

---

---

**Information technology —  
Telecommunications and information  
exchange between systems — Private  
Integrated Services Network —  
Inter-exchange signalling protocol —  
Call Transfer supplementary service**

*Technologies de l'information — Télécommunications et échange  
d'information entre systèmes — Réseau privé à intégration de  
services — Protocole de signalisation d'interéchange — Service  
supplémentaire de transfert d'appel*

**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.

© ISO/IEC 2003

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 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

## Contents

Foreword	v
Introduction	vi
1 Scope	1
2 Conformance	1
3 Normative references	1
4 Terms and definitions	2
4.1 External definitions	2
4.2 Other definitions	3
4.2.1 End PINX	3
4.2.2 Primary PINX	3
4.2.3 Redirection number	3
4.2.4 Secondary PINX	3
4.2.5 Transferring PINX	3
5 Acronyms	3
6 Signalling protocol for the support of SS-CT	3
6.1 SS-CT description	3
6.2 SS-CT operational requirements	3
6.2.1 Provision/Withdrawal	3
6.2.2 Requirements on a Transferring PINX	3
6.2.3 Requirements on a Primary PINX	3
6.2.4 Requirements on a Secondary PINX	4
6.2.5 Requirements on a Transit PINX	4
6.3 SS-CT coding requirements	5
6.3.1 Operations	5
6.3.2 Information elements	10
6.3.3 Messages	10
6.4 SS-CT state definitions	10
6.4.1 States at a Transferring PINX	10
6.4.2 States at a Primary PINX	11
6.4.3 States at a Secondary PINX	11
6.5 SS-CT signalling procedures	11
6.5.1 Actions at a Transferring PINX	11
6.5.2 Actions at a Primary PINX	13
6.5.3 Actions at a Secondary PINX	14
6.5.4 Actions at a Transit PINX	16
6.5.5 Subsequent actions at a Primary and a Secondary PINX	16
6.6 SS-CT impact of interworking with public ISDNs	16
6.6.1 Actions at a Gateway PINX	16
6.6.2 Actions at other types of PINX	17
6.7 SS-CT impact of interworking with non-ISDNs	17
6.7.1 Actions at a Gateway PINX	17

<b>6.7.2</b>	<b>Actions at other types of PINX</b>	<b>17</b>
<b>6.8</b>	<b>Protocol Interactions between SS-CT and other supplementary services and ANFs</b>	<b>18</b>
<b>6.8.1</b>	<b>Calling Name Identification Presentation (SS-CNIP)</b>	<b>18</b>
<b>6.8.2</b>	<b>Connected Name Identification Presentation (SS-CONP)</b>	<b>18</b>
<b>6.8.3</b>	<b>Completion of Calls to Busy Subscribers (SS-CCBS)</b>	<b>18</b>
<b>6.8.4</b>	<b>Completion of Calls on No Reply (SS-CCNR)</b>	<b>18</b>
<b>6.8.5</b>	<b>Call Forwarding Unconditional (SS-CFU)</b>	<b>18</b>
<b>6.8.6</b>	<b>Call Forwarding Busy (SS-CFB)</b>	<b>19</b>
<b>6.8.7</b>	<b>Call Forwarding No Reply (SS-CFNR)</b>	<b>19</b>
<b>6.8.8</b>	<b>Call Deflection (SS-CD)</b>	<b>19</b>
<b>6.8.9</b>	<b>Path Replacement (ANF-PR)</b>	<b>20</b>
<b>6.9</b>	<b>SS-CT Parameter values (Timers)</b>	<b>21</b>
<b>6.9.1</b>	<b>Timer T1</b>	<b>21</b>
<b>6.9.2</b>	<b>Timer T2</b>	<b>21</b>
<b>6.9.3</b>	<b>Timer T3</b>	<b>21</b>
<b>6.9.4</b>	<b>Timer T4</b>	<b>21</b>
<b>Annexes</b>		
<b>A</b>	<b>Protocol Implementation Conformance Statement (PICS) proforma</b>	<b>22</b>
<b>B</b>	<b>Imported ASN.1 definitions</b>	<b>30</b>
<b>C</b>	<b>Examples of message sequences</b>	<b>31</b>
<b>D</b>	<b>Specification and Description Language (SDL) representation of procedures</b>	<b>38</b>
<b>E</b>	<b>Bibliography</b>	<b>47</b>
<b>F</b>	<b>ASN.1 definitions according to ITU-T Recs. X.208 / X.209</b>	<b>48</b>

## 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. 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 document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 13869 was prepared by ECMA (as ECMA-178) 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 13869:1995), which has been technically revised.

## **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 specifies the signalling protocol for use at the Q reference point in support of the Call Transfer supplementary service. The protocol defined in this International Standard forms part of the PSS1 protocol (informally known as QSIG).

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 JTC 1, ITU-T, ETSI and other international and national standardization bodies. It represents a pragmatic and widely based consensus.

# Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Inter-exchange signalling protocol — Call Transfer supplementary service

## 1 Scope

This International Standard specifies the signalling protocol for the support of the Call Transfer supplementary service (SS-CT) at the Q reference point between Private Integrated Network services eXchanges (PINXs) connected together within a Private Integrated Services Network (PISN).

SS-CT is a supplementary service which enables a User to transform two of that User's calls (at least one of which must be answered) into a new call between the two other users in the two calls.

The Q reference point is defined in ISO/IEC 11579-1.

Service specifications are produced in three stages and according to the method specified in ETS 300 387. This International Standard contains the stage 3 specification for the Q reference point and satisfies the requirements identified by the stage 1 and stage 2 specifications in ISO/IEC 13865.

The signalling protocol for SS-CT operates on top of the signalling protocol for basic circuit switched call control, as specified in ISO/IEC 11572, and uses certain aspects of the generic procedures for the control of supplementary services specified in ISO/IEC 11582.

This International Standard also specifies additional signalling protocol requirements for the support of interactions at the Q reference point between Call Transfer and other supplementary services and ANFs.

This International Standard is applicable to PINXs which can interconnect to form a PISN.

## 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 referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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

ISO/IEC 11572:2000, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Circuit mode bearer services - Inter-exchange signalling procedures and protocol*

ISO/IEC 11574:2000, *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*

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)*

ISO/IEC 11582:2002, *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*

ISO/IEC 13865:2003, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Specification, functional model and information flows - Call Transfer supplementary service*

ISO/IEC 13868:2003, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Inter-exchange signalling protocol - Name identification supplementary services*

ISO/IEC 13873:2003, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Inter-exchange signalling protocol - Call Diversion supplementary services*

ISO/IEC 13874:2003, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Inter-exchange signalling protocol - Path Replacement additional network feature*

ETS 300 387:1994, *Private Telecommunication Network (PTN); Method for the specification of basic and supplementary services*

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

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

ITU-T Rec. Q.950:2000, *Supplementary services protocols, structure and general principles*

ITU-T Rec. Z.100:1999, *Specification and description language (SDL)*