IEC 61340-4-8

Edition 1.0 2010-01

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Withdrawn

Electrostatics –
Part 4-8: Standard test methods for specific applications – Discharge shielding – Bags

Électrostatique –
Partie 4-8: Méthodes d'essai normalisées pour des applications spécifiques – Blindage contre les décharges – Sacs

IEC 61340-4-8:2010

Documents
Document Sharing Hub

Full document details: IEC 61340-4-8 2010

THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2010 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester.
If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de la CEI ou du Comité national de la CEI du pays du demandeur.
Si vous avez des questions sur le copyright de la CEI ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de la CEI de votre pays de résidence.

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland
Email: inmail@iec.ch
Web: www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

- Catalogue of IEC publications: www.iec.ch/searchpub
The IEC on-line Catalogue enables you to search by a variety of criteria (reference number, text, technical committee,…). It also gives information on projects, withdrawn and replaced publications.
- IEC Just Published: www.iec.ch/online_news/justpub
Stay up to date on all new IEC publications. Just Published details twice a month all new publications released. Available on-line and also by email.
- Electropedia: www.electropedia.org
The world's leading online dictionary of electronic and electrical terms containing more than 20 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary online.
- Customer Service Centre: www.iec.ch/webstore/custserv
If you wish to give us your feedback on this publication or need further assistance, please visit the Customer Service Centre FAQ or contact us:
Email: csc@iec.ch
Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00

A propos de la CEI

La Commission Electrotechnique Internationale (CEI) est la première organisation mondiale qui élabore et publie des normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications CEI

Le contenu technique des publications de la CEI est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

- Catalogue des publications de la CEI: www.iec.ch/searchpub/cur_fut-f.htm
Le Catalogue en-ligne de la CEI vous permet d'effectuer des recherches en utilisant différents critères (numéro de référence, texte, comité d'études,…). Il donne aussi des informations sur les projets et les publications retirées ou remplacées.
- Just Published CEI: www.iec.ch/online_news/justpub
Restez informé sur les nouvelles publications de la CEI. Just Published détaille deux fois par mois les nouvelles publications parues. Disponible en-ligne et aussi par email.
- Electropedia: www.electropedia.org
Le premier dictionnaire en ligne au monde de termes électroniques et électriques. Il contient plus de 20 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans les langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International en ligne.
- Service Clients: www.iec.ch/webstore/custserv/custserv_entry-f.htm
Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions, visitez le FAQ du Service clients ou contactez-nous:
Email: csc@iec.ch
Tél.: +41 22 919 02 11
Fax: +41 22 919 03 00

Withdrawn

Documents
Document Sharing Hub

Full document details: IEC 61340-4-8 2010

IEC 61340-4-8

Edition 1.0 2010-01

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Withdrawn

Electrostatics –
Part 4-8: Standard test methods for specific applications – Discharge shielding – Bags

Électrostatique –
Partie 4-8: Méthodes d'essai normalisées pour des applications spécifiques – Blindage contre les décharges – Sacs

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

PRICE CODE
CODE PRIX **M**

ICS 17.200.99; 29.020

ISBN 978-2-88912-462-6

® Registered trademark of the International Electrotechnical Commission
Marque déposée de la Commission Electrotechnique Internationale

Documents
Document Sharing Hub

Full document details: IEC 61340-4-8 2010

CONTENTS

FOREWORD 3
INTRODUCTION 5
1 Scope 6
2 Normative references 6
3 Terms and definitions 6
4 Required equipment 6
4.1 ESD simulator 6
4.2 Waveform verification equipment 7
4.2.1 Oscilloscope 7
4.2.2 Current probe 7
4.2.3 High voltage resistor 7
4.3 Capacitive probe 7
4.4 Discharge electrode and ground electrode 7
4.5 Bag size 7
4.6 Computer/software 7
4.7 Environmental chamber 7
5 ESD simulator waveform verification procedure 8
6 System verification procedure 8
7 Test procedure/conditioning 8
8 Reporting 9
Annex A (informative) Energy calculation program 13

Figure 1 – ESD simulator 10
Figure 2 – Parallel plate capacative probe 11
Figure 3 – Current waveform through a 500 Ω resistor 12

Withdrawn

Documents
Document Sharing Hub
Full document details: IEC 61340-4-8 2010

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTROSTATICS –

Part 4-8: Standard test methods for specific applications – Discharge shielding – Bags

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.

2) The formal decisions or agreements of 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 IEC National Committees.

3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.

4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.

5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.

6) All users should ensure that they have the latest edition of this publication.

7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.

8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61340-4-8 has been prepared by IEC technical committee 101: Electrostatics.

The text of this standard is based on ANSI/ESD STM11.31-2006. It was submitted to the National Committees for voting under the Fast Track Procedure.

This bilingual version (2011-04) replaces the English version.

Withdrawn

Documents
Document Sharing Hub

Full document details: IEC 61340-4-8 2010

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

FDIS	Report on voting
101/293/FDIS	101/297/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.

