SLOVENSKI STANDARD
SIST EN 50098-2:1999

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Customer premises cabling for Information Technology - Part 2: 2048 kbit/s ISDN primary access and leased line network interface

Customer premises cabling for Information Technology -- Part 2: 2048 kbit/s ISDN primary access and leased line network interface

Informationstechnische Verkabelung von Gebäudekomplexen -- Teil 2: 2048 kbit/s ISDN-Primärmultiplexanschluß und Netzschnittstelle für Mietleitungen

Câblages dans les locaux des usagers pour les technologies de l'information -- Partie 2: Câblage d'interface de réseaux pour lignes spécialisées et accès au débit primaire RNIS à 2048 kbit/s

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ICS:

33.080	Digitalno omrežje z integriranimi storitvami (ISDN)	Integrated Services Digital Network (ISDN)

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Descriptors: Cabling topology, design requirements, ISDN primary access, requirements for cabling and components

English version

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This European Standard was approved by CENELEC on 1995-11-28. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

This European Standard has been prepared by CENELEC TC 215 *Electrotechnical aspects of telecommunications equipment*. It has been developed with the co-operation of ETSI TM 3 *Architecture, Functional Requirements and Interfaces of Transmission Networks*.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50098-2 on 1995-11-28.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	1996-12-01
- latest date by which national standards conflicting with the EN have to be withdrawn	(dow)	1996-12-01

EN 50098-2 covers customer premises cabling for connection of Integrated Services Digital Network (ISDN) primary access equipment.

This standard is the second of a series of European standards for customer premises cabling. It specifies customer premises cabling for the connection of customers premises equipment with 2048 kbit/s interfaces to ISDN primary access and leased lines.

The requirements in this standard are derived from ETS 300 011 [which is based upon ITU-T[1)] I.431 (Blue Book, Volume III) and contains additional requirements as well as modifications of ITU-T I.431], and EN 60603-7. The reader is referred to EN 60950 and ETS 300 046-1 to ETS 300 046-5 for general safety requirements (see Annex A).

EN 50098-2 contains two informative Annexes A and B.

Other standards in the series are:

EN 50098-1 Customer premises cabling for information technology - Part 1: ISDN basic access.

1) International Telecommunication Union - Telecommunications Standardisation Sector (formerly CCITT)

Contents

Introduction

This standard is intended for use by those designing, planning, procuring, installing or testing cabling for ISDN primary access within a customer's premises. The design requirements are specified in clause 5, the minimum requirements for the associated components are specified in clause 7.

1 Scope

This European standard specifies the design and configuration of customer premises cabling for the connection of primary access ISDN equipment.

It includes

- design requirements for ISDN primary access point-to-point configuration;
- cabling requirements for the installation of new cabling;
- criteria for the use of existing cabling;
- implementation of ISDN primary access on generic cabling systems according to EN 50173.

This standard applies to the customer premises cabling for the transmission of ISDN primary access signals as defined by ETS 300 011. The requirements in this standard also apply to the cabling between Open Network Provision 2048 kbit/s network interfaces and terminal equipment conforming to ETS 300 248.

2 Normative references

This European Standard 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 European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 50098-1	Customer premises cabling for information technology - Part 1: ISDN basic access
EN 50173	Information technology - Generic cabling systems
EN 55022	Limits and methods of measurement of radio interference characteristics of information technology equipment (IEC/CISPR 22:1993)
EN 60603-7	Connectors for frequencies below 3 MHz for use with printed boards - Part 7: Detail specification for connectors, 8 way, including fixed and free connectors with common mating features (IEC 603-7:1990)
ETS 300 011	Integrated Sevices Digital Network (ISDN) - Primary rate user-network interface - Layer 1 specification and test principles
IEC 807-8	Rectangular connectors for frequencies below 3 MHz - Part 8: Detail specifcation for connectors, four-signal contacts and earthing contacts for cable screen

3 Definitions

For the purposes of this standard the definitions of EN 50098-1 and EN 50173 apply, of which the following are repeated below.

3.1 cable unit: A single assembly of one or more cable elements usually of the same type or category. The cable unit may have a screen.

NOTE: A binder group is an example of a cable unit. [3.1.8 of EN 50173:1995]

3.2 channel: The end to end transmission path connecting any two pieces of application-specific equipment. Equipment cables and work area cables are included in the channel. [3.1.13 of EN 50173:1995]

4 Abbreviations and symbols

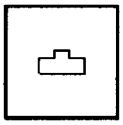
4.1 Abbreviations

BD	Building distributor
CD	Campus distributor
DC	Direct current
EMC	Electromagnetic compatibility
FD	Floor distributor
GC	Generic cabling
ISDN	Integrated services digital network
NEXT	Near-end crosstalk loss
NT	Network termination
PBX	Private branch exchange
TE	Terminal equipment

4.2 Symbols

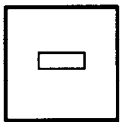
cable

Network Termination



Dedicated cabling socket

Dedicated cabling plug



Generic cabling socket
(i.e. telecommunications outlet)

Generic cabling plug

5 Design requirements

5.1 General

Signals passing between the NT1/NT2 and TE or signals passing between the NT1 and NT2 are subject to attenuation, distortion and induced noise. These signals may also cause electromagnetic radiation. Cabling components (including extension cords, adapters, cross connect components, sockets, junction boxes etc.) and cable all contribute to these effects.

