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European Standard (Telecommunications series)

Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Circuit-mode basic services

[ISO/IEC 11572 (1996) modified]

Reference
REN/ECMA-00147 (1lc00jco.PDF)

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Foreword

This draft European Standard (EN) was produced by ECMA on behalf of its members and those of the European Telecommunications Standards Institute (ETSI), and is now submitted for the One-step Approval Procedure.

The protocol defined in this EN is the basis for the QSIG protocol for signalling at the Q reference point between Private Integrated services Network eXchanges (PINX). The QSIG protocol is known as "Private integrated Signalling System no. 1" (PSS1) in International Standards.

Whilst this particular EN defines signalling for the support of circuit-mode bearer services, other ETSs specify other aspects of the QSIG protocol, e.g. generic procedures for the support of supplementary services, and individual supplementary services.

The previous (third) edition of this EN endorsed (with modification) the 1st edition of ISO/IEC 11572, published in 1994. This edition endorses (with modification) the 2nd edition of ISO/IEC 11572 and two amendments to that International Standard.

Proposed national transposition dates	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

Endorsement notice

The text of International Standard ISO/IEC 11572 second edition (1996), together with two amendments to that text (Amendment 1 (1996) and Amendment 2 (1996)) was approved by ETSI as an EN with agreed modifications as given below.

NOTE: New or modified text is indicated using sidebars. In addition, underlining and/or strike-out are used to highlight detailed modifications where necessary.

Clause 1

Replace the text of clause 1 by:

This European Standard (EN) defines the Layer 3 protocol for signalling for the support of circuit-mode bearer services (used either on their own or in support of teleservices) at the Q reference point between Private Integrated services Network eXchanges (PINX) connected together within a Private Integrated Services Network (PISN). The Q reference point is defined in ETS 300 475-1 [16].

Service specifications are produced in three stages and according to the method specified in ETS 300 387 [12]. The definition of signalling protocols is stage 3 of the method. Stage 1 and stage 2 specifications of the basic circuit-mode bearer services are to be found in ETS 300 171 [9]. The protocol defined in this EN satisfies the requirements identified by the stage 1 and stage 2 specifications in ETS 300 171 [9].

Annex ZC is an integral part of this EN.

Clause 2

After clause 2, add the following new clause:

2bis Conformance

In order to conform to this EN, a PINX shall satisfy the requirements identified in the Protocol Implementation Conformance Statement (PICS) proforma in annex A.

Clause 3

Replace the first paragraph by:

This EN incorporates by dated and undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this EN only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

Insert the following normative references at the end of clause 3:

[9] ETS 300 171 (1997): "Private Integrated Services Network (PISN); Specification, functional models and information flows; Control aspects of circuit-mode basic services" 2nd edition.

[10] ETS 300 173 (1996): "Private Integrated Services Network (PISN); Specification, functional models and information flows; Identification supplementary services" 2nd edition.

[11] ETS 300 189 (1992): "Private Integrated Services Network (PISN); Addressing".

[12] ETS 300 387 (1994): "Private Telecommunication Network (PTN); Method for the specification of basic and supplementary services".

[13] ETS 300 402-2 (1995): "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Data link layer; Part 2: General protocol specification [ITU-T Recommendation Q.921 (1993), modified]".

[14] ETS 300 403-1 (1995): "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 1: Protocol specification [ITU-T Recommendation Q.931 (1993), modified]".

[15] ETS 300 406 (1995): "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

[16] ETS 300 475-1 (1995): "Private Integrated Services Network (PISN); Reference configuration Part 1: Reference configuration for PISN eXchanges (PINXs)".

[17] EN 301 049 (1997): "Private Integrated Services Network (PISN); Specification, functional models and information flows; Circuit-mode multi-rate bearer services".

