SLOVENSKI STANDARD
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Poslovne telekomunikacije (BTC) - Digitalni zakupljeni vodi za prenosno hitrost 64 kbit/s brez omejitev za prenašane signale in z ohranjanjem oktetov (D64U) – Prenosne značilnosti

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

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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 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 harmonised standards for support of the Directive on Open Network Provision (ONP) of leased lines (92/44/EEC).

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

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

Introduction

The Council Directive on the application of Open Network Provision (ONP) to leased lines (92/44/EEC) concerns the harmonisation of conditions for open and efficient access to, and use of, the leased lines provided over public telecommunications networks, and the availability throughout the Community (EEC) of a minimum set of leased lines with harmonised technical characteristics.

The consequence of the Directive is that Telecommunications Organisations within the EEC 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.

CCITT Recommendation I.340 for ISDN connection types is used as a basis for the connection characteristics.

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1 Scope

This ETS specifies the technical requirements and test principles for the connection characteristics of ONP 64 kbit/s digital unrestricted leased lines with octet integrity. The leased line provides access to the full digital bit rate of 64 kbit/s, with network timing for both directions of the transmission, with no restrictions on the binary content.

A connection is presented via interfaces at Network Termination Points (NTP) and includes any equipment that may provide the NTP. Signals between terminal equipments are subject to impairments during their transfer over the connection. The limits to these impairments are stated in this ETS, and these limits apply only where the terminal output signals are synchronous with the output of the leased line. Together with the companion standard, ETS 300 288 [2] defining the network interface presentation, this ETS describes the service offered.

The tests specified in this ETS cannot be carried out, nor can the performance be monitored by the leased line provider, while the leased line is in service, i.e. carrying users' traffic. Thus the tests are designed for bringing into and returning into service, although there is no obligation to perform these tests each time a leased line is brought into or returned into service.

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

This ETS specifies the compliance tests for the connection requirements. This ETS does not include details concerning the implementation of the tests, nor does it include information on any relevant regulations.

This ETS describes those characteristics of the connection that cannot be determined only by the equipment providing the NTPs. The related standard, ETS 300 288 [2], defines the network interface presentation and places no further constraints on the connection.

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] CCITT Recommendation O.152 (1988): "Error performance measuring equipment for 64 kbit/s paths".

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

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

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 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.

Unavailability period: a period of time beginning at the first of 10 consecutive severely errored seconds and ending immediately before the first following period of 10 consecutive seconds none of which are severely errored.

Errored second[1)]: a second with one or more bit errors.

Severely errored second[1)]: 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.

Octet slip: a slip of one complete octet.

Errored Seconds Ratio (ESR)[1)]: the ratio of errored seconds over all seconds within a specified measuring period, where neither are counted during unavailability periods.

Severely Errored Seconds Ratio (SESR)[1)]: the ratio of severely errored seconds over all seconds within a specified measuring period, where neither are counted during unavailability periods.

Satellite transmission: transmission via an earth orbiting satellite.

4 Symbols and abbreviations

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

D64U	64 kbit/s digital unrestricted ONP leased line with octet integrity
ESR	Errored Seconds Ratio
HRX	Hypothetical Reference configuration
NTP	Network Termination Point
ONP	Open Network Provision
PRBS(2^{11}-1)	Pseudo Random Bit Sequence (as defined in § 2.1 of CCITT Recommendation O.152 [1])
RX	Receive (a signal input at either the leased line interface or the test equipment)
SESR	Severely Errored Seconds Ratio
TX	Transmit (a signal output at either the leased line interface or the test equipment)
UI	Unit Interval

5 Requirements

The performance of the leased line shall comply with these requirements, only if the conditions of supply of the network equipment that provides the NTP are met, (e.g. if the equipment is connected to an appropriate power supply on the customer's premises).

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1) These definitions are taken from CCITT Recommendation G.821.

The CCITT attribute technique is used to express the connection requirements. The following attributes from CCITT Recommendation I.140 are considered relevant for this ETS:

- Information transfer rate;
- Information transfer susceptance;
- Structure;
- Establishment of communication;
- Symmetry;
- Connection configuration;
- Network performance.

NOTE: "Bit rate" is equivalent to "information transfer rate" in this ETS.

The following network performance sub-attributes are considered relevant for this ETS:

- Transmission delay;
- Jitter;
- Octet slip;
- Error.

5.1 Attributes

The connection attributes are displayed in table 1. In effect, these attributes define the service being offered.

The values and the associated compliance tests can be found in the subsequent subclauses.