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

GB/T 16927.4-2014

**High voltage and high current test techniques -- Part 4:
Definitions and requirements for test currents and measuring
systems**

高电压和大电流试验技术 第4部分：试验电流和测量系统的定义和要求
(English Translation)

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Foreword

GB/T 16927 "high-voltage and high-current test techniques" is divided into four parts.

--- Part 1. General definitions and test requirements;

--- Part 2. Measuring systems;

--- Part 3. Definition and field test requirements;

--- Part 4. Testing and measurement systems of current definitions and requirements.

This section GB/T Part of 416,927.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This section uses redrafted law revision adopted IEC 62475. define the current test and measurement systems. the 2010 "High Current test technology and requirements. " this part of IEC 62475:2010 technical differences and their reasons are as follows.

--- Large current measurement system uncertainty calculation example has been revised (see Appendix B);

--- Calculated in accordance with the practice of laboratory accreditation system measurement uncertainty of collecting large current laboratory measurements are given short-term deposit DC current measurement system uncertainty calculation example of the impact of the current measurement system and uncertainty calculation example (see B.4 and B.5);

--- For the near loop current impact of the uncertainty evaluation, this section to correct the IEC 62475:2010 Original adjacent loop Error current Class B standard uncertainty component calculation formulas (see 5.8);

--- For the near loop current impact test method, in order to more clearly describe the test method is more reasonable, this section will shunt it is adjacent to the loop current impact test as described in FIG. 9 (see 5.8, 9), with the ????? coil and core current transformers o Near the merger affect the test loop current as described in FIG. 10 (see 5.8 and 10), remove the IEC 62475:2010 in its original Luoge Fu Sharansky adjacent coil loop current impact test method;

--- For the short-term AC current test, this section based on the actual situation of the industry, an increase of related terms (see 9.2.1,9.2.2,9.2.4, 9.2.5,9.2.6), while the new parameters proposed tolerance requirements (see 9.3), and increases in short-circuit breaker breaking Appendix G Determining a current example (see G.9) and limiting fuse breaking current determining sample (see G.10).

This part of IEC 62475:2010 clause above main difference has been involved in a single vertical line through its outer margin position (I) Were marked.

This section also made the following editorial changes.

--- Fig. 3 calibration uncertainty components illustrated in Formula bad place to be amended accordingly;

--- 18 index of the impact of the current waveform shown at the incorrect formula be amended accordingly;

--- Table B.4 linearity test results at the incorrect formula be amended accordingly.

Please note that some of the content of this document may involve patents. Release mechanism of the present document does not assume responsibility for the identification of these patents.

This part is proposed by the China Electrical Equipment Industrial Association.

This part of the National high-voltage test technique and insulation with Standardization Technical Committee (SAC/TC163).

This section is responsible for drafting units. China Electric Power Research Institute, Xi'an High Voltage Apparatus Research Institute Co., Ltd.

Participated in the drafting of this section. Kunming Institute of Electrical, Mechanical Industry fifth (Xi'an) Measurement and Testing Center station, the national high-voltage electrical appliances Quality Supervision and Inspection Center, the National Insulator arrester Quality Supervision and Inspection Center, high-voltage electrical machinery industry product quality inspection center (Shen Yang), Xi'an Electric Transformer Co., Ltd., Shenyang Transformer Research Institute Co., Ltd., Tsinghua University, Xi'an high-voltage electrical shares Parts of the company, New Northeast Electric Group Co., high-voltage switch, the high level Group Ltd., Shenzhen Institute of Electrical Sciences, Beijing Huatian electromechanical RESEARCH Study Limited, Suzhou Huadian Electric Co., Ltd., Sichuan

Electric Power Research Institute, Electric Power Research Institute, Shaanxi, Hubei Power of the company, Hunan Electric Power Company.

1 Scope

This section GB/T 16927 specifies the following.

- Definitions of the terms used;
- Define parameters and tolerance;
- Given the large current method of estimating uncertainty of measurement;
- Provision of a complete measurement system shall meet the requirements;
- Give recognition method and verification method component measurement system;
- Given measuring system meets the requirements of this part of the program, including the measurement uncertainty limits.

This section applies to high current test and measurement of high voltage and low-voltage equipment. Suitable current types are: steady direct current, short straight Current flow (such as large-capacity DC test), steady-state AC current, short alternating current (such as large-capacity AC test) and the inrush current.

100A is greater than the current test can be used in this section, refer to this section may appear less than 100A current in these experiments.

Note: This section also applies to the current measurement fault detection, such as lightning impulse test.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB 1984 high voltage AC circuit breaker (GB 1984-2003, IEC 62271-100:2001, MOD) GB/T 7676.2-1998 Direct acting indicating analogue electrical measuring instruments and their accessories Part 2. Special ammeter and voltmeter Specific requirements (IEC 60051-2:1984, IDT) GB/T 16927.1-2011 high voltage test techniques - Part 1. General definitions and test requirements (IEC 60060-1:2010, MOD) JJF1059.1-2012 Evaluation and Expression of Uncertainty in Measurement (ISO/IEC Guide98-3:2008)

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Measurement System

3.1.1

Measurement System measuringsystem the entire apparatus for measurement. Software used to obtain or calculate measurement results are also part of the system of measurement.

Note 1: The high-current measuring system typically includes the following components.

- Conversion means includes coupling means connecting the access terminal or current loop and current loop, and a ground connection;
- Output switching means connected end-to-measuring instrument (along with attenuation, impedance matching and terminal or network) transmission system;
- Measuring instrument with power cord;