

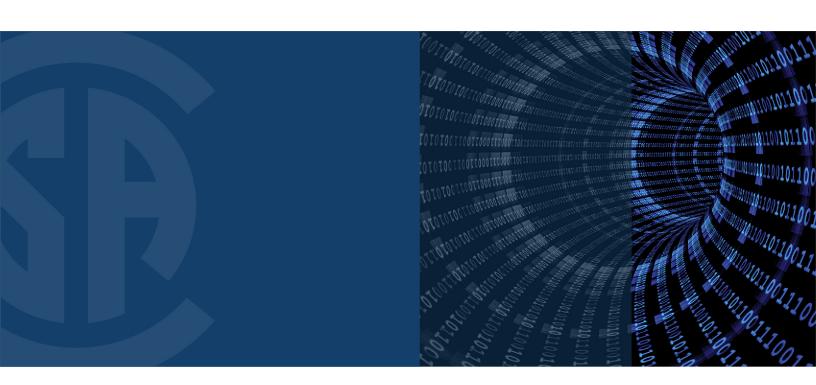
CSA ISO/IEC 15054:04 (ISO/IEC 15054:2003, IDT) National Standard of Canada (reaffirmed 2019)



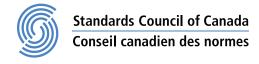
CSA ISO/IEC 15054:04

Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Inter-exchange signalling protocol — Call Interception additional network feature

(ISO/IEC 15054:2003, IDT)







Legal Notice for Standards

Canadian Standards Association (operating as "CSA Group") develops standards through a consensus standards development process approved by the Standards Council of Canada. This process brings together volunteers representing varied viewpoints and interests to achieve consensus and develop a standard. Although CSA Group administers the process and establishes rules to promote fairness in achieving consensus, it does not independently test, evaluate, or verify the content of standards.

Disclaimer and exclusion of liability

This document is provided without any representations, warranties, or conditions of any kind, express or implied, including, without limitation, implied warranties or conditions concerning this document's fitness for a particular purpose or use, its merchantability, or its non-infringement of any third party's intellectual property rights. CSA Group does not warrant the accuracy, completeness, or currency of any of the information published in this document. CSA Group makes no representations or warranties regarding this document's compliance with any applicable statute, rule, or regulation.

IN NO EVENT SHALL CSA GROUP, ITS VOLUNTEERS, MEMBERS, SUBSIDIARIES, OR AFFILIATED COMPANIES, OR THEIR EMPLOYEES, DIRECTORS, OR OFFICERS, BE LIABLE FOR ANY DIRECT, INDIRECT, OR INCIDENTAL DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES, HOWSOEVER CAUSED, INCLUDING BUT NOT LIMITED TO SPECIAL OR CONSEQUENTIAL DAMAGES, LOST REVENUE, BUSINESS INTERRUPTION, LOST OR DAMAGED DATA, OR ANY OTHER COMMERCIAL OR ECONOMIC LOSS, WHETHER BASED IN CONTRACT, TORT (INCLUDING NEGLIGENCE), OR ANY OTHER THEORY OF LIABILITY, ARISING OUT OF OR RESULTING FROM ACCESS TO OR POSSESSION OR USE OF THIS DOCUMENT, EVEN IF CSA GROUP HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, INJURY, LOSS, COSTS, OR EXPENSES.

In publishing and making this document available, CSA Group is not undertaking to render professional or other services for or on behalf of any person or entity or to perform any duty owed by any person or entity to another person or entity. The information in this document is directed to those who have the appropriate degree of experience to use and apply its contents, and CSA Group accepts no responsibility whatsoever arising in any way from any and all use of or reliance on the information contained in this document.

CSA Group is a private not-for-profit company that publishes voluntary standards and related documents. CSA Group has no power, nor does it undertake, to enforce compliance with the contents of the standards or other documents it publishes.

