INTERNATIONAL STANDARDIZED PROFILE

ISO/IEC ISP 10609-28

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Information technology — International Standardized Profiles TB, TC, TD and TE — Connection-mode Transport Service over connection-mode Network Service —

Part 28:

Subnetwork-type dependent requirements for Data Link Layer for end systems attached to an ISDN subnetwork

Technologies de l'information — Profils normalisés internationaux TB, TC, TD et TE — Service de transport en mode connexion sur service de réseau en mode connexion —

Partie 28: Prescriptions dépendantes du type de sous-réseau pour la couche liaison de données pour les systèmes d'extrémité attachés à un sous-réseau ISDN

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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. In addition to developing International Standards, ISO/IEC JTC 1 has created a Special Group on Functional Standardization for the processing of International Standardized Profiles.

An International Standardized Profile is an internationally agreed, harmonized document which identifies a standard or group of standards, together with options and parameters, necessary to accomplish a function or set of functions.

Draft International Standardized Profiles are circulated to national bodies for voting. Publication as an International Standardized Profile requires approval by at least 75% of the national bodies casting a vote.

International Standardized Profile ISO/IEC ISP 10609-28 was prepared with the collaboration of

- Asia-Oceania Workshop (AOW);
- European Workshop for Open Systems (EWOS);
- Open Systems Environment Implementors' Workshop (OIW).

ISO/IEC ISP 10609 consists of the following parts, under the general title *Information technology - International Standardized Profiles TB, TC, TD and TE - Connection-mode Transport Service over connection-mode Network Service*:

Part 1: Subnetwork-type independent requirements for Group TB

Part 2: Subnetwork-type independent requirements for Group TC

Part 3: Subnetwork-type independent requirements for Group TD

Part 4: Subnetwork-type independent requirements for Group TE

Part 5: Definition of profiles TB1111/TB1121

Part 6: Definition of profiles TC1111/TC1121

Part 7: Definition of profiles TD1111/TD1121

Part 8: Definition of profiles TE1111/TE1121

Part 9: Subnetwork-type dependent requirements for Network Layer, Data Link Layer and Physical Layer concerning permanent access to a packet switched data network using virtual calls

Part 10: LAN subnetwork-dependent, media-independent requirements

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Part 11: CSMA/CD LAN subnetwork-dependent, media-dependent requirements

Part 12: Definition of profile TC51, provision of the OSI connection-mode Transport Service using the OSI connection-mode Network Service in an End System attached to a CSMA/CD LAN

Part 14: Definition of profile TC53, provision of the OSI connection-mode Transport Service using the OSI connection-mode Network Service in an End System attached to a Token Ring LAN

Part 15: Definition of profile TC54, provision of the OSI connection-mode Transport Service using the OSI connection-mode Network Service in an End System attached to an FDDI LAN

Part 20: Overview of the generalized multi-part ISP structure for TC and TD Group profiles for OSI usage of ISDN

Part 21: Subnetwork-type dependent requirements for Network Layer and Data Link Layer for ISDN B-channel X.25 DTE to DTE operation

Part 22: Subnetwork-type dependent requirements for Network Layer and Data Link Layer for ISDN B-channel X.25 DTE to DCE operation

Part 23: Subnetwork-type dependent requirements for Network Layer and Data Link Layer for Data Transfer concerning a packet switched mode Integrated Services Digital Network using virtual calls: B-channel access case

Part 24: Subnetwork-type dependent requirements for Network Layer and Data Link Layer for Data Transfer concerning a packet switched mode Integrated Services Digital Network using virtual calls: D-channel access case

Part 25: Subnetwork-type dependent requirements for Q.931 circuit-switched operation

Part 26: Subnetwork-type dependent requirements for Network Layer for Call Control procedures concerning the outgoing call of a packet switched mode Integrated Services Digital Network in case B using virtual calls

Part 27: Subnetwork-type dependent requirements for Network Layer for Call Control procedures concerning the incoming call of a packet switched mode Integrated Services Digital Network in case B using virtual calls

