SLOVENSKI STANDARD

SIST EN 300 289 V1.2.1:2003

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Access and Terminals (AT); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Connection characteristics

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ETSI EN 300 289 V1.2.1 (2001-07)

European Standard (Telecommunications series)

**Access and Terminals (AT);
64 kbit/s digital unrestricted leased line
with octet integrity (D64U);
Connection characteristics**

ETSI

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Access and Terminals (AT).

The present document resulted from a mandate from the Commission of the European Community (CEC) to provide 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 the present document:

- EN 300 288: "Access and Terminals (AT); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Network interface presentation";

- EN 300 290: "Access and Terminals (AT); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Terminal equipment interface".

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

National transposition dates	
Date of adoption of this EN:	29 June 2001
Date of latest announcement of this EN (doa):	30 September 2001
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	31 March 2002
Date of withdrawal of any conflicting National Standard (dow):	31 March 2002

Introduction

The Council Directive on the application of Open Network Provision (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 Community (EEC) of a minimum set of leased lines with harmonized technical characteristics.

The consequence of the Directive is that Telecommunications Organizations 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 Directive 91/263/EEC later replaced by 98/13/EC, terminal equipment for connection to these leased lines was required to fulfil certain essential requirements.

The present version of the present document has been produced to introduce some necessary changes.

ITU-T Recommendation I.340 for ISDN connection types was used as a basis for the connection characteristics.

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1 Scope

The present document 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 the present document, and these limits apply only where the terminal output signals are synchronous with the output of the leased line. Together with the companion standard, EN 300 288 [2] defining the network interface presentation, the present document describes the service offered.

The tests specified in the present document 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.

The present document 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.

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

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

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2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies.

[1]   ITU-T Recommendation O.152 (1992): "Error performance measuring equipment for bit rates of 64 kbit/s and N x 64 kbit/s".

[2]   ETSI EN 300 288: "Access and Terminals (AT); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Network interface presentation".

3 Definitions

For the purposes of the present document, the terms and definitions given in ITU-T Recommendation G.821 and the following apply.

Leased lines: 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: 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: second with one or more bit errors

Severely errored second: 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: slip of one complete octet

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

Severely Errored Seconds Ratio (SESR): 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 Abbreviations

For the purposes of the present document, 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 clause 2.1 of ITU-T 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).

The ITU-T attribute technique is used to express the connection requirements. The following attributes from ITU-T Recommendation I.140 are considered relevant for the present document:

- 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 the present document.

The following network performance sub-attributes are considered relevant for the present document:

- 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 clauses.

Table 1: Connection attributes

Connection type attributes	Value	
Description	Nature	Reference clause:
Information transfer rate	64 kbit/s	See 5.1.1
Information transfer susceptance	Unrestricted digital	See 5.1.2
Structure	Octet integrity	See 5.1.3
Establishment of communication	Without user intervention	See 5.1.4
Symmetry	Symmetrical in both directions	See 5.1.5
Communication configuration	Point to point	See 5.1.6
Network performance sub-attributes		
Connection type attributes	Value	
Description	Nature	Reference clause:
Transmission delay	Terrestrial and satellite options	See 5.1.7.1
Jitter	Input and output ports	See 5.1.7.2
Octet slip	5 per 24 hour period	See 5.1.7.3
Error parameters		
Time interval with errored blocks	Value	
Description	Nature	Reference clause:
Errored seconds	5 324 per 24 hour period	See 5.1.7.4.1
Severely errored seconds	105 per 24 hour period	See 5.1.7.4.2

5.1.1   Information transfer rate

Requirement: The connection shall be capable of transferring information at a nominal information rate of 64 kbit/s which shall be synchronous to the network timing.

> NOTE: Network timing is timing that is derived from the source or sources of timing that are used for the whole network. Thus the timing provided by the leased line will be similar to that provided by other digital services.

Test: The test shall be conducted according to clause A.2.1.

5.1.2   Information transfer susceptance

Requirement: The connection shall be capable of transferring unrestricted digital information.

Test: The test shall be conducted according to clause A.2.1.

5.1.3   Structure

Requirement: The connection shall be capable of transferring the octet timing present at the input.

> NOTE: When there is no input signal or octet timing is not present at the leased line distant input or when there is a failure in the leased line connection, the octet timing at the leased line output will not be meaningful.

Test: The test shall be conducted according to clause A.2.1.

5.1.4   Establishment of communication

Requirement: Establishment or release of the connection shall not require any protocol exchange or other intervention at the NTP by the user.

Test: By declaration.

5.1.5   Symmetry

Requirement: The connection shall be symmetrical, i.e. each direction of transmission shall have the same information transfer capability.

Test: The test shall be conducted according to clause A.2.1.

5.1.6   Communication configuration

Requirement: The connection configuration shall be point-to-point.

Test: By declaration.

5.1.7   Network performance

The network performance sub-attributes are displayed in table 1. The values and the associated compliance tests can be found in the subsequent clauses.