SLOVENSKI STANDARD
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Poslovne telekomunikacije (BTC) - Digitalni zakupljeni vodi za prenosno hitrost 2 048 kbit/s in za nestrukturirane in strukturirane signale (D2048U in D2048S) - Omrežni vmesnik

Business TeleCommunications (BTC); 2 048 kbit/s digital unstructured and structured leased lines (D2048U and D2048S); Network interface presentation

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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

Contents

Foreword

This European Telecommunication Standard (ETS) has been produced by the Business TeleCommunications (BTC) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This ETS resulted from a mandate from the Commission of the European Community (CEC) to provide harmonized standards for the support of the Directive on Open Network Provision (ONP) of leased lines (92/44/EEC).

In the case of the unstructured leased line, this ETS is intended to supersede ETS 300 246.

There are four other standards directly related to this ETS:

- ETS 300 247: "Open Network Provision (ONP) technical requirements; 2 048 kbit/s digital unstructured leased line (D2048U); Connection characteristics";

- ETS 300 248: "Open Network Provision (ONP) technical requirements; 2 048 kbit/s digital unstructured leased line (D2048U); Terminal equipment interface";

- ETS 300 419: "Business TeleCommunications (BTC); 2 048 kbit/s digital structured leased line (D2048S); Connection characteristics";

- ETS 300 420: "Business TeleCommunications (BTC); 2 048 kbit/s digital structured leased line (D2048S); Terminal equipment interface".

This ETS is based on information from ITU-T Recommendations and ETSI publications and the relevant documents are quoted where appropriate.

Transposition dates	
Date of adoption of this ETS	17 November 1995
Date of latest announcement of this ETS (doa):	28 February 1996
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 August 1996
Date of withdrawal of any conflicting National Standard (dow):	31 August 1996

Introduction

The Council Directive on the application of ONP to leased lines (92/44/EEC) concerns the harmonization of conditions for open and efficient access to, and use of, the leased lines provided over public telecommunications networks, and the availability throughout the European Union (EU) of a minimum set of leased lines with harmonized technical characteristics.

The consequence of the Directive is that telecommunications organizations within the EU shall make available a set of leased lines between points in these countries with specified connection characteristics and specified interfaces. Under the Second Phase Directive (91/263/EEC), terminal equipment for connection to these leased lines will be required to fulfil certain essential requirements.

ETS 300 166 and CCITT Recommendation G.703 are used as the basis for the network interface presentation requirements.

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1 Scope

This ETS specifies the technical requirements and test principles for the network interface presentations of ONP 2 048 kbit/s digital leased lines using 120 Ω interfaces. This includes:

- the 2 048 kbit/s digital unstructured leased line; and

- the 2 048 kbit/s digital structured leased line with an information transfer rate of 1 984 kbit/s without restriction on binary content.

A connection is presented via interfaces at Network Termination Points (NTP). This ETS defines the network interface as presented by the leased line provider and should be used in conjunction with the appropriate companion standard, ETS 300 247 or ETS 300 419, specifying the connection characteristics between the NTPs of the leased line. This ETS and the appropriate connection characteristics standard together describe the technical characteristics of the leased line.

This ETS is applicable to leased lines, including part time leased lines, for which the establishment or release do not require any protocol exchange or other intervention at the NTP.

This ETS covers the physical, mechanical and electrical characteristics of the network interface and specifies the conformance tests for equipment of the kind that provides the interface presentation. Some of the tests described in this ETS are not designed to be applied to the interface of an installed leased line; such tests may be applied to equipment of the kind used to provide the interface. This ETS does not include details concerning the implementation of the tests nor does it include information on any regulations concerning testing. There is no requirement for each leased line to be tested in accordance with this ETS before it is brought into, or returned into, service.

2 Normative references

This ETS incorporates by dated or 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 ETS only when incorporated into it by amendment or revision. For undated references the latest edition of the publication referred to applies.

[1] CCITT Recommendation G.703 (1991): "Physical/electrical characteristics of hierarchical digital interfaces".

[2] CCITT Recommendation O.151 (1992): "Error performance measuring equipment for digital systems at the primary rate and above".

[3] EN 60950 (1992): "Safety of information technology equipment including electrical business equipment".

[4] ETS 300 046-4 (1992): "Integrated Services Digital Network (ISDN); Primary rate access - safety and protection Part 4: Interface I_b - safety".

[5] ETS 300 046-5 (1992): "Integrated Services Digital Network (ISDN); Primary rate access - safety and protection Part 5: Interface I_b - protection".

NOTE: This ETS also contains a number of informative references which have been included to indicate the sources from which various material has been derived, hence they do not have an associated normative reference number. Details of these publications are given in annex C. In some cases the same publication may have been referenced in both a normative and an informative manner.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this ETS, the following definitions apply:

leased lines: The telecommunications facilities provided by a public telecommunications network that provide defined transmission characteristics between NTPs and that do not include switching functions that the user can control, (e.g. on-demand switching).

Network Termination Point (NTP): All physical connections and their technical access specifications which form part of the public telecommunications network and are necessary for access to and efficient communication through that public network.