Intellectual property rights and ownership

As between CSA Group and the users of this document (whether it be in printed or electronic form), CSA Group is the owner, or the authorized licensee, of all works contained herein that are protected by copyright, all trade-marks (except as otherwise noted to the contrary), and all inventions and trade secrets that may be contained in this document, whether or not such inventions and trade secrets are protected by patents and applications for patents. Without limitation, the unauthorized use, modification, copying, or disclosure of this document may violate laws that protect CSA Group's and/or others' intellectual property and may give rise to a right in CSA Group and/or others to seek legal redress for such use, modification, copying, or disclosure. To the extent permitted by licence or by law, CSA Group reserves all intellectual property rights in this document.

Patent rights

Attention is drawn to the possibility that some of the elements of this standard may be the subject of patent rights. CSA Group shall not be held responsible for identifying any or all such patent rights. Users of this standard are expressly advised that determination of the validity of any such patent rights is entirely their own responsibility.

Authorized use of this document

This document is being provided by CSA Group for informational and non-commercial use only. The user of this document is authorized to do only the following:

If this document is in electronic form:

- load this document onto a computer for the sole purpose of reviewing it;
- search and browse this document; and
- print this document if it is in PDF format.

Limited copies of this document in print or paper form may be distributed only to persons who are authorized by CSA Group to have such copies, and only if this Legal Notice appears on each such copy.

In addition, users may not and may not permit others to

- alter this document in any way or remove this Legal Notice from the attached standard;
- sell this document without authorization from CSA Group; or
- make an electronic copy of this document.

If you do not agree with any of the terms and conditions contained in this Legal Notice, you may not load or use this document or make any copies of the contents hereof, and if you do make such copies, you are required to destroy them immediately. Use of this document constitutes your acceptance of the terms and conditions of this Legal Notice.



Standards Update Service

CSA ISO/IEC 15054:04 December 2004

Title: Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Inter-exchange signalling protocol — Call Interception additional network feature

To register for e-mail notification about any updates to this publication

- go to store.csagroup.org
- click on CSA Update Service

The List ID that you will need to register for updates to this publication is 2417032.

If you require assistance, please e-mail techsupport@csagroup.org or call 416-747-2233.

Visit CSA Group's policy on privacy at www.csagroup.org/legal to find out how we protect your personal information.

Canadian Standards Association (operating as "CSA Group"), under whose auspices this National Standard has been produced, was chartered in 1919 and accredited by the Standards Council of Canada to the National Standards system in 1973. It is a not-for-profit, nonstatutory, voluntary membership association engaged in standards development and certification activities.

CSA Group standards reflect a national consensus of producers and users — including manufacturers, consumers, retailers, unions and professional organizations, and governmental agencies. The standards are used widely by industry and commerce and often adopted by municipal, provincial, and federal governments in their regulations, particularly in the fields of health, safety, building and construction, and the environment.

Individuals, companies, and associations across Canada indicate their support for CSA Group's standards development by volunteering their time and skills to Committee work and supporting CSA Group's objectives through sustaining memberships. The more than 7000 committee volunteers and the 2000 sustaining memberships together form CSA Group's total membership from which its Directors are chosen. Sustaining memberships represent a major source of income for CSA Group's standards development activities.

CSA Group offers certification and testing services in support of and as an extension to its standards development activities. To ensure the integrity of its certification process, CSA Group regularly and continually audits and inspects products that bear the CSA Group Mark.

In addition to its head office and laboratory complex in Toronto, CSA Group has regional branch offices in major centres across Canada and inspection and testing agencies in eight countries. Since 1919, CSA Group has developed the necessary expertise to meet its corporate mission: CSA Group is an independent service organization whose mission is to provide an open and effective forum for activities facilitating the exchange of goods and services through the use of standards, certification and related services to meet national and international needs.

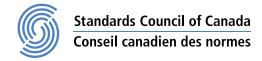
For further information on CSA Group services, write to CSA Group 178 Rexdale Boulevard Toronto, Ontario, M9W 1R3 Canada A National Standard of Canada is a standard developed by a Standards Council of Canada (SCC) accredited Standards Development Organization, in compliance with requirements and guidance set out by SCC. More information on National Standards of Canada can be found at www.scc.ca.

