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**Električna varnost v nizkonapetostnih razdelilnih sistemih za izmenične napetosti do 1 kV in enosmerne napetosti do 1,5 kV – Oprema za preskušanje, mejenje ali nadzorovanje zaščitnih ukrepov – 1. del: Splošne zahteve (IEC 61557-1:1997)**

Electrical safety in low voltage distribution systems up to 1 kV a.c. and 1,5 kV d.c. - Equipment for testing, measuring or monitoring of protective measures -- Part 1: General requirements

Elektrische Sicherheit in Niederspannungsnetzen bis AC 1 kV und DC 1,5 kV - Geräte zum Prüfen, Messen oder Überwachen von Schutzmaßnahmen -- Teil 1: Allgemeine Anforderungen

Sécurité électrique dans les réseaux de distribution basse tension de 1 kV c.a. et 1,5 kV c.c. - Dispositifs de contrôle, de mesure ou de surveillance de mesures de protection -- Partie 1: Prescriptions générales

**Ta slovenski standard je istoveten z: EN 61557-1:1997**

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**ICS:**

17.220.20	Merjenje električnih in magnetnih veličin	Measurement of electrical and magnetic quantities
29.080.01	Električna izolacija na splošno	Electrical insulation in general
29.240.01	Omrežja za prenos in distribucijo električne energije na splošno	Power transmission and distribution networks in general

**SIST EN 61557-1:2000**

**en**

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ICS 19.080

Descriptors: Low voltage distribution systems, electrical safety, equipment for testing, measuring or monitoring of protective measures, general requirement

English version

**Electrical safety in low voltage distribution systems  
up to 1 kV a.c. and 1,5 kV d.c. - Equipment for testing, measuring  
or monitoring of protective measures  
Part 1: General requirements  
(IEC 61557-1:1997)**

Sécurité électrique dans les réseaux de  
distribution basse tension de 1 kV c.a.  
et 1,5 kV c.c. - Dispositifs de contrôle,  
de mesure ou de surveillance de  
mesures de protection  
Partie 1: Prescriptions générales  
(CEI 61557-1:1997)

Elektrische Sicherheit in  
Niederspannungsnetzen bis AC 1 kV  
und DC 1,5 kV - Geräte zum Prüfen,  
Messen oder Überwachen von  
Schutzmaßnahmen  
Teil 1: Allgemeine Anforderungen  
(IEC 61557-1:1997)

This European Standard was approved by CENELEC on 1997-03-11. 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.

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**CENELEC**

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

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

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### Foreword

The text of document 85/89/FDIS, future edition 1 of IEC 61557-1, prepared by IEC TC 85, Measuring equipment for electromagnetic quantities, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61557-1 on 1997-03-11.

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) 1997-12-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 1997-12-01

Annexes designated "normative" are part of the body of the standard.  
In this standard, annex ZA is normative.  
Annex ZA has been added by CENELEC.

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### Endorsement notice

The text of the International Standard IEC 61557-1:1997 was approved by CENELEC as a European Standard without any modification.

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**Annex ZA** (normative)

**Normative references to international publications  
with their corresponding European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 38 (mod)	1983	IEC Standard voltages <sup>1)</sup>	HD 472 S1	1989
IEC 50(601)	1985	International electrotechnical vocabulary Chapter 601: Generation, transmission and distribution of electricity - General	-	-
IEC 50(603)	1986	Chapter 603: Generation, transmission and distribution of electricity - Power system planning and management	-	-
IEC 50(826)	1982	Chapter 826: Electrical installations of buildings	HD 384.2 S1	1986
IEC 51-1	1984	Direct acting indicating analogue electrical-measuring instruments and their accessories Part 1: Definitions and general requirements common to all parts	EN 60051-1	1989
IEC 359	1987	Expression of the performance of electrical and electronic measuring equipment	-	-
IEC 364	series	Electrical installations of buildings	HD 384	series
IEC 364-4-41 (mod)	1992	Part 4: Protection for safety Chapter 41: Protection against electric shock	HD 384.4.41 S2	1996
IEC 364-6-61 (mod)	1986	Part 6: Verification -- Chapter 61: Initial verification	HD 384.6.61 S1	1992
IEC 529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993

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1) The title of HD 472 S1 is: Nominal voltages for low voltage public electricity supply systems.

