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Household electrical appliances - Guidelines for consumer panel testing

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Household electrical appliances – Guidelines for consumer panel testing

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD ELECTRICAL APPLIANCES – GUIDELINES FOR CONSUMER PANEL TESTING

FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

2) The formal decisions or agreements of the IEC on technical matters, express as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.

3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.

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The main task of IEC technical committees is to prepare International Standards. In exceptional circumstances, a technical committee may propose the publication of a technical report of one of the following types:

– type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;

– type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;

– type 3, when a technical committee has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

Technical reports of types 1 and 2 are subject to review within three years of publication to decide whether they can be transformed into International Standards. Technical reports of type 3 do not necessarily have to be reviewed until the date they provide are considered to be no longer valid or useful.

IEC 1592 which is a technical report of type 3, has been prepared by IEC technical committee 59: Performance of household electrical appliances.

The text of this technical report is based on the following documents:

Committee draft	Report on voting
59/144/CDV	59/163/RVC

Full information on the voting for the approval of this technical report can be found in the report on voting indicated in the above table.

The objective of this report is to give guidelines for panel testing of household electrical appliances.

This report is a Technical Report of type 3 and is of a purely informative nature. It is not to be regarded as an International Standard.

INTRODUCTION

Panel testing can be an important tool both for overall as well as partial evaluation of household appliances, since the results directly reflect practical aspects which are of interest to the user. Panel testing should be used to complement technical tests and physical measurements, if any, which are often more abstract for the consumer.

In general, panel testing can be used when:

- technical tests are not sufficiently relevant;
- an assessment of overall performance is needed;
- characteristics requiring a degree of human involvement have to be evaluated (e.g. handling, cleaning, ergonomic, instructions for use).

These guidelines are to be used as a check list in determining when and how to apply panel testing and how to avoid the most obvious pitfalls.

Panel testing generally gives information at the time of the test. Comparison is possible with previous or parallel tests only when at least a reference sample and a particular methodology are used.

HOUSEHOLD ELECTRICAL APPLIANCES – GUIDELINES FOR CONSUMER PANEL TESTING

1 Scope

This technical report applies to panel testing of household electrical appliances within the scope of IEC technical committee 59: Performance of household electrical appliances.

2 Reference documents

ISO/IEC 14: 1977, *Product information for consumers*

ISO/IE 36: 1982, *Preparation of standard methods of measuring performance (SMMP) of consumer goods*

ISO/IEC 37: 1995, *Instructions for use of products of consumer interest*

ISO/IEC 46: 1985, *Comparative testing of consumer products and related services – General principles*

IEC 1254: 1993, *Electric shavers for household use – Methods for measuring the performance*

3 Definition

For the purpose of this technical report, the following definition applies:

panel testing: denotes a method of assessing the performance aspects of an appliance, by means of a selected group of people who are asked to evaluate selected or overall aspects of the appliance.

NOTES

1 Examples of such aspects are: function(s), handling, noise, cleaning and instructions for use.

2 A list of aspects that can be evaluated by panel testing is given for information in annex A.

4 Criteria

4.1 *Purpose of panel testing*

Panel testing is easier when the panel can compare appliances. Anyway the purpose of the type of panel test to be performed (comparative testing, evaluations of only one appliance type, evaluation of experimental designs, etc.) and the statistical method to be used have to be stated before starting any panel testing.

Since panel testing can be used for overall as well as for partial evaluation, data analysis of the results is possible with significant results only when the statistical method has been chosen before the panel testing is performed. This allows for optimisation of panel size and costs.

Statistical methods require a predetermination of the hypothesis and then checking it by the panel testing.

4.2 *Panel testing leadership*

The carrying out of panel testing, and the reliability of the test results largely depend on the panel test leadership.

Panel testing should be directed by (a) qualified person(s) who should be competent in the fields listed below, by direct experience or consulting outside experts if needed:

- knowledge of all the relevant panel testing and statistical methods and how to combine them according to circumstances;
- knowledge of how to conduct interviews and how to guide the panel members without influencing them in any way;
- at least basic knowledge in physiology of the senses, perception and psychology.

The panel testing leader should not be personally involved in the design, production or marketing of the products under evaluation.

4.3 *Characteristics of the panel*

The number of panel members should be large enough to correspond to the purpose and required significance of the results.

For the selection of the panel membership, the following aspects are to be considered:

- The composition of the panel should cover the intended and probable users of the product, taking into account:
  a) age;
  b) sex;
  c) physical ability/handicaps;
  d) left or right handedness;
  e) knowledge, experience and competence;
  f) previous acquaintance with, or lack of knowledge about similar products;
  g) social/economic categories;
  h) level of education and language ability.
- They should be potential users and their knowledge should in principle not be superior to that of an experienced user. If sensory evaluation is involved (e.g. for food preparation machines and espresso coffee makers) it may be necessary to have a panel of trained people.
- They should have a positive attitude vis-à-vis the function(s) to be tested.
- Prior acquaintance with the function(s) can be necessary.