



SLOVENSKI STANDARD
SIST EN 14736:2004

01-september-2004

Zagotavljanje varnih proizvodov v vesoljski tehniki – Zagotavljanje kakovosti za testne centre

Space product assurance - Quality assurance for test centres

Raumfahrtproduktsicherung - Qualitätssicherung für Testzentren

Assurance produit des projets spatiaux - Assurance qualité pour les centres d'essai

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ICS:

49.140 Vesoljski sistemi in operacije Space systems and operations

SIST EN 14736:2004

en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 14736

March 2004

ICS 49.140

English version

Space product assurance - Quality assurance for test centres

Assurance produit des projets spatiaux - Assurance qualité
pour les centres d'essai

Raumfahrtproduktsicherung - Qualitätssicherung für
Testanlagen

This European Standard was approved by CEN on 2 February 2004.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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Foreword

This document (EN 14736:2004) has been prepared by CMC.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2004, and conflicting national standards shall be withdrawn at the latest by September 2004.

It is based on a previous version¹⁾ originally prepared by the ECSS-Q-20-07 Working Group, reviewed by the ECSS Technical Panel and approved by the ECSS Steering Board. The European Cooperation for Space Standardization (ECSS) is a cooperative effort of the European Space Agency, national space agencies and European industry associations for the purpose of developing and maintaining common standards.

This European Standard is one of the series of space standards intended to be applied together for the management, engineering and product assurance in space projects and applications.

Requirements in this European Standard are defined in terms of what shall be accomplished, rather than in terms of how to organize and perform the necessary work. This allows existing organizational structures and methods to be applied where they are effective, and for the structures and methods to evolve as necessary without rewriting the standards.

The formulation of this European Standard takes into account the existing EN ISO 9000 family of documents.

The annexes A, B and C are informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

¹⁾ ECSS-Q-20-07A.

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Introduction

This European Standard was developed to ensure that test centres working for European space projects operate a quality assurance system which conforms to the requirements of the EN ISO 9001 standard, the requirements of EN 13291-1 and EN 13291-2.

This European Standard refers to the requirements of the EN ISO 9001 standard that are relevant to the mission of test centres working in space projects and provides additional requirements specific to the test centres. The quality management system of the test centre, or that of the organization of which it is part, is to be in conformance with these requirements.

This European Standard also incorporates the requirements from EN ISO/IEC 17025 which are considered applicable for test centres working for space projects.

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1 Scope

This European Standard defines the quality assurance (QA) requirements for the operation, maintenance, management and configuration control of test centres for space applications. It also defines the requirements for the treatment of test specimens and the development of test facilities.

This European Standard applies to test centres as self-standing organizations, or those belonging to a parent organization. Separate procedures are not required in the latter case if activities are controlled by the implementation of parent organization procedures.

When viewed in a specific project context, the requirements defined in this European Standard should be tailored to match the genuine requirements of a particular profile and circumstances of a project.

NOTE Tailoring is a process by which individual requirements of specifications, standards and related documents are evaluated and made applicable to a specific project by selection, and in some exceptional cases, modification of existing or addition of new requirements.
[EN 14724:2003, clause 3]

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

- EN 13701:2001, *Space systems — Glossary of terms*.
<https://standards.iteh.ai/catalog/standards/sist/7c4a772d-893a-42e7-ad74-cf1692d7/sist/en-14736-2004>
- ECSS-Q-70-01, *Space product assurance — Cleanliness and contamination control*.
- EN ISO 9001:2000, *Quality management systems — Requirements*.

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 13701:2001 together with the following apply.

