



# SLOVENSKI STANDARD

## SIST HD 608 S1:1998

01-februar-1998

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### Generic specification for symmetric pair/quad and multicore cables for digital communications

Generic specification for symmetric pair/quad and multicore cables for digital communications

Fachgrundspezifikation für mehradrige und symmetrische paar-/vierverselte Kabel für digitale Nachrichtenübertragung

Spécification générique pour câbles multiconducteurs à paires symétriques et quartes pour transmission numérique

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Ta slovenski standard je istoveten z: **HD 608 S1:1992**

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#### **ICS:**

33.120.10 Koaksialni kabli. Valovodi Coaxial cables. Waveguides

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**en**

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Descriptors: Symmetric pair/quad multicore cables, digital communication

### ENGLISH VERSION

Generic specification for symmetric pair/quad and multicore cables for digital communication

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Fachgrundspezifikation für mehradrige und symmetrische paar-/viererverseilte Kabel für digitale Nachrichtenübertragung

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This Harmonization Document was approved by CENELEC on 1992-03-24. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for implementation of this Harmonization Document on a national level.

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

This Harmonization Document exists in three official versions (English, French, German).

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

### 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

Following a decision taken by CENELEC BTTF 61-7 at their meeting in Brussels on 1991-04-17, this document was submitted to the CENELEC Unique Acceptance Procedure (UAP) in July 1991 for acceptance as a Harmonization Document.

The text of the draft was approved by CENELEC as HD 608 S1 on 24 March 1992.

The following dates were fixed:

- latest date of announcement  
of the HD at national level (doa) 1992-09-01
- latest date of publication of  
an identical national standard (dop) 1993-03-01
- latest date of withdrawal of  
conflicting national standards (dow) 1993-03-01

For products which have complied with the relevant national standard before 1993-03-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1998-03-01.

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PART 1 GUIDE TO USE1.1 Scope

This part of HD 608 is a guide to indoor cables of multicore, pair and quad construction used in digital communication systems such as Intergrated Services Digital Network, local area networks and data communication systems.

1.2 Introduction

The cables used for customer premises wiring are classified in the study of generic cabling for Information Technology being produced by ISO/IEC JTC1/SC25/WG3. Parameters to be taken into consideration prior to the selection of a suitable cable are as follows:

- i. Transmission method
- ii. Cabling topology.

1.3 Installation considerations

The cables must be designed to meet the installation conditions encountered for each area, see Figure 1, as follows:

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i. Equipment cables

The cables shall be suitable for use between work stations and peripheral equipment (eg printer). The cables shall be flexible and at the same time meet the required transmission characteristics for connection to digital equipment.

## ii. Work area cables

The cables shall be suitable for use between the work station and the communication outlets. They shall be flexible, light weight and of small diameter and at the same time meet the required transmission and mechanical characteristics.

## iii. Horizontal floor wiring cables

The cables shall be suitable for use between the work area communication outlet and the communication closet. The cables may be installed in ducts, trunking and in

floor and ceiling cavities. The cables shall have acceptable performance under fire hazard conditions.

iv. Riser cables

The cables shall be suitable for installation vertically between floors and therefore are designed to have adequate mechanical strength and acceptable performance under fire hazard conditions.

iv. Campus cables

These cables are used to interconnect buildings and shall be suitable for outdoor installation. The cables shall be sheathed and protected in accordance with IEC Publication 708-1.

Note: The work area and equipment cables normally require suitable connectors at one or both ends. The type of connectors do not form part of this specification.

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PART 2 DEFINITIONS AND REQUIREMENTS2.1 General

This part of HD 608 specifies the definitions and requirements of multicore, symmetrical pair and quad cables to be used in digital communication systems such as ISDN, local area networks and for data communication systems.

