



SLOVENSKI STANDARD
SIST EN 50289-1-1:2002
01-september-2002

Communication cables - Specifications for test methods - Part 1-1: Electrical test methods - General requirements

Communication cables - Specifications for test methods -- Part 1-1: Electrical test methods - General requirements

Kommunikationskabel - Spezifikationen für Prüfverfahren -- Teil 1-1: Elektrische Prüfverfahren - Allgemeine Anforderungen

Câbles de communication - Spécifications des méthodes d'essai -- Partie 1-1: Méthodes d'essais électriques - Prescriptions générales

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Ta slovenski standard je istoveten z: EN 50289-1-1:2001

ICS:

33.120.20 žã^Áã ^dã } ãæ|ã Wires and symmetrical cables

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EUROPEAN STANDARD

EN 50289-1-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2001

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English version

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This European Standard was approved by CENELEC on 2000-12-01. 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, 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

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 formal vote and was approved by CENELEC as EN 50289-1-1 on 2000-12-01.

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) 2002-01-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2004-01-01

This European Standard has been prepared under the European Mandate M/212 given to CENELEC by the European Commission and the European Free Trade Association.

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Contents

Foreword	1
1 Scope	4
2 Normative references	4
3 Definitions	4
4 Sampling	4
4.1 Cable under test (CUT)	4
4.2 Pre-conditioning	5
5 Tests	5
6 Test conditions	5
6.1 Ambient temperature	5
6.2 Tolerance on temperature values	5
6.3 Frequency and waveform of test voltages for dielectric strength test	5
6.4 Frequency range and stability for frequency related measurements	5
6.5 Measurement on drums	6
7 Equipment calibration	6
7.1 Calibration	6
7.2 Requirements for balanced to unbalanced converters	6
8 Test report	7

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1 Scope

The series of Part 1 of the European Standard EN 50289 specifies the electrical test methods for cables used in analogue and digital communication systems.

Part 1 of EN 50289 consists of the following documents:

- Part 1-1 General requirements
- Part 1-2 DC resistance
- Part 1-3 Dielectric strength
- Part 1-4 Insulation resistance
- Part 1-5 Capacitance
- Part 1-6 Electromagnetic performance
- Part 1-7 Velocity of propagation
- Part 1-8 Attenuation
- Part 1-9 Unbalance attenuation (Longitudinal conversation loss, longitudinal conversion transfer loss)
- Part 1-10 Crosstalk
- Part 1-11 Characteristic impedance, input impedance, return loss
- Part 1-12 Inductance
- Part 1-13 Power rating

Further test details (e.g. temperature, duration) and/or test requirements are given in the relevant cable standard.

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2 Normative references

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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 50290-1-2¹⁾ Communication cables -- Part 1-2: Definitions

3 Definitions

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

4 Sampling

4.1 Cable under test (CUT)

Unless otherwise specified in the relevant test method, the length of CUT shall be selected to take into account the dynamic range of the measuring equipment and the frequency range specified to yield the required level of accuracy. The length should be measured with an accuracy better than 1 % unless otherwise stated in the relevant cable specification.

1) At draft stage

4.2 Pre-conditioning

The CUT shall be pre-conditioned at a constant ambient temperature for such time as to allow the specimen temperature to stabilize according to 6.1.

5 Tests

The tests required and performance characteristics applicable to each type of cable are given in the relevant cable standard.

6 Test conditions

6.1 Ambient temperature

Tests shall be made at an ambient temperature within the range 15 °C to 35 °C unless otherwise specified.

6.2 Tolerance on temperature values

Unless otherwise specified in the relevant specification, the tolerance on temperature shall be ± 2 °C.

6.3 Frequency and waveform of test voltages for dielectric strength test

Unless otherwise specified, the test voltage shall be in the frequency range 40 Hz to 62 Hz of approximately sine-wave form, the peak ratio value/r.m.s. value being equal to $\sqrt{2}$ with a tolerance of ± 7 %. The values given are r.m.s.

6.4 Frequency range and stability for frequency related measurements

The required frequency range is specified in the relevant sectional specification.

The sweep shall be linear or logarithmic such that:

$$f_{\text{step}} = (F_{\text{stop}} - F_{\text{start}}) / (n - 1) \text{ for the linear sweep}$$

and

$$K = (F_{\text{stop}} / F_{\text{start}})^{1/(n-1)} \text{ for the logarithmic sweep}$$

where

F_{start} = lowest specified frequency;

F_{stop} = highest specified frequency;

f_{step} = linear frequency increment, constant over the whole specified frequency range;

n = number of frequency points;

K = logarithmic frequency increment.

Unless otherwise specified the minimum number of frequency points shall be

- 200 points in the range 1 MHz – 10 MHz,
- 400 points in the range 1 MHz – 100 MHz,
- 800 points in the range 1 MHz – 1 000 MHz,
- 1 600 points in the range 300 MHz – 3 000 MHz.

6.5 Measurement on drums

Unless otherwise specified the cables should be measured on drums or coils.

7 Equipment calibration

7.1 Calibration

Equipment calibration shall be considered part of the quality system.

7.2 Requirements for balanced to unbalanced converters

Two classes of baluns with different performance levels are defined. This is in order to facilitate measurements up to 1 GHz with commercially available baluns. The baluns may be balun transformers or 180° hybrids with attenuators to improve matching if needed (see Figure 1).

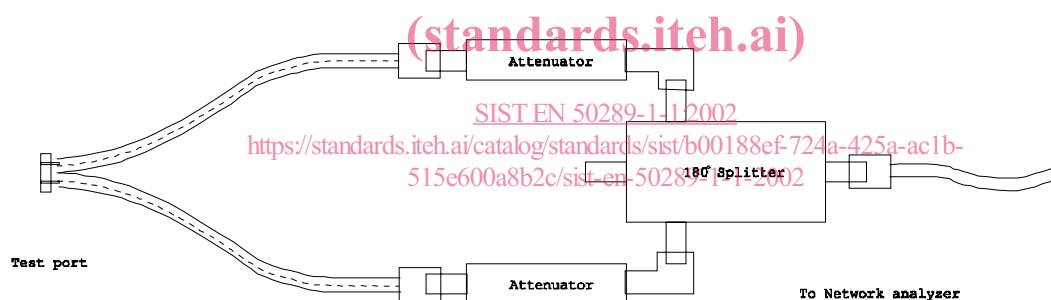


Figure 1 - 180° hybrid used as a balun

Class A baluns are preferred for the verifying of performance characteristics of all classes of cabling.

Class B baluns may be used to verify performance of all classes of cabling providing that the lower performance of the balun is taken into account in the measurement error calculation.

The specifications for class A and B baluns apply for the whole frequency range for which the balun is used. Baluns shall be RFI shielded and shall comply with the requirements given in Table 1.

NOTE Calibration procedure of baluns is still under consideration. Therefore this table could be revised after complete of this discussion.