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

GB/T 17627.1-1998

**High-voltage test techniques for low-voltage equipment -
Definitions, test and procedure requirements, test equipment
(English Translation)**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 17627.1-1998 "High-voltage test technology for low-voltage electrical equipment. Part 1. Definition and test requirements" and GB/T 17627.2-1998 "High-voltage test technology for low-voltage electrical equipment part two. measurement system and test equipment." Compared with GB/T 17627.1-1998 and GB/T 17627.2-1998, the main technical changes of this standard are as follows.

- Combine GB/T 17627.1-1998 and GB/T 17627.2-1998 into GB/T 17627;
- Deleted the content of "9 Impulse Current Test" in GB/T 17627.1-1998;
- Deleted the content of "10 Synthesis Test" in GB/T 17627.1-1998;
- Deleted the "Appendix A Synthesis Test Arrangement" of GB/T 17627.1-1998;
- Added the normative reference JJF1059.1 (see Chapter 2);
- Increased the term definition of the scale factor (see 3.3.7);
- Added definitions of terms about allowable error and uncertainty, including standard uncertainty, synthetic uncertainty, and expanded uncertainty Degree, inclusion factor, category A assessment, category B assessment, etc. (see 3.7);

- Increased measurement system and test steps (see 4.3);
- Added test and test requirements for accredited measurement systems and their components (see 4.4);
- Added Appendix A "Assessment and Expression of Measurement Uncertainty";
- Added Appendix B "Example of Measurement Uncertainty Evaluation";
- Added Appendix C "Atmospheric Correction".

This standard uses the redrafting method to modify and adopt IEC 61180.:2016 "High-voltage test technical definitions and tests for low-voltage electrical equipment.

And procedure requirements, test equipment. " the main differences between this standard and IEC 61180.:2016 are related to the clauses which have been passed through a vertical single line (I) OK.

The technical differences between this standard and IEC 61180.:2016 and their causes are as follows.

--- Regarding the normative references, this standard has been adjusted with technical differences to suit China's technical conditions. Adjusted sentiment the situation is reflected in Chapter 2 "Regulatory Reference Documents", and the specific adjustments are as follows.

- Replaced IEC 60068-1.:2013 with GB/T 2421.1 equivalent to the international standard;
- Replaced IEC 61083-1.:2001 with GB/T 16896.1 which adopted the international standard;
- Replaced IEC 61083-2.:2013 with GB/T 16896.2, which adopted the international standard;
- Replaced IEC 60060-1.:2010 with GB/T 16927.1-2011 which adopted the international standard;
- Replaced IEC 60060-2.:2010 with GB/T 16927.2-2013, which adopted the international standard;
- Added reference to GB/T 4706.1;
- Added the normative reference JJF1059.1-2012;
- Removed IEC 60335 (all parts).

--- IEC 61180 frequency range is 45Hz ~ 65Hz. Considering that 60Hz is not applicable to China's power grid, the frequency range is determined as 45Hz ~ 55Hz, in order to be consistent with GB/T 311.1 (see 6.1.1.1).

--- IEC 61180 requires the measurement system to be traced to national or international

standards.

For traceability to national benchmarks or standards (see 4.3.1).

The following editorial changes have been made to this standard.

- According to the requirements of GB/T 1.1-2009, standardized the preparation of the chapter of the scope;
- Change some of the measurement units used in IEC 61180 to legal measurement units in China;
- Make corresponding amendments to the annotations in IEC 61180 Figure 5;
- Make corresponding amendments to the symbols in the notes of Figure A.1 and Figure A.2 of IEC 61180;
- Combined with the requirements and habits of uncertainty assessment in China, rewritten IEC 61180 Appendix B;
- Make corresponding changes to the symbols in Appendix C.2.3;
- Revised references.

This standard was proposed by the China Electrical Equipment Industry Association.

This standard is under the jurisdiction of the National High-Voltage Test Technology and Insulation Coordination Standardization Technical Committee (SAC/TC163).

This standard was drafted. China Electric Power Research Institute Co., Ltd., Xi'an High Voltage Apparatus Research Institute Co., Ltd., State Grid Economic Technology Research Institute Co., Ltd., State Grid Anhui Electric Power Co., Ltd. Electric Power Research Institute, State Grid Hebei Electric Power Company Electric Power Research Institute, State Grid Shandong Electric Power Company Electric Power Research Institute, China Yangtze Power Co., Ltd., Ningbo Vocational and Technical College, Suzhou Huadian Electric Co., Ltd., State Grid Shaanxi Electric Power Company Electric Power Research Institute, State Grid Shanxi Electric Power Company Electric Power Research Institute, Xu Ji, Henan Instrument Co., Ltd., State Grid Liaoning Electric Power Co., Ltd. Electric Power Research Institute, Jiangsu Provincial Institute of Metrology, Chongqing University, China qualified Evaluation by National Accreditation Center, State Grid Hunan Electric Power Co., Ltd. Power Supply Service Center (Metering Center), State Grid Hubei Electric Power Co., Ltd.

Center, Pinggao Group Co., Ltd., Guangzhou Power Supply Bureau Co., Ltd. Liwan Power Supply Bureau, State Grid Tianjin Electric Power Company Electric Power Research Institute, State Grid Electric Power Research Institute of Jiangsu Province Electric Power Co., Ltd., State Grid Zhejiang Electric Power Co., Ltd.

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1 Scope

This standard specifies.

- Definition of terms for general applicability and specific applicability;
- General requirements for samples and tests;
- Test voltage generation and measurement methods;
- test procedures;
- Evaluation methods and acceptance criteria for test results;
- requirements for accredited measuring devices and their verification methods;
- Measurement uncertainty.

Note 1: Refer to Appendix A and Appendix B for examples of measurement uncertainty and evaluation.

If alternative test procedures are used, they should be prescribed by the relevant technical committee.

It is worth noting that if the test product contains a pressure limiting device, its test results may be affected, and the relevant technical committee should be responsible for this type of test product.

Provide technical guidance.

This standard applies to DC and AC electrical equipment with AC rated voltage not higher than 1kV, or DC rated voltage not higher than 1.5kV.

Current, impact insulation test and test equipment.

Relevant technical committees may perform type tests and routine tests of low-voltage electrical equipment that have high-voltage test requirements specified in this standard.

The test equipment includes a voltage generator and a measurement system. The measurement equipment in the measurement system should be able to avoid external Interference and coupling, a simple comparison test is sufficient to ensure that its measurement results are valid.

This standard does not apply to electromagnetic compatibility tests for electrical or electronic equipment.

Note 2: For the combined test of impulse voltage and current, refer to GB/T 17626.5.