

<b>STN</b>	<b>Optika a optické prístroje</b> <b>Postupy na skúšanie geodetických prístrojov</b> <b>Časť 5: Univerzálne meracie stanice</b>	<b>STN</b> <b>ISO 17123-5</b>  73 0212
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Optics and optical instruments  
Field procedures for testing geodetic and surveying instruments  
Part 5: Total stations

Optique et instruments d'optique  
Méthodes d'essai sur site des instruments géodésiques et d'observation  
Partie 5: Stations totales

Táto norma obsahuje anglickú verziu ISO 17123-5: 2018.

This standard includes the English version of ISO 17123-5: 2018.

#### **Nahradenie predchádzajúcich noriem**

Táto norma nahrádza STN ISO 17123-5 zo septembra 2013 v celom rozsahu.

**133899**

## Anotácia

Tento dokument špecifikuje postupy na určovanie a hodnotenie presnosti (opakovateľnosti) merania súradníc pomocou univerzálnych meracích staníc a ich pomocného vybavenia pri meraniach v stavebníctve a geodézii. Cieľom týchto skúšok je najmä overenie vhodnosti jednotlivých prístrojov pre príslušnú úlohu a ich schopnosti splniť požiadavky ďalších noriem. Uvedené postupy nie sú navrhované ako testy na hodnotenie kvality (výkonu) prístrojov, ktoré sú podstatne komplexnejšie.

Tieto postupy sú určené na skúšanie prístrojov v teréne bez potreby špecifických zariadení a sú navrhnuté tak, aby bol minimalizovaný vplyv atmosférických podmienok na výsledok skúšky.

## Národný predhovor

V tejto norme sú použité rovnaké termíny, definície, symboly a skratky ako v ISO 3534-1, ISO 4463-1, ISO 7077, ISO 7078, ISO 9849, ISO 17123-1, ISO/IEC Guide 98-3 a ISO/IEC Guide 99.

## Normatívne referenčné dokumenty

Nasledujúce dokumenty, celé alebo ich časti, sú v tomto dokumente normatívnymi odkazmi a sú nevyhnutné pri jeho používaní. Pri datovaných odkazoch sa použije len citované vydanie. Pri nedatovaných odkazoch sa použije najnovšie vydanie citovaného dokumentu (vrátane všetkých zmien).

POZNÁMKA 1. – Ak bola medzinárodná publikácia zmenená spoločnými modifikáciami, čo je indikované označením (mod), použije sa príslušná EN/HD.

POZNÁMKA 2. – Aktuálne informácie o platných a zrušených STN možno získať na webovej stránke [www.unms.sk](http://www.unms.sk).

ISO 3534-1 zavedená v STN ISO 3534-1 Štatistika. Slovník a značky. Časť 1: Všeobecné štatistické termíny a termíny používané v teórii pravdepodobnosti (01 0216)

ISO 4463-1 zavedená v STN ISO 4463-1 Metódy merania v stavebníctve. Vytyčovanie a meranie. Časť 1: Plánovanie, organizácia, postupy merania a preberacie podmienky (73 0423)

ISO 7077 dosiaľ nezavedená

ISO 7078 zavedená v STN ISO 7078 Pozemné stavby. Postupy merania a vytyčovania. Slovník a vysvetlivky (73 0230)

ISO 9849 dosiaľ nezavedená

ISO 17123-1 dosiaľ nezavedená

ISO 17123-3 zavedená v STN ISO 17123-3 Optika a optické prístroje. Postupy na skúšanie geodetických prístrojov. Časť 3: Teodolity (73 0212)

ISO 17123-4 zavedená v STN ISO 17123-4 Optika a optické prístroje. Postupy na skúšanie geodetických prístrojov. Časť 4: Elektrooptické diaľkomery (meranie na odrazové hranoly) (73 0212)

ISO/IEC Guide 98-3: 2008 dosiaľ nezavedený

ISO/IEC Guide 99: 2007 zavedený v STN 01 0115: 2011 Terminológia v metrológii

## Vypracovanie normy

Spracovateľ normy: Úrad pre normalizáciu, metrológiu a skúšobníctvo SR, Bratislava

Technická komisia: TK 89 Geodézia a kartografia

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## ISO 17123-5:2018(E)

### 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 172, *Optics and photonics*, Subcommittee SC 6, *Geodetic and surveying instruments*.

