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Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Use of QSIG at the C reference point between a PINX and an Interconnecting Network

Technologies de l'information — Télécommunications et échange d'information entre systèmes — Réseaux privés à intégration de services — Emploi de QSIG au point de référence C entre un PINX et un réseau interconnecteur

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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.ch
Web www.iso.ch

Printed in Switzerland

Contents

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 3.

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 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.

ISO/IEC 20161 was prepared by ECMA (as ECMA-318) 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.

Annexes A and B form a normative part of this International Standard.

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 functional profile for interconnecting Private Integrated services Network eXchanges (PINXs) to VPN service centers to permit interoperability between equipment from different vendors and service providers.

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 regional standardization bodies. It represents a pragmatic and widely based consensus.

Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Use of QSIG at the C reference point between a PINX and an Interconnecting Network

1 Scope

This International Standard specifies the combination of base standards, together with the selection of appropriate options and parameter values, necessary to specify how QSIG / PSS1 can be used to provide digital signalling capabilities at interfaces at the C reference point between a Private Integrated services Network eXchange (PINX) and an Interconnecting Network (ICN) to permit interoperability between equipment from different vendors and different public or private service providers.

NOTE 1 - PINX in the sense of this International Standard is used in the meaning of a PINX directly attached to the ICN.

This International Standard is applicable to attached PINXs and Interconnecting Networks (ICN).

This International Standard identifies the necessary or optional employment of particular functions, procedures and services when provided:

- physical and electrical characteristics (physical layer) of the interfaces to the transmission systems to be employed;
- data link layer procedures;
- network layer procedures; and
- supplementary services and additional network features to meet specific corporate network user requirements.

This International Standard states requirements upon attached PINXs and Interconnecting Network (ICN) implementations in order to achieve interoperability between equipment in PISNs serving as Corporate telecommunication Networks (CNs).

NOTE 2 - Implementation of this International Standard does not preclude a manufacturer from offering other means of interconnection. It also does not preclude a VPN service provider to offer basic call communications between a PINX and other networks like PSTN or ISDN.

ISO/IEC TR 14475 specifies various access arrangements between a PINX and a public network where reference points C and T reside either at a single or at separate interfaces. The scope of this International Standard is limited to cover the C reference point aspects at a separate interface.

The current version of this International Standard does not intend to specify any gateway or end PINX requirements for the ICN side of the interface. Therefore it typically uses the term "virtual transit PINX" instead of Interconnecting Network (ICN).

2 Conformance

A system conforms to this International Standard if it correctly performs all the mandatory capabilities defined in the requirement list (RL) (annex A) and the profile specific ICS (annex B).

NOTE 3 - For the purpose of this International Standard capabilities marked as optional in the base standards may be mandatory or excluded.

3 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.

3.1 References of general significance

ECMA-133:1998, *Private Integrated Services Network (PISN) - Reference Configuration for PISN Exchanges (PINX) (International Standard ISO/IEC 11579-1)*

ECMA-143:1997, *Private Integrated Services Network (PISN) - Circuit Mode Bearer Services - Inter-Exchange Signalling Procedures and Protocol (International Standard ISO/IEC 11572)*

ECMA-155:1997, *Private Integrated Services Network - Addressing (International Standard ISO/IEC 11571)*

ECMA-165:1997, *Private Integrated Services Network (PISN) - Generic Functional Protocol for the Support of Supplementary Services - Inter-Exchange Signalling Procedures and Protocol (International Standard ISO/IEC 11582)*

ECMA-226:1995, *Private Integrated Services Network (PISN) - Mapping Functions for the Employment of Dedicated Circuit Mode Connections as Inter-PINX Connections*

ECMA-253:2000, *Private Integrated Services Network (PISN) - Mapping Functions for the Employment of 64 kbit/s Circuit Mode Connections with 16 kbit/s Sub-Multiplexing (International Standard ISO/IEC 17310)*

EN 300 172:1997, *Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Circuit mode basic services [ISO/IEC 11572 (1996) modified]*

ETS 300 239:1995, *Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Generic functional protocol for the support of supplementary services [ISO/IEC 11582 (1995) modified]*

EN 300 402-4:1999, *Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Data link layer; Part 4: Protocol Implementation Conformance Statement (PICS) proforma specification for the general protocol*

ISO/IEC 9646-7:1995, *Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance Statements*

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 11582:1995, *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 14474:1998, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Functional requirements for static circuit-mode inter-PINX connections*

ISO/IEC TR 14475:2001, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Architecture and scenarios for Private Integrated Services Networking*

ITU-T Rec. E.164:1997, *The international public telecommunication numbering plan*

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

ITU-T Rec. I.130:1988, *Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN*

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

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

ITU-T Rec. I.430:1995, *Basic user-network interface - Layer 1 specification*

ITU-T Rec. I.431:1993, *Primary rate user-network interface - Layer 1 specification*

ITU-T Rec. Q.920:1993, *ISDN user-network interface data link layer - General aspects*

ITU-T Rec. Q.920:1993/Amd.1:2000

ITU-T Rec. Q.921:1997, *ISDN user-network interface - Data link layer specification*

ITU-T Rec. Q.921:1997/Amd.1:2000

3.2 References to supplementary services and ANFs

ECMA-174:1997, *Private Integrated Services Network (PISN) - Inter-Exchange Signalling Protocol - Call Diversion Supplementary Services (CFB, CFNR, CFU) (International Standard ISO/IEC 13873)*

ECMA-176:1998, *Private Integrated Services Network (PISN) - Inter-Exchange Signalling Protocol - Path Replacement Additional Network Feature (PR) (International Standard ISO/IEC 13874)*

ECMA-178:1997, *Private Integrated Services Network (PISN) - Inter-Exchange Signalling Protocol - Call Transfer Supplementary Service (CT) (International Standard ISO/IEC 13869)*

ECMA-212:1997, *Private Integrated Services Network (PISN) - Inter-Exchange Signalling Protocol - Advice of Charge Supplementary Services (AOC) (International Standard ISO/IEC 15050)*

ECMA-221:1997, *Private Integrated Services Network (PISN) - Inter-Exchange Signalling Protocol - Call Interception Additional Network Feature (CINT) (International Standard ISO/IEC 15054)*

ECMA-225:1997, *Private Integrated Services Network (PISN) - Inter-Exchange Signalling Protocol - Transit Counter Additional Network Feature (TC) (International Standard ISO/IEC 15056)*

ECMA-264:1998, *Private Integrated Services Network (PISN) - Inter-Exchange Signalling Protocol - Call Priority Interruption and Call Priority Interruption Protection Supplementary Services (SSCPI) (International Standard ISO/IEC 15992)*

ECMA-284:2000, *Private Integrated Services Network (PISN) - Inter-Exchange Signalling Protocol - Private User Mobility (PUM) - Call Handling Additional Network Feature (PUMCH) (International Standard ISO/IEC 17878)*

ECMA-300:2000, *Private Integrated Services Network (PISN) - Inter-Exchange Signalling Protocol - Single Step Call Transfer Supplementary Service (SSCT) (International Standard ISO/IEC 19460)*

ISO/IEC 15431:1999, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Inter-exchange signalling protocol - Wireless terminal call handling additional network features*