Part 28: Subnetwork-type dependent requirements for Data Link Layer for end systems attached to an ISDN subnetwork

Part 30: Definition of profile TC1131

Part 31: Definition of profile TC1231

Part 32: Definition of profile TC4111

Part 33: Definition of profile TC4211

Part 34: Definition of profile TC43111

Part 35: Definition of profile TC43112

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Part 36: Definition of profile TC43211

Part 37: Definition of profile TC43212

Part 38: Definition of profile TC4331

Part 40: Definition of profile TD1131

Part 41: Definition of profile TD1231

Part 42: Definition of profile TD4111

Part 43: Definition of profile TD4211

Part 44: Definition of profile TD43111

Part 45: Definition of profile TD43112

Part 46: Definition of profile TD43211

Part 47: Definition of profile TD43212

Part 48: Definition of profile TD4331

Annexes A and B form an integral part of this part of ISO/IEC ISP 10609.

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Introduction

This International Standardized Profile (ISP) is defined in accordance with the principles specified by ISO/IEC Technical Report 10000, "Information technology - Framework and taxonomy of International Standardized Profiles".

The context of Functional Standardization is one area in 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 base for the development of uniform, internationally recognized system tests.

ISPs are produced not simply to "legitimize" a particular choice of base standards and options, but to promote real system interoperability. One of the most important roles for an ISP is to serve as the basis for the development (by organizations other than ISO and IEC) of internationally recognized test methods. The development and widespread acceptance of tests based on this and other ISPs is crucial to the successful realization of this goal.

ISO/IEC ISP 10609 consists of several parts of which this is part 28. This part of ISO/IEC ISP 10609 specifies subnetwork-type dependent requirements for the Data Link Layer on the D-channel (Q.921 LAPD) for end systems attached to an ISDN subnetwork. There are further parts which specify profile requirements that are subnetwork-type independent. In addition, for each individual profile there is a part of ISO/IEC ISP 10609 which identifies the specific requirements of that profile, making reference to appropriate material from parts 2 or 3, and from the subnetwork-type dependent parts of ISO/IEC ISP 10609.

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Information technology — International Standardized Profiles TB, TC, TD and TE — Connection-mode Transport Service over connection-mode Network Service —

Part 28:
Subnetwork-type dependent requirements for Data Link Layer for end systems attached to an ISDN subnetwork

1 Scope

ISO/IEC ISP 10609 is applicable to end systems concerned with operating in the Open Systems Interconnection (OSI) environment. It specifies a combination of OSI standards, which collectively provide the connection-mode Transport Service using the connection-mode Network Service.

This part of ISO/IEC ISP 10609 specifies the requirements for the Data Link Layer that apply specifically to configurations involving access to an ISDN subnetwork. The requirements specified in this part apply to Service Access Point Identifier (SAPI) of value 0 used to provide Data Link Layer services to a call control Layer 3 entity and to SAPI of value 16 used to provide Data Link Layer services to an X.25 Layer 3 entity.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC ISP 10609. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this part of ISO/IEC ISP 10609 are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by ISPs to such documents is that they may be specific to a particular edition. Members of IEC and ISO maintain registers of currently valid International Standards and ISPs, and ITU-T maintains published editions of its current Recommendations.

CCITT Rec. Q.920 (1988), *ISDN User-Network Interface Data Link Layer - General Aspects.*

CCITT Rec. Q.921 (1988), *ISDN User-Network Interface - Data Link Layer Specification.*

CCITT Rec. Q.921 (1988), Annex E (1992), *Protocol Implementation Conformance Statement (PICS) to Recommendation Q.921 for Basic Rate (user-side).*

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3 Definitions

The terms used in this part of ISO/IEC ISP 10609 are defined in the referenced base standards (see clause 2).