Throughout the text of ISO/IEC 11572

Throughout the text of ISO/IEC 11572, replace references as shown in the table below:

Reference in ISO/IEC 11572	Modified reference
CCITT Q.931 (note)	ETS 300 403-1 [14]
CCITT Recommendation Q.931	ETS 300 403-1 [14]
ISO/IEC 8886	ETS 300 402-2 [13]
ISO/IEC 9646-1	ETS 300 406 [15]
ISO/IEC 11571	ETS 300 189 [11]
ISO/IEC 11572 or International Standard ISO/IEC 11572	ETS 300 172
ISO/IEC 11574	ETS 300 171 [9]
ISO/IEC 11579-1	ETS 300 475-1 [16]
ISO/IEC 11584	ETS 300 "mrbs" [17]
NOTE: This replacement shall be made throughout the text except in table 20, where the term "CCITT Q.931" is used to describe the protocol discriminator coding.	

Throughout the text of ISO/IEC 11572

Throughout the text of ISO/IEC 11572, replace the term "International Standard" by "EN".

Subclause 10.5.1

In item (c), replace the text "Calling/Connected Line Identification Restriction" by "Calling/Connected Line Identification Restriction (see ETS 300 173 [10])".

Subclause 10.6.4

In the second paragraph, replace the text "Calling/Connected Line Identification Restriction" by "Calling/Connected Line Identification Restriction (see ETS 300 173 [10])".

Subclause 14.5.2

Replace the 8th paragraph by:

Codeset 4 is used for ISO defined information elements. Codeset 5 is used by ETSI for information elements that are defined in addition to those defined by ITU-T or ISO. The rules for handling information elements of codeset 0 apply to codesets 4 and 5 too.

Subclause 14.5.3, table 23

Modify table 23 as follows:

Table 23: Locking/non-locking shift element

Codeset identification		
Bits		
3 2 1		
0 0 0	Codeset 0:	CCITT Q.931 information elements (initially active codeset)
1 0 0	Codeset 4:	Information elements defined by ISO
1 0 1	Codeset 5:	Information elements defined by ETSI
	Codeset 6:	Information elements specific to the
1 1 0		local network (public or private)
1 1 1	Codeset 7:	User-specific information elements
All other values are reserved (note 1)		
NOTE 1: The handling of national/private information elements is outside the scope of this EN (see annex D).		

Subclause 14.5.5, table 24

Modify the coding of the Information transfer capability (octet 3) in table 24 as follows:

Information transfer capability (octet 3)	
Bits	
5 4 3 2 1	
0 0 0 0 0	Speech
0 1 0 0 0	Unrestricted digital information
0 1 0 0 1	Restricted digital information (applicable only in interworking situations)
1 0 0 0 0	3,1 kHz audio
1 0 0 0 1	Unrestricted digital information with tones / announcements
All other values are reserved.	

Subclauses 14.5.8 and 14.5.10

In subclauses 14.5.8 and 14.5.10, add a note at the end of the first paragraph:

NOTE 1: For the definition of subaddress, see ETS 300 189 [11].

Renumber the existing note to be NOTE 2.

Subclause 14.5.12

Correct the text of NOTE 2:

NOTE 2: Channel number shall be used unless there is a bilateral agreement to use channel map.

Subclause 14.5.14

In subclause 14.5.14, add a note at the end of the first paragraph:

NOTE 1: For the definition of subaddress, see ETS 300 189 [11].

Renumber the existing note to be NOTE 2.

Subclause 14.5.19

Insert the following new subclause after subclause 14.5.19:

14.6 Information elements of codeset 5

Codeset 5 contains information elements defined by ETSI.

In general the coding rules described in subclause 14.5.1 for codeset 0 apply to codeset 5 also.

Table 34 lists the information element identifiers for information elements of codeset 5 used in this EN.

Table 34: Information element Identifier coding (Codeset 5)

Coding								Ref.	Length
8	**7**	**6**	**5**	**4**	**3**	**2**	**1**		
1	:	:	:	-	-	-	-	*Single Octet information elements:*	
	0	0	0	-	-	-	-	Reserved	
	0	0	1	-	-	-	-	Shift	14.5.3	1
0	:	:	:	:	:	:	:	*Variable length information elements:*	
	0	1	1	0	0	1	0	Party category	annex ZC	3
All other values are reserved.									

Annex A, subclause A.3.2

In the first row of the protocol summary table, replace the words "First Edition" with the words "Fourth Edition".

