

ICS 97.180; 97.060
CCS Y 62



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

GB/T 32478-2016

**Household and similar electrical appliances method of
measuring performance -- Assessment of repeatability and
reproducibility**

家用和类似用途电器性能测试方法 重复性和再现性评价

(English Translation)

Issued on: February 24, 2016

Implemented on: September 1, 2016

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine**

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Foreword

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

This Standard identically adopts IEC TR 61923:1997 Household electrical appliances - Method of measuring performance - Assessment of repeatability and reproducibility.

This Standard was proposed by China Light Industry Federation.

This Standard shall be under the jurisdiction of National Technical Committee on Home Appliances of Standardization Administration of China (SAC/TC 46).

The drafting organizations of this Standard: China Household Electrical Appliances Research Institute, Zhejiang Shaoxing Supor Life Electric Appliance Co., Ltd., Guangdong Galanz Group Co., Ltd., Wuxi Little Swan Company Limited, Guangdong Tonze Electric Appliance Co., Ltd., Panasonic Household Appliances Investment (China) Co., Ltd., National Household Electrical Appliances Quality Supervision and Inspection Center.

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Household and similar electrical appliances

method of measuring performance -

Assessment of repeatability and reproducibility

1 Scope

This Technical Report deals with the determination of repeatability and reproducibility of test methods used for assessing the characteristics of household electrical appliances.

It does not cover the development of measurement methods but deals with gathering and evaluating the information needed by a manufacturer so that values can be stated after an appliance has been subjected to an agreed test.

It also does not deal with:

- the production variability of the appliance;
- how closely the measurement method reflects the normal use of the appliance.

NOTE 1: Although this technical report does not cover the development of test methods, it may be taken into consideration for this purpose.

NOTE 2: For the purpose of this technical report production variability includes the variation of the individual appliances of the same type and model manufactured on the same production line.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 6379.2-2004, Accuracy (trueness and precision) of measurement methods and results - Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method

ISO 3534-1:1993, Statistics - Vocabulary and symbols - Part 1: Probability

and general statistic terms

NOTE 1: Data obtained in inter-laboratory studies may indicate that further effort is needed to improve the measurement method.

b) standard deviations shall be significantly lower than the basic assessment ranges. They should be less than 50 % of the permitted or accepted reference tolerances but shall be less than these reference tolerances;

c) the necessary number of tests and laboratories participating in an inter-laboratory test depends on the type of appliance and shall be established by the responsible body. With respect to a statistical evaluation of the test results, at least five test results from each of at least five laboratories, excluding any outlier, should be available;

NOTE 2: The number of test results should be the same for each laboratory.

d) the test procedures have to be specified completely and accurately, including the rounding of values from measurement results, the accuracy of the measuring instruments and the environmental conditions, as appropriate;

e) wherever possible, precise values of intermediate results (without rounding) should be recorded and used in subsequent calculations to ensure that the final result is as accurate as possible;

f) the test laboratories shall adhere to the test procedure specified in the standard or in the test program;

g) only appliances with low variability shall be used;

h) the reference appliance, if any, shall have the lowest variability.

5.3 Expression of repeatability and reproducibility

Repeatability and reproducibility shall be expressed as a percentage of the permitted or accepted reference tolerances. The values of these tolerances have to be derived from the relevant mean value.

6 Scrutiny of results for consistency and outliers

Outliers related to test results as well as to test laboratories are scarce but cannot always be avoided. They shall be taken into consideration but they should not lead to a distortion of the results of a test which has been carried out to assess the repeatability and reproducibility of a test method.

A statistical procedure by which suspect test results or laboratories are judged is not specified. The final decision about the treatment of outliers (e.g.

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