4 Abbreviations

The following abbreviations are used in this part of ISO/IEC ISP 10609:

CPE	Customer Premises Equipment
DLE	Data Link Entity
IPRL	ISPICS Requirements List
ISDN	Integrated Services Digital Network
ISP	International Standardized Profile
ISPICS	ISP Implementation Conformance Statement
PICS	Protocol Implementation Conformance Statement
SAP	Service Access Point
SAPI	Service Access Point Identifier
XID	eXchange Identification

5 Subnetwork-type dependent requirements for Data Link Layer

5.1 Static conformance requirements

5.1.1 Overall requirements

An implementation conforming to this part of ISO/IEC ISP 10609 shall:

a) meet the static conformance requirements in accordance with CCITT Q.921 (and detailed in the Q.921 PICS proforma specified in Q.921, Annex E, for Basic Rate Access and in annex B of this part of ISO/IEC ISP 10609 for Primary Rate Access);

b) comply with the additional static conformance requirements for CCITT Q.921 specified in subclause 5.1.2 below.

5.1.2 Additional static conformance requirements

The additional static conformance requirements are defined in the IPRL in subclause A.2.

5.2 Dynamic conformance requirements

5.2.1 Overall requirements

An implementation conforming to this part of ISO/IEC ISP 10609 shall:

a) implement the protocol procedures as described in CCITT Q.921;

b) meet the additional dynamic conformance requirements for CCITT Q.921 specified in subclause 5.2.2 below.

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5.2.2 Additional dynamic conformance requirements

The additional dynamic conformance requirements are defined in the IPRL in subclause A.2.

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Annex A
(normative)

ISPICS requirements list (IPRL)

A.1 Introduction

The IPRL in this annex specifies requirements for implementation of the Data Link Layer. The IPRL specifies subnetwork-type dependent Data Link Layer requirements for an end system attached to an ISDN subnetwork that apply to Service Access Point Identifier (SAPI) of value 0 used to provide Data Link Layer services to a call control Layer 3 entity and to SAPI of value 16 used to provide Data link layer services to an X.25 layer 3 entity.

The Data Link Layer IPRL in subclause A.3 specifies the additional requirements for CCITT Q.921 PICS proforma. The requirements of the CCITT Q.921 PICS proforma apply to each item for which there is no entry in the IPRL (subclause A.3).

A conforming implementation shall satisfy the mandatory conformance requirements of the base standards referenced in this part of ISO/IEC ISP 10609.

A.2 Notation

The following symbols are used to identify the capabilities to be supported by a conforming implementation:

a) **Base standard status notation**

M	mandatory
O	optional
O.<*n*>	optional, but support is required for either at least one or only one of the options in the group labeled by the same numeral <*n*>

b) **IPRL status notation**

The status column of profile features is entered using the one-character or the two-character notation. The one-character notation indicates the static conformance requirements only. For the two-character notation, the first character indicates the static conformance requirements and the second indicates the dynamic conformance requirements.

1. Static

m	mandatory, mandatory to be implemented
o	optional, optional to be implemented
o.<*n*>	optional, but at least one of the group of options labeled by the same numeral <*n*> is required
i	out of scope, not relevant to this profile

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2. Dynamic

m mandatory, mandatory to be used
x excluded, prohibited to be used in the context of this profile

A.3 IPRL for CCITT Q.921

Base Standard Features					Profile Features	
Access Configuration (AC)						
Index	**Protocol Feature**	**Status**	**Reference**	**Support/Range**	**ISP References**	**Status**
AC1	Basic Access	O.1		Yes:_ No:_ X:_		
AC2	Primary Rate Access	O.1		Yes:_ No:_ X:_		