PRBS(2^{15}-1): A Pseudo Random Bit Sequence (PRBS) (as defined in subclause 2.1 of CCITT Recommendation O.151 [2]).

Safety Extra-Low Voltage (SELV) circuit: A secondary circuit which is so designed and protected that under normal and single fault conditions, the voltage between any two accessible parts and, for class 1 equipment, between any accessible part and the equipment protective earthing terminal does not exceed a safe value (subclause 1.2.8.5 of EN 60950 [3]).

terminal equipment: Equipment intended to be connected to the public telecommunications network, i.e.:

- to be connected directly to the termination of a public telecommunication network; or

- to interwork with a public telecommunications network being connected directly or indirectly to the termination of a public telecommunications network,

in order to send, process, or receive information.

3.2 Abbreviations

For the purposes of this ETS, the following abbreviations apply:

AIS	Alarm Indication Signal
AMI	Alternate Mark Inversion
CRC-4	Cyclic Redundancy Check-4 bit
D2048S	2 048 kbit/s digital structured leased line
D2048U	2 048 kbit/s digital unstructured leased line
dc	direct current
EMC	ElectroMagnetic Compatibility
HDB3	High Density Bipolar code of order 3 (see annex B)
ISDN	Integrated Services Digital Network
NTP	Network Termination Point
ONP	Open Network Provision
ppm	parts per million
PRBS	Pseudo Random Bit Sequence
rms	root mean square
RX	RX is a signal input (at either the leased line interface or the test equipment, see figure 1)
SELV	Safety Extra-Low Voltage
TX	TX is a signal output (at either the leased line interface or the test equipment, see figure 1)

4 Requirements

These requirements define the network interface presentation for:

- the 2 048 kbit/s digital unstructured leased line (D2048U) which provides a bidirectional point-to-point digital connection with a usable bit rate of 2 048 kbit/s where timing is not provided from the network. The provision of circuit timing is the responsibility of the user. No structuring of the data is provided, or shall be required, by the network and any structuring is the responsibility of the user; and

- the 2 048 kbit/s digital structured leased line (D2048S) which provides a bidirectional point-to-point digital connection with an information transfer rate of 1 984 kbit/s without restriction on binary content. The frame structure in the 2 048 kbit/s bit stream is defined in ETS 300 419. Any structuring of the data within the transparent 1 984 kbit/s part of the frame is the responsibility of the user.

  NOTE 1: The network interface is not designed for power feeding.

  NOTE 2: If equipment providing the interface requires a mains supply, the leased line provider should bring this to the attention of the user so that the user can provide mains supply back-up facilities, if required.

4.1 Physical characteristics

The connection arrangements provided by the leased line interface shall be suitable for hardwired connection (see subclause 4.1.1); however, with the agreement of the user, an alternative means of connection, using a socket, may be provided (see subclause 4.1.2).

The transmit pair is the output from the network interface. The receive pair is the input to the network interface, as shown in figure 1. Where the terms "output" and "input" are used without qualification in this ETS, they refer to the network interface.

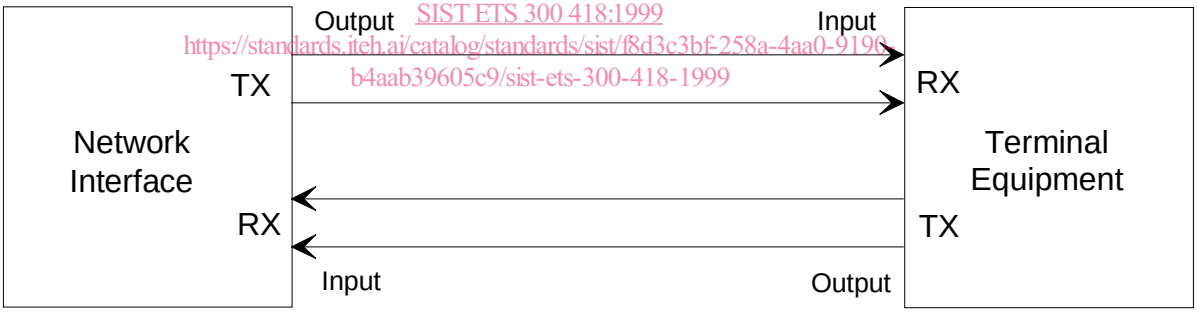

Figure 1

The use on the terminal equipment side of the interface of shielded cables may be necessary to meet radiation and immunity requirements defined in ElectroMagnetic Compatibility (EMC) standards. Therefore the NTP is required to provide a point for connection of the shield (see subclause 4.1.3).

4.1.1 Hardwired connection

Requirement: Where the leased line is being presented as a hardwired connection, the leased line interface shall provide a means of terminating wire with solid conductors having diameters in the range 0,4 mm to 0,6 mm. The leased line provider shall provide information on the configuration of the means of connection.

Test: There is no test. All subsequent tests are carried out via the specified connection method.

4.1.2 Socket specification

There is no constraint on the type of socket that may be used under this ETS.