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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**Non-destructive testing - Terahertz detection method for
insulating materials**

无损检测 绝缘材料太赫兹检测方法

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Table of Contents

Preface	III
1 Scope	1
2 Normative references	1
3 Terms and Definitions	1
4 Principle	2
5 General Requirements	3
6 Detection Technology	5
7 Test Records and Reports	8
Appendix A (Informative) Resolution Test Board Design Rules	10
Appendix B (Normative) Establishment of the standard curve for terahertz moisture content detection of insulating materials	11
Appendix C (Normative) Calculation of absorption spectrum integral value	13
Appendix D (Informative) Common defects of solid insulating materials Typical terahertz waveform diagram	16
Appendix E (Normative) Rules for Calculating Defect Area	18

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 is proposed and coordinated by the National Technical Committee for Standardization of Non-destructive Testing (SAC/TC56).

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Terahertz testing method for non-destructive testing of insulating materials

1 Scope

This document describes a method for testing insulating materials used in electrical equipment using terahertz testing technology.

This document applies to the defects and moisture content of solid insulating materials with a thickness of 0.03mm~10mm and liquid insulating materials Terahertz detection of moisture content. For solid insulating materials of other thicknesses, refer to the same procedure.

This document does not apply to cellulose-based solid insulation materials with a thickness exceeding 5 mm.

2 Normative references

GB/T 2900.5

GB/T 7600

GB/T 13962

GB/T 20737

JJF1603

IEC 60814

3 Terms and Definitions

The terms and definitions defined in GB/T 2900.5, GB/T 13962 and GB/T 20737 and the following terms and definitions apply to this document.

3.1 insulating materials

Non-conductive material with a resistivity greater than or equal to 10¹⁰ohm-m.

3.2 Terahertz waves

Electromagnetic waves with frequencies between 0.1THz and 10THz and wavelengths between 0.03mm and 3mm.

3.3 transmission method

A method for sample detection is achieved by analyzing the terahertz spectral characteristics of the sample transmission.

3.4 reflection method

A method for sample detection is achieved by analyzing the terahertz spectral characteristics of the sample reflection.

3.5 Depth of imperfections

The distance from the upper surface of the defect to the upper surface of the sample being tested.

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