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ISO 17123-1:2014 International Organization for Standardization.

What is ISO 17123-1:2014 International Organization for Standardization?

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

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.

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

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

This third edition cancels and replaces the second edition consists of the following parts, under the general title *Optics and optical instruments — Field procedures for testing geodetic and surveying instruments*

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 an International Standard (ISO document) 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.

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.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC Guide 99 and the following apply.

3.1 General metrological terms

3.1.1

(measurable) quantity

property of a phenomenon, body or substance, where the property has a magnitude that can be expressed as a number and a reference

3.1.2

value

value of a quantity

quantity value

number and reference together expressing the magnitude of a quantity

EXAMPLE:

Length of a rod: 3,24 m.

3.1.3

true value

true value of a quantity

true quantity value

value consistent with the definition of a given quantity

Note 1 to entry: This is a value that would be obtained by perfect measurement. However, this value is in principle and in practice unknowable.

3.1.4

reference value

reference quantity value

quantity value used as a basis for comparison with values of quantities of the same kind

Note 1 to entry: A reference quantity value can be a true quantity value of the measurand, in which case it is normally unknown. A reference quantity value with associated measurement uncertainty is usually provided by a reference measurement procedure.

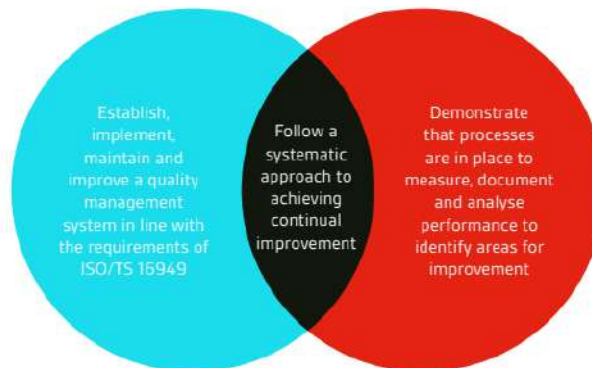
3.1.5

measurement

process of experimentally obtaining one or more quantity values that can reasonably be attributed to a quantity

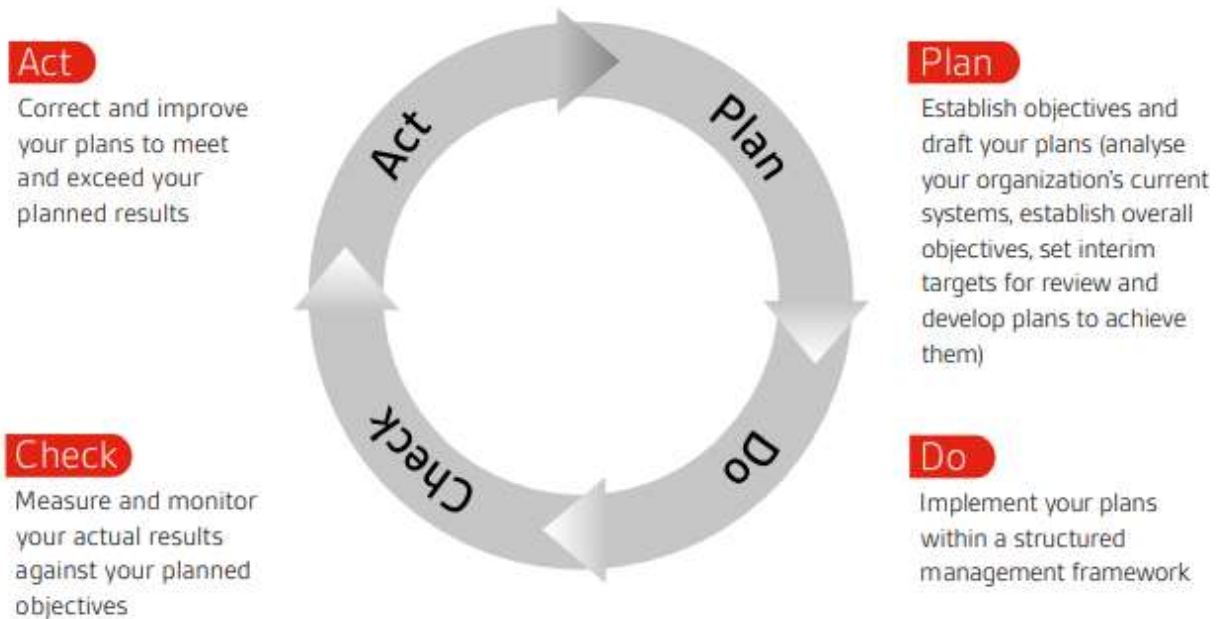
Note 1 to entry: Measurement implies comparison of quantities and includes counting of entities.

