INTERNATIONAL STANDARD

# ISO/IEC 15430

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# Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Specification, functional model and information flows — Wireless terminal call handling additional network features



*Technologies de l'information — Télécommunications et échange d'information entre systèmes — Réseau privé à intégration de services — Spécification, modèle fonctionnel et flux d'information — Caractéristiques de réseau additionnelles pour le traitement d'appel de terminal sans fil*



Reference number
ISO/IEC 15430:1999(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.

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.

International Standard ISO/IEC 15430 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*.

## Introduction

This International Standard is one of a series of International 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 particular International Standard specifies the Wireless terminal call handling additional network features.

# Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Specification, functional model and information flows — Wireless terminal call handling additional network features

## 1 Scope

This International Standard specifies the Wireless terminal call handling additional network features (ANF-WTMI, ANF-WTMO), which are applicable to various basic services supported by Private Integrated Services Networks (PISN). Basic services are specified in ISO/IEC 11574.

Additional network feature Wireless terminal incoming call (ANF-WTMI) directs incoming calls to a WTMI user within a PISN regardless of the WTMI user's geographical location within the PISN, provided the WTMI user's location is known.



Additional network feature Wireless terminal outgoing call (ANF-WTMO) detects an outgoing call from a WTMO user and establishes it as a basic call, regardless of the user's geographical location within the PISN. It also provides the WTMO user's service profile for use by outgoing call control, or alternatively passes the call to the WTMO user's home location for processing.



Service specifications are produced in three stages, according to the method described in CCITT Recommendation I.130. This International Standard contains the stage 1 and stage 2 specifications of ANF-WTMI and ANF-WTMO. The stage 1 specification (clauses 6 and 7) specifies the service as seen by users of PISNs. The stage 2 specification (clauses 8 and 9) identifies the functional entities involved in the service and the information flows between them.

## 2 Conformance

In order to conform to this International Standard, a stage 3 International Standard shall specify signalling protocols and equipment behaviour that are capable of being used in a PISN which supports the services specified in this International Standard. This means that, to claim conformance, a stage 3 International Standard is required to be adequate for the support of those aspects of clauses 6 and 7 (stage 1) and clauses 8 and 9 (stage 2) which are relevant to the interface or equipment to which the stage 3 International Standard applies.

## 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.

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

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 13242:1997, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Specification, functional model and information flows - Route Restriction Class additional network feature.*

ISO/IEC 13872:1995, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Specification, functional model and information flows - Call diversion supplementary services.*

ISO/IEC 15055:1997, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Specification, functional model and information flows - Transit counter additional network feature.*

ISO/IEC 15428:1999, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Specification, functional model and information flows - Wireless Terminal Location Registration supplementary service and Wireless Terminal Information Exchange additional network feature.*

ISO/IEC 15432:1999, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Specification, functional model and information flows - Wireless Terminal Authentication supplementary services (WTAT and WTAN).*



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

CCITT Rec. I.130:1988, *Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN (Blue Book).*



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

ITU-T Rec. Z.100:1993, *Specification and Description Language.*

## 4 Terms and definitions

For the purposes of this International Standard, the following definitions apply.

### 4.1 External definitions

This International Standard uses the following terms defined in other documents:

— Address (ISO/IEC 11571)
— Additional network feature (ANF) (ISO/IEC 15428)
— Basic service (ITU-T Rec. I.210)
— Call, basic call (ISO/IEC 11574)
— Complete (PISN) number (ISO/IEC 11571)
— Fixed part (FP) (ISO/IEC 15428)
— Home data base (HDB) (ISO/IEC 15428)
— Home PINX (ISO/IEC 15428)
— Number, PISN number (ISO/IEC 11571)

— Partial (PISN) number (ISO/IEC 11571)
— Private Integrated Services Network (PISN) (ISO/IEC 11579-1)
— Private Integrated Services Network Exchange (PINX) (ISO/IEC 11579-1)
— Route access class (RAC) (ISO/IEC 13242)
— Service (ITU-T Rec. I.112)
— Service profile (ISO/IEC 15428)
— Signalling (ITU-T Rec. I.112)
— Supplementary Service (ITU-T Rec. I.210)
— User (ISO/IEC 11574)
— Visitor data base (VDB) (ISO/IEC 15428)
— Visitor PINX (ISO/IEC 15428)
— Wireless Terminal Mobility (WTM) (ISO/IEC 15428)

This International Standard refers to the following basic call functional entities (FEs) defined in ISO/IEC 11574:

— Call Control (CC)
— Call Control Agent (CCA)

This International Standard refers to the following basic call inter-FE relationships defined in ISO/IEC 11574:



— r1
— r2
— r3



This International Standard refers to the following basic call information flows defined in ISO/IEC 11574:

— RELEASE request/indication
— SETUP request/indication
— SETUP response/confirmation
— SETUP REJECT request/indication

This International Standard refers to the following basic call information flow service elements defined in ISO/IEC 11574:

— Call History
— Connection Type
— Destination Number
— Destination Subaddress
— Originating Number
— Originating Subaddress

## 4.2 Other definitions

**4.2.1**
**WTM call:** A call which is processed by ANF-WTMI or ANF-WTMO.

**4.2.2**
**WTMI user:** A user whose incoming calls are processed by ANF-WTMI.

**4.2.3**
**WTMO user:** A user whose outgoing calls are processed by ANF-WTMO.

**4.2.4**
**Incoming WTM call:** A call whose called user is a WTMI user.

**4.2.5**
**Outgoing WTM call:** A call whose calling user is a WTMO user.

## 5 Symbols and abbreviated terms

| | |
|---|---|
| ANF | Additional Network feature |
| ANF-WTMI | ANF Wireless TerMinal Incoming call |
| ANF-WTMO | ANF Wireless TerMinal Outgoing call |
| CC | Call Control (functional entity) |
| CCA | Call Control Agent (functional entity) |
| FE | Functional Entity |
| FP | Fixed Part |
| HDB | Home Data Base |
| ISDN | Integrated Services Digital Network |
| PINX | Private Integrated Services Network Exchange |
| PISN | Private Integrated Services Network |
| RAC | Route Access Class |
| SDL | Specification and Description Language |
| SS | Supplementary Service |
| VDB | Visitor Data Base |
| WTM | Wireless Terminal Mobility |



