ICS 17.220.20 SLOVENSKÁ TECHNICKÁ NORMA September 2025

STN	**Technika skúšok vysokým napätím Časť 1: Všeobecné definície a skúšobné požiadavky**	**STN EN IEC 60060-1 34 5640**

High-voltage test techniques - Part 1: General terminology and test requirements

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 08/25

Obsahuje: EN IEC 60060-1:2025, IEC 60060-1:2025

Oznámením tejto normy sa od 30.06.2028 ruší
STN EN 60060-1 (34 5640) zo septembra 2011

140961

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 60060-1

June 2025

ICS 17.220.20

Supersedes EN 60060-1:2010

English Version

High-voltage test techniques - Part 1: General terminology and test requirements (IEC 60060-1:2025)

Techniques d'essais à haute tension - Partie 1: Terminologie générale et exigences d'essai (IEC 60060-1:2025)

Hochspannungs-Prüftechnik - Teil 1: Allgemeine Begriffe und Prüfbedingungen (IEC 60060-1:2025)

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Ref. No. EN IEC 60060-1:2025 E

European foreword

The text of document 42/444/FDIS, future edition 4 of IEC 60060-1, prepared by TC 42 "High-voltage and high-current test techniques" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60060-1:2025.

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) 2026-06-30
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2028-06-30

This document supersedes EN 60060-1:2010 and all of its amendments and corrigenda (if any).

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The text of the International Standard IEC 60060-1:2025 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 standard indicated:

IEC 60270	NOTE	Approved as EN 60270
IEC 60507	NOTE	Approved as EN 60507
IEC 60060-3	NOTE	Approved as EN 60060-3
IEC 60071-1	NOTE	Approved as EN IEC 60071-1
IEC 60071-2	NOTE	Approved as EN IEC 60071-2
IEC 62271-1	NOTE	Approved as EN 62271-1

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where 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.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60060-2	-	High-voltage test techniques - Part 2: Measuring systems	EN IEC 60060-2	-
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	-	Instruments and software used for measurement in high-voltage and high-current tests - Part 2: Requirements for software for tests with impulse voltages and currents	EN 61083-2	-
IEC 62475	-	High-current test techniques - Definitions and requirements for test currents and measuring systems	EN 62475	-

IEC 60060-1

Edition 4.0 2025-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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Techniques d'essais à haute tension – Partie 1: Terminologie générale et exigences d'essai

IEC 60060-1:2025-04(en-fr)

IEC 60060-1

Edition 4.0 2025-04

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 17.220.20 ISBN 978-2-8327-0328-1

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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HIGH-VOLTAGE TEST TECHNIQUES –

Part 1: General terminology and test 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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IEC 60060-1 has been prepared by IEC technical committee 42: High-voltage and high-current test techniques. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2010. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) The general layout and text have been updated and improved to make the standard easier to use, particularly the clauses for combined and composite test voltages.
b) The positive tolerance of the front time of lightning impulse voltage has been extended for U_m > 800 kV to 100 % (= 2,4 µs).

c) For switching impulse voltage, a front time has been introduced, similar to lightning impulse voltage and with the new front time the standard switching impulse is defined as 170/2 500 µs.

d) The requirements for precipitations in wet tests have been adjusted depending on U_{m}.

e) A new Annex C, "Procedure for manual calculation from graphical waveforms" has been incorporated.

f) Examples of software packages have been removed in Annex D, "Guidance for implementing software for evaluation of lightning impulse voltage parameters".

g) The annex relating to the "Background to the introduction of the test voltage factor for evaluation of impulses with overshoot" has been deleted.

h) A new informative Annex F, "New definition of the front time of switching impulse voltage" has been incorporated.

The text of this International Standard is based on the following documents:

Draft	Report on voting
42/444/FDIS	42/454A/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

HIGH-VOLTAGE TEST TECHNIQUES –

Part 1: General terminology and test requirements

1 Scope

This part of IEC 60060 is applicable to:

– dielectric tests with direct voltage;
– dielectric tests with alternating voltage;
– dielectric tests with impulse voltage;
– dielectric tests with combinations of the above.

This document is applicable to tests on equipment having its highest voltage for equipment U_m above 1,0 kV AC and 1,5 kV DC.

NOTE 1 Alternative test procedures can be required to obtain reproducible and significant results. The choice of a suitable test procedure is considered by the relevant Technical Committee.

NOTE 2 For voltages U_m above 800 kV it is possible that some specified procedures, tolerances and uncertainties will not be achievable.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 60060-2, *High-voltage test techniques – Part 2: Measuring systems*

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

IEC 61083-2, *Instruments and software used for measurement in high-voltage and high-current tests – Part 2: Requirements for software for tests with impulse voltages and currents*

IEC 62475, *High-current test techniques – Definitions and requirements for test currents and measuring systems*