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<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 1010-1 (mod)	1990	Safety requirements for electrical equipment for measurement, control and laboratory use Part 1: General requirements	EN 61010-1 <sup>2)</sup>	1993
IEC 61557-2	1997	Electrical safety in low voltage distribution systems up to 1 kV a.c. and 1,5 kV d.c. Equipment for testing, measuring or monitoring of protective measures Part 2: Insulation resistance	EN 61557-2	1997
IEC 61557-3	1997	Part 3: Loop impedance	EN 61557-3	1997
IEC 61557-4	1997	Part 4: Resistance of earth connection and equipotential bonding	EN 61557-4	1997
IEC 61557-5	1997	Part 5: Resistance to earth	EN 61557-5	1997
IEC 61557-6	1997	Part 6: Residual current devices (RCD) in TT and TN systems	-	-
IEC 61557-7	1997	Part 7: Phase sequence	EN 61557-7	1997
IEC 61557-8	1997	Part 8: Insulation monitoring devices for IT systems	EN 61557-8	1997

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2) EN 61010-1 includes A1:1992 to IEC 1010-1.

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First edition  
1997-02

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**Sécurité électrique dans les réseaux  
de distribution basse tension de 1000 V c.a.  
et 1500 V c.c. –  
Dispositifs de contrôle, de mesure ou  
de surveillance de mesures de protection –**

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**Partie 1:  
Prescriptions générales**

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**Electrical safety in low voltage distribution  
systems up to 1000 V a.c. and 1500 V d.c. –  
Equipment for testing, measuring or monitoring  
of protective measures –**

**Part 1:  
General requirements**

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International Electrotechnical Commission  
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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICAL SAFETY IN LOW VOLTAGE DISTRIBUTION SYSTEMS  
UP TO 1000 V a.c. AND 1500 V d.c. –  
Equipment for testing, measuring or monitoring  
of protective measures –**

**Part 1: General requirements**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
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- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61557-1 has been prepared by IEC technical committee 85: Measuring equipment for electromagnetic quantities.

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

FDIS	Report on voting
85/89/FDIS	85/123/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.

Parts 2 to 8 of IEC 1557 comprise specific specifications for individual measuring equipment. These parts shall be used in conjunction with part 1.

IEC 1557 consists of the following parts, under the general title: Equipment for testing, measuring or monitoring of protective measures

- Part 1: General requirements
- Part 2: Insulation resistance
- Part 3: Loop impedance
- Part 4: Resistance of earth connection and equipotential bonding
- Part 5: Resistance to earth
- Part 6: Residual current devices (RCD) in TT and TN systems
- Part 7: Phase sequence
- Part 8: Insulation monitoring devices for IT systems

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## INTRODUCTION

IEC 364-6-61: 1986, stipulates standardized conditions for the initial test of power installations in TN, TT or IT (IEC 364) systems, for continuous monitoring and for testing these installations after modifications. In addition to general references for the execution of the tests, IEC 364-6-61 contains requirements which have to be verified by measurement. Only in a few instances, for example, when measuring the insulation resistance, the standard contains details of the characteristics of the measuring device to be used. Circuits which are given as examples in IEC 364-6-61, and referred to within the text, are generally not suitable for practical use.

The tests are carried out in installations where hazardous voltages can occur and where careless use or a defect in the equipment can easily cause an accident. Therefore, the technician has to rely on measuring devices which ensure, apart from simplification of the measurements, safe test methods.

The application of the general safety regulations for electrical and electronic measuring devices (IEC 1010-1) for testing the protective measures is not sufficient in itself. The execution of measurements in the installation can cause hazards not only to the technician, but, depending on the measuring method, also to third persons.

Likewise, reliable and comparable results of measurement with measuring devices from different manufacturers are an important precondition in order to obtain an objective judgement about the installation, for example when the installation is handed over, for periodic tests, for continuous insulation monitoring, or in the case of performance warranty.

This series of standards has been established with the aim of stipulating common principles for measuring and monitoring equipment for testing the electrical safety in systems with nominal voltages up to 1000 V a.c. and 1500 V d.c. which correspond to the above-mentioned characteristics.

For this reason, the following common specifications have been stipulated in part 1 and other individual parts of the series of standards. These are in particular:

- protection against extraneous voltages;
- protection class II (except insulation monitoring devices);
- specifications and safety precautions against hazardous touch voltages at the measuring device;
- specifications for the judgement of connection configurations with respect to wiring errors in the tested equipment;
- special mechanical requirements;
- measuring methods;
- measured quantity, nominal range of use;
- specification of the maximum operating error;
- specifications for testing the influencing quantity and the calculation of the operational error;
- errors of the measuring device at the thresholds specified in the respective standards;
- specification of the nature of type and routine tests and the required conditions for testing.