The principal requirements of the standard are illustrated below:



The next few pages of the guide takes you through the Plan-Do-Check-Act (PDCA) methodology, common in all ISO management systems and how DCS can help and support you on your ISO/TS 16949 journey.

Understanding the principles of continual improvement



10 Tips on making ISO/TS 16949 work for you

1. Top management commitment is vital for the system to be introduced successfully. Make sure senior managers are actively responsible, involved, approve resources and agree to the key processes.
2. Make sure your whole business and supply chain are committed to business improvement and engage them with a sound communications strategy.
3. Establish a competent and knowledgeable implementation team to deliver best results, sharing roles and responsibilities.
4. Review systems, policies, procedures and processes you have in place at the moment. Then compare them with what ISO/TS 16949 asks for. Get supply chain and stakeholder feedback on your current quality processes.
5. Adapt the basic principles of ISO/TS 16949 standard to your specific business objectives and environment.
6. Clearly lay out a well-communicated plan of activities and timescales. Make sure everyone understands them and their role in achieving them.
7. Consider using DCS's Entropy™ Software to manage your system which is configured to help you achieve sustained compliance with key ISO/TS 16949 requirements.
8. Train your staff to carry out internal audits, which can provide valuable feedback on potential audits and opportunities for improvement.
9. Encourage your supply chain to become certified to ISO/TS 16949 to benefit from a robust end to end system.
10. Regularly review your ISO/TS 16949 management system to make sure it remains appropriate, effective and delivered continual improvement.

How DCS supports you throughout the implementation of ISO/TS 16949

Speak to someone at DCS to help you understand the process. If you are new to management systems then we know this may seem rather daunting at first. But don't worry – just pick up the phone to speak to one of our people. We can turn jargon into English and put you on the right track for success – simply call 02502341257/9322728183

Commit to best practice and start making excellence a habit

Once we have received your application, we will identify the best people to assist you on your journey – those that know your industry sector and will clearly understand your specific challenges. We also have some useful self-assessment tools to help you get started.

Engage your team and the rest of the organization

Success will depend on a team effort so get the backing of your organization by helping them understand how they can contribute to the system. Consider whether people have the necessary skills and if not equip them accordingly.

Get ahead with pre-assessment and identify potential loopholes

Many DCS clients like to get reassurance that they are on the right track before committing to the official stage 1 assessment. At your discretion, DCS will carry out an optional ‘gap-analysis’ or pre-assessment visit to help you identify any weaknesses or omissions prior to the formal assessment. Call our team on 02502341257/9322728183 to book a pre-assessment

Celebrate the achievement of your official ISO/TS 16949

DCS will assess your management system in two stages. Our ‘Stage 1’ visit will involve the review of the system against the requirements of the standard. ‘Stage 2’ is simply a follow-up to check that you have corrected and progressed any issues raised in the first stage. Now is the time to celebrate your success.

Use your certificate to promote your business

Once certified, you’ll be able to make your own mark by displaying the DCS Assurance Mark. It’s a valuable marketing tool that you can use to promote your organization, differentiate you from your competitors and win new business.

Help for continuous improvement

DCS’s support extends far beyond the issue of a certificate. Your certificate is valid for three years however our team will continue to work with you to ensure that your business remains compliant and you strive for continual improvement. If you are interested in additional scheme or integrating your system, DCS can help. Talk to your client manager or call our team on 02502341257/9322728183

We know ISO/TS 16949; DCS shaped the original standard.

DCS

- Shaped the original standard that is now ISO/TS 16949 and continues to lead the development of related standards
- Has the most highly trained and knowledgeable assessors
- Offers the widest range of support solutions in the market place
- Is the number one certification body in the UK, USA and Korea?
- Looks after more than 70,000 global clients
- Has an unrivalled International reputation for excellence