SCC is a Crown corporation within the portfolio of Innovation, Science and Economic Development (ISED) Canada. With the goal of enhancing Canada's economic competitiveness and social wellbeing, SCC leads and facilitates the development and use of national and international standards. SCC also coordinates Canadian participation in standards development, and identifies strategies to advance Canadian standardization efforts.

Accreditation services are provided by SCC to various customers, including product certifiers, testing laboratories, and standards development organizations. A list of SCC programs and accredited bodies is publicly available at www.scc.ca.

Standards Council of Canada 600-55 Metcalfe Street Ottawa, Ontario, K1P 6L5 Canada





Cette Norme Nationale du Canada n'est disponible qu'en anglais.

Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users to judge its suitability for their particular purpose.

*A trademark of the Canadian Standards Association, operating as "CSA Group"

National Standard of Canada

CSA ISO/IEC 15054:04

Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Inter-exchange signalling protocol — Call Interception additional network feature

(ISO/IEC 15054:2003, IDT)

Prepared by International Organization for Standardization/ International Electrotechnical Commission



Reviewed by



[®]A trademark of the Canadian Standards Association, operating as "CSA Group"



Published in December 2004 by CSA Group A not-for-profit private sector organization 178 Rexdale Boulevard, Toronto, Ontario, Canada M9W 1R3

To purchase standards and related publications, visit our Online Store at store.csagroup.org or call toll-free 1-800-463-6727 or 416-747-4044.

ICS 33.040.35 ISBN 1-55397-789-0

© 2004 Canadian Standards Association All rights reserved. No part of this publication may be reproduced in any form whatsoever without the prior permission of the publisher.



CAN/CSA-ISO/IEC 15054:04

Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Inter-exchange signalling protocol — Call Interception additional network feature

CSA Preface

Standards development within the Information Technology sector is harmonized with international standards development. Through the CSA Technical Committee on Information Technology (TCIT), Canadians serve as the Canadian Advisory Committee (CAC) on ISO/IEC Joint Technical Committee 1 on Information Technology (ISO/IEC JTC1) for the Standards Council of Canada (SCC), the ISO member body for Canada and sponsor of the Canadian National Committee of the IEC. Also, as a member of the International Telecommunication Union (ITU), Canada participates in the International Telegraph and Telephone Consultative Committee (ITU-T).

This Standard supersedes CAN/CSA-ISO/IEC 15054:01 (adoption of ISO/IEC 15054:1997).

This International Standard was reviewed by the CSA TCIT under the jurisdiction of the Strategic Steering Committee on Information Technology and deemed acceptable for use in Canada. (A committee membership list is available on request from the CSA Project Manager.) From time to time, ISO/IEC may publish addenda, corrigenda, etc. The CSA TCIT will review these documents for approval and publication. For a listing, refer to the CSA Information Products catalogue or CSA *Info Update* or contact a CSA Sales representative. This Standard has been formally approved as a National Standard of Canada by the Standards Council of Canada.

December 2004

© Canadian Standards Association — 2004

All rights reserved. No part of this publication may be reproduced in any form whatsoever without the prior permission of the publisher. ISO/IEC material is reprinted with permission. Where the words "this International Standard" appear in the text, they should be interpreted as "this National Standard of Canada".

