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JJG

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

JJG 1177-2021

Harmonic Voltage Transformers

谐波电压互感器检定规程

(English Translation)

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Introduction

JJF1001-2011 "General Metrology Terms and Definitions", JJF1059.1-2012 "Measurement Uncertainty Evaluation and "Representation" and JJF1002-2010 "Rules for the Compilation

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of National Metrological Verification Regulations" together constitute the basis for supporting this regulation Series Specifications.

This specification refers to GB/T 14549 "Power Quality Harmonics of Public Grid", GB/T 20840.1-2010 "Transformer Part 1: General Technical Requirements", GB/T 20840.3-2013 "Transformer Part 3: Electrical Supplementary Technical Requirements for Magnetic Voltage Transformers", JJG 314-2010 "Measurement Voltage Transformers" and JJG 1021 "Power Transformer" and other technical documents were formulated.

This regulation is published for the first time.

Harmonic Voltage Transformer Verification Regulations

1 Scope

This regulation applies to the rated fundamental wave (frequency is 50Hz or 60Hz) installed in the power system of 6kV and above Electromagnetic harmonics with voltage not higher than 110kV, total harmonic voltage not higher than 10kV, harmonic order up to 50th harmonic Initial verification, subsequent verification and in-use inspection of wave voltage transformers. Below 6kV can refer to this regulation.

This regulation does not apply to harmonic voltage transformers whose secondary output is digital signal.

2 Reference documents this procedure cites the following documents.

JJG 314-2010 Voltage transformer for measurement JJG 1021 Power Transformer GB/T 14549 Power Quality Harmonics of Public Grid GB/T 20840.1-2010 Transformer Part 1: General Technical Requirements GB/T 20840.3-2013 Transformers Part 3: Supplementary technical requirements for electromagnetic voltage transformers 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 Terms and Definitions GB/T 20840.1-2010, GB/T 20840.3-2013 and the following terms and definitions are applicable to this protocol.

A voltage transformer capable of transforming a primary voltage containing harmonic components into a secondary voltage proportionally.

The Fourier series decomposition of the periodic AC quantity is carried out, and the components with the same frequency as the power frequency are obtained.

[GB/T 14549-1993, term 3.3] 3.3 harmonic(component) Perform Fourier series decomposition on the periodic alternating current to obtain components whose frequency is greater than 1 integer multiple of the fundamental frequency.

[GB/T 14549-1993, term 3.4] 3.4 harmonic order(h) harmonicorder(h) Integer ratio of harmonic frequency to fundamental frequency.

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[GB/T 14549-1993, term 3.5]

3.5 Harmonic content ratio (HR) the root mean square value Uh of the h-th harmonic component and the root mean square value U1 of the fundamental wave component contained in the periodic alternating current ratio (expressed as a percentage).

The h-th harmonic voltage content rate is expressed in HRUh.

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