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Information technology - Telecommunications and information exchange between systems - PISN mobility-general principles and services aspects (ISO/IEC TR 15410:1998)

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TECHNICAL REPORT

ISO/IEC TR 15410

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Information technology — Telecommunications and information exchange between systems — PISN mobility-general principles and services aspects

Technologies de l'information — Télécommunications et échange d'information entre systèmes — Principes de mobilité générale du PISN et aspects de service

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ISO/IEC TR 15410:1998(E)

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.

The main task of technical committees is to prepare International Standards, but in exceptional circumstances a technical committee may propose the publication of a Technical Report of one of the following types:

— type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;

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Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

ISO/IEC TR 15410, which is a Technical Report of type 3, was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*.

Information technology — Telecommunications and information exchange between systems — PISN mobility-general principles and services aspects

1 Scope

This Technical Report (TR) analyses the requirements for the standardization of networking functions to support mobility within one or more Private Integrated Network Exchanges (PINXs) of a Private Integrated Services Network (PISN).It covers both Wireless Terminal Mobility (WTM) and Private Personal Mobility (PPM).

WTM is a function that allows users of Wireless Terminals (WT) to make and receive calls at any compatible radio access within the network. Standards for WTM should be independent of the access technology used to support the WTs.

PPM enables users of a PISN to register at any suitable terminal (wired or wireless) within the network for the making and/or receiving of calls.

This Technical Report covers the following subjects for both WTM and PPM:

- Registration procedures;
- Procedures for incoming and outgoing calls;
- Access security procedures (identification and authentication);
- Requirements for numbering, addressing and signalling;
- Requirements for management, administration and operation.

2 References

ISO/IEC 11571:1994, *Information technology — Telecommunications and information exchange between systems — Numbering and sub-addressing in private integrated services networks.*

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 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 11582:1995, *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.*

CCITT Rec. E.164 (1988), *Numbering plan for the ISDN era.*

CCITT Rec. I.251.1 (rev.1) (1992), *Integrated Services Digital Network (ISDN) — General structure and service capabilities — Direct Dialling In.*

CCITT Rec. I.251.2 (rev.1) (1992), *Integrated Services Digital Network (ISDN) — General structure and service capabilities — Multiple subscriber number.*

CCITT Rec. Q.81.1 (1988), *Functions and information flows for services in the ISDN — Stage 2 description for number identification supplementary services — Section 1 - Direct-Dialling-In.*

CCITT Rec. Q.81.2 (1992), *Functions and information flows for services in the ISDN — Stage 2 description for number identification supplementary services — Section 2 - Multiple subscriber number.*

ITU-T Rec. I.112:1993, *Integrated services (ISDN) — General structure: Vocabulary of terms for ISDNs.*

ITU-T Rec. Q.931 (1993), *Digital subscriber signalling system No.1 Network layer — Digital subscriber signalling system No.1 (DSS 1) — ISDN User-Network interface layer 3 — Specification for basic call control.*

3 Terminology

3.1 Definitions

For the purposes of this Technical Report the following definitions apply. The sources of the definitions are given in square brackets.

3.1.1 Internal definitions

1 Attendant
a PISN user whose prime task is to provide assistance and support to the users.

2 Authentication
a property by which the correct identity of an entity or party is established with a required assurance.

3 Wireless Terminal (WT)
a physical entity that provides access to the telecommunications services of a PISN via a radio interface.

4 Wireless Terminal Mobility (WTM)
the ability of a wireless terminal to be in continuous motion whilst accessing and using the telecommunication services offered by the PISN, as well as the capability of the network to keep track of the location of the wireless terminal within the coverage area of the radio system used.

5 Coverage area
The area over which reliable communication can be established and maintained.

6 Fixed Part
a physical grouping of some or all of the fixed component parts of a mobile radio system. These would include one or more pieces of radio equipment attached to an antenna system. It could also include common control functions and interfaces to the PINX.

7 Function
a set of processes defined for the purpose of achieving a specified objective.

8 Handover
the process of switching a call in progress from one physical channel to another physical channel. These processes can be internal or external with respect to a RE/RBS.

NOTE — Only the external handover, i.e. the handover between two different RE/RBSs, is relevant for this Technical Report.

9 Home Data Base (HDB)
the data base in which the current location and all associated parameters of a wireless terminal or a user are stored.

10 Location Area (LA)
the coverage area in which a wireless terminal may receive and initiate calls as a result of a single location registration.

11 Location Registration
the process whereby the position of a wireless terminal is made known to the PISN.

12 Private
an attribute indicating that the application of the so qualified item, e.g. a network, a unit of equipment, a service, is offered to or is in the interest of a determined set of users.

NOTE The term does not include legal or regulatory aspects, nor does it indicate any aspects of ownership.

13 Private Personal Mobility (PPM)
the capability of a PISN user to register at any PISN terminal, and so receive the PISN services at the hosting terminal.

14 Public
an attribute indicating that the application of the so qualified item, e.g. a network, a unit of equipment, a service, is offered to the general public.

NOTE — The term does not include legal or regulatory aspects, nor does it indicate any aspects of ownership.

15 PPM Number
a number which uniquely identifies a PPM user. This is the number used by the caller to reach the PPM user.

16 PPM Registration
the operation performed by a PPM user to inform the PISN of the PISN address that should be utsed to locate the user.

17 Radio Base Station (RBS)
a physical grouping that contains all of the radio equipment on the PISN side of the air interface directly connected to a single antennae system.

18 Radio Exchange (RE)
a physical grouping between the RBSs and the PINX .

19 Registration
a term that should be used with a qualifier, e.g. location registration or dynamic registration.

20 Roaming
the movement between calls of a wireless terminal from one Fixed Radio Part (RE/RBS) coverage area to another RE/RBS coverage area, where the capabilities of the PISN enable the wireless terminal to access PISN services.

NOTE Roaming requires the RE/RBS and the wireless terminals to be interoperable.

NOTE See also the definition of handover.

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