Irish Standard
I.S. EN 61034-2:2005

Measurement of smoke density of cables burning under defined conditions -- Part 2: Test procedure and requirements (IEC 61034-2:2005 (EQV))

I.S. EN 61034-2:2005

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Údarás um Chaighdeáin Náisiúnta na hÉireann

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61034-2/A1

August 2013

ICS 13.220.40; 29.020; 29.060.20

English version

Measurement of smoke density of cables burning under defined conditions - Part 2: Test procedure and requirements

(IEC 61034-2:2005/A1:2013)

Mesure de la densité de fumées dégagées par des câbles brûlant dans des conditions définies - Partie 2: Procédure d'essai et exigences (CEI 61034-2:2005/A1:2013)

Messung der Rauchdichte von Kabeln und isolierten Leitungen beim Brennen unter definierten Bedingungen - Teil 2: Prüfverfahren und Anforderungen (IEC 61034-2:2005/A1:2013)

This amendment A1 modifies the European Standard EN 61034-2:2005; it was approved by CENELEC on 2013-06-25. 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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CENELEC

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 61034-2:2005/A1:2013 E

Foreword

The text of document 20/1429/FDIS, future edition 3 of IEC 61034-2:2005/A1, prepared by IEC TC 20, “Electric cables” was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61034-2:2005/A1:2013.

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)	2014-03-25
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2016-06-25

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 61034-2:2005/A1:2013 was approved by CENELEC as a European Standard without any modification.

I.S. EN 61034-2:2005

EUROPEAN STANDARD **EN 61034-2**

NORME EUROPÉENNE

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English version

Measurement of smoke density of cables burning under defined conditions Part 2: Test procedure and requirements

(IEC 61034-2:2005)

Mesure de la densité de fumées dégagées par des câbles brûlant dans des conditions définies
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Messung der Rauchdichte von Kabeln und isolierten Leitungen beim Brennen unter definierten Bedingungen
Teil 2: Prüfverfahren und Anforderungen
(IEC 61034-2:2005)

This European Standard was approved by CENELEC on 2005-06-01. 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.

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CENELEC
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Ref. No. EN 61034-2:2005 E

Foreword

The text of document 20/755/FDIS, future edition 3 of IEC 61034-2, prepared by IEC TC 20, Electric cables, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61034-2 on 2005-06-01.

The principal changes with respect to EN 50268-2 are as follows:

a) inclusion of non-circular cables;

b) addition of guidance on testing cables above 80 mm diameter;

c) delineation of elements of the test report;

d) addition of guidance on the calculation for other parameters for fire safety engineering purposes.

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)	2006-03-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2008-06-01

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 61034-2:2005 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 60695-6-1	NOTE	Harmonized as EN 60695-6-1:2005 (not modified).

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

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

Publication	Year	Title	EN/HD	Year
IEC 60695-4	2005	Fire hazard testing - Part 4: Terminology concerning fire tests for electrotechnical products	-	-
IEC 61034-1	2005	Measurement of smoke density of cables burning under defined conditions Part 1: Test apparatus	EN 61034-1	2005
IEC Guide 104	1997	The preparation of safety publications and the use of basic safety publications and group safety publications	-	-
ISO 13943	2000	Fire safety - Vocabulary	EN ISO 13943	2000

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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MEASUREMENT OF SMOKE DENSITY OF CABLES BURNING UNDER DEFINED CONDITIONS –

Part 2: Test procedure and requirements

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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This consolidated version of IEC 61034-2 consists of the third edition (2005) [documents 20/755/FDIS and 20/767/RVD], its corrigendum 1 (September 2006) and its amendment 1 (2013) [documents 20/1429/FDIS and 20/1444/RVD]. It bears the edition number 3.1.

The technical content is therefore identical to the base edition and its amendment and has been prepared for user convenience. A vertical line in the margin shows where the base publication has been modified by amendment 1. Additions and deletions are displayed in red, with deletions being struck through.

International Standard IEC 61034-2 has been prepared by IEC technical committee 20: Electric cables.

The principal changes with respect to the previous edition are as follows:

a) inclusion of cables down to 1 mm diameter;

b) inclusion of non-circular cables;

c) addition of guidance on testing cables above 80 mm diameter;

d) delineation of elements of the test report;

e) addition of guidance on the calculation for other parameters for fire safety engineering purposes;

f) removal of minor differences with equivalent CENELEC work to allow parallel voting with that body.

It has the status of a group safety publication in accordance with IEC Guide 104.

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

IEC 61034 consists of the following parts, under the general title *Measurement of smoke density of cables burning under defined conditions*,

Part 1 : Test apparatus

Part 2 : Test procedure and requirements

The committee has decided that the contents of the base publication and its amendment 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.

IMPORTANT – The “colour inside” logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this publication using a colour printer.

INTRODUCTION

The measurement of smoke density is an important aspect in the evaluation of the burning performance of cables as it is related to the evacuation of persons and accessibility for firefighting.

IEC 61034 is published in two parts, which together specify a method of test for measurement of smoke density of cables burning under defined conditions. Users of this test are reminded that the configurations of cable in the test (i.e. as test pieces or bundles of test pieces) may not represent actual installation conditions.

Part 1 gives details of the test apparatus and verification procedure to be used for the measurement of smoke density of the products of combustion of cables burnt under defined conditions. It includes details of a test enclosure of 27m^3 volume, a photometric system for light measurement, the fire source, smoke mixing method and a qualification procedure.

This Part 2 gives the test procedure, together with an informative annex giving recommended requirements for compliance where no specified requirement is given in the particular cable standard or specification. The measurement of smoke density is expressed in terms of minimum levels of light transmittance, and Annex A explains possibilities for using these values for fire safety engineering calculations.

MEASUREMENT OF SMOKE DENSITY OF CABLES BURNING UNDER DEFINED CONDITIONS –

Part 2: Test procedure and requirements

1 Scope

This part of IEC 61034 provides details of the test procedure to be employed for the measurement of the density of smoke emitted from cables burning under defined conditions. It describes the means of preparing and assembling cables for test, the method of burning the cables, and gives recommended requirements for evaluating test results.

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.

IEC 60695-4, *Fire hazard testing – Part 4: Terminology concerning fire tests*

IEC 60811-203, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 203: General tests – Measurement of overall dimensions*

IEC 61034-1, *Measurement of smoke density of cables burning under defined conditions – Part 1: Test apparatus*

IEC Guide 104:1997, *The preparation of safety publications and the use of basic safety publications and group safety publications*

ISO/IEC 13943:2000, *Fire safety – Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions in IEC 60695-4 apply, or if a term is not defined in IEC 60695-4 then the definition in ISO/IEC 13943 applies.

4 Test apparatus

The test procedure defined in this Part 2 of IEC 61034 shall be carried out using the test apparatus, i.e. test enclosure, photometric system and standard fire source, given in IEC 61034-1.

5 Test assembly

5.1 Test sample

The test sample shall consist of one or more test pieces of cable, each 1,00 m ± 0,05 m long, which shall be carefully straightened and then conditioned for at least 16 h at 23 °C ± 5 °C.