
**Information technology —
Telecommunications and information
exchange between systems — Private
Integrated Services Network — Generic
functional protocol for the support of
supplementary services — Inter-exchange
signalling procedures and protocol**

*Technologies de l'information — Télécommunications et échange
d'informations entre systèmes — Réseau privé à intégration de
services — Protocole générique fonctionnel pour le support de
compléments de service — Procédures et protocole de signalisation entre
commutateurs*

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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. 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 11582 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*.

Annexes A and B form an integral part of this International Standard. Annexes C to I are for information only.

Introduction

This International Standard is one of a series of Standards defining services and signalling protocols applicable to Private Integrated Services Digital Networks (PISNs). The series uses ISDN concepts as developed by CCITT and conforms to the framework of Standards on Open Systems Interconnection as defined by ISO.

This International Standard defines the signalling protocol for use at the Q reference point between two PINXs for the transport of protocol information as part of Supplementary services and/or Additional Network Features (ANFs) within a PISN.

The generic functional procedures provide a flexible and open ended approach to the provision of Supplementary service and ANF protocols. These procedures provide:

- generic protocols which may be utilised in the provision of Supplementary services and ANFs, both related to existing calls and separate from existing calls where appropriate to the capability required;
- a dialogue identification protocol to enable Supplementary service or ANF information flows to be tied together to form a dialogue;
- Supplementary service and ANF transparency across a PISN, whereby transit PINXs need have no knowledge of the capability provided to the PISN user or PISN itself unless involved in the provision of that capability; and
- the capability for standardised and manufacturer specific capabilities to coexist in both single and multi-vendor PISNs.

The protocol defined in this International Standard is based upon that described in CCITT Recommendation Q.932 [Blue Book, 1988] including subsequent revisions during the 1989-1992 Plenary period.

Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Generic functional protocol for the support of supplementary services — Inter-exchange signalling procedures and protocol

1 Scope

This International Standard defines the signalling protocol for the control of Supplementary services and Additional Network Features (ANFs) at the Q reference point. The protocol is part of Private Signalling system No. 1 (PSS1). The Q reference point exists between Private Integrated Services Network Exchanges (PINX) connected together within a Private Integrated Services Network (PISN) and is defined in ISO/IEC 11579. Detailed procedures applicable to individual Supplementary services and ANFs are beyond the scope of this International Standard and will be specified by other Standards for those services which are standardised and by individual manufacturers for proprietary services using the capabilities defined in this International Standard.

ISO/IEC 11572 defines the Layer 3 protocol for circuit-switched call control at the Q reference point. This International Standard defines additional protocol procedures, to be used in conjunction with those defined in ISO/IEC 11572 for the control of Supplementary services and ANFs.

NOTE 1 — Typical examples of the application of these generic functional procedures to some Supplementary services are provided in Annex A, for explanatory and illustrative purposes only.

NOTE 2 — Specific Supplementary services and Additional Network Features may require additional information transfer mechanisms which are service or feature specific and are beyond the scope of this International Standard.

2 Conformance

In order to conform to this International Standard, a PINX shall satisfy the requirements identified in the Protocol Implementation Conformance Statement (PICS) proforma in Annex A.

3 Normative references

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

ISO/IEC 11572:1994, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Circuit mode bearer services - Inter-exchange signalling procedures and protocol*.

ISO/IEC 11574:1994, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Circuit-mode 64 kbit/s bearer services - Service descriptions, functional model and information flows*.

ISO/IEC 11579-1:1994, *Information technology - Telecommunications and information exchange between systems - Private integrated services network - Part 1: Reference configuration for PISN Exchanges (PINX)*.

CCITT Rec. I.112:1988, *Vocabulary of terms for ISDNs [Blue Book, Volume III, Fascicle III.7]*.

CCITT Rec. I.210:1988, *CCITT Recommendation: Principles of Telecommunication Services Supported by an ISDN and the Means to Describe Them [Blue Book]*.

CCITT Rec. X.208:1988, *Specification of Abstract Syntax Notation One (ASN.1) [Blue Book]*.

CCITT Rec. X.209:1988, *Encoding Rules for Abstract Syntax Notation One (ASN.1) [Blue Book]*.

CCITT Rec. X.217:1988, *Association control service definition for Open Systems Interconnection for CCITT Applications [Blue Book]*.

CCITT Rec. X.219:1988, *Remote Operations Model, Notation and Service [Blue Book]*.

CCITT Rec. X.227:1988, *Association control protocol specification for Open Systems Interconnection for CCITT Applications [Blue Book]*.

CCITT Rec. X.229:1988, *Remote Operations Protocol Specification [Blue Book]*.

4 Definitions

For the purposes of this International Standard, the following definitions apply.

4.1 External definitions

This International Standard uses the following terms defined in other documents:

- Object Identifier (CCITT Rec. X.208)
- Private Integrated services Network Exchange (PINX) (ISO/IEC 11579)
- Private Integrated Services Network (ISO/IEC 11579)
- Service (CCITT Rec. I.112)
- Signalling (CCITT Rec. I.112)
- User (ISO/IEC 11574)

4.2 ACSE APDU

An APDU defined by the Association Control Service Element (ACSE).

4.3 Additional Network Feature (ANF)

A capability provided by a PISN, not generally directly to a User, over and above that of the Basic call.

4.4 Adjacent PINX

A PINX as considered from another PINX to which it is directly connected via one or more inter-PINX links.

4.5 Application Protocol Data Unit (APDU)

A sequence of data elements exchanged between peer application layer entities, e.g. ACSE APDUs, DSE APDUs and ROSE APDUs

4.6 Call, Basic call

An instance of the use of a basic service.

4.7 Call independent signalling connection

A signalling connection established between SS-Control entities located in different PINXs that does not have an

associated user-information connection.

4.8 Call independent

A property of information which is conveyed across the Q reference point in a message which does not use a call reference which has an associated user-information connection (that is, using a Connectionless or Connection oriented transport mechanism as defined in 7.2 or 7.3).

4.9 Call related

A property of information which is conveyed across the Q reference point in a message which uses a call reference which has an associated user-information connection.

4.10 Connection oriented

Communication between peer protocol entities by means of a connection or association established by an underlying layer.

4.11 Connectionless

Communication between peer protocol entities by means of an unacknowledged, unidirectional transport mechanism provided by an underlying layer.

4.12 Coordination Function

An entity which provides coordination between various SS-Control entities, ROSE, ACSE, DSE, GFT-Control and Call Control for different Supplementary services (see clause 6).

4.13 Destination PINX

In the context of a single one-way exchange of information between two SS-Control entities, the PINX where the receiving SS-Control entity is located.

4.14 DSE APDU

An APDU defined by the Dialogue Service Element.

4.15 Dialogue Service Element (DSE)

A service element which provides services to SS-Control via the Coordination Function that associate ROSE or ACSE APDUs which are not implicitly associated by an underlying network layer connection.

4.16 End PINX

In the context of a particular call, an Originating or Terminating PINX. It can also be a Gateway PINX, dependent on the capabilities of the signalling system being interworked (i.e. unless it transports APDUs unchanged to or from the other signalling system).

4.17 Gateway PINX

Sub-clause 4.6 of ISO/IEC 11572 shall apply. Dependent on the capabilities of the signalling system being interworked by the Gateway PINX, it can act as a Transit or an End PINX in the context of the Supplementary services