AS/NZS IEC 61034.2:2017
IEC 61034-2:2005+AMD1:2013 CSV

Australian/New Zealand Standard™

Measurement of smoke density of cables burning under defined conditions

Part 2: Test procedure and requirements

AS/NZS IEC 61034.2:2017

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Australian Cablemakers Association
Australian Industry Group
Electrical Compliance Testing Association
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Electrical Regulatory Authorities Council
Institute of Electrical Inspectors
National Electrical and Communications Association
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Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee, EL-003 Electric Wires and Cables, to supersede, in part, AS/NZS 1660.5.2:2006, Test methods for electric cables, cords and conductors, Method 5.2: Fire tests—Measurement of smoke density of cables burning under defined conditions.

The objective of this Standard is to provide details of the test procedure to be employed for the measurement of the density of smoke emitted from cables burning under defined conditions. This Standard describes the means of preparing and assembling cables for test, the method of burning the cables, and gives recommended requirements for evaluating test results.

This Standard is identical with, and has been reproduced from IEC 61034-2:2005+AMD1:2013 CSV (ED. 3.1), Measurement of smoke density of cables burning under defined conditions, Part 2: Test procedure and requirements.

As this Standard is reproduced from an International Standard, the following applies:

(a) In the source text 'this part of IEC 61034' should read 'this Australian/New Zealand Standard'.

(b) A full point substitutes for a comma when referring to a decimal marker.

None of the normative references in the source document have been adopted as Australian or Australian/New Zealand Standards.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

MEASUREMENT OF SMOKE DENSITY OF CABLES BURNING UNDER DEFINED CONDITIONS –

Part 2: Test procedure and requirements

FOREWORD

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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.

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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.

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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.

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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.

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