3 Definitions

The terms used in this FS are defined in the referenced base standards (see clause 2).

4 Abbreviations

Abbreviations used in this FS are defined in the referenced documents (see clause 2).

5 Subnetwork-type Dependent Media Dependent Requirements for use of virtual calls over a permanent access to a PSDN

5.1 Static Conformance Requirements

5.1.1 Overall Requirements

An implementation conforming to this part of this FS shall conform to the static conformance requirements of Part 1 of this FS, and in addition shall meet

- the requirements for ISO 8473 in clause 5.1.2 below
- the requirements for ISO 9542 in clause 5.1.3 below
- the requirements for ISO 8208 in clause 5.1.4 below

— the requirements for ISO 7776 in clause 5.1.5 below

— the X.25 physical layer requirements in clause 5.1.6 below

It shall implement all the features identified as requirements in the ISPICS Requirements List in Annex A.

5.1.2 ISO 8473

The implementation shall

- a) meet the requirements of clause 8 of ISO 8473 for provision of the underlying service by means of the subnetwork dependent convergence functions used with ISO 8208 subnetworks
- b) be capable of dealing with receipt of segments up to 64766 octets in length

5.1.3 ISO 9542

The implementation shall

- a) implement redirection information
- b) use as the BSNPA field of RD PDUs the DTE address corresponding to the subnetwork point of attachment which it is desired to identify. Each digit of the address shall be encoded in a semi-octet in the same form as is used in the Called DTE Address field of an ISO 8208 call request packet, and if the address consists of an odd number of digits a final semi-octet with all bits set to 1 shall be added.

5.1.4 ISO 8208

The implementation shall

- a) meet the static conformance requirements specified in clause 17 of ISO 8208/Amd.3
- b) implement the Virtual Call service
- c) implement operation in a DTE/DCE environment
- d) implement the following capabilities identified in Table 23 of ISO 8208/Amd.3:
 - Virtual Call setup; initiating an outgoing VC, with subsequent acceptance or rejection, and receiving an incoming VC and responding by acceptance, and receiving an incoming VC and responding by rejection
 - Aborting an outgoing VC attempt by clearing
 - Clearing an established VC as initiator and as responder

e) implement the following options from clause 17.1.2 of ISO 8208/Amd.3:

- support transfer of user data in call setup packets, for both transmission and reception
- support DATA packet transfer
- support DATA packets with the M-bit set to 1, for both transmission and reception
- transmit updated window rotation information
- transmit RR packets

f) be capable of accepting incoming VCs both as fast select and as non-fast-select calls

g) if it implements the initiation of fast select virtual calls, provide a means whereby its use can be inhibited

5.1.5 ISO 7776

The implementation shall:

- a) support the functions required by ISO 7776
- b) implement basic (modulo 8) operation

5.1.6 X.25 Physical Layer

The implementation shall support physical access by any of

- a) An X.21 interface as specified in section 1.1 of CCITT X.25
- b) An X.21 bis interface as specified in section 1.2 of CCITT X.25
- c) A V-series interface as specified in section 1.3 of CCITT X.25

Table 1 identifies connectors which are appropriate for X.21 and X.21 bis for various data signalling rates.

NOTE The use of built-in modems is not prohibited.

Table 1 — Connectors

Data Signalling Rate	X.21 bis	X.21
2 400 bit/s	ISO 2110	ISO 4903
4 800 bit/s	ISO 2110	ISO 4903
9 600 bit/s	ISO 2110	ISO 4903
19 200 bit/s	ISO 2110	ISO 4903
48 000 bit/s	ISO 2593 ISO 4902	ISO 4903
64 000 bit/s	ISO 4902	ISO 4903

5.2 Dynamic Conformance Requirements

5.2.1 Overall Requirements

An implementation conforming to this part of this FS shall

- conform to the dynamic conformance requirements of Part 1 of this FS
- meet the additional requirements for ISO 8473 and ISO 9542 specified in clauses 6.2.2 and 6.2.3 below
- conform to the dynamic conformance requirements specified in clause 17 of ISO 8208/Amd. 3
- carry out the supported ISO 7776 functions in accordance with the procedures specified in ISO 7776
- behave in accordance with the requirements of the ISPICS Requirements List in Annex A.

5.2.2 ISO 8473

When transmitting ISO 8473 PDUs, the ISO 8208 Q-bit shall be set to 0.

5.2.3 ISO 9542

When transmitting ISO 9542 PDUs, the ISO 8208 Q-bit shall be set to 0.