

AMERICAN NATIONAL STANDARD

Measurement management systems — Requirements for measurement processes and measuring equipment



AMERICAN SOCIETY FOR QUALITY
P.O. BOX 3005
MILWAUKEE, WI 53201-3005



AMERICAN NATIONAL STANDARD

Measurement management systems — Requirements for measurement processes and measuring equipment

Approved as an American National Standard by:
American Society for Quality

An American National Standard Approved April 2006

American National Standards: An American National Standard implies a consensus of those substantially concerned with its scope and provisions. An American National Standard is intended as a guide to aid the manufacturer, the consumer, and the general public. The existence of an American National Standard does not in any respect preclude anyone, whether he or she has approved the standard or not, from manufacturing, purchasing, or using products, processes, or procedures not conforming to the standard. American National Standards are subject to periodic review and users are cautioned to obtain the latest edition.

Caution Notice: This American National Standard may be revised or withdrawn at any time. The procedures of the American National Standards Institute require that action be taken to reaffirm, revise, or withdraw this standard no later than five years from the date of publication. Purchasers of American National Standards may receive current information on all standards by calling or writing the American National Standards Institute.

© 2006 by ASQ

Copyright Protection Notice for the ANSI/ISO/ASQ Q10012-2003 Standard.

This standard is subject to copyright claims of ISO, ANSI, and ASQ. Not for resale. No part of this publication may be reproduced in any form, including an electronic retrieval system, without the prior written permission of ASQ. All requests pertaining to the ANSI/ISO/ASQ Q10012-2003 Standard should be submitted to ASQ.

Note: As used in this document, the term "International Standard" refers to the American National Standard adoption of this and other International Standards.

ASQ will consider requests for change and information on the submittal of such requests regarding this Standard. All requests should be in writing to the attention of the Standards administrator at the address below.

ASQ Mission: The American Society for Quality advances individual and organizational performance excellence worldwide by providing opportunities for learning, quality improvement, and knowledge exchange.

Published by:



Quality Press
600 N. Plankinton Avenue
Milwaukee, Wisconsin 53203
Call toll free 800-248-1946
Fax 414-272-1734
www.asq.org
<http://qualitypress.asq.org>
<http://standardsgroup.asq.org>
E-mail: authors@asq.org

Also available from ASQ Quality Press:

Concepts for R&R Studies, Second Edition
Larry B. Barrentine

The Uncertainty of Measurements: Physical and Chemical Metrology: Impact and Analysis
S. K. Kimothi

The Metrology Handbook
Jay Bucher, editor

Failure Mode and Effect Analysis: FMEA From Theory to Execution, Second Edition
D. H. Stamatis

Managing the Metrology System, Third Edition
C. Robert Pennella

Glossary and Tables for Statistical Quality Control, Fourth Edition
ASQ Statistics Division

The Quality Toolbox, Second Edition
Nancy R. Tague

To request a complimentary catalog of ASQ Quality Press publications, call 800-248-1946,
or visit our Web site at <http://qualitypress.asq.org>.

(This page is intentionally left blank.)

Contents

Page

Foreword	iv
Introduction	v
1 Scope.....	1
2 Normative references	1
3 Terms and definitions	1
4 General requirements	2
5 Management responsibility	3
5.1 Metrological function	3
5.2 Customer focus	3
5.3 Quality objectives	3
5.4 Management review	3
6 Resource management.....	4
6.1 Human resources	4
6.2 Information resources	4
6.3 Material resources	5
6.4 Outside suppliers	6
7 Metrological confirmation and realization of measurement processes	6
7.1 Metrological confirmation	6
7.2 Measurement process	9
7.3 Measurement uncertainty and traceability	11
8 Measurement management system analysis and improvement.....	12
8.1 General	12
8.2 Auditing and monitoring	12
8.3 Control of nonconformities	13
8.4 Improvement.....	15
Annex A (informative) Overview of the metrological confirmation process	17
Bibliography	19

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 10012 was prepared by Technical Committee ISO/TC 176, *Quality management and quality assurance*, Subcommittee SC 3, *Supporting technologies*.

This first edition of ISO 10012 cancels and replaces ISO 10012-1:1992 and ISO 10012-2:1997, of which it constitutes a technical revision.

Introduction

An effective measurement management system ensures that measuring equipment and measurement processes are fit for their intended use and is important in achieving product quality objectives and managing the risk of incorrect measurement results. The objective of a measurement management system is to manage the risk that measuring equipment and measurement processes could produce incorrect results affecting the quality of an organization's product. The methods used for the measurement management system range from basic equipment verification to the application of statistical techniques in the measurement process control.

In this International Standard, the term "measurement process" applies to physical measurement activities (e.g. in design, test, production, inspection).

References to this International Standard can be made

- by a customer when specifying products required,
- by a supplier when specifying products offered,
- by legislative or regulatory bodies, and
- in assessment and audit of measurement management systems.

One of the stated management principles in ISO 9000 addresses the process-oriented approach. Measurement processes should be considered as specific processes aiming to support the quality of the products produced by the organization. Application of the measurement management system model applicable to this International Standard is shown in Figure 1.

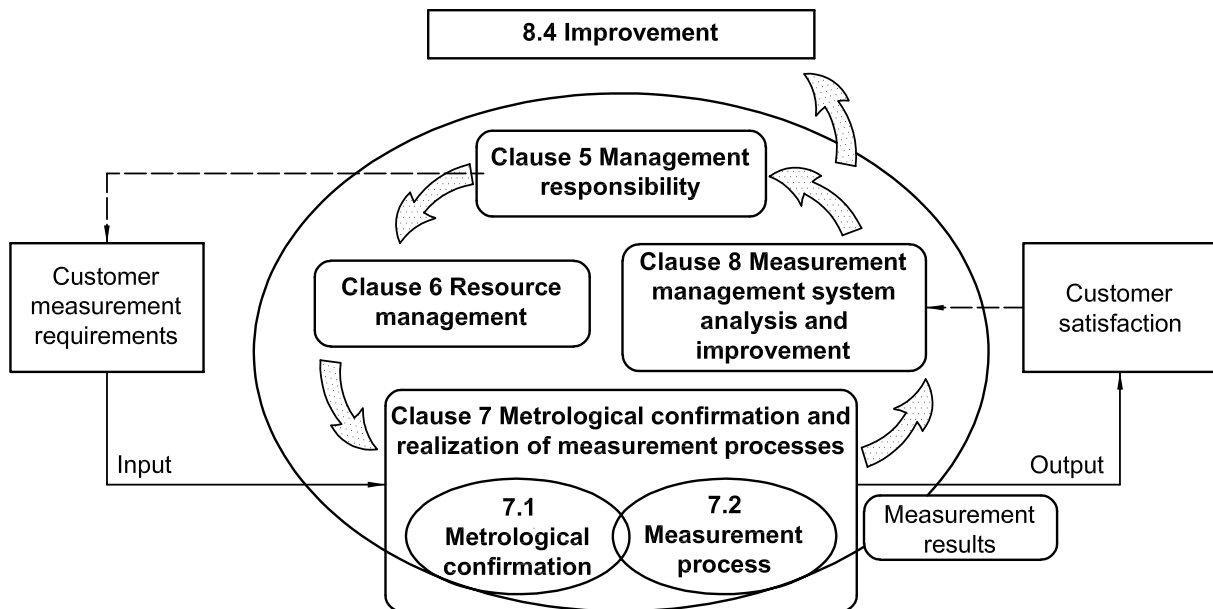


Figure 1 — Model of measurement management system