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**Determination of the adhesion of metallic coatings on planar
electromagnetic shielding materials**

平面型电磁屏蔽材料镀金属层附着性能的测定

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part

1. Structure and drafting rules for standardization documents" Drafting. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed by the China Electrical Equipment Industry Association. This document is under the jurisdiction of the National Technical Committee for Standardization of Electromagnetic Shielding Materials (SAC/TC323). This document was drafted by: Maxim New Materials Co., Ltd., Shanghai Institute of Metrology and Testing Technology, Shenzhen Feirongda Technology Co., Ltd. Co., Ltd., Jiangsu Quality and Standardization Research Institute, Jiangsu Zhongdi New Materials Technology Co., Ltd., Tiannuo Optoelectronic Materials Co., Ltd., Institute of Applied Electronics, China Academy of Engineering Physics, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Institute of Metal Research, Chinese Academy of Sciences, Chengdu Moore Global Testing Technology Co., Ltd., Jiangsu Institute of Metrology (Jiangsu Energy Measurement Data Center), Beijing Huayu Xin Ao Ke Technology Co., Ltd., Beijing Radio Metrology and Testing Institute, and Anfang Hi-Tech Electromagnetic Safety Technology (Beijing) Co., Ltd. The main drafters of this document are: Chen Weibin, Chen Chaochan, Yan Yihong, Yu Xiaolei, Lai Lei, Liu Weide, Zhu Yanyan, Zhu Jiangang, Qin Feng, Hu Yougen, Ma Song, Lu Fumin, Chen Nan, Zhao Pinzhang, Gao Cheng, Han Yufeng, and Yang Hong. Planar electromagnetic shielding material metallization layer Determination of adhesion properties

1 Scope

China's national method for determining the adhesion of metallic coatings on planar electromagnetic shielding materials. The materials are fabrics, films and papers metallised with copper, nickel or silver, and they shield by conducting - which means the coating has to remain continuous and attached. Adhesion is the property that determines whether it does. A metallised fabric that is flexed, folded, stretched or abraded in service loses coating from the points of highest strain, and the shielding effectiveness falls in a way that is invisible and unmeasurable outside a laboratory. Since these materials are used in gaskets, in shielded enclosures, in cable wrapping and in protective clothing, all of which are handled and flexed, the coating's adhesion determines the product's life rather than its initial performance. Measuring it on a thin flexible substrate is the difficulty, since a conventional pull test would tear the substrate first.

This document describes three test methods for the adhesion performance of the metallized layer of planar electromagnetic shielding materials. friction peeling, cross-cutting, and bending. The method includes test conditions, test instruments, test materials, sample preparation, test procedures, test results and test reports. This document is applicable to the determination and evaluation of the adhesion performance of planar electromagnetic shielding materials with a metal-plated layer on the surface.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 2792-2014 Test method for peel strength of adhesive tape

GB/T 26667 Terminology of electromagnetic shielding materials

GB/T 33729 Textiles - Tests for colour fastness - Cotton friction cloth

3 Terms and definitions

The terms and definitions defined in GB/T 26667 and the following apply to this document.

3.1 A planar material with the ability to shield electromagnetic waves.

3.2 Plated substrate A material that carries a metallized layer in a planar electromagnetic shielding material (3.1).

3.3 The bonding strength between the plated metal layer and the surface of the plated substrate (3.2).

4 Test Principle

Using the heterogeneity between the plated metal layer and the plated substrate, observe the metal layer falling off from the plated substrate surface under the action of external force. The reason for the peeling or peeling is that the bonding force between the plated metal layer and the plated substrate is insufficient. The higher the degree of peeling or peeling, the more The worse the adhesion performance.

5 Test methods

5.1 General The following test methods can be used to determine the adhesion performance of the metallized layer of planar electromagnetic shielding materials.