SLOVENSKI STANDARD
SIST EN 61340-2-1:2003

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Electrostatics - Part 2-1: Measurement methods - Ability of materials and products to dissipate static electric charge

Electrostatics -- Part 2-1: Measurement methods - Ability of materials and products to dissipate static electric charge

Elektrostatik -- Teil 2-1: Messverfahren - Fähigkeit von Materialien und Erzeugnissen, elektrostatische Ladungen abzuleiten

Electrostatique -- Partie 2-1: Méthodes de mesure - Capacité des matériaux et des produits à dissiper des charges électrostatiques

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English version

Electrostatics
Part 2-1: Measurement methods - Ability of materials and products to dissipate static electric charge
(IEC 61340-2-1:2002)

Electrostatique
Partie 2-1: Méthodes de mesure -
Capacité des matériaux et des produits à dissiper des charges électrostatiques
(CEI 61340-2-1:2002)

Elektrostatik
Teil 2-1: Messverfahren -
Fähigkeit von Materialien und Erzeugnissen, elektrostatische Ladungen abzuleiten
(IEC 61340-2-1:2002)

This European Standard was approved by CENELEC on 2002-09-01. 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, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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

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Foreword

The text of document 101/138/FDIS, future edition 1 of IEC 61340-2-1, prepared by IEC TC 101, Electrostatics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61340-2-1 on 2002-09-01.

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) 2003-06-01

– latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2005-09-01

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

Endorsement notice

The text of the International Standard IEC 61340-2-1:2002 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 61340-5-2 NOTE Harmonized as EN 61340-5-2:2001 (not modified).

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.

Publication	Year	Title	EN/HD	Year
IEC 61340-5-1 + corr. February	1998 1999	Electrostatics Part 5-1: Protection of electronic devices from electrostatic phenomena - General requirements	EN 61340-5-1 + corr. April	2001 2001
ISO 2859-0	1995	Sampling procedures for inspection by attributes Part 0: Introduction to the ISO 2859 attribute sampling system	-	-
ISO/TR 13425	1995	Guide for the selection of statistical methods in standardization and specification	-	-

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Electrostatique –

Partie 2-1:
Méthodes de mesure –
Capacité des matériaux et des produits à dissiper des charges électrostatiques

Electrostatics –

Part 2-1:
Measurement methods –
Ability of materials and products to dissipate static electric charge

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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ELECTROSTATICS –

Part 2-1: Measurement methods – Ability of materials and products to dissipate static electric charge

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 specifications, technical reports or guides and they are accepted by the National Committees in that sense.
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International Standard IEC 61340-2-1 has been prepared by IEC technical committee 101: Electrostatics.

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

FDIS	Report on voting
101/138/FDIS	101/141/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 3.

Annex A forms an integral part of this standard.

The committee has decided that the contents of this publication will remain unchanged until 2007. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

INTRODUCTION

Measurements of the rate of dissipation of static charge belong to the essential measurement techniques in the field of electrostatics.

For homogeneous conductive materials this property can be evaluated by measuring resistance or resistivity parameters.

For materials in the dissipative or insulative range and especially for high ohmic materials including conductive fibres (e.g. textiles with a metallic grid), resistance measurements may not be reliable enough or may not give enough information and the rate of dissipation of static charge needs to be measured.

For many non-metal materials, such as plastics, the transport of charges is dependent on the applied electrical field strength during the measurement, for example, a measurement of resistance will show a non-linear dependence on applied test voltage. There are also problems with spatial inhomogeneity with measurement methods that use contacting electrodes. These points are covered by measuring the rate of dissipation of charge.

ELECTROSTATICS –

Part 2-1: Measurement methods – Ability of materials and products to dissipate static electric charge

1 Scope

This part of IEC 61340 describes test methods for measuring the rate of dissipation of static charge of insulating and static dissipative materials and products.

It includes a generic description of test methods and detailed test procedures for specific applications.

2 Normative references

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.

IEC 61340-5-1:1998, *Electrostatics – Part 5-1: Protection of electronic devices from electrostatic phenomena – General requirements*[1]

ISO 2859-0:1995, *Sampling procedures for inspection by attributes – Part 0: Introduction to the ISO 2859 attribute sampling system*

ISO/TR 13425:1995, *Guide for the selection of statistical methods in standardization and specification*

3 Definitions

For the purpose of this part of IEC 61340, the following definitions apply.

3.1
charge decay
migration of charge across or through a material leading to a reduction of charge density or surface potential at the area where the charge was deposited

3.2
charge decay time constant
time required for the local charge density or surface potential to fall to 1/e of its initial value (e being the base of the natural logarithms 2,7183)

3.3
charged plate monitor (CPM)
instrument using a charged metal plate of a certain capacitance and geometry which is going to be discharged in order to measure charge dissipation/neutralization properties of products or materials

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[1] For the interpretation of this publication see IEC 61340-5-2 given in the bibliography.