

**Elektrilised kaablid ja optilised kiudkaablid.
Mittemetallmaterjalide katsetusviisid. Osa 201:
Üldkatsetused. Isolatsiooni paksuse mõõtmine**

**Electric and optical fibre cables - Test methods for non-metallic materials - Part 201: General tests -
Measurement of insulation thickness**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 60811-201:2012 sisaldab Euroopa standardi EN 60811-201:2012 ingliskeelset teksti.	This Estonian standard EVS-EN 60811-201:2012 consists of the English text of the European standard EN 60811-201:2012.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 08.06.2012.	Date of Availability of the European standard is 08.06.2012.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 29.035.01, 29.060.20

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Aru 10, 10317 Tallinn, Eesti; www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:
Aru 10, 10317 Tallinn, Estonia; www.evs.ee; phone 605 5050; e-mail info@evs.ee

**Electric and optical fibre cables -
Test methods for non-metallic materials -
Part 201: General tests -
Measurement of insulation thickness
(IEC 60811-201:2012)**

Câbles électriques et à fibres optiques -
Méthodes d'essai pour les matériaux non-
métalliques -
Partie 201: Essais généraux -
Mesure de l'épaisseur des enveloppes
isolantes
(CEI 60811-201:2012)

Kabel, isolierte Leitungen und
Glasfaserkabel -
Prüfverfahren für nichtmetallene
Werkstoffe -
Teil 201: Allgemeine Prüfungen -
Messung der Wanddicke von Isolierhüllen
(IEC 60811-201:2012)

This European Standard was approved by CENELEC on 2012-04-16. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

The text of document 20/1280/FDIS, future edition 1 of IEC 60811-201, prepared by IEC/TC 20 "Electric cables" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60811-201:2012.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2013-01-16
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-04-16

This document supersedes 8.1 of EN 60811-1-1:1995 + A1:2001 (partially). Full details of the replacements are shown in Annex A of EN 60811-100:2012.

There are no technical changes with respect to EN 60811-1-1:1995 + A1:2001, but see the Foreword to EN 60811-100:2012.

This standard is to be read in conjunction with EN 60811-100.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC)

Endorsement notice

The text of the International Standard IEC 60811-201:2012 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

**Normative references to international publications
with their corresponding European publications**

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60811-100	2012	Electric and optical fibre cables - Test methods for non-metallic materials - Part 100: General	EN 60811-100	2012

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references	6
3 Terms and definitions	6
4 Test method	6
4.1 General.....	6
4.2 Measuring equipment.....	6
4.3 Sample and test pieces preparation.....	7
4.4 Measuring procedure.....	7
4.5 Evaluation of the measurement results	7
5 Test report.....	7
Bibliography.....	11
Figure 1 – Measurement of insulation (circular inner profile)	8
Figure 2 – Measurement of insulation thickness (sectoral-shaped conductor)	8
Figure 3 – Measurement of insulation thickness (stranded conductor).....	9
Figure 4 – Measurement of insulation thickness (stranded conductor).....	9
Figure 5 – Measurement of insulation thickness (uneven outer profile)	10
Figure 6 – Measurement of insulation thickness (twin flat non-sheathed cable).....	10

INTRODUCTION

The IEC 60811 series specifies the test methods to be used for testing non-metallic materials of all types of cables. These test methods are intended to be referenced in standards for cable construction and for cable materials.

NOTE 1 Non-metallic materials are typically used for insulating, sheathing, bedding, filling or taping within cables.

NOTE 2 These test methods are accepted as basic and fundamental and have been developed and used over many years principally for the materials in all energy cables. They have also been widely accepted and used for other cables, in particular optical fibre cables, communication and control cables and cables for ships and offshore applications.

ELECTRIC AND OPTICAL FIBRE CABLES – TEST METHODS FOR NON-METALLIC MATERIALS –

Part 201: General tests – Measurement of insulation thickness

1 Scope

This Part 201 of IEC 60811 gives the methods for measuring the insulation thicknesses which apply to the most common types of insulating compounds (cross-linked, PVC, PE, PP, etc.).

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.

IEC 60811-100:2012, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 100: General*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60811-100 apply.

4 Test method

4.1 General

This part of IEC 60811 shall be used in conjunction with IEC 60811-100.

Unless otherwise specified, tests shall be carried out at room temperature.

Measurement of insulation thickness may be required as an individual test, or as a step in the procedure for carrying out other tests, such as the determination of mechanical properties.

In each case, the method of selecting samples shall be in accordance with the relevant cable standard.

4.2 Measuring equipment

A measuring microscope or a profile projector of at least 10 x magnification or an optical digital image analyser shall be used. These two types of equipment shall allow a reading of 0,01 mm and an estimated reading to three decimal places when measuring insulation with a specified thickness less than 0,5 mm.

In case of doubt, the measuring microscope shall be taken as the reference method.