Inquiries regarding this National Standard of Canada should be addressed to Canadian Standards Association 5060 Spectrum Way, Suite 100, Mississauga, Ontario, Canada L4W 5N6 1-800-463-6727 • 416-747-4044 www.csa.ca

INTERNATIONAL STANDARD

150/IEC 15054

Second edition 2003-04-01

Information technology —
Telecommunications and information exchange between systems — Private Integrated Services Network —
Inter-exchange signalling protocol —
Call Interception additional network feature

Technologies de l'information — Télécommunications et échange d'information entre systèmes — Réseau privé à intégration de services — Protocole de signalisation d'interéchange — Facilité de réseau additionnelle d'interception 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
Web www.iso.org

Contents

Forewo	ord .	V
Introduction		vi
1	Scope	1
2	Conformance	1
3	Normative references	1
4	Terms and definitions	2
4.1 4.2	External definitions Other definitions	2
4.2.1 4.2.2 4.2.3 4.2.4 4.2.5 4.2.6 4.2.7 4.2.8	Forward switching Intercepting PINX Intercepted-to PINX Intercepted-to user Interception immediate Interception delayed Call failure Waiting on busy	3 3 3 3 3 3 3
5	List of acronyms	3
6	Signalling protocol for the support of ANF-CINT	3
6.1 6.2	ANF-CINT description ANF-CINT operational requirements	3 4
6.2.1 6.2.2 6.2.3 6.2.4 6.2.5	Requirements on an Originating PINX Requirements on a Terminating PINX Requirements on an Intercepted-to PINX Requirements on a Transit PINX Requirements on an Intercepting PINX	4 4 4 4
6.3	ANF-CINT coding requirements	5
6.3.1 6.3.2 6.3.3	Operations Information elements Messages	5 8 8
6.4	ANF-CINT state definitions	8
6.4.1 6.4.2 6.4.3 6.4.4 6.4.5	States at the Originating PINX States at the Intercepting PINX States at the Intercepted-to PINX States at a Transit PINX States at the Terminating PINX	8 8 8 8
6.5 6.6	ANF-CINT Signalling procedures for activation, deactivation, registration and interrogation ANF-CINT Signalling procedures for invocation and operation	8 9
6.6.1 6.6.2 6.6.3 6.6.4 6.6.5 6.6.6	Actions at a Terminating PINX Actions at a Transit PINX Actions at the Originating PINX Actions at an Intercepting PINX for interception immediate Actions at an Intercepting PINX for interception delayed Actions at an Intercepted-to PINX	9 9 10 11 12

ISO/IEC 15054:2003(E)

6.7	ANF-CINT Impact of interworking with a public ISDN	12
6.7.1 6.7.2	Incoming Gateway PINX Outgoing Gateway PINX	12 12
6.8	ANF-CINT Impact of interworking with a non-ISDN	13
6.8.1 6.8.2	Incoming Gateway PINX Outgoing Gateway PINX	13 13
6.9	Protocol interaction between ANF-CINT and other supplementary services and ANFs	13
6.9.12 6.9.13 6.9.14 6.9.15	Interaction with Advice Of Charge (SS-AOC)	13 13 13 14 14 14 14 15 15 15 16 16
Annex	es	
A - Protocol Implementation Conformance Statement (PICS) proforma		17
B - Examples of message sequences		28
C - Specification and Description Language (SDL) Representation of procedures		34
D - ASN.1 definitions according to ITU-T Recs. X.208 / X.209		40

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 15054 was prepared by ECMA (as ECMA-221) 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 15054:1997), which has been technically revised.

ISO/IEC 15054:2003(E)

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 Interception additional network feature. 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 Interception additional network feature

1 Scope

This International Standard specifies the signalling protocol for the support of the additional network feature Call Interception (ANF-CINT) at the Q reference point between Private Integrated services Network eXchanges (PINX) connected together within a Private Integrated Services Network (PISN).

ANF-CINT is an additional network feature which enables calls that cannot be completed due to certain conditions to be redirected to a predetermined intercepted-to user.

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 15053.

The signalling protocol for ANF-CINT 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 ANF-CINT and other supplementary services and ANFs.

NOTE - Additional interactions that have no impact on the signalling protocol at the Q reference point can be found in the relevant stage 1 specifications.

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.

Conformance to this International Standard includes conforming to those clauses that specify protocol interactions between ANF-CINT and other supplementary services and ANFs for which signalling protocols at the Q reference point are supported in accordance with the stage 3 standards concerned.

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 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