



SLOVENSKI STANDARD

SIST HD 609 S1:1997

01-december-1997

Sectional specification for equipment cables to be used for digital and analogue communication

Sectional specification for equipment cables to be used for digital and analogue communication

Rahmenspezifikation für Geräteanschlußkabel für digitale und analoge Kommunikation

Spécification intermédiaire pour câbles d'équipement destinés à la communication numérique et analogue

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This Harmonization Document was approved by CENELEC on 1994-12-06. 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 such 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

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FOREWORD

This Harmonization Document was prepared by CENELEC Technical Committee SC 46XC, Multicore, Multipair and Quad Data communication cables.

It was submitted to the CENELEC Unique Acceptance Procedure (UAP) in January 1994 and was approved by CENELEC as HD 609 S1 on 1994-12-06.

The following dates were fixed:

- latest date by which the existence of the HD has to be announced at national level (doa) 1995-06-01
- latest date by which the HD has to be implemented at national level by publication of a harmonized national standard or by endorsement (dop) 1995-12-01
- latest date by which the national standards conflicting with the HD have to be withdrawn (dow) 1995-12-01

Wherever this standard refers to "Generic Specification", HD 608 S1: 1992 is meant.

NOTE: This HD 608 will be updated into a European Standard.

For products which have complied with the relevant national standard before 1995-12-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 2000-12-01.

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1 GUIDE TO USE

1.1 Scope

This sectional specification covers the equipment cables used for internal and external interconnections of electronic devices in networks for digital and analog communications.

The cables are insulated multicore, multipair and multiquad cables with or without screens.

The cables are normally PVC sheathed. Where however a low smoke cable is required the cables shall be sheathed with a thermoplastic material having a low emission of smoke and corrosive gases when affected by fire.

The cables are suitable for use in dry indoor situations under the conditions specified in Annex A. The insulation of these cables is suitable for operation at voltages specified in the detail specifications. However these cables shall not be for direct connection to a low impedance source, e.g. the public mains electricity supply.

1.2 Introduction

See Generic Specification.

1.3 Installation considerations

See Generic Specification.

1.4 Object

The cables specified in this standard shall meet the requirements of the Generic Specification for multicore and symmetric pair/quad cables for digital and analog communications. This sectional specification shall be supplemented with detail specifications giving additional detail as required by the particular application.

2 DEFINITIONS AND REQUIREMENTS

2.1 General

Definitions and requirements are given in the Generic Specification for symmetrical pairs, quads and multicore cables for digital and analog communication.

2.2 Reference publications

See Generic Specification. Other publications referred to are:

HD 602	Tests on gases evolved during combustion of materials from cables
HD 624.1	Materials used in communication cables Part 1: PVC insulation compounds
HD 624.2	Part 2: PVC sheathing compounds
HD 624.3	Part 3: PE insulation
HD 624.5	Part 5: Polypropylene insulation compounds
HD 624.6	Part 6: Halogen free flame retardant insulation compounds
HD 624.7	Part 7: Halogen free flame retardant thermoplastic sheathing compounds
IEC 189-2	Low-frequency cables and wires with p.v.c. insulation and p.v.c. sheath Part 2: Cables in pairs, triples, quads and quintuples for inside installations
IEC 189-6	Part 6: Signalling cables in singles for telecommunication equipment and installation
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 polyolefin sheath - Part 1: General design details and requirements

2.3 Definitions

See Generic Specification.

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2.4 Materials and cable construction

2.4.1 General

The choice of materials and cable construction shall be suitable for the intended application and installation of the cable. Particular care shall be taken to meet any special requirements for fire performance (such as burning properties, smoke generation, evolution of halogen acid gas etc).

2.4.2 Cable construction

See Generic Specification.

2.4.3 Conductor

The conductor shall be plain or tinned copper and stranded or bunched.

The detail specification shall specify a conductor size. The following sizes are preferred:

No of Wires	Nominal diameter of wire (mm)	Reference cross-sectional area (mm ²)
7	0,16	0,14
7	0,20	0,22
7	0,25	0,34
7	0,30	0,50
18	0,10	0,14
14	0,15	0,25
16	0,20	0,50

In order to determine the maximum conductor resistance for the conductors, in accordance with IEC 344, the coefficient for tinned copper and a cabling lay factor greater than 16 shall be used.

Also a twisting lay factor of greater than 16 shall be used for cables with pairs or quads.

2.4.4 Insulation

The insulation shall be either:

- PVC ;
- polyolefin ;
- thermoplastic material having low emission of smoke and corrosive gases when affected by fire.

2.4.4.1 PVC

The PVC insulation type TI 51 or TI 52 in accordance with HD 624.1, or other suitable PVC material meeting the detail specification requirements.

2.4.4.2 Polyolefin

The polyolefin insulation shall be solid, cellular or composite insulation. The insulation material shall consist of low, medium or high density polyethylene in accordance with HD 624.3 or polypropylene in accordance with HD 624.5.

2.4.4.3 Thermoplastic material having low emission of smoke and corrosive gases when affected by fire

The insulation material shall be in accordance with HD 624.6.

2.4.5 Colour code for insulation

The insulated conductors shall be coloured by one colour or by two different colours in accordance with IEC 189-2:1988, subclause 2.2.4.

2.4.5.1 Core identification

The preferred coloured code for up to 48 conductors is to be in accordance with Appendix C of IEC 189-6:1982.

2.4.5.2 Pair identification

The preferred colour code for up to 50 pairs is given in Appendix A of IEC 189-2:1988.

2.4.5.3 Quad identification

The preferred colour code for up to 25 quads is given in Appendix E of IEC 708-1:1981.

2.4.6 Cabling element

The cabling element shall be:

- single core, pair or quad for unscreened cables;
- single core, pair or quad for cables with a common screen;
- single core, pair or quad for cables with screened elements.

2.4.7 Screening of cable element

When required in the detail specification a screen for the cabling element shall be provided. The screen shall be in accordance with subclause 2.4.6 of the Generic Specification.

Where a copper braid is used it shall have a minimum filling factor of 0,41 (65 % coverage). Where a tape and braid screen is used the minimum filling factor of the braid shall be 0,16 (30 % coverage). The filling factor is defined in Annex B.

2.4.8 Cable make-up

It is preferable that the cable elements be assembled in concentric layers.