Communication cables - Specifications for test methods Part 1-12: Electrical test methods - Inductance

Communication cables - Specifications for test methods Part 1-12: Electrical test methods - Inductance

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 50289-1-12:2005 sisaldab Euroopa standardi EN 50289-1-12:2005 ingliskeelset teksti. Käesolev dokument on jõustatud 27.05.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 50289-1-12:2005 consists of the English text of the European standard EN 50289-1-12:2005. This document is endorsed on 27.05.2005 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This Part 1-12 of EN 50289 details the test methods to determine the inductance characteristics of cables used in analogue and digital communication systems. It is to be read in conjunction with EN 50289-1-1, which contains essential provisions for its application.	**Scope:** This Part 1-12 of EN 50289 details the test methods to determine the inductance characteristics of cables used in analogue and digital communication systems. It is to be read in conjunction with EN 50289-1-1, which contains essential provisions for its application.

ICS 33.120.20

Võtmesõnad:

EUROPEAN STANDARD **EN 50289-1-12**

NORME EUROPÉENNE

EUROPÄISCHE NORM April 2005

ICS 33.120.20

English version

Communication cables - Specifications for test methods Part 1-12: Electrical test methods - Inductance

Câbles de communication - Spécifications des méthodes d'essai Partie 1-12: Méthodes d'essais électriques - Inductance

Kommunikationskabel - Spezifikationen für Prüfverfahren Teil 1-12: Elektrische Prüfverfahren - Induktivität

This European Standard was approved by CENELEC on 2004-12-01. 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, 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

Ref. No. EN 50289-1-12:2005 E

Foreword

This European Standard was prepared by the CENELEC Technical Committee TC 46X, Communication cables.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50289-1-12 on 2004-12-01.

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)	2005-12-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2007-12-01

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.

———————

Contents

1 Scope

This Part 1-12 of EN 50289 details the test methods to determine the inductance characteristics of cables used in analogue and digital communication systems.

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

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 50289-1-1	2001	Communication cables – Specifications for tests methods Part 1-1: Electrical test methods – General requirements
EN 50289-1-2	2001	Communication cables – Specifications for tests methods Part 1-2: Electrical test methods – DC resistance
EN 50289-1-11	2001	Communication cables – Specifications for tests methods Part 1-11: Electrical test methods – Characteristic impedance, input impedance, return loss
EN 50290-1-2	2004	Communication cables – Part 1-2: Definitions

3 Definitions

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

3.1
inductance
the inductance (L) of a pair (or with respect to the side of a quad) is the effective inductance of instrumentation cables. Inductance and mutual capacitance are parameters which describe the possibility of storing electrical energy in this kind of cables

At any (low) frequency, the impedance of a cable can be represented by two components - resistance (R) and reactance (X) - or as a polar function having magnitude (Z) and phase (θ). The impedance may be represented by either a series or parallel circuit. For the series case

$$R = Z * \cos(\theta) \text{ and } X = Z * \sin(\theta)$$

where $Z = \sqrt{(R^2 + X^2)}$

$\tan(\theta) = X/R$

and for inductance $X = 2 \pi f L$

Inductances have to be measured normally at low frequencies (50 Hz, 800 Hz or 1 000 Hz) as required in the relevant cable specification. For this case the resistance (R) has to be measured as described in EN 50289-1-2. R is the DC-resistance of a pair (= loop resistance = the resistance of the two conductors of the pair) or a side of a quad.