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Private Telecommunication Network (PTN); Signalling protocol at the S-reference point;
Circuit mode basic services

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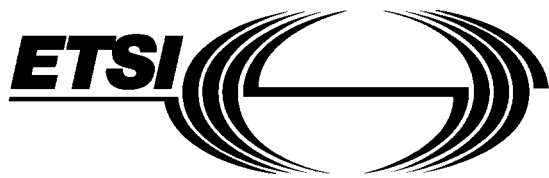
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ETSI

European Telecommunications Standards Institute

ETSI Secretariat

Postal address: F-06921 Sophia Antipolis CEDEX - FRANCE

Office address: 650 Route des Lucioles - Sophia Antipolis - Valbonne - FRANCE

X.400: c=fr, a=atlas, p=etsi, s=secretariat - **Internet:** secretariat@etsi.fr

Tel.: +33 92 94 42 00 - Fax: +33 93 65 47 16

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Foreword

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

This ETS defines the signalling protocol for use at the S-reference point in support of basic circuit mode services. It is intended to be supported by a suitable layer 2 protocol, e.g. ETS 300 169, in the D-channel of a basic access interface or a primary rate access interface.

The protocol defined in this ETS is based upon that specified in ETS 300 102-1. ETS 300 102-1 is applicable to interfaces to public ISDNs at the T reference point, or at coincident S and T reference points if there is no NT2 function. This ETS references many of the Clauses of ETS 300 102-1 to avoid reproducing large quantities of text. Some of the options in ETS 300 102-1 are not applicable to interfaces at the S reference point, and therefore are excluded by this standard. On the other hand, certain additions have been identified as being required at the S reference point. However, the major part of the protocol is identical with that specified in ETS 300 102-1, enabling TEs to be designed which are compatible with both PTNs and public ISDNs and can therefore be connected to either.

This ETS refers to ETS 300 102-2 for the description of the protocol in SDL form.

This ETS was produced by ECMA using the ECMA guidelines for the production of standards and using the ECMA stylesheet. In order to avoid undue delays in the publication of this ETS it has been agreed that this ETS will not be converted to the ETSI stylesheet.

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1 Scope

This standard 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 an interface at the S reference point between a Terminal Equipment (TE) and a Private Telecommunication Network (PTN). The S reference point is defined in ENV 41004.

This standard is based upon ETS 300 102-1, which defines the equivalent protocol for the T and coincident T and S reference points between a user and a public ISDN. Many of the Clauses of ETS 300 102-1 are incorporated by reference. Any reference in the text of ETS 300 102-1 to Annex D of that document are not applicable to this standard. Annex F contains information on terminal interchangeability between PTNs and public ISDNs.

This standard is applicable to basic and primary rate accesses of PTNXs and to TEs that are intended for connection to such accesses.

The conveyance of non-standardized (e.g. manufacturer-specific) information in messages is outside the scope of this standard. Annex D discusses ways in which this can be achieved.

2 Conformance

In order to conform to this standard, a PTNX shall satisfy the PTN requirements and a TE shall satisfy the TE requirements contained in Clauses 7, 8, 9, 10, 11 and 12 of this standard.

3 References

- ETS-300 102-1 Integrated Services Digital Network (ISDN); User-network interface layer 3, Specifications for basic call control (1990).
- I-ETS 300 169 Private Telecommunication Network (PTN); Signalling at the S-reference point, Data link layer protocol (1992).
- ETS 300 171 Private Telecommunication Network (PTN); Specification, functional models and information flows, Control aspects of circuit mode basic services (1992).
- ETS 300 189 Private Telecommunication Network (PTN); Addressing (1992).
- CCITT Recommendation I.112 "Blue Book", 1988 - Vocabulary of Terms for ISDNs.
- ENV 41004 Reference Configurations for Calls through Exchanges of Private Telecommunication Networks.
- ENV 41005 Method for the Specification of Basic and Supplementary Services of Private Telecommunication Networks.
- ENV 41007 Definition of Terms in Private Telecommunication Networks.

4 Definitions

For the purpose of this standard the terminology defined in ENV 41007 and CCITT Recommendation I.112 applies. If there is conflict, the definitions in ENV 41007 shall take precedence. In addition the following definitions apply.

4.1 Basic Call

A single invocation of a basic service according to ETS 300 171.

4.2 Incoming Call

A call presented to the TE by the PTN.

4.3 Outgoing Call

A call presented to the PTN by the TE.

4.4 User and Network

Throughout this standard, reference is made to Clauses in ETS 300 102-1. When applying a Clause in ETS-300 102-1 to the TE-PTN interface, the term user shall be interpreted as TE, and the term network shall be interpreted as PTN.

