



NSAI
Standards

Irish Standard
I.S. EN 61251:2016

Electrical insulating materials and systems - A.C. voltage endurance evaluation

I.S. EN 61251:2016

Incorporating amendments/corrigenda/National Annexes issued since publication:

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This document is based on:

EN 61251:2016

Published:

2016-02-26

This document was published under the authority of the NSAI and comes into effect on:

2016-03-16

ICS number:

17.220.99

29.035.01

NOTE: If blank see CEN/CENELEC cover page

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National Foreword

I.S. EN 61251:2016 is the adopted Irish version of the European Document EN 61251:2016, Electrical insulating materials and systems - A.C. voltage endurance evaluation

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EUROPEAN STANDARD

EN 61251

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2016

ICS 17.220.99; 29.035.01

English Version

**Electrical insulating materials and systems - A.C. voltage
endurance evaluation
(IEC 61251:2015)**

Systèmes et matériaux isolants électriques - Évaluation de
l'endurance à la tension alternative
(IEC 61251:2015)

Elektrische Isolierstoffe und -systeme - Ermittlung der
Wechselspannungsbeständigkeit
(IEC 61251:2015)

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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

EN 61251:2016

European foreword

The text of document 112/338/FDIS, future edition 1 of IEC 61251, prepared by IEC/TC 112 "Evaluation and qualification of electrical insulating materials and systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61251:2016.

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) 2016-09-23
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-12-23

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IEC 60243-1	NOTE	Harmonized as EN 60243-1.
IEC 60243-2	NOTE	Harmonized as EN 60243-2.
IEC 60243-3	NOTE	Harmonized as EN 60243-3.
IEC 60343	NOTE	Harmonized as EN 60343.
IEC 61649	NOTE	Harmonized as EN 61649.

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 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62539	-	Guide for the statistical analysis of electrical insulation breakdown data	-	-

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IEC 61251

Edition 1.0 2015-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Electrical insulating materials and systems – AC voltage endurance evaluation

Systemes et matériaux isolants électriques – Évaluation de l'endurance à la tension alternative





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IEC 61251

Edition 1.0 2015-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Electrical insulating materials and systems – AC voltage endurance evaluation

Systèmes et matériaux isolants électriques – Évaluation de l'endurance à la tension alternative

INTERNATIONAL
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COMMISSION

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ELECTROTECHNIQUE
INTERNATIONALE

ICS 17.220.99; 29.035.01

ISBN 978-2-8322-2990-3

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRICAL INSULATING MATERIALS AND SYSTEMS – AC VOLTAGE ENDURANCE EVALUATION

FOREWORD

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International Standard IEC 61251 has been prepared by IEC technical committee 112: Evaluation and qualification of electrical insulating materials and systems.

This first edition of IEC 61251 cancels and replaces the second edition of IEC TS 61251, published in 2008. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the second edition of IEC TS 61251:

- a) upgrade from Technical Specification to an International Standard;
- b) clarification of issues raised since publication of IEC TS 61251.

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

FDIS	Report on voting
112/338/FDIS	112/347/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.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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

This International Standard covers insulating materials and systems. Voltage endurance tests are used to compare and evaluate insulating materials and systems. It is complex to determine the capability of electrical insulating materials and systems to endure a.c. voltage stress. The results of voltage endurance tests are influenced by many factors. Therefore this International Standard can be considered as an attempt to present a unified view of voltage endurance for simplified planning and analysis.

ELECTRICAL INSULATING MATERIALS AND SYSTEMS – AC VOLTAGE ENDURANCE EVALUATION

1 Scope

This International Standard describes many of the factors involved in voltage endurance tests on electrical insulating materials and systems. It describes the voltage endurance graph, lists test methods illustrating their limitations and gives guidance for evaluating the sinusoidal a.c. voltage endurance of insulating materials and systems from the results of the tests. This International Standard is applicable over the voltage frequency range 20 Hz to 1 000 Hz. The general principles can also be applicable to other voltage shapes, including impulse voltages. The terminology to be used in voltage endurance is defined and explained.

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 62539, *Guide for the statistical analysis of electrical insulation dielectric breakdown data*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1

voltage endurance

VE

measures of the capability of a solid insulating material to endure voltage

Note 1 to entry: In this International Standard, only a.c. voltage is considered.

Note 2 to entry: This note only applies to the French language.

3.1.2

life

time to dielectric breakdown

3.1.3

voltage endurance coefficient

VEC

numerical value of the reciprocal of the slope of a straight line log-log VE plot

Note 1 to entry: This note only applies to the French language.

3.1.4

specimen

representative test object for assessing the value of one or more physical properties

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