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TECHNICAL SPECIFICATION

Electrostatics -
Part 5-4: Protection of electronic devices from electrostatic phenomena - Compliance verification

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IEC TS 61340-5-4 has been prepared by IEC technical committee 101: Electrostatics. It is a Technical Specification.

This second edition cancels and replaces the first edition published in 2021. This edition constitutes a technical revision.

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

a) significant new revision;
b) document has been updated and reformatted.

Draft	Report on voting
101/756/DTS	101/761/RVDTS

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 Technical Specification 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.

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

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,
– withdrawn, or
– revised.

Compliance verification is the process of monitoring and measuring all elements of an ESD control program. Regular compliance verification checks and tests are an essential part of this process, ensure that area precautions and equipment remain effective, and that an ESD control program is correctly implemented in compliance with an organization's ESD control program plan.

Qualification testing is typically carried out under controlled conditions, often in a laboratory environment, and using industry recognized standards. Compliance verification testing is carried out under operational conditions using test methods that are appropriate to a user's requirements. Although qualification test methods can be used, compliance verification testing often uses simple equipment and procedures. Accuracy is still important, but of equal importance is the ability to carry out non-destructive testing without interrupting the normal business of the organization.

This document describes equipment and test methods that can be used for compliance verification testing of ESD control items and systems and provides users with troubleshooting guidance regarding the verification procedures for the ESD control items.

This part of IEC 61340 describes compliance verification testing for technical items included in ESD control programs, such as those specified in IEC 61340-5-1.

Test methods are based on those specified in IEC 61340-5-1 and other parts of the IEC 61340 series and are simplified, where appropriate, for the purposes of compliance verification.

This document describes compliance verification procedures intended for use by competent personnel familiar with the operation of test equipment and knowledgeable about the ESD control items being verified.

Organizations can, by reference to this document in their compliance verification plan, adopt the necessary compliance verification procedures described herein without change or addition. Alternatively, compliance verification procedures described in this document can be adapted to match the organization's ESD control program requirements, provided deviations in test equipment and compliance verification procedures are documented in their compliance verification plan.

Product qualification is excluded from the scope of this document.

NOTE 1 For additional information regarding common failure modes of ESD control items, see IEC TR 61340-5-2 [1][1].

NOTE 2 For additional information regarding the reproducibility of measurement results, see IEC TR 61340-1-1 [2].

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.

IEC 61010-1, *Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements*

IEC 61010-2-030, *Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-030: Particular requirements for equipment having testing or measuring circuits*

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

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

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

IEC 62631-3-2, *Dielectric and resistive properties of solid insulating materials - Part 3-2: Determination of resistive properties (DC methods) - Surface resistance and surface resistivity*

ISO 1853, *Conducting and dissipative rubbers, vulcanized or thermoplastic - Measurement of resistivity*

[1] Numbers in square brackets refer to the Bibliography.

[1] IEC TR 61340-5-2, *Electrostatics - Part 5-2: Protection of electronic devices from electrostatic phenomena - User guide*

[2] IEC TR 61340-1-1, *Electrostatics - Part 1-1: Electrostatic phenomena - Measurement errors, uncertainties and expression of results*

[3] IEC TS 61340-5-6, *Electrostatics - Part 5-6: Protection of electronic devices from electrostatic phenomena - Process assessment techniques*

[4] IEC TR 61340-1, *Electrostatics - Part 1: Electrostatic phenomena - Principles and measurements*

[5] ANSI/ESD S6.1, *ESD Association Standard for the Protection of Electrostatic Discharge Susceptible Items - Grounding*

[6] IEC 61340-4-6, *Electrostatics - Part 4-6: Standard test methods for specific applications - Wrist straps*

[7] IEC 61340-4-9, *Electrostatics - Part 4-9: Standard test methods for specific applications - Garments - Resistive characterization*

[8] IEC 61340-4-5, *Electrostatics - Part 4-5: Standard test methods for specific applications - Methods for characterizing the electrostatic protection of footwear and flooring in combination with a person*

[9] IEC 61340-4-1, *Electrostatics - Part 4-1: Standard test methods for specific applications - Electrical resistance of floor coverings and installed floors*

[10] IEC 61340-5-3, *Electrostatics - Part 5-3: Protection of electronic devices from electrostatic phenomena - Properties and requirements classification for packaging intended for electrostatic discharge sensitive devices*

[11] IEC TS 61340-4-2:2013 , *Electrostatics - Part 4-2: Standard test methods for specific applications - Electrostatic properties of garments*

[12] IEC TR 61340-2-2:2000, *Electrostatics - Part 2-2: Measurement methods - Measurement of chargeability*

[13] IEC 61340-2-1, *Electrostatics - Part 2-1: Measurement methods - Ability of materials and products to dissipate static electric charge*

[14] ANSI/ESD S13.1, *ESD Association Standard for the Protection of Electrostatic Discharge Susceptible Items - Electrical Soldering/Desoldering Hand Tools*

[15] ESD TR1.0-01, *ESD Association Technical Report - Survey of Constant Monitors for Wrist Straps*

[16] ANSI/ESD STM15.1, *ESD Association Standard Test Method for the Protection of Electrostatic Discharge Susceptible Items - Methods for the Resistance Measurement of Gloves and Finger Cots*

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