SLOVENSKI STANDARD
SIST EN 300 288 V1.2.1:2004

01-oktober-2004

Dostop in terminali (AT) - Digitalni zakupljeni vodi za prenosno hitrost 64 kbit/s brez omejitev za prenašane signale in z ohranjanjem oktetov (D64U) - Omrežni vmesnik

Access and Terminals (AT); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Network interface presentation

Ta slovenski standard je istoveten z: **EN 300 288 Version 1.2.1**

ICS:

33.040.50	Vodi, zveze in tokokrogi	Lines, connections and circuits

SIST EN 300 288 V1.2.1:2004 **en**

ETSI EN 300 288 V1.2.1 (2001-07)

European Standard (Telecommunications series)

Access and Terminals (AT); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Network interface presentation

Reference
REN/AT-020004

Keywords
digital, interface, leased line, ONP, testing

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

Individual copies of the present document can be downloaded from:
http://www.etsi.org

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at http://www.etsi.org/tb/status/

If you find errors in the present document, send your comment to:
editor@etsi.fr

Copyright Notification

Contents

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://www.etsi.org/ipr).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

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 the support of the Directive on Open Network Provision (ONP) of leased lines (92/44/EEC) (see annex C).

There are two other standards directly related to the present document:

- EN 300 289: "Access and Terminals (AT); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Connection characteristics";
- 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) (see annex C) 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.

Other countries outside the EEC may also choose to provide leased lines according to the standards produced to support the Directive (of which the present document is one of the set).

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 (see annex C), later replaced by 98/13/EC (see annex C), 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.

ETS 300 166 (see annex C) and ITU-T Recommendation G.703 [1] were used as the basis for the interface presentation requirements.

1 Scope

The present document specifies the technical requirements and test principles for the network interface presentations of Open Network Provision (ONP) 64 kbit/s digital unrestricted leased lines with octet integrity. These presentations are codirectional.

A connection is presented via interfaces at Network Termination Points (NTP). The present document defines the network interface presented by the leased line provider and should be used in conjunction with the companion standard, EN 300 289 [3], which specifies the connection characteristics between the NTPs of the leased line. Together, these documents describe the service offered.

The present document 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 NTP.

The present document covers the physical, mechanical and electrical characteristics (except safety, overvoltage and EMC aspects) 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 the present document 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. The present document 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 the present document before it is brought into, or returned into, service.

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, edition number, version number, etc.) 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 G.703 (1998): "Physical/electrical characteristics of hierarchical digital interfaces".

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

[3] ETSI EN 300 289: "Access and Terminals (AT); 64 kbit/s digital unrestricted leased line with octet integrity (D64U); Connection characteristics".

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

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions 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

Terminal Equipment (TE): equipment intended to be connected to the public telecommunications network, i.e.:

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

b) 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 the present document, the following abbreviations apply:

D64U	64 kbit/s digital unrestricted ONP leased line with octet integrity
dc	direct current
EMC	Electro-Magnetic Compatibility
NTP	Network Termination Point
ONP	Open Network Provision
ppm	parts per million
PRBS(2^{11}-1)	Pseudo Random Bit Sequence (as defined in clause 2.1 of ITU-T Recommendation O.152 [2])
rms	root mean square
RX	Receive (a signal input at either the leased line interface or the test equipment, see figure 1)
TE	Terminal Equipment
TX	Transmit (a signal output at either the leased line interface or the test equipment, see figure 1)

4 Requirements

The 64 kbit/s unrestricted leased line provides a bidirectional, point-to-point digital leased line with a usable bit rate of 64 kbit/s and octet integrity, where the output timing is provided from the network. The interface timing arrangements are codirectional.

NOTE: 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 clause 4.1.1). However, with the agreement of the user, an alternative means of connection, using a socket, may be provided (see clause 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 the present document, they refer to the network interface.

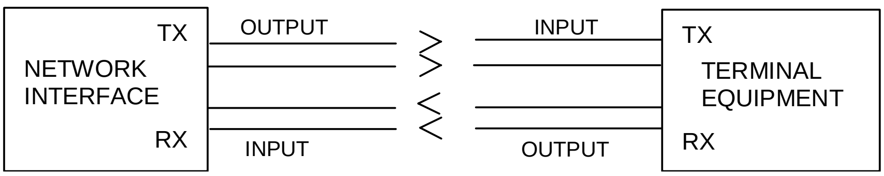

Figure 1

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

4.1.3 Shield connection point

Requirement: The NTP shall provide a point, or points, to which the shield, or shields, of the cable on the terminal side of the interface can be connected.

NOTE: The purpose of these points is to provide a path from the shield to a common reference. The common reference point does not necessarily have to be earthed.

Test: There shall be a visual inspection that a point, or points, for connection of the shield, or shields, is provided.

4.2 Electrical characteristics

4.2.1 Output port

4.2.1.1 Signal coding

Requirement: The signal transmitted at the output port shall comply with the encoding rules given in annex B.

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 according to clause A.2.1.

4.2.1.2 Waveform shape

Requirement: The pulse at the output port shall comply with the requirements given in table 1 and figures 2 and 3, based on ITU-T Recommendation G.703 [1].

Table 1: Waveform shape at output port

Pulse shape (nominally rectangular)	All pulses of a valid signal shall conform to the masks (see figures 2 and 3) irrespective of the polarity.
Test load impedance	120 Ω non-reactive
Nominal peak voltage V of a mark (pulse)	1 V
Peak voltage of a space (no pulse)	0 V ± 0,1 V
Nominal pulse width	3,9 µs for a single pulse 7,8 µs for a double pulse
Ratio of the amplitudes of positive and negative pulses at the centre of the pulse interval	0,95 to 1,05
Ratio of the widths of positive and negative pulses at the nominal half amplitude	0,95 to 1,05