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Guidelines for implementation of statistical process control (SPC)

Part 4: Reference data sets for measurement process analysis software validation

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National foreword

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Part 4: Reference data sets for measurement process analysis software validation

Lignes directrices pour la mise en œuvre de la maîtrise statistique des processus (MSP) —

Partie 4: Jeu de données pour la validation des logiciels d'analyse de processus de mesure



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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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Foreword

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A list of all parts in the ISO 11462 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

The test examples were developed for the assessment of systems performing a measurement system analysis (MSA). They allow MSA software developers to evaluate their systems. Thus, the end user of those systems can be sure that the data sets are evaluated correctly with a high level of reliability. In order to cover as wide a spectrum as possible, suitable data sets were prepared individually for various constellations. The evaluation results of those data sets are documented and commented on the following pages.

The results were verified multiple times using different computer programs. This turns the data sets and the results into references for validation of the software. The data sets are listed in the related clauses of this document or can be accessed via https://standards.iso.org/iso/tr/11462/-4/ed-1/en .

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TECHNICAL REPORT **ISO/TR 11462-4:2022**

Guidelines for implementation of statistical process control (SPC) —

Part 4: Reference data sets for measurement process analysis software validation

1 Scope

This document describes examples for software validation for software implementing the standards of ISO 22514-7 on the capability of measurement processes. In detail, the following standards are covered:

— ISO 22514-7.

It provides data sets and test results for testing the implementation of the evaluation methods described in these standards. This includes:

a) the calculation of standard uncertainties from other sources (other than experiments – type B – ISO/IEC Guide 98-3);

b) the estimation of uncertainty components using repeated measurements on reference parts;

c) the estimation of uncertainty components using repeated measurements on multiple parts with different operators and their evaluation using the ANOVA method;

d) the combination of uncertainty components using the Gaussian law of uncertainty propagation;

e) the calculation of measurement process capability indices;

f) the influence of operators on attributive measurements;

g) the uncertainty range and capability indices for attributive measurements.

The test examples are intended to cover the calculation of the measuring system capability and measurement process capability according to ISO 22514-7.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 22514-2, *Statistical methods in process management — Capability and performance — Part 2: Process capability and performance of time-dependent process models*

3 Terms and definitions, and symbols and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 22514-2 apply.

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