## 6 ANF-WTMI stage 1 specification

### 6.1 Description

#### 6.1.1 General description

ANF-WTMI enables calls to be directed to a WTMI user within the PISN. As there is no predetermined access for the connection of a WTMI user to the PISN, the directing of such calls requires that information regarding the location of the WTMI user is available.

#### 6.1.2 Qualifications on applicability to telecommunication services

ANF-WTMI is applicable to all basic services defined in ISO/IEC 11574.

## 6.2 Procedures

### 6.2.1 Provision/withdrawal

Not applicable

### 6.2.2 Normal procedures

#### 6.2.2.1 Activation/deactivation/registration/interrogation

ANF-WTMI shall be permanently activated.

Registration and interrogation are not applicable to this ANF.

#### 6.2.2.2 Invocation and operation

For each WTMI user, information shall be maintained relating to the location of the WTMI user within the PISN.

ANF-WTMI shall be invoked for an incoming call when analysis of the destination number indicates that the called user is a WTMI user. Once invoked, ANF-WTMI shall route the call to the WTMI user using the destination number to determine the address of the PISN access currently in use by the WTMI user.

Further processing of the call shall follow normal basic call procedures.

### 6.2.3 Exceptional procedures

#### 6.2.3.1 Activation/deactivation/registration/interrogation

Not applicable



#### 6.2.3.2 Invocation and operation



If the PISN is unable to complete an incoming call to a WTMI user, an indication that the call was unsuccessful shall be sent to the calling user. Normal basic call failure procedures shall be used.

## 6.3 Interaction with other supplementary services and ANFs

Interactions with other supplementary services and ANFs for which PISN International Standards were available at the time of publication of this International Standard are specified below.

### 6.3.1 Calling Line Identification Presentation (SS-CLIP)

No interaction

### 6.3.2 Connected Line Identification Presentation (SS-COLP)

No interaction

### 6.3.3 Calling/Connected Line Identification Restriction (SS-CLIR)

No interaction

### 6.3.4 Calling Name Identification Presentation (SS-CNIP)

No interaction

### 6.3.5 Connected Name Identification Presentation (SS-CONP)

No interaction

### 6.3.6 Calling/Connected Name Identification Restriction (SS-CNIR)

No interaction

### 6.3.6 Call Completion to Busy Subscriber (SS-CCBS)

No interaction

### 6.3.7 Call Completion on No Reply (SS-CCNR)

No interaction

### 6.3.8 Call Transfer (SS-CT)

No interaction

### 6.3.9 Call Forwarding Unconditional (SS-CFU)

If SS-CFU has been activated, the invocation of SS-CFU shall take precedence over the directing of calls by means of ANF-WTMI.

### 6.3.10 Call Forwarding Busy (SS-CFB)

No interaction

NOTE SS-CFB may not be available to the WTMI user.



### 6.3.11 Call Forwarding No Reply (SS-CFNR)

No interaction

NOTE SS-CFNR may not be available to the WTMI user.



### 6.3.12 Call Deflection (SS-CD)

No interaction

### 6.3.13 Path Replacement (ANF-PR)

No interaction

### 6.3.14 Call Offer (SS-CO)

No interaction

### 6.3.15 Call Intrusion (SS-CI)

No interaction

### 6.3.16 Do Not Disturb (SS-DND)

No interaction

### 6.3.17 Do Not Disturb Override (SS-DNDO)

No interaction

### 6.3.18 Advice of Charge (SS-AOC)

No interaction

#### 6.3.19 Recall (SS-RE)

No interaction

#### 6.3.20 Call Interception (ANF-CINT)

No interaction

NOTE Failure of ANF-WTMI can be a cause for invoking ANF-CINT.

#### 6.3.21 Transit Counter (ANF-TC)

ANF-TC may apply to the redirected call to the WTMI user.

#### 6.3.22 Route restriction class (ANF-RRC)

Either the calling user's RAC or the WTMI user's RAC shall be used.

#### 6.3.23 Message Waiting Indication (SS-MWI)

A message waiting indication for the WTMI user shall be directed to the visited location.

#### 6.3.24 Wireless terminal location registration (SS-WTLR)

An incoming call to a WTMI user may be rejected if it occurs while SS-WTLR is invoked or if the WTMI user is in the deregistered state.

NOTE ANF-WTMI requires that SS-WTLR has been invoked for the WTMI user at that location.



#### 6.3.25 Wireless terminal information (ANF-WTINFO)

No interaction



#### 6.3.26 Wireless terminal outgoing call (ANF-WTMO)

No interaction

#### 6.3.27 Authentication of wireless terminal (SS-WTAT)

ANF-WTMI may cause the invocation of SS-WTAT.

#### 6.3.28 Authentication of network (SS-WTAN)

No interaction

### 6.4 Interworking considerations

No specific requirements.

### 6.5 Overall SDL

Figure 1 contains the dynamic description of ANF-WTMI using the Specification and Description Language (SDL) defined in ITU-T Rec. Z.100. The SDL process represents the behaviour of the PISN in providing ANF-WTMI. Input and output signals represent stimuli from/to basic call control.