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## Comparative testing of consumer products and related services — General principles

*Essais comparatifs des produits de consommation et de leurs services — Principes généraux*

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## Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) are worldwide federations of national standards bodies (ISO member bodies and IEC National Committees). The work of preparing International Standards is normally carried out through ISO and IEC technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO or IEC, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by the ISO Committee on Consumer Policy (COPOLCO).

This second edition cancels and replaces the first edition (ISO/IEC Guide 46:1985), which has been technically revised.

The main changes compared with the previous edition are as follows:

- clarification in the scope to exclude conformity assessment and anti-counterfeiting;
- clarification in [Clauses 2](#) and [3](#) on the use of International Standards for accredited laboratories, e.g. ISO/IEC 17025;
- addition of [Annex A](#) to explain how comparative testing differs from other types of testing, including for market surveillance and conformity testing;
- updating of notes and bibliographical references.

## Introduction

This document sets out general principles for the conduct of comparative testing. These principles are applicable to consumer products, services and a combination of both. They can be used by bodies and associations which conduct comparative testing programmes. The purpose of this document is to enable meaningful test results and information to be presented in a way which will help consumers and others to make an informed choice suitable to their own needs. The products and services under test can be based on a local, national or international market and the characteristics tested can be either very specific or broadly based, provided that the range and limits are clearly stated.

NOTE 1 This document indicates some, but not all, of the means of applying the principles.

NOTE 2 The purpose of comparative testing is different from that of conformity assessment testing (see ISO/IEC 17000).

NOTE 3 Counterfeit goods are a real and growing problem in all countries. While conformity assessment testing is much more likely to detect cases of counterfeit goods than comparative testing, counterfeit goods and other emerging challenges are creating a new environment for comparative testing organizations which might entail the need for closer cooperation with regulatory authorities in the future.

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# Comparative testing of consumer products and related services — General principles

## 1 Scope

This document establishes general principles for the conduct of comparative testing of products and services for the information of consumers.

It does not cover anti-counterfeiting or conformity assessment.

NOTE ISO 12931 provides performance criteria for authentication solutions used to combat counterfeiting of material goods. The ISO Committee on Conformity Assessment (CASCO) develops standards on conformity assessment.

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

### 3.1

#### comparative testing

process of measuring the properties or performance of products

## 4 General principles

### 4.1 Choice of products or services

Every reasonable effort should be made to reflect what is or will be available on the market, unless the limits of selection are explained.

NOTE “Reasonable efforts to reflect what is available on the market” might include consulting manufacturers (agents/representatives/importers) or checking current literature, catalogues and a variety of other sources, including the Internet. It is in the interests of consumers and manufacturers (agents/representatives/importers) that such information be made available.

### 4.2 Sampling

Samples for testing should be the same as those that are or intended to be available to consumers. In all cases, care should be exercised that a selection is made at random and that special samples are not introduced. Attention should be paid to the conditions of sampling, transport, storage and the nature of the product or service before the test.

Precautions should be taken to ensure as far as possible that the results obtained are representative of the product or service offered on the market at the time of sampling.

Sampling should ensure as far as possible that the product or service under test is likely to be available when the results are published.

NOTE The nature of services varies in accordance with the great diversity of what is offered on the market, e.g. sampling for fast food service differs from that for a shuttle, educational or financial service.

### **4.3 Choice of characteristics**

Except in cases where a survey is made for a particular purpose, all characteristics of a product or service that are important for its use by the consumer should as far as possible be taken into account, unless the limits of selection are explained.

NOTE The choice of characteristics can include, for example, usability, safety, reliability, durability, performance, energy consumption, environmental aspects, operating costs, selling prices, labelling, maintenance and guarantees or warranties.

## **5 Test programme**

### **5.1 Test methods**

Methods published in international, regional or national standards; by reputable technical organizations, in relevant scientific texts or journals, or as specified by the manufacturer of the test equipment are recommended. Laboratory-developed or modified methods, or methods adapted by the laboratory may also be used if they are appropriate for the intended use and if they are validated.