The French version of this standard has not been voted upon.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 61340 series, under the general title *Electrostatics*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

Withdrawn

Documents
Document Sharing Hub

Full document details: IEC 61340-4-8 2010

INTRODUCTION

It is the intent of this part of IEC 61340 to provide industry with a common, repeatable method for testing and determining the shielding abilities of electrostatic shielding bags.

This test method improved upon the existing industry test method for static shielding by controlling some of the variables that were not previously addressed such as:

– discharge waveform characteristics;

– capacitive probe capacitance;

– bag size.

This test method has also made a significant change by discontinuing the use of two voltage probes and incorporating a single current probe for measurement purposes. This was done to eliminate the problems that were encountered with attempting to balance the voltage probes which resulted in measurement errors.

withdrawn

Documents
Document Sharing Hub

Full document details: IEC 61340-4-8 2010

ELECTROSTATICS –

Part 4-8: Standard test methods for specific applications – Discharge shielding – Bags

Withdrawn

1 Scope

This part of IEC 61340 provides a test method for evaluating the performance of electrostatic discharge shielding bags. The design voltage for the test apparatus is 1 000 V.

The purpose of this standard is to ensure that testing laboratories who use this test method to evaluate a given packaging material will obtain similar results.

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.

ANSI/ESD STM5.1, *ESD association standard test method for electrostatic discharge sensitivity testing – Human body model (HBM) – Component level*[1]

ASTM D-257-78 *(reapproved 1983), Standard test method for DC resistance or conductance of insulating materials*[2]

3 Terms and definitions

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

3.1
electrostatic shield
barrier or enclosure that limits the penetration of an electrostatic field

3.2
electrostatic discharge shield
barrier or enclosure that limits the passage of current and attenuates an electromagnetic field resulting from an electrostatic discharge

4 Required equipment

4.1 ESD simulator

A basic ESD simulator is shown in Figure 1. This simulator and the resulting waveforms were taken from ANSI/ESD STM5.1. The equivalent circuit for the simulator consists of a 100 pF capacitor in series with a 1 500 Ω resistor.

---

1 ESD Association, 7900 Turin Road, Bldg. 3, Ste 2, Rome, NY 13440-2069, 315-339-6937, www.esda.org

2 American Society for Testing and Materials (ASTM) 1916 Race Street, Philadelphia, PA 19103-1187, 215-299-5400

AVA Documents Document Sharing Hub

Full document details: IEC 61340-4-8 2010

4.2 Waveform verification equipment

Equipment capable of verifying the pulse waveforms defined in this part shall include, but is not limited to, a storage oscilloscope, a high voltage resistor and a suitable current probe.

4.2.1 Oscilloscope

A digital storage oscilloscope capable of a 200 MHz single shot bandwidth and a minimum sampling rate of 500 MSPS.

4.2.2 Current probe

The current probe shall have a minimum frequency response of 500 MHz. Included in the current probes that meet this requirement are a Tektronix CT-1, CT-2 and CT-6. The maximum cable length shall be 1 m.

4.2.3 High voltage resistor

The resistor shall be a 500 Ω, 1 % tolerance, 1 000 V, low inductance, sputtered metal film (Caddock Industries type MG or equivalent).

4.3 Capacitive probe

A parallel plate capacitive probe shall be constructed as shown in Figure 2. The capacitance for the probe shall be 8 pF ± 2 pF. The probe capacitance can be verified according to Clause 6, point c).

The spacer between the plates shall be made of an insulating material such as polycarbonate or acrylic.

4.4 Discharge electrode and ground electrode

The discharge electrode and the ground electrode shall be 3,8 cm ± 0,025 cm (1,5" ± 0,010") in diameter and shall be made of a conductive material. The support area that surrounds the ground electrode should be 20 cm × 25 cm (8" × 10") and have a surface resistivity greater than 1 Ω × 10^{13} Ω per square as measured by ASTM D257-78.

4.5 Bag size

The bags used for this test should be 20 cm × 25 cm (8" × 10" with 20 cm (8") being the open end.

NOTE If other bag sizes are used, care must be taken to ensure that the same size bag is used to provide consistent and fair comparison of bags from various manufacturers. Bags, which are not large enough to have the capacitive probe completely inside the bag may yield erroneous results. Bags with substantial differences in thickness may yield results that do not correlate due to the increased transmission length through the bag.

4.6 Computer/software

A computer should be used to analyse the data that is acquired by the oscilloscope. A generic description of the analysis system is described in Annex A.

4.7 Environmental chamber

A chamber is required that can meet the following environmental test conditions:

– control humidity to 12 % RH ± 3% RH at a temperature of 23° C ± 2° C (73° F ± 3° F);

– control humidity to 50 % RH ± 5% RH at a temperature of 23° C ± 2° C (73° F ± 3° F).

Withdrawn

AVA Documents Document Sharing Hub

Full document details: IEC 61340-4-8 2010