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Coaxial cables - Part 2-1: Sectional specification for cables used in cabled distribution networks - Indoor drop cables for systems operating at 5 MHz - 1.000 MHz

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English version

**Coaxial cables**  
**Part 2-1: Sectional specification for cables**  
**used in cabled distribution networks -**  
**Indoor drop cables for systems**  
**operating at 5 MHz - 1 000 MHz**

Câbles coaxiaux  
Partie 2-1: Spécification intermédiaire  
pour les câbles utilisés dans les réseaux  
de distribution par câbles -  
Câbles intérieurs de raccordement  
pour les réseaux fonctionnant  
à 5 MHz - 1 000 MHz

Koaxialkabel  
Teil 2-1: Rahmenspezifikation  
für Kabel für Kabelverteilanlagen -  
Hausinstallationskabel im Bereich  
von 5 MHz - 1 000 MHz

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This European Standard was approved by CENELEC on 2001-12-01. 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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, 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

This European Standard was prepared by SC 46XA, Coaxial cables, of Technical Committee CENELEC TC 46X, Communication cables.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50117-2-1 on 2001-12-01.

This European Standard supersedes EN 50117-2:1996.

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) 2003-01-01
  - latest date by which the national standards  
conflicting with the EN have to be withdrawn (dow) 2004-12-01
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## 1 Scope

This European Standard relates to EN 50117-1 and should be read in conjunction with this generic specification. This standard applies to indoor drop cables for use in cabled distribution systems operating at temperatures between - 40 °C and + 70 °C and at frequencies between 5 MHz and 1 000 MHz and complying with the requirements of EN 50083.

The purpose of this standard is to specify the applicable test methods and requirements for the electrical, mechanical, environmental and fire performance of the cables.

## 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 (including amendments).

EN 50083	Cable networks for television signals, sound signals and interactive services
EN 50117-1	Coaxial cables – Part 1: Generic specification
EN 50290-1-2 <sup>1)</sup>	Communication cables – Part 1-2: Definitions
EN 50290-2-20	Communication cables – Part 2-20: Common design rules and construction - General
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 50290-2-25	Communication cables – Part 2-25: Common design rules and construction – Polypropylene insulation compounds
EN 50290-2-27	Communication cables – Part 2-27: Common design rules and construction – Halogen free flame retardant thermoplastic sheathing compounds
EN 50290-4-1	Communication cables – Part 4-1: General considerations for the use of cables – Environmental conditions and safety aspects

## 3 Definitions

For the purposes of this European Standard, the definitions of EN 50290-1-2 and EN 50117-1 apply.

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<sup>1)</sup> At draft stage

## 4 Requirements for cable construction

### 4.1 General

Designing the cable, consideration should be paid to the maximum admissible current stated in the detail specification. It is assumed that the raise of temperature of the inner conductor when submitted to the maximum current under nominal ambient conditions does not affect the mechanical properties of the cable. (Details are under consideration).

### 4.2 Inner conductor

The conductor shall meet the requirements of 4.2 of EN 50117-1 and shall be solid or stranded. Individual wires can be plain or metal coated. Dimensions shall be in accordance with the detail specification.

### 4.3 Dielectric

The dielectric material(s) shall be in accordance with 4.3 of EN 50117-1 and shall consist of polyolefin materials, complying with EN 50290-2-23 (polyethylene), EN 50290-2-25 (polypropylene) or any relevant part of EN 50290-2-20. Dimensions shall be in accordance with the detail specification.

Unless otherwise specified, the nominal diameter over the dielectric should be one of the preferred values, namely 2,9 mm, 3,7 mm, 4,8 mm and 7,2 mm.

### 4.4 Outer conductor or screen

The construction and material of the outer conductor and/or screen shall meet the requirements of 4.4 b), c), f) or g) of EN 50117-1. Where option b) is used, a double braid layer is required.

For braid constructions or helically wound wires, the braid angle shall be between 15° and 45°. The coverage factor shall be greater than or equal to 65 % or, when the cable is provided with a metal foil, greater than or equal to 25 %. These values are also valid for cables with two bidirectional layers of helically wound wires.

Dimensions shall be in accordance with the detail specification.

### 4.5 Filling compounds

Not applicable

### 4.6 Moisture barriers

Not applicable

### 4.7 Wrapping layers

Not applicable

#### 4.8 Sheath

Sheath material(s) shall meet the requirements of EN 50290-2-22 for PVC sheaths or EN 50290-2-27 for halogen free flame retardant materials.

The sheath shall also meet the requirements of 4.8 of EN 50117-1.

Dimensions shall be in accordance with the detail specification.

#### 4.9 Metallic protection

Not applicable

#### 4.10 Cable integral suspension strand (messenger wire)

Not applicable

#### 4.11 Oversheath

Not applicable

#### 4.12 Fauna proofing

Not applicable

#### 4.13 Chemical and/or environmental proofing

Not applicable

#### 4.14 Cable identification

Cable identification shall be in accordance with 4.14 of EN 50117-1.

##### 4.14.1 Sheath marking

Sheath marking shall be in accordance with a non-degradable print containing the following minimum information:

- numbering of the relevant standard;
- attenuation value (in dB/100 m at 800 MHz, rounded);
- designation of the cable;
- screening class;
- Euro-class;
- name of supplier.

EXAMPLE: EN 50117-2-1 14 « xxx » Class A Euro-class C « yyy »

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**4.14.2 Labelling**

Unless otherwise specified in the sectional or detail specification, drums or coils shall be provided with a label with a non-degradable print containing the following minimum information:

- numbering of the relevant standard;
- attenuation value (in dB/100 m at 800 MHz, rounded);
- designation of the cable;
- screening class;
- Euro-class;
- name of supplier;
- batch part number;
- length of cable.

EXAMPLE: EN 50117-2-X 14 « xxx » Class A Euro-class C « yyy » 03/00 543 m

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**5 Test methods for completed cables**

When tested in accordance with the requirements of EN 50117-1, the requirements given below shall apply

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**5.1 Electrical test methods**

**5.1.1 Low-frequency and d.c. electrical measurements**

**Table 1 - Low-frequency and d.c. electrical measurements**

EN 50117-1 Subclause	Parameter	Requirement
5.1.1.1	Conductor resistance	Applicable, value in accordance with the detail specification
5.1.1.2	Dielectric strength	2 kV d.c. or 1,5 kV a.c. for 1 min
5.1.1.3	Insulation resistance	≥ 10 <sup>4</sup> MΩ km
5.1.1.4	Mutual capacitance	When required, in accordance with the detail specification
5.1.1.5	Voltage test of sheath	2,5 kV a.c. or 3,75 kV d.c.
5.1.1.6	Discharge (Corona) test	Not applicable
5.1.1.7	Voltage proof	Not applicable
5.1.1.8	Power rating	Not applicable