This third edition cancels and replaces the second edition (ISO 17123-5:2012), which has been technically revised.

A list of all parts in the ISO 17123 series can be found on the ISO website.

## Introduction

This document specifies field procedures for adoption when determining and evaluating the uncertainty of measurement results obtained by geodetic instruments and their ancillary equipment, when used in building and surveying measuring tasks. Primarily, these tests are intended to be field verifications of suitability of a particular instrument for the immediate task. They are not proposed as tests for acceptance or performance evaluations that are more comprehensive in nature.

The definition and concept of uncertainty as a quantitative attribute to the final result of measurement was developed mainly in the last two decades, even though error analysis has already long been a part of all measurement sciences. After several stages, the CIPM (Comité Internationale des Poids et Mesures) referred the task of developing a detailed guide to ISO. Under the responsibility of the ISO Technical Advisory Group on Metrology (TAG 4), and in conjunction with six worldwide metrology organizations, a guidance document on the expression of measurement uncertainty was compiled with the objective of providing rules for use within standardization, calibration, laboratory, accreditation and metrology services. ISO/IEC Guide 98-3 was first published in 1995.

With the introduction of uncertainty in measurement in ISO 17123 (all parts), it is intended to finally provide a uniform, quantitative expression of measurement uncertainty in geodetic metrology with the aim of meeting the requirements of customers.

ISO 17123 (all parts) provides not only a means of evaluating the precision (experimental standard deviation) of an instrument, but also a tool for defining an uncertainty budget, which allows for the summation of all uncertainty components, whether they are random or systematic, to a representative measure of accuracy, i.e. the combined standard uncertainty.

ISO 17123 (all parts) therefore provides, for defining for each instrument investigated by the procedures, a proposal for additional, typical influence quantities, which can be expected during practical use. The customer can estimate, for a specific application, the relevant standard uncertainty components in order to derive and state the uncertainty of the measuring result.

# Optics and optical instruments — Field procedures for testing geodetic and surveying instruments —

## Part 5: Total stations

### 1 Scope

This document specifies field procedures to be adopted when determining and evaluating the precision (repeatability) of coordinate measurement of total stations and their ancillary equipment when used in building and surveying measurements. Primarily, these tests are intended to be field verifications of the suitability of a particular instrument for the immediate task at hand and to satisfy the requirements of other standards. They are not proposed as tests for acceptance or performance evaluations that are more comprehensive in nature.

These field procedures have been developed specifically for in situ applications without the need for special ancillary equipment and are purposely designed to minimize atmospheric influences.

### 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 3534-1, *Statistics — Vocabulary and symbols — Part 1: General statistical terms and terms used in probability*

ISO 4463-1, *Measurement methods for building — Setting-out and measurement — Part 1: Planning and organization, measuring procedures, acceptance criteria*

ISO 7077, *Measuring methods for building — General principles and procedures for the verification of dimensional compliance*

ISO 7078, *Building construction — Procedures for setting out, measurement and surveying — Vocabulary and guidance notes*

ISO 9849, *Optics and optical instruments — Geodetic and surveying instruments — Vocabulary*

ISO 17123-1, *Optics and optical instruments — Field procedures for testing geodetic and surveying instruments — Part 1: Theory*

ISO 17123-3, *Optics and optical instruments — Field procedures for testing geodetic and surveying instruments — Part 3: Theodolites*

ISO 17123-4, *Optics and optical instruments — Field procedures for testing geodetic and surveying instruments — Part 4: Electro-optical distance meters (EDM measurements to reflectors)*

ISO/IEC Guide 98-3:2008, *Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

ISO/IEC Guide 99:2007, *International vocabulary of metrology — Basic and general concepts and associated terms (VIM)*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**