
**Geometrical Product Specifications
(GPS) — Inspection by measurement of
workpieces and measuring equipment —**

Part 3:

**Guidelines for achieving agreements on
measurement uncertainty statements**

*Spécification géométrique des produits (GPS) — Vérification par la mesure
des pièces et des équipements de mesure —*

*Partie 3: Lignes directrices pour l'obtention d'accords sur la déclaration des
incertitudes de mesure*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO 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, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years with a view to deciding whether it should be confirmed for a further three years, revised to become an International Standard, or withdrawn. In the case of a confirmed ISO/PAS or ISO/TS, it is reviewed again after six years at which time it has to be either transposed into an International Standard or withdrawn.

Attention is drawn to the possibility that some of the elements of this part of ISO/TS 14253 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/TS 14253-3 was prepared by Technical Committee ISO/TC 213, *Dimensional and geometrical product specifications and verification*.

ISO 14253 consists of the following parts, under the general title *Geometrical Product Specifications (GPS) — Inspection by measurement of workpieces and measuring equipment*:

- *Part 1: Decision rules for proving conformance or non-conformance with specifications*
- *Part 2: Guide to the estimation of uncertainty in GPS measurement, in calibration of measuring equipment and in product verification*
- *Part 3: Guidelines for achieving agreements on measurement uncertainty statements*

Annex A of this part of ISO 14253 is for information only.

Introduction

This part of ISO 14253 is a geometrical product specification (GPS) Technical Specification and is to be regarded as a global GPS Technical Specification (see ISO/TR 14638). It influences links 4, 5 and 6 of all chains of standards in the general GPS matrix.

For more detailed information of the relation of this Technical Specification to other standards and the GPS matrix model, see annex A.

ISO 14253-1 provides decision rules for proving conformance or non-conformance with specifications of workpieces and measuring equipment when taking into account the uncertainty of measurement. ISO/TS 14253-2 provides instructions for preparing uncertainty budgets for determining measurement uncertainty as defined in the *Guide to the Expression of Uncertainty in Measurement (GUM)*. However, the possibility still exists that disagreement between customer and supplier can occur on the estimated measurement uncertainty.

It is becoming increasingly common for suppliers to have in place a quality system providing satisfactory assurance to the customer that the latter is receiving a product which conforms to specifications. This avoids the need for costly duplicate inspections.

For this reason, the most common case of disagreement over a measurement uncertainty statement or an uncertainty budget involves the customer questioning the supplier's uncertainty budget. The customer also may question the measured value of a characteristic of a workpiece or of measuring equipment, thus indirectly questioning the total uncertainty budget (see ISO 14253-1).

In a rarer case of disagreement, the supplier may question the customer's uncertainty budget when the customer rejects a workpiece or measuring equipment (see 6.2 of ISO 14253-1:1998).

In addition to those mentioned, there are other cases of disagreement, as well as other motivations that may lead to discussion of stated uncertainties.

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Geometrical Product Specifications (GPS) — Inspection by measurement of workpieces and measuring equipment —

Part 3:

Guidelines for achieving agreements on measurement uncertainty statements

1 Scope

This part of ISO 14253 provides guidelines and defines procedures for assisting the customer and supplier to reach amicable agreements on disputed measurement uncertainty statements regulated in accordance with ISO 14253-1, and so avoid costly and time-consuming disputes.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 14253. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 14253 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 14253-1:1998, *Geometrical Product Specifications (GPS) — Inspection by measurement of workpieces and measuring equipment — Part 1: Decision rules for proving conformance or non-conformance with specification*

ISO/TS 14253-2:1999, *Geometrical Product Specifications (GPS) — Inspection by measurement of workpieces and measuring equipment — Part 2: Guide to the estimation of uncertainty in GPS measurement, in calibration of measuring equipment and in product verification*

ISO 14978:—¹⁾, *Geometrical Product Specifications (GPS) — General concepts and requirements for GPS measuring equipment*

ISO/TS 17450-1:—¹⁾, *Geometrical Product Specifications (GPS) — General concepts — Part 1: Model for geometric specification and verification*

ISO/TS 17450-2:—¹⁾, *Geometrical Product Specifications (GPS) — General concepts — Part 2: Basic tenets, specifications, operators and uncertainties*

Guide to the Expression of Uncertainty in Measurement (GUM). BIPM, IEC, IFCC, ISO, IUPAC, IUPAP, OIML, 1st edition, 1993, corrected and reprinted in 1995

International Vocabulary of Basic and General Terms in Metrology (VIM). BIPM, IEC, IFCC, ISO, IUPAC, IUPAP, OIML, 2nd edition, 1993

1) To be published.