



NSAI
Standards

Irish Standard
I.S. EN 60811-509:2012&A1:2017

Electric and optical fibre cables - Test methods for non-metallic materials - Part 509: Mechanical tests - Test for resistance of insulations and sheaths to cracking (heat shock test)

I.S. EN 60811-509:2012&A1:2017

Incorporating amendments/corrigenda/National Annexes issued since publication:

EN 60811-509:2012/A1:2017

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National Foreword

I.S. EN 60811-509:2012&A1:2017 is the adopted Irish version of the European Document EN 60811-509:2012, Electric and optical fibre cables - Test methods for non-metallic materials - Part 509: Mechanical tests - Test for resistance of insulations and sheaths to cracking (heat shock test)

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EUROPEAN STANDARD

EN 60811-509:2012/A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2017

ICS 29.035.01; 29.060.20

English Version

**Electric and optical fibre cables - Test methods for non-metallic materials - Part 509: Mechanical tests - Test for resistance of insulations and sheaths to cracking (heat shock test)
(IEC 60811-509:2012/A1:2017)**

Câbles électriques et à fibres optiques - Méthodes d'essai pour les matériaux non-métalliques - Partie 509: Essais mécaniques - Essai de résistance à la fissuration des enveloppes isolantes et des gaines (essai de choc thermique)
(IEC 60811-509:2012/A1:2017)

Kabel, isolierte Leitungen und Glasfaserkabel - Prüfverfahren für nichtmetallene Werkstoffe - Teil 509: Mechanische Prüfungen - Prüfung der Rissbeständigkeit von Isolierhüllen und Mänteln (Wärmeschock-Prüfung)
(IEC 60811-509:2012/A1:2017)

This amendment A1 modifies the European Standard EN 60811-509:2012; it was approved by CENELEC on 2017-08-25. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN 60811-509:2012/A1:2017

European foreword

The text of document 20/1737/FDIS, future IEC 60811-509:2012/A1, prepared by IEC/TC 20 "Electric cables" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60811-509:2012/A1:2017.

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) 2018-05-25
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-08-25

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The text of the International Standard IEC 60811-509:2012/A1:2017 was approved by CENELEC as a European Standard without any modification.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60811-509

June 2012

ICS 29.035.01; 29.060.20

Supersedes EN 60811-3-1:1995 (partially) + A1:1996 (partially) + A2:2001 (partially)

English version

**Electric and optical fibre cables -
Test methods for non-metallic materials -
Part 509: Mechanical tests -
Test for resistance of insulations and sheaths to cracking
(heat shock test)
(IEC 60811-509:2012)**

Câbles électriques et à fibres optiques -
Méthodes d'essai pour les matériaux
non-métalliques -
Partie 509: Essais mécaniques -
Essai de résistance à la fissuration
des enveloppes isolantes et des gaines
(essai de choc thermique)
(CEI 60811-509:2012)

Kabel, isolierte Leitungen
und Glasfaserkabel -
Prüfverfahren für nichtmetallene
Werkstoffe -
Teil 509: Mechanische Prüfungen -
Prüfung der Rissbeständigkeit
von Isolierhüllen und Mänteln
(IEC 60811-509:2012)

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

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Foreword

The text of document 20/1305/FDIS, future edition 1 of IEC 60811-509, prepared by IEC/TC 20 "Electric cables" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60811-509:2012.

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- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-04-17

This document supersedes Clause 9 of EN 60811-3-1:1995 + A1:1996 + A2:2001 (partially). Full details of the replacements are shown in Annex A of EN 60811-100:2012.

There are no specific technical changes with respect to EN 60811-3-1:1995, but see the Foreword to EN 60811-100:2012.

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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 60811-509:2012 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated :

IEC 60811-3-1:1985 NOTE Harmonized as EN 60811-3-1:1995 (not modified).

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

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IEC 60811-509

Edition 1.0 2012-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Electric and optical fibre cables – Test methods for non-metallic materials –
Part 509: Mechanical tests – Test for resistance of insulations and sheaths to
cracking (heat shock test)**

**Câbles électriques et à fibres optiques – Méthodes d’essai pour les matériaux
non-métalliques –
Partie 509: Essais mécaniques – Essai de résistance à la fissuration des
enveloppes isolantes et des gaines (essai de choc thermique)**





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IEC 60811-509

Edition 1.0 2012-03

INTERNATIONAL STANDARD

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**Electric and optical fibre cables – Test methods for non-metallic materials –
Part 509: Mechanical tests – Test for resistance of insulations and sheaths to
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 509: Mechanical tests – Test for resistance of insulations and sheaths to cracking (heat shock test)

FOREWORD

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International Standard IEC 60811-509 has been prepared by IEC technical committee 20: Electric cables.

This Part 509 of IEC 60811 cancels and replaces Clause 9 of IEC 60811-3-1:1985, which is withdrawn. Full details of the replacements are shown in Annex A of IEC 60811-100:2012.

There are no specific technical changes with respect to the previous edition, but see the Foreword to IEC 60811-100:2012.

The text of this standard is based on the following documents:

FDIS	Report on voting
20/1305/FDIS	20/1354/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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

A list of all the parts in the IEC 60811 series, published under the general title *Electric and optical fibre cables – Test methods for non-metallic materials*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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 509: Mechanical tests – Test for resistance of insulations and sheaths to cracking (heat shock test)

1 Scope

This Part 509 of IEC 60811 gives the procedure for the test for resistance of insulations and sheaths to cracking at an elevated temperature.

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.

All the tests shall be carried out not less than 16 h after the extrusion of the insulating or sheathing compounds

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

NOTE In the absence of any requirement in the relevant cable standard, Annex A in this standard gives a recommendation for the test conditions and test requirements.

4.2 Apparatus

The apparatus consists of the following parts:

- a) an air oven capable of maintaining the temperature and tolerance specified;
- b) mandrels of sufficient length made of metal or other suitable material.

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