

SLOVENSKI STANDARD SIST ETS 300 766 E1:2005

01-februar-2005

Dcg`cj bY'hY'_ca i b]_UV]'Y'f6 H7 Ł!'JY _UbUb]'X][]HJb]'nU_i d`Yb]'j cX]'nU dfYbcgbc'\]Hfcgh'* ('_V]Htg'VfYn'ca Y']HYj 'nUdfYbUýUbY'g][bUY']b'n'c\ fUb'Ub'Ya c_HYhcj z_]'XY'i 'Y'c'bUgHfi _Hi f]fUbYa 'j a Ygb]_i 'g'dfYbcgbc'\]Hfcgh'c'&'\$(, '_V]Htg bUYbYa zXfi [Ya 'U]'cVY\ '_cbW]\ 'f8 * (AŁ!'Df]_`'i]hj YbY'nbU]'bcgh]']b'ca fYÿb] j a Ygb]_

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

(standards.iteh.ai)

<u>SIST ETS 300 766 E1:2005</u> https://standards.iteh.ai/catalog/standards/sist/de03a392-ff61-43b3-a058-bbe486c38e6e/sist-ets-300-766-e1-2005

Ta slovenski standard je istoveten z: ETS 300 766 Edition 1

ICS:

33.040.50 Vodi, zveze in tokokrogi Lines, connections and

circuits

SIST ETS 300 766 E1:2005 en

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST ETS 300 766 E1:2005

https://standards.iteh.ai/catalog/standards/sist/de03a392-ff61-43b3-a058-bbe486c38e6e/sist-ets-300-766-e1-2005



EUROPEAN TELECOMMUNICATION STANDARD

ETS 300 766

March 1998

Source: BTC Reference: DE/BTC-02067

ICS: 33.020

Key words: Digital, interface, leased line, ONP, testing

Business TeleCommunications (BTC);

Multiple 64 kbit/s digital unrestricted leased lines with octet integrity presented at a structured 2 048 kbit/s interface

https://standats.either.org/bothdends#(D64M);

Connection characteristics and network interface presentation

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

Internet: secretariat@etsi.fr - http://www.etsi.fr - http://www.etsi.org

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

Copyright Notification: No part may be reproduced except as authorized by written permission. The copyright and the foregoing restriction extend to reproduction in all media.

Page 2

ETS 300 766: March 1998

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST ETS 300 766 E1:2005

https://standards.iteh.ai/catalog/standards/sist/de03a392-ff61-43b3-a058-bbe486c38e6e/sist-ets-300-766-e1-2005

Whilst every care has been taken in the preparation and publication of this document, errors in content, typographical or otherwise, may occur. If you have comments concerning its accuracy, please write to "ETSI Editing and Committee Support Dept." at the address shown on the title page.

Contents

Foreword					
Intro	oduction.		5		
1	Scope	9	7		
2	Normative references				
3	Definitions and abbreviations		8		
	3.1	Definitions			
	3.2	Abbreviations	9		
4	Overvi	riew (informative)	9		
5	Connection characteristics				
	5.1	Summary of attributes	10		
	5.2	Information transfer rate	11		
	5.3	Information transfer susceptance			
	5.4	Structure and octet integrity	11		
	5.5	Establishment of connection			
	5.6	SymmetryTransmission delay.A.N.D.A.R.D.P.R.R.V.L.R.V.	12		
	5.7	Transmission delay	12		
	5.8	Controlled slip Errored seconds tandards itch ai Severely errored seconds	13		
	5.9	Errored seconds standards, iteh.ai)	13		
	5.10	Severely errored seconds	13		
	5.11	AvailabilitySIST ETS 300 766 ET 2005	13		
		https://standards.itah.ai/satalog/standards/sist/da03a302.ff%1_43h3_a058_			
6	Interfa	ace characteristics - 2 048 kbit/s interface Connection arrangements - 200-766-e1-2005	13		
	6.1	Connection arrangements	13		
	6.2	Frame structure			
		6.2.1 General			
		6.2.2 2 048 kbit/s digital structured ONP leased line (CRC-4)			
		6.2.3 Use of the E-bits			
		6.2.4 Frame synchronization and data transmission capability			
		6.2.5 Multiframe alignment			
	6.3	Output signal coding			
	6.4	Output waveform shape			
	6.5	Output timing			
	6.6	Output timing under failure conditions			
	6.7	Output impedance towards ground			
	6.8	Output jitter			
	6.9	Input signal coding			
	6.10 6.11	Input less telerance			
	6.11	Input loss tolerance			
		Input immunity against reflections			
	6.13 6.14	Tolerable longitudinal voltages			
	6.14	Impedance towards ground			
	6.15	input jitter tolerance	10		
7		ace characteristics - 64 kbit/s interface			
	7.1	Connection arrangements			
	7.2	Output signal coding and octet structure			
	7.3	Output waveform shape			
	7.4	Output timing			
	7.5	Output timing under failure conditions			
	7.6	Output jitter	17		

Page 4 ETS 300 766: March 1998

	7.7	Impedance towards ground	. 17
	7.8	Longitudinal conversion loss	
	7.9	Input signal coding and octet structure	. 17
	7.10	Input jitter tolerance	. 17
	7.11	Input return loss	. 17
	7.12	Input loss tolerance	
	7.13	İmmunity against reflections	
	7.14	Impedance towards ground	
	7.15	Longitudinal conversion loss	
8	Safety		
	8.1	General requirements	. 18
	8.2	Touch current	. 18
9	ElectroM	agnetic Compatibility (EMC)	15
9	LICCITOIVI	agnetic Compatibility (Livio)	. 10
Anne	x A (norm	ative): Test methods	. 19
A.1			
	A.1.1	Additional information to support the test	
	A.1.2	Equipment connection	. 19
A.2	Main test	t	10
	Wall too		
Anne	x B (inforn	native): Bibliography	. 21
Hieto	r\/		22

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST ETS 300 766 E1:2005

https://standards.iteh.ai/catalog/standards/sist/de03a392-ff61-43b3-a058-bbe486c38e6e/sist-ets-300-766-e1-2005

Page 5 ETS 300 766: March 1998

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.

SIST ETS 300 766 E1:2005

This ETS has been written as a c'idelta 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.

Page 6

ETS 300 766: March 1998

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.

iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>SIST ETS 300 766 E1:2005</u> https://standards.iteh.ai/catalog/standards/sist/de03a392-ff61-43b3-a058-bbe486c38e6e/sist-ets-300-766-e1-2005

Page 7 ETS 300 766: March 1998

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".

Page 8

ETS 300 766: March 1998

[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. ARD PREVIEW

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

PRBS(2¹¹-1): 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 μ s (8 bits). Each frame of nominally 125 μ s is subdivided into 32 time slots numbered 0-31.

terminal equipment: Equipment intended to be connected to the public telecommunications network, i.e.:

Page 9 ETS 300 766: March 1998

- 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;

 SIST ETS 300 766 E1:2005
- 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.

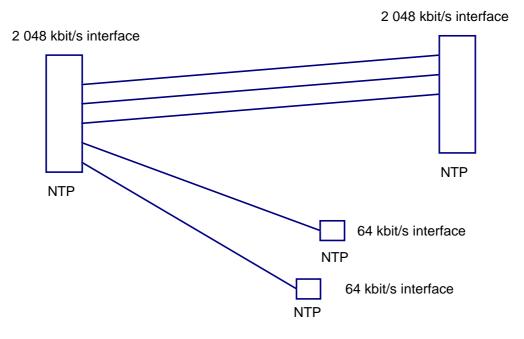


Figure 1