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NATIONAL METROLOGY VERIFICATION REGULATION OF THE PEOPLE'S REPUBLIC OF CHINA

JJG 1180-2021

Power Frequency Ground Impedance Testers for Large Grounding Grid

大型接地网工频接地阻抗 测试仪检定规程

(English Translation)

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Introduction

JJF1002-2010 "Rules for the Compilation of National Metrology Verification Regulations", JJF1001 "General Metrology Terms and Definitions", JJF1059.1-2012 "Assessment and Representation of Measurement Uncertainty" together constitute the basis for supporting the preparation of this Regulation specification.

This regulation is published for the first time.

Large-scale grounding grid power frequency grounding impedance tester verification rules

1 Scope

This regulation is applicable to the grounding of large-scale grounding grids with a working frequency of 45Hz~55Hz and a working current of not less than 1A.

The initial verification, subsequent verification and in-use inspection of an impedance tester or device (hereinafter referred to as the tester).

This regulation does not apply to battery-powered, hand-cranked generators and grounding resistance meters with analog indication.

2 Reference documents this procedure cites the following documents.

GB/T 13978-2008 Digital Multimeter GB 50169-2016 Code for construction and acceptance of grounding devices for electrical installation engineering for dated citations, only the dated version applies to this Regulation; for undated citations the latest version (including all amendments) applies to this regulation.

3 Terminology and units of measurement 3.1 ground impedance the impedance between a given point and a reference point of an earthed system, installation or equipment at a given frequency.

[GB 50169-2016, definition 2.0.7]

3.2 Ground resistance the real part of the grounding impedance is the power frequency grounding resistance at power frequency.

[GB 50169-2016, definition 2.0.8] Grounding devices for substations and high-voltage laboratories with voltage levels of 110kV and above, or with an installed capacity of.200MW the grounding device of the above power plant, or the grounding grid (device) with an equivalent area of more than 5000m2.

3.4 rated current the current value at which the measuring device reaches its rated operating state.

When measuring the ground impedance, the resistances RC and RP between the auxiliary electrode and the ground, where RC is the auxiliary current electrode and the resistance between the earth, RP is the resistance between the auxiliary voltage pole and the earth.

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When the test current is not applied, the power frequency voltage between the auxiliary voltage pole of the tester and the grounding device under test.

A parameter that reflects the tester's ability to suppress power-frequency ground interference voltage, and its magnitude is determined by the power-frequency ground interference voltage suppression ratio KE to quantify the characterization.

4 Overview

Large-scale grounding grid power frequency grounding impedance tester (device) is widely used to measure the power frequency of large-scale grounding grid (device).

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