
**Information technology —
Telecommunications and information
exchange between systems — Private
Integrated Services Network —
Circuit-mode 64 kbit/s bearer services —
Service description, functional
capabilities and information flows**

*Technologies de l'information — Télécommunications et échange
d'information entre systèmes — Réseau privé à intégration de
services — Services porteurs sur 64 kbit/s en mode circuit —
Description du service, aptitudes fonctionnelles et flux d'informations*

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS

© ISO/IEC 2000

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 734 10 79
E-mail copyright@iso.ch
Web www.iso.ch

Printed in Switzerland

Contents	Page
Foreword	vi
Introduction	vii
Section 1: General	1
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Symbols and abbreviations	2
5 Provision of services by a PISN	3
5.1 Bearer services	3
5.2 Teleservices	3
5.3 Control and signalling	4
5.4 Interworking considerations	4
5.5 Service model	4
Section 2: Service Description (stage 1 description)	5
6 Circuit-mode 64 kbit/s unrestricted 8 kHz structured bearer service category	5
6.1 Definition	5
6.2 Description	5
6.3 Procedures	6
6.4 Network capability for charging	6
6.5 Interworking considerations	6
6.5.1 Interworking with a public ISDN and certain other digital networks	6
6.5.2 Interworking with networks supporting only a restricted digital information transfer capability	6
6.5.3 Interworking with analogue networks	6
6.6 Static Description: Service Attributes	6
7 Circuit-mode 64 kbit/s 8 kHz structured bearer service category usable for speech information transfer	7
7.1 Definition	7
7.2 Description	7
7.3 Procedures	7
7.4 Network capability for charging	7
7.5 Interworking considerations	7
7.5.1 Interworking with a public ISDN and certain other digital networks	7
7.5.2 Interworking with analogue networks	7
7.5.3 Encoding law conversion	7
7.6 Static Description: Service Attributes	8
8 Circuit-mode 64 kbit/s 8 kHz structured bearer service category usable for 3,1 kHz audio information transfer	8
8.1 Definition	8
8.2 Description	8
8.3 Procedures	9
8.4 Network capability for charging	9
8.5 Interworking considerations	9
8.5.1 Interworking with a public ISDN and certain other digital networks	9
8.5.2 Interworking with analogue networks	9
8.5.3 Encoding law conversion	9

8.6	Static Description: Service Attributes	9
9	Common procedures for services within a PISN	10
9.1	Provision of services	10
9.2	Normal procedures	10
9.2.1	Call establishment at the calling PISN user	10
9.2.2	Call establishment at the called PISN user	11
9.2.3	Terminating the service (call release)	11
9.3	Exceptional procedures / unsuccessful outcome	12
10	Interworking	13
10.1	General Interworking considerations	13
10.1.1	Incoming calls	13
10.1.2	Outgoing calls	13
10.1.3	PISN transit calls	13
10.2	Interworking with public-ISDN	13
10.2.1	Receipt of service request from a public ISDN	13
10.2.2	Sending a service request to a public ISDN	14
10.2.3	Receipt of a service response from public ISDN	14
10.2.4	Sending service response to public ISDN	14
11	Dynamic Description	14
Section 3: Functional capabilities and information flows (stage 2 description)		18
12	Functional model	18
12.1	Functional model description	18
12.2	Description of the functional entities	18
12.2.1	Call Control Agent functional entity	18
12.2.2	Call Control functional entity	19
13	Definition of information flows	20
13.1	Conventions used within the description of information flows	20
13.1.1	Convention for the description of mandatory or optional information	20
13.1.2	Convention for the naming of information flows	21
13.2	SETUP	22
13.3	REPORT	25
13.4	CHANNEL_ACKNOWLEDGE	26
13.5	CHANNEL_CONNECT	26
13.6	DISCONNECT	26
13.7	RELEASE	27
13.8	INFORMATION	27
13.9	SETUP_REJECT	27
13.10	PROCEEDING	28
14	Information flow sequences	28
14.1	Functional entity actions	28
14.1.1	Originating CCA functional entity	28
14.1.2	Originating CC functional entity	29
14.1.3	Transit CC functional entity	30
14.1.4	Destination CC functional entity	31
14.1.5	Destination CCA functional entity	32
14.1.6	Incoming gateway CC functional entity	33
14.1.7	Outgoing gateway CC functional entity	34

