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ISO 5725-2:1994 Accuracy (trueness and precision) of measurement methods and results. Basic method for the determination of repeatability and reproducibility of a standard measurement method

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Abbreviation
> ISO 5725-2:1994
Amendment
> ISO 5725-2:1994/Cor 1:2002
Valid from
> 22/12/1994

Information provider
> International Organisation for Standardization
Author
> ISO
Information type
> ISO Standard
Format
> PDF

Description

Amplifies the general principles to be observed in designing experiments for the numerical estimation of the precision of measurement methods by means of a collaborative interlaboratory experiment, provides a detailed practical description of the basic method for routine use in estimating the precision of measurement methods, provides guidance to all personnel concerned with designing, performing or analysing the results of the tests for estimating precision. Annex B

provides practical examples of estimating the precision of measurement methods by experiment.

Scope

This part of ISO 5725 amplifies the general principles to be observed in designing experiments for the numerical estimation of the precision of measurement methods by means of a collaborative interlaboratory experiment; provides a detailed practical description of the basic method for routine use in estimating the precision of measurement methods; provides guidance to all personnel concerned with designing, performing or analysing the results of the tests for estimating precision.

Note: Modifications to this basic method for particular purposes are given in other parts of ISO 5725. Annex B provides practical examples of estimating the precision of measurement methods by experiment.

This part of ISO 5725 is concerned exclusively with measurement methods which yield measurements on a continuous scale and give a single value as the test result, although this single value may be the outcome of a calculation from a set of observations.

It assumes that in the design and performance of the precision experiment, all the principles as laid down in ISO 5725-1 have been observed. The basic method uses the same number of test results in each laboratory, with each laboratory analysing the same levels of test sample; i.e. a balanced uniform-level experiment. The basic method applies to procedures that have been standardized and are in regular use in a number of laboratories. NOTE 2 Worked examples are given to demonstrate balanced uniform sets of test results, although in one example a variable number of replicates per cell were reported (unbalanced design) and in another some data were missing. This is because an experiment designed to be balanced can turn out to be unbalanced. Stragglers and outliers are also considered.

The statistical model of clause 5 of ISO 5725-1:1994 is accepted as a suitable basis for the interpretation and analysis of the test results, the distribution of which is approximately normal. 1.5 The basic method, as described in this part of ISO 5725, will (usually) estimate the precision of a measurement method:

- a) when it is required to determine the repeatability and reproducibility standard deviations as defined in ISO 5725-1;
- b) when the materials to be used are homogeneous, or when the effects of heterogeneity can be included in the precision values; and
- c) when the use of a balanced uniform-level layout is acceptable.

The same approach can be used to make a preliminary estimate of precision for measurement methods which have not reached standardization or are not in routine use.

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