SLOVENSKI STANDARD
SIST ETS 300 766 E1:2005

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Poslovne telekomunikacije (BTC) - Več kanalni digitalni zakupljeni vodi za prenosno hitrost 64 kbit/s brez omejitev za prenašane signale in z ohranjanjem oktetov, ki delujejo na strukturiranem vmesniku s prenosno hitrostjo 2 048 kbit/s na enem, drugem ali obeh koncih (D64M) - Priključne itvene značilnosti in omrežni vmesnik

Business TeleCommunications (BTC); Multiple 64 kbit/s digital unrestricted leased lines with octet integrity presented at a structured 2 048 kbit/s interface at either or both ends (D64M); Connection characteristics and network interface presentation

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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).

There are six other standards directly related to this ETS:

ETS 300 288: "Business TeleCommunications (BTC); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Network interface presentation";

ETS 300 289: "Business TeleCommunications (BTC); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Connection characteristics";

ETS 300 290: "Business TeleCommunications (BTC); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Terminal equipment interface";

ETS 300 418 (1995): "Business TeleCommunications (BTC); 2 048 kbit/s digital unstructured and structured leased lines (D2048U and D2048S); Network interface presentation".

ETS 300 419 (1995): "Business TeleCommunications (BTC); 2 048 kbit/s digital structured leased lines (D2048S); Connection characteristics".

ETS 300 420 (1995): "Business TeleCommunications (BTC); 2 048 kbit/s digital structured leased lines (D2048S); Terminal equipment interface".

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

This ETS has been written as a "delta" document to the existing standards for 64 kbit/s and 2 048 kbit/s leased lines. It uses requirements from these standards by cross reference with modifications as necessary to the test. The configurations covered by this ETS could have been addressed by modifying the existing standards for 64 kbit/s and 2 048 kbit/s leased lines to make them more modular so that the 64 kbit/s connection characteristics could be used in conjunction with the 2 048 kbit/s structured interface. In some ways this would have been a tidier solution, but it would involve considerable additional activity because the existing standards for 64 kbit/s and 2 048 kbit/s leased lines are currently the subject of regulation and references to them in the annex of the ONP leased line Directive would have to be changed.

Transposition dates	
Date of adoption of this ETS:	6 March 1998
Date of latest announcement of this ETS (doa):	30 June 1998
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 December 1998
Date of withdrawal of any conflicting National Standard (dow):	31 December 1998

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.

Other countries outside the EU may also choose to provide leased lines according to the standards produced to support the Directive.

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 (TE)for connection to these leased lines will be required to fulfil certain essential requirements.

The leased line specified in this ETS is not included in the minimum set whose provision is required under Directive 92/44/EEC, however this standard is written as a "delta" document based on the specifications for the 2 048 kbit/s digital structured ONP leased line (D2048S) and 64 kbit/s digital unrestricted ONP leased line with octet integrity (D64U) leased lines.

ETS 300 166 and CCITT Recommendation G.703 are used as the basis for the interface presentation requirements. ETS 300 167, CCITT Recommendations G.704 and G.706 are used as the basis for the structure of the 2 048 kbit/s interface.

This ETS does not apply to terminal equipment. ETS 300 290 applies without modification to TE intended for connection to the 64 kbit/s interface of the leased line. In theory ETS 300 420 should be modified to define the time slot structure for terminals intended for connection to 2 048 kbit/s interfaces that present 64 kbit/s leased lines. However, the modification is too trivial to be worth implementing.

1 Scope

This European Telecommunication Standard (ETS) specifies the technical requirements and test principles for the connection characteristics and network interface presentations of a 64 kbit/s point-to-point digital unrestricted leased line with octet integrity that is provided between either:

- two 2 048 kbit/s structured network interfaces; or

- a 2 048 kbit/s structured network interface and a 64 kbit/s co-directional network interface.

More than one leased line of the type described in this ETS may be provided at any 2 048 kbit/s network interface. Such leased lines may connect to the same or different destinations.

This ETS is written as a "delta" document based on the following ETSs:

- ETS 300 288: "Business TeleCommunications (BTC); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Network interface presentation". [1]

- ETS 300 289: "Business TeleCommunications (BTC); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Connection characteristics". [2]

- ETS 300 418: "Business TeleCommunications (BTC); 2 048 kbit/s digital unstructured and structured leased lines (D2048U and D2048S); Network interface presentation". [3]

- ETS 300 419: "Business TeleCommunications (BTC); 2 048 kbit/s digital structured leased lines (D2048S); Connection characteristics". [4]

This ETS is applicable to leased lines, including part time leased lines, whose establishment or release does not require any protocol exchange or other intervention at the Network Termination Point (NTP).

This ETS covers the connection characteristics, and the mechanical and electrical characteristics of the network interface, and specifies conformance tests. Some of the tests for the interface presentation 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.

NOTE: 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 in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

[1] ETS 300 288 (1994) including Amendment 1 (1995): "Business TeleCommunications (BTC); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Network interface presentation".

[2] ETS 300 289 (1994): "Business TeleCommunications (BTC); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Connection characteristics".

