



**SLOVENSKI STANDARD**  
**SIST EN 50289-1-4:2002**  
**01-september-2002**

**Communication cables - Specifications for test methods - Part 1-4: Electrical test methods -Insulation resistance (Note: Applies in conjunction with EN 50289-1-1)**

Communication cables - Specifications for test methods -- Part 1-4: Electrical test methods - Insulation resistance

Kommunikationskabel - Spezifikationen für Prüfverfahren -- Teil 1-4: Elektrische Prüfverfahren - Isolationswiderstand

Câbles de communication - Spécifications des méthodes d'essai -- Partie 1-4: Méthodes d'essais électriques - Résistance d'isolement

<https://standards.iteh.ai/catalog/standards/sist/c8702adf-691f-4ec1-b4d9-3c5ea8ed40f9/sist-en-50289-1-4-2002>

**Ta slovenski standard je istoveten z: EN 50289-1-4:2001**

**ICS:**

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

**SIST EN 50289-1-4:2002**      en

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN 50289-1-4:2002](#)

<https://standards.iteh.ai/catalog/standards/sist/c8702adf-691f-4ec1-b4d9-3c5ea8ed40f9/sist-en-50289-1-4-2002>

EUROPEAN STANDARD

**EN 50289-1-4**

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2001

ICS 33.120.20

English version

**Communication cables -  
Specifications for test methods  
Part 1-4: Electrical test methods - Insulation resistance**

Câbles de communication -  
Spécifications des méthodes d'essai  
Partie 1-4: Méthodes d'essais électriques -  
Résistance d'isolement

Kommunikationskabel -  
Spezifikationen für Prüfverfahren  
Teil 1-4: Elektrische Prüfverfahren -  
Isolationswiderstand

## iTeh STANDARD PREVIEW

This European Standard was approved by CENELEC on 2001-03-01. 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.

[SIST EN 50289-1-4:2002](#)

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 50289-1-4 on 2001-03-01.

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) 2002-04-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2004-04-01

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.

---

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 50289-1-4:2002](https://standards.iteh.ai/catalog/standards/sist/c8702adf-691f-4ec1-b4d9-3c5ea8ed40f9/sist-en-50289-1-4-2002)

<https://standards.iteh.ai/catalog/standards/sist/c8702adf-691f-4ec1-b4d9-3c5ea8ed40f9/sist-en-50289-1-4-2002>

## Contents

Foreword .....	1
<b>1 Scope .....</b>	<b>4</b>
<b>2 Normative references .....</b>	<b>4</b>
<b>3 Definitions .....</b>	<b>4</b>
<b>4 Test method.....</b>	<b>5</b>
<b>4.1 Equipment .....</b>	<b>5</b>
<b>4.2 Test sample .....</b>	<b>5</b>
<b>4.3 Procedure .....</b>	<b>5</b>
4.3.1 Core test .....	5
4.3.2 Group test .....	5
4.3.3 Coaxial cables .....	5
<b>5 Expression of test results .....</b>	<b>6</b>
<b>6 Test report .....</b>	<b>6</b>

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)

[SIST EN 50289-1-4:2002](https://standards.iteh.ai/catalog/standards/sist/c8702adf-691f-4ec1-b4d9-3c5ea8ed40f9/sist-en-50289-1-4-2002)

<https://standards.iteh.ai/catalog/standards/sist/c8702adf-691f-4ec1-b4d9-3c5ea8ed40f9/sist-en-50289-1-4-2002>

## 1 Scope

Part 1-4 of EN 50289 details the test methods to determine the insulation resistance of the finished cables used in analogue and digital communication systems.

It is to be read in conjunction with Part 1-1 of EN 50289, which contains essential provisions for its application.

## 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 50289-1-1 2001 Communication cables – Specifications for tests methods -- Part 1-1: Electrical test methods – General requirements

EN 50290-1-2<sup>1)</sup> - Communication cables -- Part 1-2: Definitions

## 3 Definitions

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)

For the purposes of this European Standard, the definitions given in EN 50290-1-2 apply in addition to the following ones.

