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Electrostatics - Part 4-7: Standard test methods for specific applications - Ionization

Táto norma obsahuje anglickú verziu európskej normy.

This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 11/25

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English Version

**Electrostatics - Part 4-7: Standard test methods for specific
applications - Ionization
(IEC 61340-4-7:2025)**

Electrostatique - Partie 4-7 : Méthodes d'essai normalisées
pour des applications spécifiques - Ionisation
(IEC 61340-4-7:2025)

Elektrostatik - Teil 4-7: Standard-Prüfverfahren für spezielle
Anwendungen - Ionisation
(IEC 61340-4-7:2025)

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Europäisches Komitee für Elektrotechnische Normung

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EN IEC 61340-4-7:2025 (E)**European foreword**

The text of document 101/739/FDIS, future edition 3 of IEC 61340-4-7, prepared by TC 101 "Electrostatics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61340-4-7:2025.

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61010-1	-	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements	EN 61010-1	-



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INTERNATIONAL STANDARD

NORME INTERNATIONALE

Electrostatics -

Part 4-7: Standard test methods for specific applications - Ionization

Electrostatique -

**Partie 4-7: Méthodes d'essai normalisées pour des applications spécifiques -
Ionisation**

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CONTENTS

FOREWORD	3
INTRODUCTION	5
1 Scope	6
2 Normative references	6
3 Terms and definitions	6
4 Test fixture and instrumentation	8
5 Specific requirements for equipment categories	10
5.1 Specific requirements for all ionization equipment	10
5.2 Room ionization	11
5.3 Laminar flow hood ionization	13
5.4 Worksurface ionization	15
5.5 Compressed gas ionizers – Guns and nozzles	17
Annex A (informative) Theoretical background and additional information on the standard test method for the performance of ionizers	19
A.1 Introductory remarks	19
A.2 Air ions	19
A.3 Mobility and ion current	19
A.4 Neutralization current	20
A.5 Neutralization rate	20
A.6 Ion depletion and field suppression	20
A.7 Charged plate monitor and charge neutralization	21
A.8 Relationship between charged plate monitor decay time and actual object	21
A.9 Offset voltage	21
A.10 Preparation of test area	22
A.11 Ion transport in airflow	22
A.12 Obstruction of airflow around the charged plate monitor	22
A.13 Effect of "air blanket"	23
A.14 Sources of measurement error	23
A.14.1 Typical decay time variability	23
A.14.2 Plate isolation	23
A.14.3 Charging voltage	23
A.14.4 Materials near the plate	23
A.14.5 Other field-producing devices in test area	23
A.14.6 Effect of offset voltage on decay time	24
A.15 Importance of ionization equipment maintenance	24
Annex B (normative) Method of measuring the capacitance of an isolated conductive plate	25
B.1 Method	25
B.2 Equipment	25
B.3 Procedure	25
B.4 Example	26
B.5 Sources of error	26
B.5.1 Measuring equipment	26
B.5.2 Poor plate isolation	27
B.5.3 Objects in the environment	27
B.5.4 Stray capacitance	28
Annex C (informative) Safety considerations	29

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C.1	General.....	29
C.2	Electrical.....	29
C.3	Ozone.....	29
C.4	Radioactive.....	29
C.5	X-ray.....	29
C.6	Installation	29
	Bibliography.....	30
	Figure 1 – Charged plate monitor components for non-contacting plate measurement	9
	Figure 2 – Charged plate monitor components for contacting plate measurement	9
	Figure 3 – Conductive plate detail of the non-contacting CPM.....	9
	Figure 4 – Conductive plate detail of the voltage follower CPM	10
	Figure 5 – Test locations for room ionization – AC bars, grids and DC bar systems	12
	Figure 6 – Test locations for room ionization – Single polarity emitter systems	12
	Figure 7 – Test locations for room ionization – Two DC-line systems	13
	Figure 8 – Test locations for room ionization – Pulsed DC emitter systems	13
	Figure 9 – Test locations for vertical laminar flow hood – Top view	14
	Figure 10 – Test locations for vertical laminar flow hood – Side view	14
	Figure 11 – Test locations for horizontal laminar flow hood – Top view	15
	Figure 12 – Test locations for horizontal laminar flow hood – Side view	15
	Figure 13 – Test locations for benchtop ionizer – Top view	16
	Figure 14 – Test locations for benchtop ionizer – Side view	16
	Figure 15 – Test locations for overhead ionizer – Top view	17
	Figure 16 – Test locations for overhead ionizer – Side view	17
	Figure 17 – Test locations for compressed gas ionizer (gun or nozzle) – Side view.....	18
	Table 1 – Test set-ups and test locations and points (TP)	11
	Table B.1 – Example measurement data	26

