



SLOVENSKI STANDARD

SIST EN 301 039 V1.1.1:2005

01-maj-2005

Zasebno omrežje z integriranimi storitvami (PISN) - Funkcije preslikav za zagotovitev 64 kb/s vodovne zveze s 16 kb/s podmultipleksiranjem

Private Integrated Services Network (PISN); Mapping functions for the employment of 64 kbit/s circuit mode connections with 16 kbit/s sub-multiplexing

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Ta slovenski standard je istoveten z: EN 301 039 Version 1.1.1

SIST EN 301 039 V1.1.1:2005
<https://standards.iteh.ai/catalog/standards/sist/16d5168d-7522-4217-81fd-d6775d987568/sist-en-301-039-v1-1-1-2005>

ICS:

33.040.35

Telefonska omrežja

Telephone networks

SIST EN 301 039 V1.1.1:2005

en

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EN 301 039 V1.1.1 (1997-12)

European Standard (Telecommunications series)

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European Telecommunications Standards Institute

Reference

DEN/ECMA-00144 (9mc00ico.PDF)

Keywords

PISN

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Sous-Préfecture de Grasse (06) N° 7803/88

X.400

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Foreword

This European Standard (Telecommunications series) has been produced by the European Computer Manufacturers Association (ECMA) on behalf of its members and those of the European Telecommunications Standards Institute (ETSI).

National transposition dates	
Date of adoption of this EN:	5 December 1997
Date of latest announcement of this EN (doa):	31 March 1998
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 September 1998
Date of withdrawal of any conflicting National Standard (dow):	30 September 1998

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1 Scope

The present document defines the mapping functions in exchanges of Private Integrated Services Networks (PISNs) required for the utilization of scenarios in which 64 kbit/s circuit mode connections are sub-multiplexed into 4×16 kbit/s channels for carrying inter-Private Integrated services Network eXchange (PINX) signalling and user information.

NOTE: The present document has been prepared to meet the specific needs of an application for a particular user organization. However, it may also be applicable elsewhere. The requirements contained in the present document will be incorporated in any future standard specifying a more generic approach to bearer conditioning.

In order to connect a PINX to another PINX, mapping functions are required to adapt the specific interfaces at the C reference point to the application at the Q reference point. As such, mapping functions provide for physical adaptation to the interface at the C reference point. Mapping functions also provide for the mapping of user channels and signalling information at the Q reference point to the appropriate channels or timeslots at the C reference point.

The C and Q reference points are defined in ISO/IEC 11579-1 [1].

The type of interface at the C reference point covered by the present document is the 64 kbit/s digital unrestricted leased line (D64U) terminal equipment interface, in accordance with ETS 300 290 [2].

At the Q reference point the mapping provides a 16 kbit/s service for user channels to support the transfer of unrestricted digital information and to support the transfer of speech, and a packet mode service for the signalling channel. The applied mapping is a static mapping, i.e. there is a fixed relationship between user and signalling channels at the Q reference point and the interface at the C reference point.

Management functions relating to failure management are outside the scope of the present document.

The present document is applicable to PINXs that can be interconnected to form a PISN and that support signalling protocols at the Q reference point.

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2 Conformance

In order to conform to the present document, a PINX shall satisfy the requirements identified in the Implementation Conformance Statement (ICS) proforma in annex A.

3 References

3.1 Normative references

References may be made to:

- a) specific versions of publications (identified by date of publication, edition number, version number, etc.), in which case, subsequent revisions to the referenced document do not apply; or
- b) all versions up to and including the identified version (identified by "up to and including" before the version identity); or
- c) all versions subsequent to and including the identified version (identified by "onwards" following the version identity); or
- d) publications without mention of a specific version, in which case the latest version applies.

A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

- [1] 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)".
- [2] ETS 300 290 (1994): "Business TeleCommunications (BTC); 64 kbit/s digital unrestricted leased line with octet integrity (D64U) Terminal equipment interface".
- [3] 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".
- [4] CCITT Recommendation I.112 (1988): "Vocabulary of terms for ISDNs".
- [5] CCITT Recommendation I.460 (1988): "Multiplexing, rate adaption and support of existing interfaces".
- [6] ITU-T Recommendation G.728 (1992): "Coding of speech at 16 kbit/s using low-delay code excited linear prediction".

3.2 Informative references

The present document also contains informative references. Details of these publications are given in annex D.

4 Definitions

4.1 External definitions

For the purposes of the present document, the following external definitions apply:

Integrated Services Digital Network (ISDN): See CCITT Recommendation I.112 [4].

Private Integrated Services Network (PISN): See ISO/IEC 11579-1 [1].

Private Integrated services Network eXchange (PINX): See ISO/IEC 11579-1 [1].

4.2 Special definitions

4.2.1 Channel

A means of bi-directional transmission of user or signalling information between two points.

4.2.1.1 D_Q-Channel

A channel used to convey call control information between the Q reference points of two peer PINXs.

4.2.1.2 U_Q-Channel

A channel used to convey user information between the Q reference points of two PINXs.

4.2.2 End PINX

In the context of a particular call, a PINX to which one of the users is attached (Originating PINX or Terminating PINX) or a PINX at which signalling interworking occurs (Gateway PINX).

4.2.3 Inter-PINX connection

A connection provided by an IVN between two C reference points used to transport inter-PINX information from the PISN control plane and/or the PISN user plane.

4.2.4 Inter-PINX link

A link between the Q reference points of two PINXs, comprising the totality of signalling transfer and user information transfer means.

4.2.5 Transit PINX

In the context of a particular call, any PINX, excluding the End PINXs, through which the call passes.

5 Abbreviations

BC	Bearer Conditioning
BTC	Business TeleCommunications
DSS1	Digital Subscriber Signalling System No. one
HDLC	High Level Data Link Control
ICS	Implementation Conformance Statement
IPC	Inter-PINX Connection
IPL	Inter-PINX Link
ISDN	Integrated Services Digital Network
IVN	InterVening Network
LD-CELP	Low-Delay Code Excited Linear Prediction
MP	MaPping functional grouping
PCM	Pulse Code Modulation
PINX	Private Integrated services Network eXchange
PISN	Private Integrated Services Network
PTNX	Private Telecommunications Network eXchange
QSIG	Q Interface Signalling protocol (ECMA standard)

6 Introduction

The present document specifies mapping functions for the following scenario.

Dedicated 64 kbit/s circuit mode connection with 16 kbit/s sub-multiplexing.

This scenario consists of a dedicated 64 kbit/s circuit mode connection in a point-to-point configuration, and offering at the C reference point an interface with a single 64 kbit/s channel. This 64 kbit/s channel is sub-multiplexed by the MaPping functional grouping (MP) into 4 x 16 kbit/s channels. Where such a channel is used for carrying speech, a speech compression function is also provided.

The applied mapping is a static mapping. There is a fixed relationship between user and signalling channels at the Q reference point and the interface at the C reference point.

Administrative actions to apply the mapping are necessary at both sides of an Inter-PINX Link (IPL).

At the C reference point more than one instance of the interface type may exist.

NOTE: For more information refer to ECMA TR/65 clause 7 (see annex D).