5.2 Insertion loss

The insertion loss is measured from the NT1 to the TE, or from NT1 to NT2 at 1,024 MHz with 120 Ω non-reactive source and load impedances. The maximum insertion loss shall not exceed 6 dB.

5.3 Power feeding

In some cases power can be supplied via the cabling from the TE to the NT1 or from the NT2 to the NT1. In these cases a separate pair dedicated for power feeding is required.

5.4 Electromagnetic environment

The performance of the ISDN primary access may be degraded by interference from external sources of electromagnetic radiation (such as motors), and from electrical signals from other applications carried under the same cable sheath. These effects can be minimised by employing good installation practice.

The impulsive noise generated by circuits carrying, for instance, analogue telephone signals or some unbalanced data transmission, can cause interference with signals carried on the ISDN cabling. Interference by crosstalk can be limited by putting pairs or quads for ISDN primary access in separate cables or cable units in the same cable.

EMC, emission and immunity to interference from the environment, also has to be considered. EMC can be improved by screening, balancing of equipment, balance of cabling, filtering or a combination of these. Standards giving more specific advice on these matters will be developed. However, all equipment and systems shall meet the requirements of EMC standards. The current relevant standard for emission is EN 55022, for immunity EN 55105 is under preparation.

5.5 Spurs

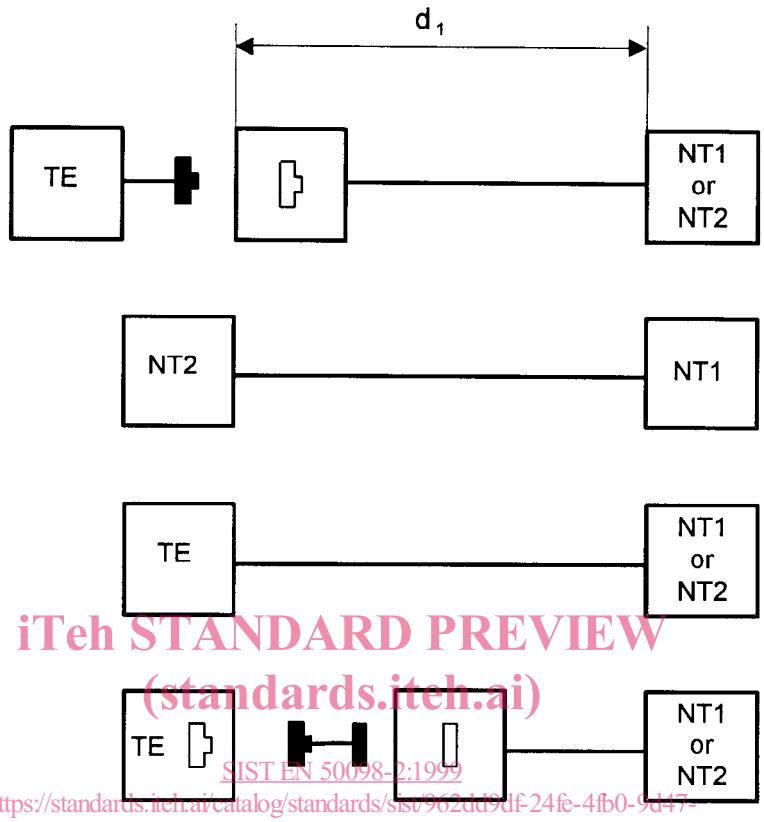
There shall be no spurs in the ISDN primary access cabling.

5.6 Near-end crosstalk loss

The NEXT of the cabling shall be greater than 38 dB at 1,0 MHz, which provides an operating margin over the 25 dB minimum theoretical system requirement at 1,0 MHz (see ETS 300 011).

6 Point-to-point configuration

The point-to-point configuration is illustrated in figure 1.



d_1 maximum distance between the NT1 and the point of connection of the customer's terminal equipment. d_1 also applies for the distance between NT1 and NT2.

Figure 1: Point-to-point configuration

Figure 1 is also relevant for the connection of an NT1 to an NT2.

The TE can be connected to the cabling in one of three ways:

- via a plug at the end of a cord connected to the TE;
- hardwired e.g. by the use of insulation displacement connectors incorporated in the TE;
- via a socket within the TE.

The insertion loss is measured over the distance d_1 in figure 1 and shall not be greater than specified in 5.2.

Maximum distances achievable with common cables used in Europe can be found in Annex B.

Two pairs shall be available for the transmit and receive circuits. It is recommended that the polarity of each wire be maintained throughout the length of the cabling to facilitate testing and more effective cable management.

7 Component requirements within dedicated ISDN cabling

7.1 General

Cabling specifically designed to support ISDN primary rate services shall comprise components which meet the requirements of 7.2, 7.3 and 7.4.

The implementation of ISDN primary rate applications over generic cabling in accordance with EN 50173 is defined in clause 8.