# TECHNICAL SPECIFICATION SPÉCIFICATION TECHNIQUE TECHNISCHE SPEZIFIKATION

# **CEN ISO/TS 14253-3**

December 2007

ICS 17.040.01

**English Version** 

### Geometrical product specifications (GPS) - Inspection by measurement of workpieces and measuring equipment - Part 3: Guidelines for achieving agreements on measurement uncertainty statements (ISO/TS 14253-3:2002)

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 (ISO/TS 14253-3:2002)

Geometrische Produktspezifikation (GPS) - Prüfung von Werkstücken und Messgeräten durch Messen - Teil 3: Richtlinien für das Erzielen einer Einigung über Messunsicherheitsangaben (ISO/TS 14253-3:2002)

This Technical Specification (CEN/TS) was approved by CEN on 8 October 2007 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION COMITÉ EUROPÉEN DE NORMALISATION EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

# Foreword

The text of ISO/TS 14253-3:2002 has been prepared by Technical Committee ISO/TC 213 "Dimensional and geometrical product specifications and verification" of the International Organization for Standardization (ISO) and has been taken over as CEN ISO/TS 14253-3:2007 by Technical Committee CEN/TC 290 "Dimensional and geometrical product specification and verification" the secretariat of which is held by AFNOR.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

#### **Endorsement notice**

The text of ISO/TS 14253-3:2002 has been approved by CEN as a CEN ISO/TS 14253-3:2007 without any modification.

# Contents

#### Page

Forewo	rdΩ i	v
Introdu	ction	v
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Reaching an agreement on a stated expanded uncertainty	4
5	Sequential procedure for evaluating and reaching agreement on an uncertainty statement	7
Annex	A (informative) Relation to the GPS matrix model1	2
Bibliog	raphy1	3

# 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.

© ISO 2002 – All rights reserved

# 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:—<sup>1)</sup>, Geometrical Product Specifications (GPS) — General concepts and requirements for GPS measuring equipment

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

ISO/TS 17450-2:—<sup>1)</sup>, 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

<sup>1)</sup> To be published.