

SLOVENSKI STANDARD

SIST EN 50289-4-16:2012

01-oktober-2012

Komunikacijski kabli - Specifikacije za preskusne metode - 4-16. del: Preskusne metode za okolje - Celovitost tokokroga v požarnih razmerah

Communication cables - Specifications for test methods - Part 4-16: Environmental test methods - Circuit integrity under fire conditions

Kommunikationskabel - Spezifikationen für Prüfverfahren - Teil 4-16:
Umweltprüfverfahren - Funktionserhalt im Brandfall

Câbles de communication - Spécification des méthodes d'essais - Partie 4-16: Méthodes d'essais d'environnement - Intégrité du circuit en cas d'incendie

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33.120.10 Koaksialni kabli. Valovodi Coaxial cables. Waveguides

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 50289-4-16

August 2012

ICS 33.120.10

English version

**Communication cables -
Specifications for test methods -
Part 4-16: Environmental test methods -
Circuit integrity under fire conditions**

Câbles de communication -
Spécifications des méthodes d'essais -
Partie 4-16: Méthodes d'essais
d'environnement -
Intégrité du circuit en cas d'incendie

Kommunikationskabel -
Spezifikationen für Prüfverfahren -
Teil 4-16: Umweltprüfverfahren -
Funktionserhalt im Brandfall

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CENELEC

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

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Foreword

This document (EN 50289-4-16:2012) has prepared by CLC/TC 46X "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) 2013-07-09
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2015-07-09

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1 Scope

This European Standard, part of EN 50289, specifies the criteria for copper data and telecom cables designed to have intrinsic resistance to fire and intended for use as emergency circuits for alarm, lighting and communication purposes.

This European Standard is applicable to copper data and telecom cables for emergency circuit.

The test method is limited to cables with an overall diameter not exceeding 20 mm.

The test method is described in EN 50200.

This European Standard is to be used with EN 50200 for CPD/CPR purpose.

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 50117-1, *Coaxial cables — Part 1: Generic specification*

EN 50200:2006, *Method of test for resistance to fire of unprotected small cables for use in emergency circuits*

EN 50288-1:2003, *Multi-element metallic cables used in analogue and digital communication and control — Part 1: Generic specification*

EN 50289 (all parts), *Communication cables — Specifications for test methods*

3 Circuit Integrity

3.1 General

The criteria that are used for defining fire resistant cables are deemed to demonstrate the ability of the cable to provide circuit integrity when subjected to fire.

Circuit integrity is based upon the maximum frequency for which the cable is specified in combination with the related transmission performances.

Compliance with this standard does not mean that the cable may be used in any application. It only ensures that the circuit integrity as defined in Table 1 is maintained.

This clause specifies characteristics that shall be used to define the continuous maintenance of circuit integrity under fire conditions for communication cables.

The High Frequency Circuit Integrity is deemed to be maintained if the transmission characteristics at the maximum frequency, given in Table 1 below, remains within the stated limits.

Table 1 – Maximum frequency required tests and requirements

Maximum Frequency	High frequency characteristics	Test method	Requirements for circuit integrity
< 100 KHz	Dielectric strength Capacity	EN 50289-1-3, EN 50289-1-5	No short circuit/ 100V DC 70V AC Maximum difference < 30 %
> 100 KHz < 100 MHz	Dielectric strength Attenuation	EN 50289-1-3 EN 50289-1-8	No short circuit/ 100V DC 70V AC Maximum difference < 10 %
> 100 MHz < 1000 MHz	Dielectric strength Attenuation, RL	EN 50289-1-3 EN 50289-1-8 EN 50289-1-11	No short circuit/ 100V DC 70V AC Maximum difference < 10 % > 6 dB

High frequency characteristics shall be tested in accordance with EN 50288-1 for symmetrical cables and EN 50117-1 for coaxial cables.

3.2 Circuit integrity classification

The circuit integrity classification is described in the EN 50200:2006, Annex D.

According to the time during which circuit integrity is maintained, the cable is assigned to the class below.

Table 2 – Circuit integrity class

Circuit integrity class	Circuit integrity maintained for
PH15	15 min or more
PH30	30 min or more
PH60	60 min or more
PH90	90 min or more
PH120	120 min or more

4 Test procedure

4.1 Preliminary tests

All cable shall be tested with EN 50289, electrical and mechanical tests as required by their relevant sectional specification before proceeding to the fire tests.

4.2 EN 50200

The burner, temperature, test duration etc shall be as described in EN 50200.

4.3 Electrical test during fire

A sample greater than 30 m shall be used and set up in the following way. The shortest route from the burner to the test equipment shall be ≤ 10 m, the remaining 20 m shall be either coiled ($\geq 1,0$ m \varnothing coil) or laid straight in to the other side of the test equipment.

During the application of fire, when 60 cm exposed to fire, the parameters listed in Table 1 shall be periodically monitored according to the relevant method of EN 50289-1 series.

Table 3 – Period between two measurements

0 -30 min	30 -120 min
5 min	10 min

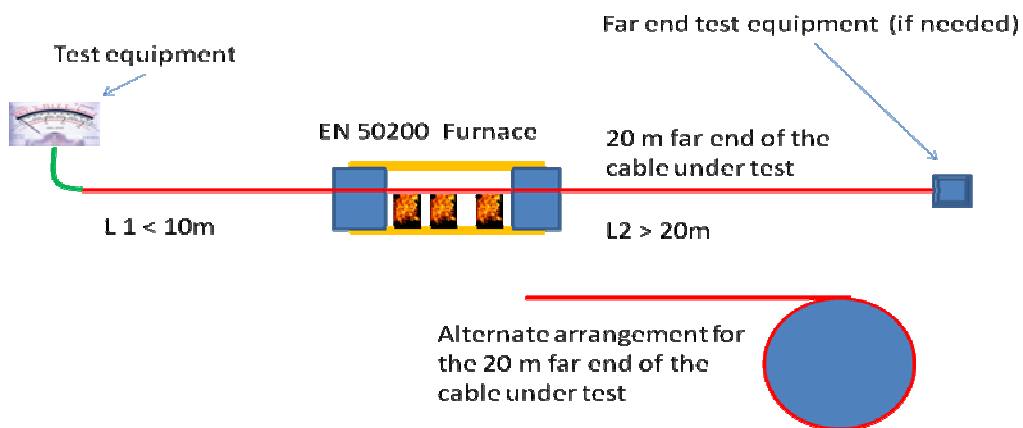


Figure 1 – Test fixture

5 Requirements

During and after the application of fire, the degradation of parameters listed in Table 1 shall not be worse than the value given in the same table

6 Marking on the sheath of the cable

Cables shall be marked with the following:

- manufacturer's name;
- EN reference;
- Circuit integrity class;
- Maximum Frequency.

EXAMPLE

XYZ EN 50289-4-16 PH60 100 MHz

The marking shall conform to the requirements of EN 50288-1:2003, Clause 5.

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