Where test methods other than internationally or nationally recognized ones are used, it would be useful to inform the national standards body for their possible incorporation into a standard.

### **5.2 Evaluation of test results**

Organizations conducting tests should have processes in place to minimize errors in testing or interpretation of results, e.g. having competency requirements for technical staff or consulting with technical experts. The test results submitted to the manufacturer (agent/representative/importer) should be accompanied by the list of characteristics tested and the test methods used. If the manufacturer (agent/representative/importer) disagrees with the test results, the manufacturer should promptly supply data to demonstrate that the test results are incorrect or exceptional, or that the test methods used were unsuitable. In the case of exceptional results, it is appropriate to take further samples.

The manufacturer (agent/representative/importer) and, where appropriate, relevant authorities and users, should be notified if the tests show that the product or service could put the consumer at unacceptable risk.

Notification should be made as soon as possible if danger is imminent.

### **5.3 Presentation of test results**

Test results should be presented factually in a technically correct manner, as well as in terms comprehensible to the consumer. Test results should be presented in a format that makes it easy for consumers to make an informed decision when selecting a product or service.

It should be clear from the report, when samples were acquired and the testing was done/performed.

In cases where, in spite of verification procedures, major factual errors are found in published reports, corrections should be published at the earliest possible opportunity.

## Annex A (informative)

### Focus and range of comparative testing activities

Comparative testing exists in several formats, including product and services testing carried out by consumer organizations, but there are many other formats, e.g. New Car Assessment Programmes (NCAPs) or restaurant guides with stars or points ratings.

Comparative testing should not be confused with market surveillance, the search for counterfeit products or quality control.

Quality control investigates how stable the quality of a product is and requires testing many samples of the same model. This is not the approach of comparative testing, which is often based on the investigation of one sample. Every sample is deemed to fall within the quality borders set by the manufacturer. Where there is substantial doubt as to whether the sample is representative or not, a new sample should be procured for comparative testing.

Counterfeiting can be detected by quality control from field samples but is, generally speaking, more an issue of fraud rather than of technical quality. Counterfeiting might remain undetected by comparative testing because detection requires specific information on the product which only the manufacturer possesses. When, in a comparative test, there is any doubt as to whether a sample is a counterfeit or not, a new sample is procured.

Market surveillance aims at checking whether the quality of products (including labelling) conforms to a standard(s) and/or to legislation. Although these aspects may be part of a comparative test, it is not the primary purpose. While market surveillance results in binary information (passed/not passed), the aim of comparative testing is a more detailed differentiation of product quality.

The purpose of comparative testing is to inform the reader about the advantages and disadvantages of products. It often ranks them from best to worst in class, but it is also possible to give different rankings for different types of users, based on the same tests.

For the purpose of comparative testing existing standards may not be sufficient to compare all aspects of product quality. Reasons could be that often standards set minimum requirements (and are efficient for that purpose) but lack additional aspects of performance, convenience and user friendliness. If in these cases the application of different or more complex methodologies is necessary, extended methods should as far as possible and feasible be based on existing standards.

Comparative testing generally tries to assess the quality and efficiency of a product, in addition to determining its compliance to a standard or specific user requirements.

Procurement of samples for comparative tests needs to take into account the nature of the product, e.g. some foods require continuous cooling during purchasing, transportation and storage. The testing of services demands different methodologies. Among others, mystery research, inspection of facilities and analysis of terms and conditions are typical practices.

When tests are executed to check conformity to standards, these tests should be executed in laboratories that are accredited to do so. Standards are developed with a focus on reproducibility and repeatability, so the results in all accredited laboratories should be the same. On the other hand, methods used for comparative consumer testing should be repeatable to a degree to obtain a consistent ranking, but may be limited regarding reproducibility.

Comparative tests are therefore generally executed in only one selected laboratory after a tender process between qualified laboratories has been carried out.