ICS 17.180.30 SLOVENSKÁ TECHNICKÁ NORMA December 2021

STN	**Optika a optické prístroje Postupy na skúšanie geodetických prístrojov Časť 8: GNSS meracie systémy pracujúce kinematickou metódou v reálnom čase**	**STN ISO 17123-8** 73 0212

Optics and optical instruments
Field procedures for testing geodetic and surveying instruments
Part 8: GNSS field measurement systems in real-time kinematic (RTK)

Optique et instruments d'optique
Méthodes d'essai sur site des instruments géodésiques et d'observation
Partie 8: Systèmes de mesure GNSS sur site en temps réel cinématique

Táto norma obsahuje anglickú verziu ISO 17123-8: 2015.

This standard includes the English version of ISO 17123-8: 2015.

Nahradenie predchádzajúcich noriem

Táto norma nahrádza STN ISO 17123-8 z februára 2010 v celom rozsahu.

133898

Anotácia

Táto časť ISO 17123 špecifikuje skúšobné postupy, ktoré majú byť použité na určovanie a hodnotenie presnosti (opakovateľnosti) meracích prístrojov Globálnych navigačných satelitných systémov (GNSS – vrátane GPS NAVSTAR, GLONASS a ďalších, napr. GALILEO) pracujúcich kinematickou metódou v reálnom čase (GNSS RTK) a ich príslušenstva a pomocného vybavenia, pri meraniach v stavebníctve, geodézii a priemysle. 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.

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.

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 9849 dosiaľ nezavedená

ISO 12858-2 dosiaľ nezavedená

ISO 17123-1 dosiaľ nezavedená

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

ISO 17123-5 zavedená v STN ISO 17123-5 Optika a optické prístroje. Postupy na skúšanie geodetických prístrojov. Časť 5: Univerzálne meracie stanice (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

Contents

Page

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).

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).

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 meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 172, *Optics and photonics*, Subcommittee SC 6, *Geodetic and surveying instruments*.

This second edition cancels and replaces the first edition (ISO 17123-8:2007), which has been technically revised.

ISO 17123 consists of the following parts, under the general title *Optics and optical instruments — Field procedures for testing geodetic and surveying instruments*:

— *Part 1: Theory*

— *Part 2: Levels*

— *Part 3: Theodolites*

— *Part 4: Electro-optical distance meters (EDM measurements to reflectors)*

— *Part 5: Total stations*

— *Part 6: Rotating lasers*

— *Part 7: Optical plumbing instruments*

— *Part 8: GNSS field measurement systems in real-time kinematic (RTK)*

Annex A, Annex B, and Annex C of this part of ISO 17123 are for information only.

Introduction

This part of ISO 17123 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 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 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.

INTERNATIONAL STANDARD ISO 17123-8:2015(E)

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

Part 8: GNSS field measurement systems in real-time kinematic (RTK)

1 Scope

This part of ISO 17123 specifies field procedures to be adopted when determining and evaluating the precision (repeatability) of Global Navigation Satellite System (GNSS) field measurement systems (this includes GPS, GLONASS, as well as the future systems like GALILEO) in real-time kinematic (GNSS RTK) and their ancillary equipment when used in building, surveying, and industrial measurements. Primarily, these tests are intended to be field verifications of the suitability of a particular instrument for the required application 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.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 9849, *Optics and optical instruments — Geodetic and surveying instruments — Vocabulary*

ISO 12858-2, *Optics and optical instruments — Ancillary devices for geodetic instruments — Part 2: Tripods*

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 17123-5, *Optics and optical instruments — Field procedures for testing geodetic and surveying instruments — Part 5: Total stations*

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)*