5 Acronyms

CLIP	Calling Line Identification Presentation
COLP	Connected Line Identification Presentation
ISDN	Integrated Services Digital Network
MSI	Manufacturer Specific Information
PTN	Private Telecommunication Network
PTNX	Private Telecommunication Network eXchange
SAP	Service Access Point
TE	Terminal Equipment

6 General principles

This standard specifies the signalling procedures for establishing, maintaining and clearing a basic circuit-switched call at a PTN user access. These signalling procedures are defined in terms of messages exchanged over a data link connection on the D-channel of a basic or primary rate interface structure. The result of successful basic call establishment is a connection for the purpose of user information transfer. This connection uses a B-channel of a basic or primary rate interface structure.

Throughout this standard, the term B-channel is used to indicate any channel other than the D-channel.

The basic call signalling procedures specified in this standard apply to circuit mode bearer services, used either on their own or in support of teleservices.

In addition, this standard includes signalling procedures for layer management, including restart.

6.1 Protocol model

Figure 1 shows the relationship, within the Control Plane, between the layer 3 protocol at the S reference point, the protocol entities in the TE and PTN, and the adjacent layers.

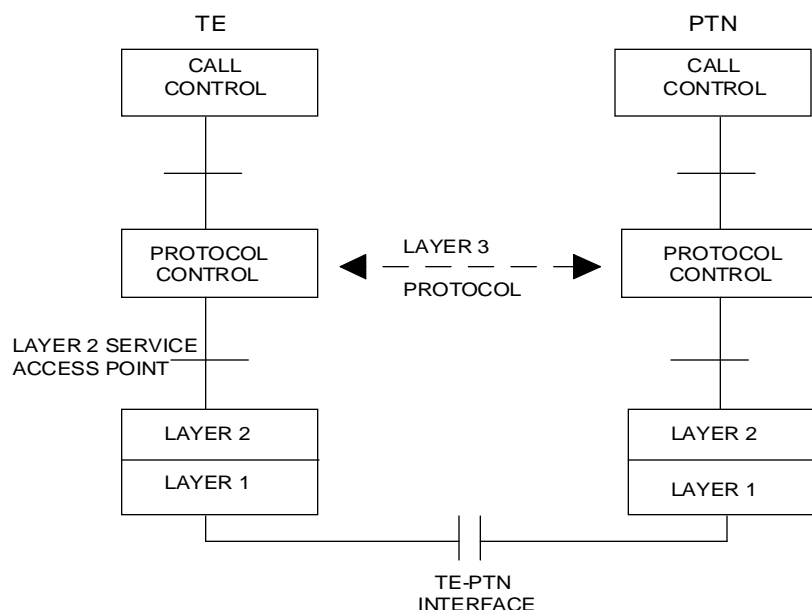


Figure 1 - Protocol model

The Protocol Control entity provides services to Call Control. Call Control corresponds to the functional entities identified for the basic call at Stage 2 (see ETS 300 171), i.e., the Call Control functional entity within the PTN (PTNX) and the Call Control Agent functional entity within the TE. Primitives exchanged across the boundary between Call Control and Protocol Control correspond to the information flows exchanged between the Call Control and Call Control Agent functional entities, as identified at Stage 2. Protocol Control provides the mapping between these primitives and the messages transferred across the TE-PTN interface.

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In order to transfer messages, Protocol Control uses the services of the Data Link Layer, as available at the Data Link Layer Service Access Point (SAP). The Data Link Layer in turn uses the services of the Physical Layer.

6.2 Services provided to Call Control

Protocol Control provides services to Call Control whereby Call Control can send information flows to and receive information flows from the peer Call Control. A primitive from Call Control to Protocol Control of type "request" or "response" normally results in the associated information flow being presented to the peer Call Control as a primitive of type "indication" or "confirmation" respectively.

PTN side primitives are as listed in subclause 5.3 of ETS 300 102-2. TE side primitives are as listed in subclause 6.3 of ETS 300 102-2.

Note 1:

These primitive names differ from the information flow names specified at Stage 2 in ETS 300 171.

6.3 Services required of the Data Link Layer

Services provided by the Data Link Layer and the associated primitives are defined in I-ETS 300 169. Protocol Control uses the following services:

6.3.1 Acknowledged information transfer services

- Data Transfer, using the DL-DATA-REQUEST/INDICATION primitives;
- Establishment of Multiple Frame Operation, using the DL-ESTABLISH-REQUEST/INDICATION/-CONFIRM primitives;