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**Kabli za notranjo stanovanjsko telekomunikacijsko montažo – 1. del:  
Nezaslonjeni kabli – 1. stopnja**

Cables for indoor residential telecommunication installations – Part 1: Unscreened cables – Grade 1

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**Cables for indoor residential telecommunication installations  
Part 1: Unscreened cables - Grade 1**

Câbles pour les installations résidentielles  
de télécommunications en intérieur  
Partie 1: Câbles non écrantés -  
Classe 1

Innenkabel für  
Telekommunikationseinrichtungen  
im Wohnbereich  
Teil 1: Ungeschirmte Innenkabel -  
Klasse 1

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This European Standard was approved by CENELEC on 2005-12-06. 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.

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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 was prepared by SC 46XC, Multicore, Multipair and Quad Data communication cables, of Technical Committee CENELEC TC 46X, Communication cables.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50441-1 on 2005-12-06.

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) 2007-01-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2009-01-01

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## 1 Scope

These cables are for installation in indoor Residential Cabling Systems. They are specified up to 100 MHz. Their design is based on the requirements of the EN 50290-2-1. They are specifically designed for cabling in residential environment supporting ICT and BCT applications. (Telephone, Computer and TV services). This specification defines the constructional details as well as the specific performances of the cables.

Unless otherwise specified, all cables covered by this standard may be subjected to voltages not more than 300 V a.c. or 450 V d.c. and shall meet the essential requirements of the low voltage directive. Due to current limitation related to the conductor cross sectional area, they are not intended for direct connection to mains electricity supply. The maximum current rating per conductor is less than or equal to 3 A/mm<sup>2</sup> unless otherwise specified in the relevant detail specification.

## 2 Normative references

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

<u>Publication</u>	<u>Title</u>
EN 50265-2-1	Common test methods for cables under fire conditions - Test for resistance to vertical flame propagation for a single insulated conductor or cable Part 2-1: Procedures - 1 kW pre-mixed flame <small>SIST EN 50441-1:2006</small>
EN 50265-2-2	Common test methods for cables under fire conditions - Test for resistance to vertical flame propagation for a single insulated conductor or cable Part 2-2: Procedures - Diffusion flame
EN 50289-1-2	Communication cables - Specifications for test methods Part 1-2: Electrical test methods - DC resistance
EN 50289-1-3	Communication cables - Specifications for test methods Part 1-3: Electrical test methods - Dielectric strength
EN 50289-1-4	Communication cables - Specifications for test methods Part 1-4: Electrical test methods - Insulation resistance
EN 50289-1-6	Communication cables - Specifications for test methods Part 1-6: Electrical test methods - Electromagnetic performance
EN 50289-1-8	Communication cables - Specifications for test methods Part 1-8: Electrical test methods - Attenuation
EN 50289-1-10	Communication cables - Specifications for test methods Part 1-10: Electrical test methods - Crosstalk

- EN 50289-1-11 Communication cables - Specifications for test methods  
Part 1-11: Electrical test methods - Characteristic impedance, input impedance, return loss
- EN 50289-3-7 Communication cables - Specifications for test methods  
Part 3-7: Mechanical test methods - Abrasion resistance of the cable sheath
- EN 50289-3-9 Communication cables - Specifications for test methods  
Part 3-9: Mechanical test methods - Bending tests
- EN 50289-3-11 Communication cables - Specifications for test methods  
Part 3-11: Mechanical test methods - Cable cut-through resistance
- EN 50289-3-17 Communication cables - Specifications for test methods  
Part 3-17: Mechanical test methods - Adhesion of dielectric and sheath
- EN 50290-2-1 Communication cables  
Part 2-1: Common design rules and construction
- EN 50290-2-22 Communication cables  
Part 2-22: Common design rules and construction - PVC sheathing compounds
- EN 50290-2-23 Communication cables  
Part 2-23: Common design rules and construction - PE insulation
- EN 50290-2-27 Communication cables  
Part 2-27: Common design rules and construction - Halogen free flame retardant thermoplastic sheathing compounds
- EN 50290-3 <sup>1)</sup> Communication cables  
Part 3: Quality assessment
- EN 60794-1-2 Optical fibre cables  
Part 1-2: Generic specification - Basic optical cable test procedures (IEC 60794-1-2)
- EN 60811-1-1 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 60811-1-1)
- HD 402 S2 Standard colours for insulation for low-frequency cables and wires (IEC 60304)

### 3 Quality control

According to EN 50290-3.

<sup>1)</sup> under consideration



## **4 Cable construction**

### **4.1 Conductors**

#### **4.1.1 Conductor construction**

According to 4.1 of EN 50290-2-1.

#### **4.1.2 Conductor type**

According to 4.1.1 of EN 50290-2-1, the conductor is a solid wire of annealed copper with a minimum diameter of 0,5 mm (diameters larger than 0,8 mm could cause connectorisation problems).

NOTE Diameter < 0,5 mm and > 0,65 mm may cause problems with connecting hardware.

### **4.2 Insulation**

#### **4.2.1 Insulation material**

The insulation of the conductor shall be polyethylene in accordance with EN 50290-2-23. Other relevant materials may be used providing that they would not affect the compliance of the cable against local regulations (e.g. Environmental Directives)

#### **4.2.2 Thickness of the insulation**

The thickness of the insulation shall be compatible with the electrical requirements as defined in Clause 7.

#### **4.2.3 Colour of the insulated conductor**

The colour of insulation should be a reasonable match to HD 402 S2.

### **4.3 Cable element**

The cable element shall be a pair or a quad.

The lay length shall be in accordance with EN 50290-2-1.

### **4.4 Screening of the cable element**

Not applicable.

### **4.5 Cabling**

The cables shall have at least 4 pairs or 2 quads. The core of the cable shall be such that 7.4 and 7.5 are fulfilled.

### **4.6 Spare pairs**

Not applicable.

### **4.7 Colour code**

The colour code shall be given in the detail specification. It should take into account the local practices as well as international recognised codes.

The colours shall be easily identifiable.