Annex A, subclause A.3.3

Insert a new row at the end of the PICS proforma table in subclause A.3.3, as follows:

Z5	Support of the unrestricted digital information with tones / announcements bearer	14.5.5	o		Yes [ ] No [ ]

Annex A, end of

Insert the following new subclause at the end of annex A:

A.3.16 Party category functionality

Item	Question/feature	Reference	Status	N/A	Support
N1	Party category functionality	ZC.2	o		Yes [ ] No [ ]
N2	Behaviour as Originating PINX for Party category functionality	ZC.2.3.1	c.21	[ ]	Yes [ ]
N3	Behaviour as Incoming Gateway PINX for Party category functionality	ZC.2.4.1	c.22	[ ]	Yes [ ]
N4	Behaviour as Transit PINX for Party category functionality	ZC.2.3.3	c.23	[ ]	Yes [ ]
N5	Behaviour as Terminating PINX for Party category functionality	ZC.2.3.2	c.24	[ ]	Yes [ ]
N6	Behaviour as Outgoing Gateway PINX for Party category functionality	ZC.2.4.2	c.25	[ ]	Yes [ ]
N7	Sending of a Party category information element in a SETUP message	ZC.2.3, ZC.2.4	c.26	[ ]	Yes [ ] No [ ]
N8	Sending of a Party category information element in an ALERTING message	ZC.2.3, ZC.2.4	c.27	[ ]	Yes [ ] No [ ]
N9	Sending of a Party category information element in a CONNECT message	ZC.2.3, ZC.2.4	c.27	[ ]	Yes [ ] No [ ]

c.21 If B1 and N1 then mandatory else, not applicable
c.22 If B2 and N1 then mandatory else, not applicable
c.23 If B3 and N1 then mandatory else, not applicable
c.24 If B4 and N1 then mandatory else, not applicable
c.25 If B5 and N1 then mandatory else, not applicable
c.26 If N2 or N3 or N4 then optional else, not applicable
c.27 If N4 or N5 or N6 then optional else, not applicable

Annex G

Add the following bibliographic references to annex G:

[7] CCITT Recommendation Q.931 (1988): "ISDN user-network interface layer 3 specification for basic call control" (Blue Book, Volume VI, Fascicle VI.11).

[8] ECMA-QSIG-CMN (1997): "Private Integrated Services Network (PISN); Inter-exchange signalling protocol; Common information Additional Network Feature".

[9] ETS 300 171 (1997): "Private Telecommunication Network (PTN); Specification, functional models and information flows; Control aspects of circuit-mode basic services" 2nd edition.

Add the following new annex ZC:

Annex ZC (normative): Party category functionality

ZC.1 Introduction

This annex specifies the signalling protocol for the support of Party category functionality at the Q reference point. It is optional to support the procedures specified in this annex.

NOTE: The signalling protocol and procedures specified in this annex support Party category functionality as defined in ETS 300 171 1st edition. Subsequent editions of ETS 300 171 do not support this functionality; it is now part of the Common information Additional Network Feature (ANF-CMN).

The protocol and procedures of this annex permit backwards compatibility with older equipment to be maintained for an interim period. However, the protocol and procedures of this annex are superseded by the protocol and procedures specified for ANF-CMN.

ZC.2 Signalling protocol for the support of Party category

ZC.2.1 Party category description

The purpose of the Party category is to indicate, to another user or to another PINX, the category of a user involved in a call. An Originating PINX may include an indication of the calling user's category in the SETUP message sent across an inter-PINX link. A Terminating PINX may include an indication of the called user's category in an ALERTING message or CONNECT message sent across an inter-PINX link. A received Party category information may be used for display at the user's terminal or for PINX internal call handling e.g., depending on whether the calling party is an extension or a PISN attendant, the PINX internal call handling may invoke different options of a supplementary service related to that call.

The permitted party categories are:

- unknown;
- extension;
- PISN attendant; and
- emergency extension.

ZC.2.2 Party category coding requirements

ZC.2.2.1 Information elements

The Party category information element is a variable length category 2 (see subclause 10.4.11.2) codeset 5 information element with the format shown in figure ZC.1 and coded as shown in table ZC.1.