14.2	Normal call establishment	36
14.3	Normal call establishment with digit-by-digit sending and automatic answer	37
14.4	Unsuccessful calls with the provision of tones and announcements	38
14.5	Unsuccessful calls without the provision of tones and announcements	39
14.6	Incoming interworking with a non-ISDN	40
14.7	Outgoing interworking with a non-ISDN	41
14.8	Outgoing interworking with digit-by-digit sending	42
14.9	Basic call clearing	43
14.10	Incoming interworking with a public ISDN	44
14.11	Outgoing interworking with a public ISDN	45
15	SDL diagrams for functional entities	46
15.1	Originating CCA functional entity SDL diagrams	46
15.1.1	Originating CCA states used in SDL diagrams	46
15.1.2	Originating CCA SDL diagrams	47
15.2	Originating CC functional entity SDL diagrams	51
15.2.1	Originating CC states used in SDL diagrams	51
15.2.2	Originating CC SDL diagrams	52
15.3	Transit CC functional entity SDL diagrams	59
15.3.1	Transit CC states used in SDL diagrams	59
15.3.2	Transit CC SDL diagrams	60
15.4	Destination CC functional entity SDL diagrams	65
15.4.1	Destination CC states used in SDL diagrams	65
15.4.2	Destination CC SDL diagrams	66
15.5	Destination CCA functional entity SDL diagrams	73
15.5.1	Destination CCA states used in SDL diagrams	73
15.5.2	Destination CCA SDL diagrams	73
16	Allocation of functional entities to physical entities	77
Annex A	(normative) Service attributes	78
Annex B	(normative) Teleservices	79
Annex C	(informative) Bibliography	81
Annex D	(informative) Errors in ISO/IEC 11574 1st edition	82

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

International Standard ISO/IEC 11574 was prepared by ECMA (as ECMA-142) and was adopted, under a special “fast-track procedure”, by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

This second edition cancels and replaces the first edition (ISO/IEC 11574:1994), which has been technically revised.

Annexes A and B form a normative part of this International Standard. Annexes C and D 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 Networks (PISNs). The series uses ISDN concepts as developed by ITU-T and conforms to the framework of International Standards for Open Systems Interconnection as defined by ISO/IEC.

This International Standard contains specifications of basic services.

This International Standard is based upon the practical experience of ECMA member companies and the results of their active and continuous participation in the work of ISO/IEC JTC1, ITU-T, ETSI and other international and national standardization bodies. It represents a pragmatic and widely based consensus.

This document is a preview generated by EVS

This document is a preview generated by EVS

Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Circuit-mode 64 kbit/s bearer services — Service description, functional capabilities and information flows

Section 1: General

1 Scope

This International Standard specifies the service description and control aspects, including functional capabilities and information flows, of standardised circuit-mode bearer services which may be supported by a Private Integrated Services Network (PISN).

This International Standard includes the following basic services:

- Circuit-mode 64 kbit/s unrestricted 8 kHz structured bearer service category;
- Circuit-mode 64 kbit/s 8 kHz structured bearer service category usable for speech information transfer;
- Circuit-mode 64 kbit/s 8 kHz structured bearer service category usable for 3,1 kHz audio information transfer.

A PISN shall support at least one of the above three bearer services to conform with this International Standard.

The scope of this International Standard does not include:

- the negotiation of service at call establishment time,
- the change of service during a call, and
- unidirectional services.

This International Standard includes optional procedures for the provision of functions equivalent to the following public ISDN supplementary services: Subaddress and Multiple Subscriber Number.

NOTE 1 - Supplementary services and other bearer services which can be used in conjunction with 64 kbit/s circuit switched bearer services specified in this International Standard are dealt with in other standards.

