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**INDUSTRY STANDARD OF THE
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**Calibration Specification for Insulating Oil Dielectric Dissipation
Factor and Volume Resistivity Testers**
(English Translation)

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Introduction

This specification is based on JJF 1071-2010 "national measurement calibration standard preparation rules", JJF 1001-2011 "pass Metrological terms and definitions ", JJF 1059.1-2012" Measurement Uncertainty Assessment and Representation ".

This specification is the first release.

Insulation oil dielectric loss factor and volume resistivity Tester calibration specification

1 Scope

This specification applies to insulating oil medium loss factor and volume resistivity tester (hereinafter referred to as oil resistance meter) calibration.

This specification does not apply to the calibration of high voltage dielectric loss factor testers and high voltage capacitive bridges.

2 reference file

This specification refers to the following documents.

JJG690-2003 high insulation resistance measuring instrument (high resistance meter)
Electronic Insulation Resistance Table of JJG1005-2005 Measurement of relative permittivity, dielectric loss factor and DC resistivity of liquid insulating materials GB/T 5654-2007 High voltage test technology - Part 2. Measurement systems GB/T 16927.2-2013 GB/T 21216-2007 Test method for determination of dielectric loss factor for conductance and capacitance of insulating liquids Method for determination of resistivity of oil for electric power GB/T for dated references, only the dated edition applies to this specification; references that are not dated , The latest version (including all modifications) applies to this specification.

3 terms and units of measurement 3.1 dielectric loss factor dielectricdissipationfactor the dielectric loss factor ($\tan\delta$) is the tangent of the loss angle.

3.2 Insulation oil volume Resistivity insulatingoilvolumeresistivity Insulation oil volume Resistivity is the size of the resistance of the liquid medium in the unit volume, in units of $\text{ohm} \cdot \text{m}$.

4 Overview

The oil loss meter is the instrument that measures the dielectric loss factor and volume resistivity of the insulating oil. Including oil cups, temperature control systems, Measurement circuit (signal processing unit and signal measurement unit), AC-DC high voltage power supply, capacitance standard, volume resistance Rate measurement system.

Dielectric loss factor and capacitance measurement principle shown in Figure 1. standard circuit built-in high stability capacitor standard C_n and the standard circuit sampling resistor

Rsn composition; test route by the test oil (C_{x1} , R_x) and the test circuit sampling power Resistance R_{sx} composition. C_{x1} is the equivalent capacitance of the oil, R_x is the equivalent resistance of the oil to produce various losses. HV is AC high voltage source. Dielectric loss factor measurement method using positive connection method.