NOTE: The general format and coding of variable length information elements is defined in subclause 14.5.1.

8	7	6	5	4	3	2	1	
Party category								
0	0	1	1	0	0	1	0	Octet 1
Information element identifier								
Length of Party category contents								Octet 2
1	0	0	0	0	Party category			Octet 3
ext	Reserved							

Figure ZC.1: Party category information element

Table ZC.1: Party category information element

Party category (octet 3)		
Bits	**3 2 1**	
	0 0 0	unknown
	0 0 1	extension
	0 1 0	PISN attendant
	0 1 1	emergency extension
All other values are reserved.		

ZC.2.2.2 Messages

If used to indicate the category of the calling user, the Party category information element shall be conveyed in the SETUP message sent by the outgoing side to the incoming side.

If used to indicate the category of the called user, the Party category information element shall be conveyed in the ALERTING message sent by the incoming side to the outgoing side.

If used to indicate the category of the connected user, the Party category information element shall be conveyed in the CONNECT message sent by the incoming side to the outgoing side.

NOTE: Because this information element is a codeset 5 information element, one of the shift information elements (see subclauses 14.5.3 and 14.5.4) will precede the Party category information element in each message in which it is sent.

ZC.2.3 Signalling procedures

The signalling protocol for Party category functionality operates in association with the protocol for basic circuit-switched call control, as specified in clause 10 of this EN.

ZC.2.3.1 Actions at the Originating PINX

An Originating PINX initiating call establishment by transmitting a SETUP message across an inter-PINX link (see subclause 10.5.1) may include a Party category information element in the SETUP message to indicate the category of the calling user.

On receipt of an ALERTING message (see subclause 10.5.4) or a CONNECT message (see subclause 10.5.5) containing a Party category information element, the Originating PINX may optionally present the party category information to the calling user.

ZC.2.3.2 Actions at the Terminating PINX

On receipt of a SETUP message (see subclause 10.6.1) containing a Party category information element, the Terminating PINX may optionally present the party category information to the called user.

A Terminating PINX transmitting an ALERTING message (see subclause 10.6.2) may optionally include a Party category information element in the ALERTING message to indicate the category of the called user.

A Terminating PINX transmitting a CONNECT message (see subclause 10.6.4) may optionally include a Party category information element in the CONNECT message to indicate the category of the connected user.

ZC.2.3.3 Actions at a Transit PINX

A Transit PINX receiving a Party category information element in a SETUP, ALERTING or CONNECT message shall transparently pass on the information element to the next PINX.

ZC.2.4 Impact of interworking with public ISDNs or with non-ISDNs

ZC.2.4.1 At an Incoming Gateway PINX

When routeing a call entering the PISN (see subclause 10.7.1) an Incoming Gateway PINX may optionally include a Party category information element in the SETUP message to indicate the category of the calling user. Unless information has been supplied by the other network, the value "unknown" shall be used.

On receipt of an ALERTING message (see subclause 10.7.5) or a CONNECT message (see subclause 10.7.6) containing a Party category information element, an Incoming Gateway PINX may optionally present the party category information to the other network if the signalling system permits.

ZC.2.4.2 At an Outgoing Gateway PINX

On receipt of a SETUP message (see subclause 10.8.1) containing a Party category information element, an Outgoing Gateway PINX may optionally present the party category information to the other network if the signalling system permits.

An Outgoing Gateway PINX transmitting an ALERTING message (see subclause 10.8.4) may optionally include a Party category information element in the ALERTING message to indicate the category of the called user. Unless information has been supplied by the other network, the value "unknown" shall be used.

An Outgoing Gateway PINX transmitting a CONNECT message (see subclause 10.8.5) may optionally include a Party category information element in the CONNECT message to indicate the category of the connected user. Unless information has been supplied by the other network, the value "unknown" shall be used.

History

Document history		
Edition 1	December 1992	Publication as ETS 300 172
Edition 2	January 1994	Publication as ETS 300 172
Edition 3	November 1995	Publication as ETS 300 172
V1.4.1	May 1997	One-step Approval Procedure OAP 9735: 1997-05-02 to 1997-08-29