SLOVENSKI STANDARD
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Poslovne telekomunikacije (BT) - Tehnične zahteve pri zagotavljanju odprtosti omrežij (ONP) - Digitalni zakupljeni vodi za prenosno hitrost 2 048 kbit/s in za nestrukturirane signale (D2048U) - Prenosne značilnosti

Business Telecommunications (BT); Open Network Provision (ONP) technical requirements; 2 048 kbit/s digital unstructured leased line (D2048U) Connection characteristics

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Foreword

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

This ETS results from a mandate from the Commission of the European Community (CEC) to provide harmonised standards for the 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 300 246: "Open Network Provision (ONP) technical requirements; 2 048 kbit/s digital unstructured leased line (D2048U), Network interface presentation";
>
> ETS 300 248: "Open Network Provision (ONP) technical requirements; 2 048 kbit/s digital unstructured leased line (D2048U), 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 on 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 connection characteristics of ONP 2 048 kbit/s digital unstructured leased lines.

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. Together with the companion standard, ETS 300 246 [3] defining the interface presentation, this ETS describes the service offered.

The leased line provides access to the full digital bit rate of 2 048 kbit/s with no restrictions on the binary content.

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 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 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 300 246 [3] defines the 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.151 (1988): "Error performance measuring equipment for digital systems at the primary bit rate and above".

[2] CCITT Recommendation O.153 (1988): "Basic parameters for the measurement of error performance at bit rates below the primary rate".

[3] ETS 300 246 (1993): "Open Network Provision (ONP) technical requirements; 2 048kbit/s digital unstructured leased line (D2048U), 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 block[1)]: a block with one or more bit errors.

NOTE: The duration of a block is 1 millisecond.

Errored second[1]: a one-second period with one or more errored blocks.

Severely disturbed period[1)]: occurs when, over a minimum period of time equivalent to four contiguous blocks, either all the contiguous blocks are affected by a high binary error density of at least 10^{-2}, or a loss of signal information is observed.

Severely errored second[1)]: a one-second period which contains at least 30 % errored blocks or at least one severely disturbed period.

Slip: a sequence of one or more extra or missing consecutive unit intervals in the bit stream.

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

Background block error ratio[1)]: the ratio of errored blocks over all blocks within a specified measuring period, where neither are counted during unavailability periods nor during severely errored seconds.

Satellite transmission: transmission via an earth orbiting satellite.

4 Symbols and abbreviations

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

D2048U	2 048 kbit/s digital unstructured ONP leased line
ONP	Open Network Provision
NTP	Network Termination Point
ppm	parts per million
PRBS(2^9-1)	Pseudo Random Bit Sequence (as defined in § 2.1 of CCITT Recommendation O.153 [2])
PRBS(2^{15}-1)	Pseudo Random Bit Sequence (as defined in § 2.1 of CCITT Recommendation O.151 [1])
RX	Receive (a signal input at either the leased line interface or the test equipment)

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1 These definitions are based on CCITT Recommandation G.826.

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 providing the NTP are met, (e.g. if the equipment is connected to an appropriate power supply on the customer's premises).

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

- Information transfer rate;
- Information transfer susceptance;
- Structure;
- Establishment of communication;
- Symmetry;
- Communication 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;
- 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.