

CONFIRMED

Guide to

Statistical interpretation of data —

Part 2: Estimation of the mean:
confidence interval —

[ISO title: Statistical interpretation of
test results—Estimation of the
mean—Confidence interval]

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Cooperating organizations

The Quality Management and Statistics Standards Committee, under whose direction this British Standard was prepared, consists of representatives from the following:

- Confederation of British Industry
- Consumers' Association
- Department of the Environment (Building Research Establishment)
- Institute of Cost and Management Accountants
- Institute of Quality Assurance*
- Institute of Statisticians*
- Institution of Electrical Engineers
- Institution of Production Engineers*
- Ministry of Defence*
- National Council for Quality and Reliability
- National Terotechnology Centre
- Retail Consortium

The organizations marked with an asterisk in the above list, together with the following, were directly represented on the Technical Committee entrusted with the preparation of this British Standard:

- Association of Public Analysts
- Cement and Concrete Association
- Chemical Industries Association
- Department of Industry (Laboratory of the Government Chemist)
- Department of Industry (National Engineering Laboratory)
- Economist Intelligence Unit Limited
- Institute of Petroleum
- Ministry of Agriculture, Fisheries and Food
- National Coal Board
- Post Office
- Royal Statistical Society

This British Standard, having been prepared under the direction of the Quality Management and Statistics Standards Committee, was published under the authority of the Executive Board and comes into effect on 30 January 1981

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National foreword

This Part of this British Standard is identical with ISO 2602 “Statistical interpretation of test results—Estimation of the mean—Confidence interval” prepared by Subcommittee 2 of Technical Committee 69, Applications of statistical methods, and published in 1980 by the International Organization for Standardization (ISO).

The correct interpretation and presentation of test results has been assuming increasing importance in the analysis of data obtained from manufacturing processes based on sample determinations and prototype evaluations in industry, commerce and educational institutions. It was for this reason that a series of guides was prepared.

The standard consists of the following Parts:

- *Part 1: Routine analysis of quantitative data;*
- *Part 2: Estimation of the mean: confidence interval — (Identical with ISO 2602);*
- *Part 3: Determination of a statistical tolerance interval — (Identical with ISO 3207);*
- *Part 4: Problems of estimation and tests relating to means and variances — (Identical with ISO 2854);*
- *Part 5: Efficiency of tests relating to means and variances — (Identical with ISO 3494);*
- *Part 6: Comparison of two means in the case of paired observations — (Identical with ISO 3301).*

Of all the ways of representing a group of observations usually the most satisfactory single measure is the mean; it indicates their central position and as such has extensive applications in the assessment of statistical data. This Part of this British Standard specifies techniques for the estimation of the mean of a normal population on the basis of a series of tests applied to a random sample of individuals drawn from this population, but deals only with the case where the variance of the population is unknown.

This standard supersedes BS 2846-2:1975, which is now withdrawn.

Terminology and conventions. The text of the international standard has been approved as suitable for publication, without deviation, as a British Standard. Some terminology and certain conventions are not identical with those used in British Standards; attention is especially drawn to the following.

The comma has been used throughout as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

Wherever the words “International Standard” appear, referring to this standard, they should be read as “British Standard”.

Cross-references

International standard	Corresponding British Standard
ISO 2854-1976	BS 2846 Guide to statistical interpretation of data Part 4:1976 Techniques of estimation and tests relating to means and variances (Identical)
ISO 3534-1977	BS 5532:1978 Statistics—Vocabulary and symbols (Identical)

NOTE *Textual errors.* When adopting the text of the international standard the printing errors listed below were noticed. They have been marked in this British Standard and have been reported to ISO in a proposal to amend the text of the international standard:

- a) in 6.2.2, item b), line 8, “ $v = n + 1$ ” should be read as “ $v = n - 1$ ”;
- b) in Table 1, column 10, line 14 “0,668” should be read as “0,678”;
- c) in Table 1, column 10, line 28 “0,658” should be read as “0,458”.

In order to clarify the meaning of the standard the following changes to the existing text of ISO 2602-1980 have been recommended for amendment by the Quality Management and Statistics Standards Committee:

a) in clause 2, paragraph 3 to be read as:

“The normality assumption is very widely satisfied: the distribution of the results obtained under test conditions is frequently a normal or near normal distribution.”;

b) in 6.1.2, the final paragraph to be read as:

“In the case of grouped results, the calculated value of s should be corrected (“Shephard’s correction”). As this correction is of secondary importance, it has not been given here.”.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 6, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.