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**Electrostatics -
Part 4-7: Standard test methods for specific applications - Ionization****FOREWORD**

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IEC 61340-4-7 has been prepared by IEC technical committee 101: Electrostatics. It is an International Standard.

This third edition cancels and replaces the second edition published in 2017. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) in Figure 5, a NOTE 3 was added to clarify that for AC bars and grids, a single emitter alternating between +/- polarity is used;
- b) in Annex B, the relative error for measurement equipment was updated to include the consideration for the resolution of the voltmeter.

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The text of this International Standard is based on the following documents:

Draft	Report on voting
101/739/FDIS	101/744/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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INTRODUCTION

Grounding is the primary method used to limit static charge when protecting electrostatic discharge sensitive items in the work environment. However, grounding methods are not effective in removing static charges from the surfaces of non-conductive (insulative) or isolated (ungrounded) conductive materials. Air ionization techniques, by means of ionizer systems, can be utilized to reduce this charge.

The preferred way of evaluating the ability of an ionizer to neutralize a static charge is to directly measure the rate of charge decay. Charges to be neutralized can be located on insulators as well as on isolated conductors. It is difficult to charge an insulator reliably and repeatably. Charge neutralization is more easily evaluated by measuring the rate of decay of the voltage of an isolated conductive plate. The measurement of this decay should not interfere with or change the nature of the actual decay. Four practical methods of air ionization are addressed in this document:

- a) radioactive emission;
- b) high-voltage corona from AC electric fields;
- c) high-voltage corona from DC electric fields;
- d) soft X-ray emission.

This part of IEC 61340 provides test methods and procedures that can be used when evaluating ionization equipment. The objective of the test methods is to generate meaningful, reproducible data. The test methods are not meant to be a recommendation for any particular ionizer configuration. The wide variety of ionizers, and the environments within which they are used, will often require test methods different from those described in this document. Users of this document should be prepared to adapt the test methods as required to produce meaningful data in their own application of ionizers.

Similarly, the test conditions chosen in this document do not represent a recommendation for acceptable ionizer performance. There is a wide range of item sensitivities to static charge. There is also a wide range of environmental conditions affecting the operation of ionizers. Performance specifications should be agreed upon between the user and manufacturer of the ionizer in each application. Users of this document should be prepared to establish reasonable performance requirements for their own application of ionizers.

Annex B provides a method for measuring capacitance of the isolated conductive plate.

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1 Scope

This part of IEC 61340 provides test methods and procedures for evaluating and selecting air ionization equipment and systems (ionizers).

This document establishes measurement techniques, under specified conditions, to determine offset voltage (ion balance) and decay (charge neutralization) time for ionizers.

This document does not include measurements of electromagnetic interference (EMI), or the use of ionizers in connection with ordnance, flammables, explosive items or electrically initiated explosive devices.

As contained in this document, the test methods and test conditions can be used by manufacturers of ionizers to provide performance data describing their products. Users of ionizers are urged to modify the test methods and test conditions for their specific application in order to qualify ionizers for use, or to make periodic verifications of ionizer performance. The user will decide the extent of the data required for each application.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

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