NSAI Standards

Irish Standard
I.S. EN 60060-2:2011

High-voltage test techniques -- Part 2: Measuring systems (IEC 60060-2:2010 (EQV))

I.S. EN 60060-2:2011

Incorporating amendments/corrigenda issued since publication:

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I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

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EUROPEAN STANDARD

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EN 60060-2

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Supersedes EN 60060-2:1994 + A11:1998

English version

High-voltage test techniques - Part 2: Measuring systems

(IEC 60060-2:2010)

Techniques des essais à haute tension - Partie 2: Systèmes de mesure (CEI 60060-2:2010)

Hochspannungs-Prüftechnik - Teil 2: Messsysteme (IEC 60060-2:2010)

This European Standard was approved by CENELEC on 2011-01-01. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat 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 Central Secretariat 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 and the United Kingdom.

CENELEC

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

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Ref. No. EN 60060-2:2011 E

Foreword

The text of document 42/281/FDIS, future edition 3 of IEC 60060-2, prepared by IEC TC 42, High-voltage testing techniques, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60060-2 on 2011-01-01.

This European Standard supersedes EN 60060-2:1994 + A11:1998.

The significant technical changes with respect to EN 60060-2:1994+A11:1998 are as follows:

a) The general layout and text was updated and improved to make the standard easier to use.

b) The standard was revised to align it with EN 60060-1.

c) The treatment of measurement uncertainty estimation has been expanded.

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

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)	2011-10-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2014-01-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60060-2:2010 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60051 series	NOTE	Harmonized in EN 60051 series (not modified).
IEC 60060-3:2006	NOTE	Harmonized as EN 60060-3:2006 (not modified).
IEC 60071-1:2006	NOTE	Harmonized as EN 60071-1:2006 (not modified).
IEC 60270	NOTE	Harmonized as EN 60270.
IEC 62475	NOTE	Harmonized as EN 62475.
ISO/IEC 17025:2005	NOTE	Harmonized as EN ISO/IEC 17025:2005 (not modified).

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

Publication	Year	Title	EN/HD	Year
IEC 60052	-	Voltage measurement by means of standard air gaps	EN 60052	-
IEC 60060-1	-	High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	-
IEC 61083-1	-	Instruments and software used for measurement in high-voltage impulse tests - Part 1: Requirements for instruments	EN 61083-1	-
IEC 61083-2	-	Digital recorders for measurements in high-voltage impulse tests - Part 2: Evaluation of software used for the determination of the parameters of impulse waveforms	EN 61083-2	-
ISO/IEC Guide 98-3	2008	Uncertainty of measurement - Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)	-	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

HIGH-VOLTAGE TEST TECHNIQUES –

Part 2: Measuring systems

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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9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60060-2 has been prepared by IEC technical committee 42: High-voltage test techniques.

This third edition of IEC 60060-2 cancels and replaces the second edition, published in 1994, and constitutes a technical revision.

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

a) The general layout and text was updated and improved to make the standard easier to use.
b) The standard was revised to align it with IEC 60060-1.
c) The treatment of measurement uncertainty estimation has been expanded.

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

FDIS	Report on voting
42/281/FDIS	42/287/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.

A list of all parts of IEC 60060 series, under the general title *High-voltage test techniques*, can be found on the IEC website.

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 this 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 document using a colour printer.

HIGH-VOLTAGE TEST TECHNIQUES –

Part 2: Measuring systems

1 Scope

This part of IEC 60060 is applicable to complete measuring systems, and to their components, used for the measurement of high voltages during laboratory and factory tests with direct voltage, alternating voltage and lightning and switching impulse voltages as specified in IEC 60060-1. For measurements during on-site tests see IEC 60060-3.

The limits on uncertainties of measurements stated in this standard apply to test levels stated in IEC 60071-1:2006. The principles of this standard apply also to higher levels but the uncertainty may be greater.

This standard:

- defines the terms used;
- describes methods to estimate the uncertainties of high-voltage measurements;
- states the requirements which the measuring systems shall meet;
- describes the methods for approving a measuring system and checking its components;
- describes the procedures by which the user shall show that a measuring system meets the requirements of this standard, including the limits set for the uncertainty of measurement.

2 Normative references

The following referenced documents are indispensable for the application of this standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60052, *Voltage measurement by means of standard air gaps*

IEC 60060-1, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 61083-1, *Instruments and software used for measurement in high-voltage impulse tests – Part 1: Requirements for instruments*

IEC 61083-2, *Digital recorders for measurement in high-voltage impulse tests – Part 2: Evaluation of software used for the determination of the parameters of impulse waveforms*

ISO/IEC Guide 98-3:2008, *Uncertainty of measurement – Part 3: Guide to the expression of uncertainty in measurements (GUM)*

NOTE Further related standards, guides, etc. on subjects included in this International Standard are given in the bibliography.

3 Terms and definitions

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