NOTE 2 - Service specifications are based on information concerning the corresponding public ISDN service available at the time of publication of this International Standard.

NOTE 3 - ITU-T treat Subaddressing and Multiple Subscriber Number as supplementary services.

NOTE 4 - The use of the Direct Dial In supplementary service of a public ISDN for calls incoming to a PISN from a public ISDN is regarded as part of the basic services in a PISN.

NOTE 5 - The use of the Calling Line Identification Presentation and Connected Line Identification Presentation supplementary services of a public ISDN for obtaining the Originating Number or the Connected Number of a call from or to a public ISDN is regarded as part of the basic services in a PISN.

NOTE 6 - The provision (either explicitly or implicitly) by the user to the network, of its own number (Originating Number or Connected Number), and the provision of an Originating Number or a Connected Number by a PISN to another network is a part of the basic services in a PISN and not a part of the Calling Line Identification Presentation and Connected Line Identification Presentation supplementary services. Those supplementary services are concerned only with the presentation of the number from the network to the served PISN user.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO/IEC 11571:1998, *Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Addressing*.

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)*.

ITU-T Rec. G.711:1988, *Pulse code modulation (PCM) of voice frequencies*.

ITU-T Rec. I.112:1993, *Vocabulary of terms for ISDNs*.

ITU-T Rec. I.140:1993, *Attribute technique for the characterization of telecommunications services supported by an ISDN and network capabilities of an ISDN*.

ITU-T Rec. I.210:1993, *Principles of telecommunications services supported by an ISDN and the means to describe them*.

ITU-T Rec. I.231:1988, *Circuit-mode bearer service categories*.

ITU-T Rec. I.251.1:1992, *Number identification supplementary services — Direct Dialling-In*.

ITU-T Rec. I.251.3:1992, *Number identification supplementary services — Calling Line Identification Presentation*.

ITU-T Rec. I.251.5:1995, *Number identification supplementary services — Connected Line Identification Presentation (COLP)*.

ITU-T Rec. I.520:1993, *General arrangements for network interworking between ISDNs*.

ITU-T Rec. X.31:1995, *Support of packet-mode terminal equipment by an ISDN*.

3 Terms and definitions

For the purposes of this International Standard, the following terms and definitions apply. For other terms used in this International Standard, the definitions in ISO/IEC 11579-1 and ITU-T Rec. I.112 apply.

3.1 call : The instance of the use of a service.

3.2 intervening network (IVN) : The generic term for any real type of network which is employed for the provision of inter-PINX connections.

3.3 mixed public/private ISDN : An overall ISDN which consists of any concatenation of public/private networks.

NOTE 7 - Services are transparent to the users across public and private network components of a mixed public/private network.

3.4 network call control entity : The collection of network functions concerned with the control of services, as opposed to functions concerned with the transfer of user information.

3.5 Private Integrated Services Network (PISN) : A private network providing services to a specific set of users.

NOTE 8 - Contrary to a Public ISDN which provides services to the general public.

NOTE 9 - The term PISN covers more than a private ISDN.

3.6 Private Integrated Services Network Exchange (PINX) : A PISN nodal entity which provides automatic connection handling functions used for the provision of telecommunication services. A nodal entity may consist of one or more nodes.

3.7 PISN user : An entity which uses telecommunication services offered by a PISN, and which therefore directly or indirectly uses the services of the Network Layer.

3.8 service [Telecommunication services] : That which is offered by a PISN operator and/or owner to its customers in order to satisfy a specific telecommunication requirement.

Unless otherwise stated, the term “service” shall mean “bearer [telecommunication] service”.

3.9 user : An entity which uses telecommunication services offered by a network, and which therefore directly or indirectly uses the services of the Network Layer.

4 Symbols and abbreviations

CC	Clearing Cause
CC [FE]	Call Control generic functional entity
CCA	Call Control Agent generic functional entity
cfm c	confirmation
CH	Call History
CI	Channel Identifier
CN	Connected Number
CS	Connected Subaddress