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

静电学 第5-1部分:电子器件的静电防护 通用要求

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Foreword

This document was issued on 6 August 2023 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 March 2024.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

It is classified under ICS 17.220.20, Chinese classification L06.

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

This document is Part 5-1 of GB/T 37977 "Electrostatics". GB/T 37977 has released the following parts.

- Part 2-1. Test methods Materials and products electrostatic charge dissipation ability;
- Part 2-3. Test methods for resistance and resistivity of antistatic solid planar materials;
- Part 3-2. Simulation method of electrostatic effects and electrostatic discharge test waveform of machine model (MM);
- Part 4-8. Standard test methods for electrostatic discharge shielding bags in specific applications;
- Part 5-1. General requirements for electrostatic protection of electronic devices.

This document is equivalent to IEC 61340-5-1:2016 "Electrostatics Part 5-1. General requirements for electrostatic protection of electronic devices".

Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents.

This document is proposed and administered by the Ministry of Industry and Information Technology of the People's Republic of China.

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Introduction

The GB/T 37977 series of standards are basic standards for electrostatics. They all adopt the IEC 61340 series of international standards to define electrostatic effects.

Simulation methods, anti-static parameter testing methods for anti-static materials and products, standard test methods in specific applications, electrostatic protection of electronic devices

Protect etc. The GB/T 37977 series of standards is planned to consist of 11 parts, consistent with the structure of the IEC 61340 series of standards.

---Part 2-1. Test methods for electrostatic charge dissipation capabilities of materials and products. The purpose is to specify test methods for testing insulation

and the static charge dissipation capabilities of static dissipative materials and products.

---Part 2-3. Test methods for resistance and resistivity of antistatic solid planar materials. The purpose is to specify test methods for measuring

Test the resistance and resistivity of the anti-static solid planar material. The applicable range of the measured resistance is 104ohm~1012ohm.

---Part 3-1. Simulation method of electrostatic effects and electrostatic discharge test waveform of human body model (HBM). The purpose is to specify

Basic requirements for electrostatic discharge current waveforms used to simulate HBM and the equipment used to generate and verify these waveforms.

---Part 3-2. Simulation method of electrostatic effects and electrostatic discharge test waveform of machine model (MM). The purpose is to specify

Basic requirements for simulating electrostatic discharge current waveforms of MM and the equipment used to generate and verify these waveforms.

---Part 4-1. Standard test methods Resistance of floor coverings and assembled floors in specific applications. The purpose is to specify the test

This test method is used to test the resistance of floor coverings and assembled floors, including ground resistance, point-to-point resistance and vertical resistance. It is

The applicable range of resistance measurement is 104ohm~1013ohm.

---Part 4-3. Standard test methods for footwear in specific applications. The purpose is to specify test methods for testing anti-static shoes

The resistance.

---Part 4-5. Standard test methods for characterization of electrostatic protection characteristics of human/shoe/ground systems in specific applications. The purpose is

It is a prescribed test method for evaluating the anti-static performance of the person/shoe/ground system.

---Part 4-6. Standard test methods for wristbands in specific applications. The purpose is to

clarify the electrical and mechanical performance requirements of the wristband, and experimental methods for testing these properties.

---Part 4-8. Standard test methods for electrostatic discharge shielding bags in specific applications. The purpose is to provide evaluation of electrostatic discharge screens

Test method for bag performance.

---Part 4-9. Standard test methods for clothing in specific applications. The purpose is to specify test methods for testing anti-static clothing

installed resistor.

---Part 5-1. General requirements for electrostatic protection of electronic devices. The purpose is to establish anti-static management and technical requirements to avoid or Reduce damage to electronic products due to electrostatic discharge.

This document is Part 5-1, covering manufacturing, processing, assembly, installation, packaging, labeling, service, testing, inspection, transportation and other

Handling sensitivity to electrostatic discharge (ESD) not less than Human Body Model (HBM) 100V, Charged Device Model (CDM).200V and isolated conductors

Requirements for designing, establishing, implementing and maintaining electrostatic control procedures for 35V electrical and electronic components, assemblies and equipment. isolated conductor

It was represented by machine model (MM). The limit value of 35V is related to the control level that can be achieved by the ionization static eliminator specified in this document.

Product approval inspection no longer requires the MM test, only the HBM and CDM tests are required. This document retains the MM test only for isolated purposes.

Control procedures for vertical conductors.

Any contact and physical separation of materials, or the flow of solids, liquids, or particulate-containing gases will generate static electricity and is a common source of electrostatic discharge

Including the charged human body, conductors, commonly used polymer materials and processing equipment, ESD damage will occur in the following situations.

---Contact of charged persons or objects with electrostatic discharge sensitive (ESDS) products;

---ESDS products are exposed to electrostatic fields and in direct contact with highly conductive surfaces;

---Electric ESDS products are in surface contact with other conductors with different