

STN	Optika a optické prístroje Postupy na skúšanie geodetických prístrojov Časť 6: Rotačné laserové prístroje	STN ISO 17123-6 73 0212
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Optics and optical instruments
Field procedures for testing geodetic and surveying instruments
Part 6: Rotating lasers

Optique et instruments d'optique
Méthodes d'essai sur site des instruments géodésiques et d'observation
Partie 6: Lasers rotatifs

Táto slovenská technická norma obsahuje anglickú verziu medzinárodnej normy ISO 17123-6: 2025 a má postavenie oficiálnej verzie.

This Slovak standard includes the English version of the International standard ISO 17123-6: 2025 and has the status of the official version.

Nahradenie predchádzajúcich dokumentov

Táto slovenská technická norma nahrádza STN ISO 17123-6 z apríla 2023 v celom rozsahu.

141255

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2025
Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii v znení neskorších predpisov.

Anotácia

Tento dokument určuje terénne skúšobné postupy, ktoré sa použijú na určovanie a hodnotenie presnosti (opakovateľnosti) rotačných laserových prístrojov, neistoty výsledkov meraní získaných geodetickými prístrojmi a ich pomôckami, najmä pri nivelačných 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 navrhnuté ako preberacie testy alebo hodnotenia výkonu prístrojov, ktoré sú prirodzene komplexnejšie.

Tento dokument môže slúžiť ako jeden z prvých krokov v procese hodnotenia neistoty merania (meranej veličiny). Neistota výsledku merania závisí od množstva parametrov. Preto tento dokument rozlišuje medzi rôznymi kvalitatívnymi parametrami a cieľmi testovania, zahŕňajúc opakovateľnosť a reprodukovateľnosť (opakovateľnosť medzi dňami) a poskytuje dôkladné posúdenie všetkých potenciálnych zdrojov chýb, ako je špecifikované v ISO/IEC Guide 98-3 a ISO 17123-1.

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

Normatívne referenčné dokumenty

Na nasledujúce dokumenty sa odkazuje v texte takým spôsobom, že časť ich obsahu alebo celý obsah predstavuje požiadavky tohto dokumentu. Pri datovaných odkazoch sa používa len citované vydanie. Pri nedatovaných odkazoch sa používa najnovšie vydanie citovaného dokumentu (vrátane akýchkoľvek 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 a TNI možno získať na webovom sídle www.unms.sk.

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

ISO 4463-1 prijatá ako 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 neprijatá

ISO 7078 prijatá ako STN ISO 7078 Budovy a inžinierske stavby. Postupy na vytyčovanie a meranie. Slovník (73 0230)

ISO 9849 dosiaľ neprijatá

ISO 17123-1 prijatá ako STN ISO 17123-1 Optika a optické prístroje. Postupy na skúšanie geodetických prístrojov. Časť 1: Teória (73 0212)

ISO 17123-2 prijatá ako STN ISO 17123-2 Optika a optické prístroje. Postupy na skúšanie geodetických prístrojov. Časť 2: Nivelačné prístroje (73 0212)

ISO/IEC Guide 98-3 dosiaľ neprijatá

ISO/IEC Guide 99 dosiaľ neprijatá

Vypracovanie

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

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ISO 17123-6:2025(en)

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

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Symbols and abbreviated terms	2
4.1 Symbols	2
4.2 Abbreviations	3
5 General	3
5.1 Requirements	3
5.2 Procedure 1: simplified test procedure	3
5.3 Procedure 2: full test procedure	4
6 Simplified test procedure	5
6.1 Configuration of the test field	5
6.2 Measurements	6
6.3 Calculation	6
7 Full test procedure	7
7.1 Configuration of the test line	7
7.2 Measurements	8
7.3 Calculation	9
7.4 Statistical test	13
7.4.1 General	13
7.4.2 Question a)	14
7.4.3 Question b)	14
7.4.4 Question c)	14
7.4.5 Question d)	15
8 Influence quantities and combined standard uncertainty evaluation (Type A and Type B)	15
Annex A (informative) Example of the simplified test procedure	17
Annex B (informative) Example of the full test procedure	20
Annex C (informative) Example for the calculation of an uncertainty budget	27

ISO 17123-6:2025(en)**Foreword** ISO/IEC Guide 19, *International vocabulary of metrology — Basic and general concepts and associated terms (VIM)*

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 document 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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For an explanation of 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 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 fourth edition cancels and replaces the third edition (ISO 17123-6:2022), which has been technically revised.

The main changes are as follows:

- the first paragraph of Introduction has been deleted as already cited as first paragraph of the Scope;
- more flexible configuration of the test line and updating of the mathematical model;
- harmonization of terminology and symbols;
- correction of errors.

A list of all parts in the ISO 17123 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.

ISO 17123-6:2025(en)**ISO/IEC Guide 98-3:2008 International vocabulary of metrology — Basic and general concepts and associated terms (VIM)**
Introduction

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 International 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 as the Guide to the Expression of Uncertainty in Measurement (GUM) 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 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.

ISO 17123-6:2025(en)

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

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

Part 6: Rotating lasers

1 Scope

This document specifies field procedures to be adopted when determining and evaluating the precision (repeatability) of rotating lasers, the uncertainty of measurement results obtained by geodetic instruments and their ancillary equipment, particularly when used in building and surveying measurements for levelling tasks. 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.

This document can be considered as one of the first steps in the process of evaluating the uncertainty of a measurement (more specifically a measurand). The uncertainty of a result of a measurement is dependent on a number of parameters. Therefore, this document differentiates between various quality measures and testing objectives, including repeatability and reproducibility (between-day repeatability), and provides a thorough assessment of all potential error sources, as specified by ISO/IEC Guide 98-3 and ISO 17123-1.

These field procedures have been developed specifically for in situ applications without the need for special ancillary equipment and are purposefully 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, *Buildings and civil engineering works — Procedures for setting out, measurement and surveying — Vocabulary*

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 17123-2, *Optics and optical instruments — Field procedures for testing geodetic and surveying instruments — Part 2: Levels*

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

ISO 17123-6:2025(en)

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

koniec náhľadu – text ďalej pokračuje v platenej verzii STN