[3] ETS 300 418 (1995): "Business TeleCommunications (BTC); 2 048 kbit/s digital unstructured and structured leased lines (D2048U and D2048S); Network interface presentation".

[4] ETS 300 419 (1995): "Business TeleCommunications (BTC); 2 048 kbit/s digital structured leased lines (D2048S); Connection characteristics".

[5] EN 60950: "Safety of information technology equipment, including electrical business equipment".

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

[7] CCITT Recommendation I.410 (1988): "General aspects and principles relating to Recommendations on ISDN user-network interfaces".

[8] CCITT Recommendation O.151 (1992): "Error performance measuring equipment operating at the primary rate and above".

[9] CCITT Recommendation O.152 (1988): "Error performance measuring equipment for bit rates of 64 kbit/s and N × 64 Kbits/s"

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 B. 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:

errored second: A second with one or more bit errors.

frame: a sequence of 256 bits of which the first 8 bits define the frame structure

leased lines: The telecommunications facilities provided by a public telecommunications network that provide defined transmission characteristics between network termination points 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.

octet slip: a slip of one complete octet.

PRBS(2^{15}-1): A Pseudo Random Bit Sequence (PRBS) as defined in subclause 2.1 of CCITT Recommendation O.151 [8].

PRBS(2^{11}-1): A Pseudo Random Bit Sequence (PRBS) as defined in subclause 2.1 of CCITT Recommendation O.152 [9].

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 [5]).

severely errored second: A second where at least 0,1 % of the bits are errored.

slip: One or more extra or missing consecutive unit intervals in the bit stream.

time slot: In the context of this ETS, a time slot is a period of nominally 3,90625 µs (8 bits). Each frame of nominally 125 µs is subdivided into 32 time slots numbered 0-31.

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:

CRC-4	Cyclic Redundancy Check (using four bits)
D2048S	2 048 kbit/s digital structured ONP leased line
D64M	Multiple 64 kbit/s digital unrestricted leased lines with octet integrity at a structured 2 048 kbit/s interface at either or both ends
D64U	64 kbit/s digital unrestricted ONP leased line with octet integrity
EMC	ElectroMagnetic Compatibility
NTP	Network Termination Point
ONP	Open Network Provision
PRBS	Pseudo Random Bit Sequence
SELV	Safety Extra-Low Voltage
TE	Terminal Equipment

4 Overview (informative)

This ETS applies to 64 kbit/s leased lines where at least one end is presented in a 2 048 kbit/s interface. This includes leased lines in a wide variety of cases and configurations such as:

- a number of 64 kbit/s leased lines presented in a single 2 048 kbit/s interface at one location but each connecting to a different location;

- a single 64 kbit/s leased line presented in a single 2 048 kbit/s interface at each end where other time slots in the interfaces are used for other services;

- a number of 64 kbit/s leased lines between the same 2 048 kbit/s interfaces. In this case there is no guarantee that the leased lines will follow the same route and have the same transmission delay, i.e. octets of data that share the same frame at the input will not necessarily share the same frame at the output. An example is shown in figure 1.

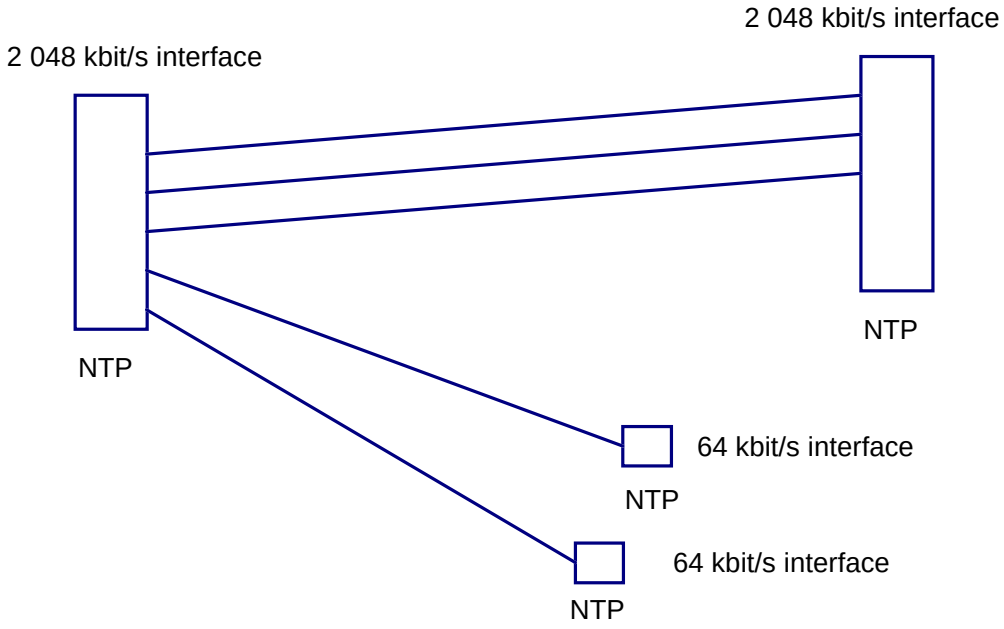

Figure 1