SLOVENSKI STANDARD
SIST EN 50407-3:2014

01-september-2014

Večparni kabli za dostopovna telekomunikacijska omrežja z velikimi bitnimi hitrostmi - 2. del: Večparni/četverčni kabli za napeljavo v jaških večstanovanjskih enot pri izvajanju univerzalne storitve, xDSL in aplikacij do prenosnih hitrosti 100 Mbit po IP

Multi-pair cables used in high bite rate digital access telecommunication networks - Part 2: Indoor multi-pair/quad cables for installation in Multi Dwelling Units shaft supporting universal services, xDSL and applications up to 100 MBits over IP

Vielpaarige Kabel für digitale Telekommunikationsnetzwerke mit hoher Bitrate - Teil 2: Vielpaarige Kabel/Viererkabel zur Installation in Mehrfamilienhäusern für universelle Dienste, xDSL und Anwendungen bis zu 100 MBits über Internetprotokoll (IP)

Ta slovenski standard je istoveten z: EN 50407-3:2014

ICS:

33.120.20	Žice in simetrični kabli	Wires and symmetrical cables

SIST EN 50407-3:2014 en

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50407-3

May 2014

ICS 33.120.20

English Version

Multi-pair cables used in high bit rate digital access telecommunications networks - Part 3: Indoor multi-pair/quad riser cables up to 100 MHz for maximum length of connection 100 m supporting universal services, xDSL and applications up to 100 Mbit/s over IP

Câbles multi-paires de l'utilisateur final utilisés dans les réseaux d'accès numériques de télécommunication à haut-débits - Partie 3 : Câbles intérieurs multi paires/quartes pour colonne de communication, performants jusqu'à 100 MHz, de longueur maximale de connexion de 100 m, supportant le service universel, le xDSL et les applications jusqu'à 100 MBits sur IP

Vielpaarige Kabel für digitale Telekommunikationsnetzwerke mit hoher Bitrate - Teil 3: Vielpaarige-/Vierer-Steigekabel im Innenbereich bis 100 MHz über eine maximale Verbindungslänge von 100 m für universelle Dienste, xDSL und Anwendungen bis zu 100 Mbit/s über Internetprotokoll (IP)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

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Ref. No. EN 50407-3:2014 E

Contents

Foreword

This document (EN 50407-3:2014) has been prepared by CLC/SC 46XC “Multicore, multipair and quad data communication cables”.

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2015-03-10
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2017-03-10

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

1 Scope

This European Standard defines indoor multi-pair/quad cables for installation in Multi Dwelling units shaft supporting universal services, xDSL and applications up to 100 MBits over IP, their relative definitions and requirements.

NOTE Higher bit rate applications need cables specified in a relevant part of EN 50406 or EN 50288 series.

It covers cables, with an overall screen, with performances up to 100 MHz, to be used in indoor networks intended to connect the broadband outside plant to the individual customer dwelling for applications 100 Mbit/s over IP maximum length of connection 100 m.

The electrical, environmental, mechanical and transmission performance characteristics of the cables, related to their reference test methods, are detailed.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 10002-1, *Metallic materials - Tensile testing - Part 1: Method of test at ambient temperature*

EN 50289 (all parts), *Communication cables - Specifications for test methods (Basic reference standards)*

EN 50290 (all parts), *Communication cables (Basic reference standards)*

EN 60811-201, *Insulating and sheathing materials of electric and optical cables – Common test methods – Part 1-1: General application - Measurement of thickness and overall dimensions - Tests for determining the mechanical properties (IEC 60811-201)*

HD 402, *Standard colours for insulation for low-frequency cables and wires (IEC 60304)*

IEC 60028, *International standard of resistance for copper*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions of EN 50290-1-2:2004 apply.

3.2 Abbreviations

For the purposes of this document, the following abbreviations apply.

ADSL	Asymmetric Digital Subscriber Lines
ATM	Asynchronous Transfer Mode
DSL	Digital Subscriber Line
EMC	Electromagnetic Compatibility

EMI	Electromagnetic Interference
FSAN	Full Service Access Network
HDSL	High-bit-rate Digital Subscriber Lines
ISDN	Integrated Digital Services Network
ISDN-BRA	ISDN-Basic Rate Access
ISDN-PRA	ISDN-Primary Rate Access
Mbps	Mega-bits per second
TBD	To be determined
VDSL	Very-high-bit-rate Digital Subscriber Lines
XDSL	Generic term referring to all DSL, ISDN, HDSL, ADSL, VDSL, etc.

4 General information

4.1 General cable description

These cables are designed for indoor high bit rate telecommunication networks. They shall have an overall screen.

High bit rate applications targeted in this specification involve frequencies up to 100 MHz. To restrict emission and to ensure satisfactory electromagnetic immunity, these cables include an overall screen.

These cables contain from four pairs up to 100 pairs (ffs) that can be either in pair or quad construction.

4.2 Environment and product safety requirement

Safety local and regional regulation (e.g. Low Voltage European directive, CPR and other relevant directives) is assumed to be met by these cables.

4.3 Testing

According to the EN 60068 (HD 323), for all test procedures described in this section, the test conditions shall be the standard atmospheric conditions – (23 ± 5) °C and 20 % −70 % Relative Humidity –, unless otherwise stated. All measured and computed values are to be rounded to the number of decimal places given in the corresponding requirement or objective.

The parameters specified in this standard may be affected by measurement uncertainty arising either from measurement errors or calibration errors due to a lack of suitable standards. Acceptance criteria shall be interpreted with respect to this consideration.

5 Requirements for conductor

5.1 Construction and dimensions

The conductor shall consist of annealed copper, uniform in quality and free from defects. The properties of the copper shall be in accordance with IEC 60028.

The conductor shall be solid, circular in section. Normally the conductor should be drawn in one piece. Joints in the conductor are permitted, provided that the tensile strength of a joint is not less than 85 % of the un-jointed solid conductor.

The diameter of the conductor shall be in the range 0,5 mm to 0,8 mm .

5.2 Mechanical requirements

The conductor elongation at break shall be tested according to EN 10002-1 and shall be better than 15 % minimum.

5.3 Electrical requirements

5.3.1 Conductor resistance

When measured in accordance with EN 50289-1-2, the conductor resistance shall meet the computed values when using EN 50290-2-1:2005, 12.1.

5.3.2 Conductor resistance unbalance

When measured in accordance with EN 50289-1-2, the conductor resistance unbalance shall be maximum 2 %.

6 Requirements for insulation

6.1 Construction material and dimensions

6.1.1 Construction

Conductor insulation shall be composed of solid, cellular or composite (e.g. foam skin) polyolefin that comply with the relevant parts of EN 50290-2.

The insulated conductors shall be coloured for identification. Colours shall correspond reasonably with the standard colours shown in HD 402.

6.1.2 Colour code

The colour code shall be agreed between the customer and the manufacturer.

6.2 Mechanical requirements

Shrinkage of insulation shall be checked against the relevant parts of EN 50290-2. The shrinkage shall be less than 5 %.

6.3 Electrical requirements

6.3.1 Insulation resistance

When measured in accordance with EN 50289-1-4 the insulation resistance shall be greater than 5 000 MOhmkm at 500 V d.c. minimum.

6.3.2 Dielectric strength