

Communication cables - Specifications for test methods - Part 1-5: Electrical test methods - Capacitance

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Capacitance

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 50289-1-5:2002 sisaldab Euroopa standardi EN 50289-1-5:2001 ingliskeelset teksti. Käesolev dokument on jõustatud 15.10.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 50289-1-5:2002 consists of the English text of the European standard EN 50289-1-5:2001. This document is endorsed on 15.10.2002 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.
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Käsitlusala: This Part 1-5 of EN 50289 details the test methods to determine the capacitance characteristics 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.	Scope: This Part 1-5 of EN 50289 details the test methods to determine the capacitance characteristics 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.
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**Communication cables - Specifications for test methods
Part 1-5: Electrical test methods - Capacitance**

Câbles de communication -
Spécifications des méthodes d'essais
Partie 1-5: Méthodes d'essais électriques -
Capacité

Kommunikationskabel - Spezifikationen
für Prüfverfahren
Teil 1-5: Elektrische Prüfverfahren -
Kapazität

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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 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 50289-1-5 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.

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1 Scope

Part 1-5 of EN 50289 details the test methods to determine the capacitance characteristics 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 ¹⁾	-	Communication cables -- Part 1-2: Definitions

3 Definitions

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

3.1 mutual capacitance

the mutual capacitance/km (C_{mu}) of a pair (or with respect to the side of a quad) is the effective capacitance under balanced conditions, see Figure 1.

$$C_{mu} = C_{AB} + (C_{AG} \times C_{BG} / (C_{AG} + C_{BG})) \quad (\text{nF/km}) \quad (1)$$

It can be measured directly with balanced bridges.

3.1.1 measure of a pair under unbalanced conditions

alternatively, the mutual capacitance/km (C_{mu}) can be determined from the asymmetrical capacitances and calculated using the following formula :

$$C_{mu} = \frac{C_1 + C_2}{2} - \frac{C_3}{4} - \frac{(C_1 - C_2)^2}{4C_3} \quad (\text{nF/km}) \quad (2)$$

where

C_1 = capacitance/km between conductor “a” and conductor “b” with conductor “b” connected to all other conductors, screen, if any, and earth.

Accordingly, to the figure below, $C_1 = C_{AB} + C_{AG}$;

¹⁾ At draft stage