Base Standard Features					Profile Features	
E.7 System Parameters (SP)						
Index	**System Parameters**	**Status**	**Reference**	**Support/Range**	**ISP References**	**Status**
	If the DLE supports multiple frame operations:					
SP1	Retransmission time (T200)	M	5.9.1	Yes:_ No:_ Value:____		Shall support at least value of 1 second
SP2	Maximum number of retransmissions (N200)	M	5.9.2	Yes:_ No:_ Value:____		Shall support at least value of 3
	Maximum number of octets in information field (N201):					
SP3	for SAP supporting signaling	M	5.9.3	Yes:_ No:_ Value:____		Shall support at least value of 260 octets
SP4	for SAP supporting packet on the D-channel	M	5.9.3	Yes:_ No:_ Value:____		Shall support at least value of 260 octets
	Maximum number of outstanding I frames (k):					
SP5	for SAP supporting signaling	AC1:M	5.9.5	Yes:_ No:_ Value:____		Shall support at least value of 1
		AC2:M	5.9.5	Yes:_ No:_ Value:____		Shall support at least value of 7
SP6	for SAP supporting packet on the D-channel	AC1:M	5.9.5	Yes:_ No:_ Value:____		Shall support at least value of 3
		AC2:M	5.9.5	Yes:_ No:_ Value:____		Shall support at least value of 7

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Base Standard Features					Profile Features	
E.7 System Parameters (SP)						
Index	**System Parameters**	**Status**	**Reference**	**Support/Range**	**ISP References**	**Status**
	If the CPE is of the automatic TEI assignment category:					
SP7	Maximum number of transmissions of TEI Identity Request message (N202)	M	5.9.4	Yes:_ No:_ Value:____		Shall support at least value of 3
SP8	Minimum time between the transmission of TEI Identity Request message (T202)	M	5.9.7	Yes:_ No:_ Value:____		T202 shall be set to 2 seconds
	If the CPE supports the data link monitor function:					
SP9	Maximum time allowed without frames being exchanged (T203)	M	5.9.8	Yes:_ No:_ Value:____		Shall support at least value of 10 seconds
	If the CPE supports the automatic negotiation of data link parameters:					
SP10	Retransmission time of XID frame (TM20)	M	Appx IV.2	Yes:_ No:_ Value:____		TM20 shall be set to 2.5 seconds
SP11	Maximum number of retransmissions of XID frame (NM20)	M	Appx IV.2	Yes:_ No:_ Value:____		NM20 shall be set to 3

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Annex B
(normative)

Assumed base standard (PICS) proforma

B.1 Introduction

This annex specifies the Q.921 Protocol Implementation Conformance Statement (PICS) proforma which applies to the user-side of a Primary Rate Access, which does not yet have an internationally stable PICS proforma.

B.2 Q.921 PICS proforma for Primary Rate Access user side

The PICS proforma for the user-side of a Primary Rate Access is the same PICS proforma as the user-side of a Basic Access (specified in CCITT Recommendation Q.921, Annex E) amended as follows:

1. **E.5 Protocol Capabilities (PC)**

   Change the following entry "PC2" from:

   E.5 Protocol Capabilities (PC)

Index	Protocol Feature	Status	Reference	Support/Range
PC2	Does the CPE support the broadcast data link?	M	5.2	Yes:_ No:_ X:_

   to the following:

   E.5 Protocol Capabilities (PC)

Index	Protocol Feature	Status	Reference	Support/Range
PC2	Does the CPE support the broadcast data link?	N/A	5.2	Yes:_ No:_ X:_

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2. E7 System Parameters (SP)

Change the following entries "SP5 and SP6" from:

E.7 System Parameters (SP)

Index	System Parameters	Status	Reference	Support/Range
	If the DLE supports multiple frame operation Maximum number of outstanding I frames (k):			
SP5	for SAP supporting basic access signaling	M	5.9.5	Yes:_ No:_ Value:____
SP6	for SAP supporting basic access packet on the D-channel	M	5.9.5	Yes:_ No:_ Value:____

to the following:

E.7 System Parameters (SP)

Index	System Parameters	Status	Reference	Support/Range
	If the DLE supports multiple frame operation Maximum number of outstanding I frames (k):			
SP5	for SAP supporting signaling	M	5.9.5	Yes:_ No:_ Value:____
SP6	for SAP supporting packet on the D-channel	M	5.9.5	Yes:_ No:_ Valuc:____

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