2.2 Reference publications

## 2.2.1 CENELEC or IEC

- HD 323 Basic environmental testing procedures
- HD 405.1 Tests on electric cables under fire conditions, Part 1: tests on a single vertical insulated wire or cable
- HD 405.2 Part 2: tests on a single small vertical insulated wire or cable
- HD 405.3 Part 3: tests on bunched wires or cables
- HD 505.1.1 Common test methods for insulating and sheathing materials of electric cables, Part 1: methods for general application: Section 1 - measurement of thickness and overall dimensions - tests for determining the mechanical properties
- HD 505.1.2 Part 1: methods for general application: Section 2 - thermal ageing methods
- HD 505.1.3 Part 1: methods for general application: Section 3 - method of determining the density - water absorption tests - shrinkage test
- HD 505.1.4 Part 1: methods for general application: Section 4 - test at low temperature
- HD 505.3.1 Part 3: methods specific to PVC compounds: Section 1 - pressure at high temperature - tests for resistance to cracking

## CENELEC or IEC

- HD 505.4.1 Part 4: methods specific to polyethylene and polypropylene compounds:  
Section 1 - resistance to environmental stress cracking - wrapping test after thermal ageing in air - measurement of the melt flow index - carbon black and/or mineral content measurement in PE
- HD 505.4.2 Part 4: methods specific to polyethylene and polypropylene compounds:  
Section 2 - elongation at break after preconditioning - wrapping test after preconditioning - wrapping test after thermal ageing in air - measurement of mass increase - long term stability test (Appendix A). Test method for copper catalyzed degradation (Appendix B)
- IEC 28 International standard of resistance for copper
- IEC 50 International electrotechnical vocabulary
- IEC 96-1 Radio-frequency cables, Part 1: general requirements and measuring methods
- IEC 189-1 Low-frequency cables and wires with PVC insulation and PVC sheath,  
Part 1: general test and measuring methods
- IEC 304 Standard colours for insulation for low-frequency cables and wires
- IEC 344 Guide to the calculation of resistance of plain and coated copper conductors of low frequency cables and wires
- IEC 708-1 Low-frequency cables with polyolefin insulation and moisture barrier sheath,  
Part 1: general design details and requirements
- IEC 754-1 Tests on gases evolved during combustion of electric cables,  
Part 1: determination of the amount of halogen acid gas evolved during the combustion of polymeric materials taken from cables
- IEC 794-1 Optical fibre cables,  
Part 1: generic specification

- 2.2.2 CCITT  
Compendium of cable measurement methods  
Protection against interference, K.10: Unbalance about earth of telecommunication lines
- 2.2.3 ISO/IEC  
Draft - Study of generic cabling for Information Technology by ISO/IEC JTC1/SC25/WG3

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2.3 Definitions

In addition to the definitions given in IEC Publication 50 the following will apply:

## 2.3.1 Resistance unbalance

The resistance unbalance between conductors of a pair or in the same side of a quad is defined as:

$$(R_{\max} - R_{\min}) / (R_{\max} + R_{\min}) \times 100 \quad \dots\dots\dots(1)$$

where  $R_{\max}$  is the resistance, in ohms, for the conductor with the higher resistance value

and  $R_{\min}$  is the resistance, in ohms, for the conductor with the lower resistance value.

## 2.3.2 Pair or one side of a quad to earth capacitance unbalance

The capacitance unbalance to earth of a pair or one side of a quad is defined as:

$$C_1 - C_2 \quad \dots\dots\dots(2)$$

where  $C_1$  is the capacitance between conductor a and conductor b with conductor b connected to all other conductors, to the screen and to earth

$C_2$  is the capacitance between conductor b and conductor a with conductor a connected to all other conductors, to the screen and to earth.

## 2.3.2.1 Pair or one side of a quad to screen capacitance unbalance

The capacitance unbalance to screen of a pair or one side of a quad is defined as :

$$C_{1s} - C_{2s} \quad \dots\dots\dots(3)$$

where  $C_{1s}$  is the capacitance between conductor a and the screen. The remaining conductors may be floated or connected to the centre of the balance transformer.

$C_{2s}$  is the capacitance between conductor b and the screen. The remaining conductors may be floated or connected to the centre of the balance transformer.