# High-current test techniques: Definitions and requirements for test currents and measuring systems

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

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|---|---|
| Käesolev Eesti standard EVS-EN 62475:2010 sisaldab Euroopa standardi EN 62475:2010 ingliskeelset teksti. | This Estonian standard EVS-EN 62475:2010 consists of the English text of the European standard EN 62475:2010. |
| Standard on kinnitatud Eesti Standardikeskuse 31.12.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas. | This standard is ratified with the order of Estonian Centre for Standardisation dated 31.12.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation. |
| Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 03.12.2010. | Date of Availability of the European standard text 03.12.2010. |
| Standard on kättesaadav Eesti standardiorganisatsioonist. | The standard is available from Estonian standardisation organisation. |



**ICS** 19.080

EUROPEAN STANDARD

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# EN 62475

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ICS 19.080

English version

# High-current test techniques - Definitions and requirements for test currents and measuring systems

(IEC 62475:2010)

Techniques des essais à haute intensité - Définitions et exigences relatives aux courants d'essai et systèmes de mesure
(CEI 62475:2010)

Hochstrom-Prüftechnik - Begriffe und Anforderungen für Hochstrom-Messungen
(IEC 62475:2010)



CENELEC

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

**Management Centre: Avenue Marnix 17, B - 1000 Brussels**



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## Foreword

The text of document 42/278/FDIS, future edition 1 of IEC 62475, prepared by IEC TC 42, High-voltage testing techniques, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62475 on 2010-12-01.

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:

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|---|---|---|
| – latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2011-09-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2013-12-01 |

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 62475:2010 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:

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|---|---|---|
| IEC 60076-5:2000 | NOTE | Harmonized as EN 60076-5:2000 (not modified). |
| IEC 60099-4:2004 | NOTE | Harmonized as EN 60099-4:2004 (modified). |
| IEC 60265-1:1998 | NOTE | Harmonized as EN 60265-1:1998 (not modified). |
| IEC 60282-1:2009 | NOTE | Harmonized as EN 60282-1:2009 (not modified). |
| IEC 60947-1:2007 | NOTE | Harmonized as EN 60947-1:2007 (not modified). |
| IEC 60947-2:2006 | NOTE | Harmonized as EN 60947-2:2006 (not modified). |
| IEC 60947-3:2008 | NOTE | Harmonized as EN 60947-3:2009 (not modified). |
| IEC 61000-4-5 | NOTE | Harmonized as EN 61000-4-5. |
| IEC 61083-1:2001 | NOTE | Harmonized as EN 61083-1:2001 (not modified). |
| IEC 61083-2:1996 | NOTE | Harmonized as EN 61083-2:1997 (not modified). |
| IEC 61180-2:1994 | NOTE | Harmonized as EN 61180-2:1994 (not modified). |
| IEC 61230:2008 | NOTE | Harmonized as EN 61230:2008 (not modified). |
| IEC 61643-11 | NOTE | Harmonized as EN 61643-11. |
| IEC 61643-21 | NOTE | Harmonized as EN 61643-21. |
| IEC 62271-1 | NOTE | Harmonized as EN 62271-1. |
| IEC 62271-100:2008 | NOTE | Harmonized as EN 62271-100:2009 (not modified). |
| IEC 62271-101 | NOTE | Harmonized as EN 62271-101. |
| IEC 62271-102:2001 | NOTE | Harmonized as EN 62271-102:2002 (not modified). |

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| IEC 62271-103 | NOTE | Harmonized as EN 62271-103. |
| IEC 62271-104 | NOTE | Harmonized as EN 62271-104. |
| IEC 62271-105 | NOTE | Harmonized as EN 62271-105. |
| IEC 62271-110:2009 | NOTE | Harmonized as EN 62271-110:2009 (not modified). |
| IEC 62305-1 | NOTE | Harmonized as EN 62305-1. |
| 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 60051-2 | 1984 | Direct acting indicating analogue electrical measuring instruments and their accessories - Part 2: Special requirements for ammeters and voltmeters | EN 60051-2 | 1989 |
| IEC 60060-1 | 2010 | High-voltage test techniques - Part 1: General definitions and test requirements | EN 60060-1 | 2010 |
| IEC 61180-1 | - | High-voltage test techniques for low-voltage equipment - Part 1: Definitions, test and procedure requirements | EN 61180-1 | - |
| ISO/IEC Guide 98-3 | 2008 | Uncertainty of measurement - Part 3: Guide to the expression of uncertainty in measurement (GUM:1995) | - | - |

# CONTENTS

# HIGH-CURRENT TEST TECHNIQUES – DEFINITIONS AND REQUIREMENTS FOR TEST CURRENTS AND MEASURING SYSTEMS



## 1 Scope

This International Standard is applicable to high-current testing and measurements on both high-voltage and low-voltage equipment. It deals with steady-state and short-time direct current (as e.g. encountered in high-power d.c. testing), steady-state and short-time alternating current (as e.g. encountered in high-power a.c. testing), and impulse-current. In general, currents above 100 A are considered in this International Standard, although currents less than this can occur in tests.

NOTE This standard also covers fault detection during, for example, lightning impulse testing.

This standard:

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

## 2 Normative references

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

IEC 60051-2:1984, *Direct acting analogue electrical measuring instruments and their accessories – Part 2: Special requirements* for ammeters and voltmeters

IEC 60060-1:2010, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 61180-1, *High-voltage test techniques for low-voltage equipment – Part 1: Definitions, test and procedure requirements*

ISO/IEC Guide 98-3:2008, *Uncertainty of measurement – Part 3: Guide to the expression of uncertainty in measurement (GUM: 1995)*

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

## 3 Terms and definitions

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