SVENSK STANDARD SS-EN 61340-2-3

Fastställd	Utgåva	Sida	Ansvarig kommitté
2001-08-28	1	1 (1+22)	SEK TK 101

Elektrostatiska urladdningar (ESD) – Del 2-3: Bestämning av resistans och resistivitet hos fasta, plana material som används för att undvika ackumulering av elektrostatiska laddningar

Electrostatics –
Part 2-3: Methods of test for determining the resistance and resistivity of solid planar materials used to avoid electrostatic charge accumulation

Som svensk standard gäller europastandarden EN 61340-2-3:2000. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61340-2-3:2000.

Nationellt förord

Europastandarden EN 61340-2-3:2000[*)]

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 61340-2-3, First edition, 2000 - Electrostatics - Part 2-3: Methods of test for determining the resistance and resistivity of solid planar materials used to avoid electrostatic charge accumulation**

utarbetad inom International Electrotechnical Commission, IEC.

[*)] EN 61340-2-3:2000 ikraftsattes 2001-08-28 som SS-EN 61340-2-3 genom offentliggörande, d v s utan utgivning av något svenskt dokument.

ICS 17.220.99; 29.020

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
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Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

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SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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EUROPEAN STANDARD **EN 61340-2-3**

NORME EUROPÉENNE

EUROPÄISCHE NORM May 2000

ICS 17.220.99;29.020

English version

Electrostatics
Part 2-3: Methods of test for determining the resistance and resistivity of solid planar materials used to avoid electrostatic charge accumulation
(IEC 61340-2-3:2000)

Electrostatique
Partie 2-3: Méthodes d'essais pour la détermination de la résistance et de la résistivité des matériaux planaires solides destinés à éviter les charges électrostatiques
(CEI 61340-2-3:2000)

Elektrostatik
Teil 2-3: Prüfverfahren zur Bestimmung des Widerstandes und des spezifischen Widerstandes von festen planen Werkstoffen, die zur Vermeidung elektrostatischer Aufladung verwendet werden
(IEC 61340-2-3:2000)

This European Standard was approved by CENELEC on 2000-04-01. 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, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Ref. No. EN 61340-2-3:2000 E

SEK Svensk Elstandard

Foreword

The text of document 101/71/FDIS, future edition 1 of IEC 61340-2-3, prepared by IEC TC 101, Electrostatics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61340-2-3 on 2000-04-01.

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)	2001-01-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2003-04-01

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.

Endorsement notice

The text of the International Standard IEC 61340-2-3:2000 was approved by CENELEC as a European Standard without any modification.

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 60093	1980	Methods of test for volume resistivity and surface resistivity of solid electrical insulating materials	HD 429 S1	1983
IEC 60167	1964	Methods of test for the determination of the insulation resistance of solid insulating materials	HD 568 S1	1990
IEC 60212	1971	Standard conditions for use prior to and during the testing of solid electrical insulating materials	HD 437 S1	1984
IEC 60260	1968	Test enclosures of non-injection type for constant relative humidity	HD 98 S1	1977
ISO 1853	1998	Conducting and dissipative rubbers, vulcanized or thermoplastic Measurement of resistivity	-	-
ISO 2951	1974	Vulcanized rubber Determination of insulation resistance	-	-
ISO 3915	1981	Plastics Measurement of resistivity of conductive plastics	EN ISO 3915	1999

CONTENTS

INTRODUCTION

Measurements of resistances and related calculations of resistivities belong to the fundamental objectives of electrical measuring techniques along with measurements of voltage and current.

Resistivity is the electrical characteristic having the widest range, extending over some thirty orders of magnitude from the most conductive metal to almost perfect insulators.

The basis is Ohm's law and is valid for d.c. current and instantaneous values of a.c. current in electron conductors (metals, carbon, etc.). Values of resistance measurements using a.c. current can be influenced by capacitive/inductive reactance, depending on the frequency. Thus, existing national and international standards dealing with resistance measurements of solid materials normally require the application of d.c. current.

Most non-metal materials such as plastics are classified as polymers and ion conductors. The transport of charges can be dependent upon the applied electrical field strength during the measurement. Beside the measuring current, there exists a charging current that polarizes and/or electrostatically charges the material, indicated by an asymptotic decay of the measuring current with time and causing an apparent change in resistance. If this effect is observed, it will be advisable to repeat the measurement immediately after a definite electrification time has elapsed using the reverse polarity for the measuring current and averaging both obtained values.

ELECTROSTATICS –

Part 2-3: Methods of test for determining the resistance and resistivity of solid planar materials used to avoid electrostatic charge accumulation

1 Scope

This International Standard describes test methods for the determination of the electrical resistance and resistivity of solid materials in the range from 10^4 Ω to 10^{12} Ω used to avoid electrostatic charge accumulation.

It takes account of existing IEC/ISO standards and other published information, and gives recommendations and guidelines on the appropriate method.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61340. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 61340 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60093:1980, *Methods of test for volume resistivity and surface resistivity of solid electrical insulating materials*

IEC 60167:1964, *Methods of test for the determination of the insulation resistance of solid insulating materials*

IEC 60212:1971, *Standard conditions for use prior to and during the testing of solid electrical insulating materials*

IEC 60260:1968, *Test enclosures of non-injection type for constant relative humidity*

ISO 1853:1998, *Conducting and antistatic rubbers – Measurement of resistivity*

ISO 2951:1974, *Vulcanized rubber – Determination of insulation resistance*

ISO 3915:1981, *Plastics – Measurement of resistivity of conductive plastics*