[SIST EN 50289-1-4:2002](https://standards.iteh.ai/catalog/standards/sist/c8702adf-691f-4ec1-b4d9-3c5ea8ed40f9/sist-en-50289-1-4-2002)

<https://standards.iteh.ai/catalog/standards/sist/c8702adf-691f-4ec1-b4d9-3c5ea8ed40f9/sist-en-50289-1-4-2002>

### 3.1 group test

the group test for multi-element cables (if applicable) is the test between two specified groups of conductors each of which *has all its conductors* connected together :

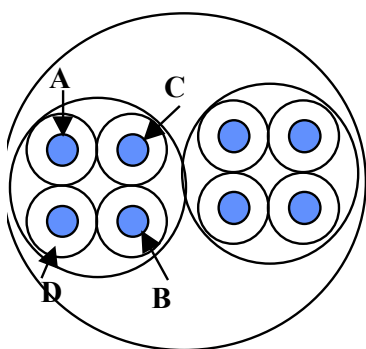


Figure 1 – Starquads

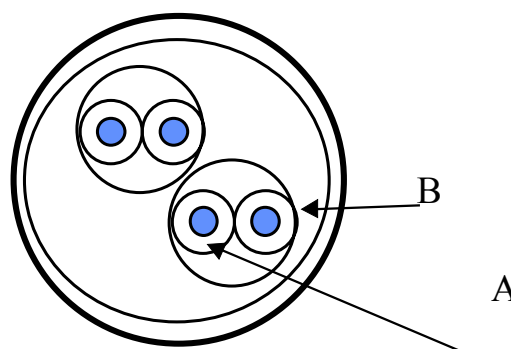


Figure 2 – Pairs

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

**Table 1**

	Pairs	Starquads
Group I	Wires A	Wires A,C
Group II	Wires B	Wires B,D

## 4 Test method

### 4.1 Equipment

The test equipment shall have a suitable minimum range - typically  $2 \times 10^5$  M $\Omega$  and shall provide the voltage as specified in the relevant specification.

### 4.2 Test sample

In general the test is performed on a delivery length. Both ends of the cable under test (CUT) shall be prepared such that, when the specified voltage is applied to the conductor/screen under test, there shall be no breakdown or significant partial discharges at the terminations.

### 4.3 Procedure

The test shall be carried out on the CUT after continuity or the conductor resistance test. The measurement shall be carried out on complete lengths of the finished cable at a temperature specified in the relevant cable standard.

The insulation resistance shall be measured as a core test or a group test.

The test shall be performed by applying a DC voltage between 80 V and 500 V for a minimum duration of one minute unless otherwise specified in the relevant cable specification.

#### 4.3.1 Core test

The core test is carried out by application of the test voltage between each conductor and all others plus the screen (if any) connected to earth.

#### 4.3.2 Group test

The group test (if applicable) is carried out by application of the test voltage between each group and all other groups plus screen (if any) earthed.

#### 4.3.3 Coaxial cables

The CUT shall be connected to the test equipment as follows :

Inner conductor against outer conductor, outer conductor earthed except for armoured cables.

## 5 Expression of test results

The test results shall be normalized to the reference length of 1 km.

$$R_i = \frac{R_m}{1000} \times L \quad (\text{M}\Omega \cdot \text{km}) \quad (1)$$

where

- $R_i$  = insulation resistance of reference length  
 $R_m$  = measured resistance, in M $\Omega$ , of CUT  
 $L$  = length of sample in m

## 6 Test report

The test report shall include:

- temperature,
- sample length,
- test voltage,
- duration,
- the insulation resistance for the reference length derived from the measured value.

**iTeh STANDARD PREVIEW**  
(standards.iteh.ai)  
<https://standards.iteh.ai/catalog/standards/sist/c8702adf-691f-4ec1-b4d9-3c5ea8ed40f9/sist-en-50289-1-4-2002>