3.1.1

critical operation

any operation that can result in injury to persons, significant material damage or other unacceptable consequences if not properly performed

3.1.2

modification

any change in the configuration of an existing test facility

3.1.3

QA representative

representative from the test centre management with responsibility for quality assurance

EN 14736:2004 (E)**3.1.4****quality policy**

overall intentions and directions of the test centre with regard to quality as formally expressed by top management

3.1.5**quality management system**

management system to direct and control the test centre organization with regard to quality

3.1.6**QA staff**

designated staff of the test centre, or its parent organization, properly trained, with specific responsibilities for quality assurance

3.1.7**safety policy**

overall intentions and directions of the test centre with regard to safety as formally expressed by executive management

3.1.8**safety system**

test centre organization structure, procedures, processes and resources needed to implement safety policy

3.1.9**test campaign**

period of time which begins with the arrival of the test specimen in the test centre and ends with its departure from the test centre

3.1.10**test centre**

complete entity including the organization that provides, develops and operates test facilities for space project and applications including accompanied services

3.1.11**test facility**

technical plant (test equipment and associated buildings) to provide specific simulated conditions for testing equipment for space projects and applications

3.1.12**test personnel**

staff having the required skills and qualification to maintain and operate the designated processes

3.1.13**test process**

all activities necessary to perform a test, or a series of tests, to comply with the requirements specified in the contract

NOTE This includes test design, planning, preparation, acceptance, performance, reports, reviews and records.

[ISO/IEC 12207:1995]

3.2 Abbreviated terms**Abbreviation Meaning**

DRD document requirements definition

IEC International Electrical Committee

ISO	International Organization for Standardization
FTIR	Fourier transmittance infrared
NCR	nonconformance report
NRB	nonconformance review board
PTR	post-test review
RAMS	reliability, availability, maintainability and safety
TRR	test readiness review

4 Requirements

4.1 General requirements

- a) EN ISO 9001:2000, 4.1 shall apply.
- b) The quality management system of the test centre, or its parent organization, shall be implemented and maintained in a transparent way to allow effective external and internal revisions or audits by customer or external authorities.
- c) The test centre quality manual shall be supported by lower level documents such as:
 - 1) quality and safety procedures;
 - 2) standard operating procedures, work instructions and project plans;
 - 3) records.

4.2 Documentation requirements

- a) EN ISO 9001:2000, 4.2 shall apply.
- b) The test centre shall establish and maintain a documented description of the test facilities.

NOTE As shown in Figure 1, three levels of documentation support an effective quality management system.

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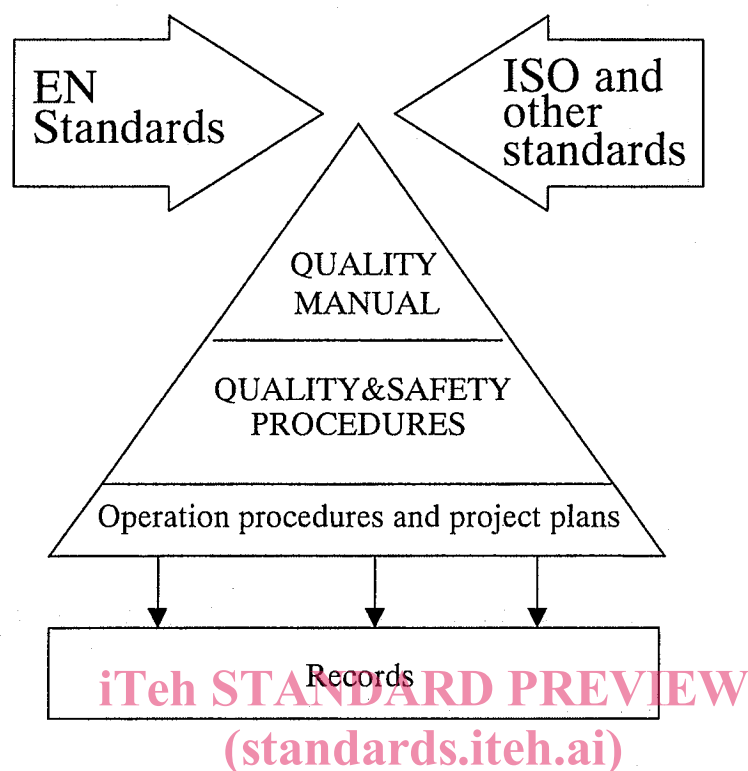


Figure 1 — Structure of quality management system documentation
<https://standards.iteh.ai/catalog/standards/sist/c41772d0-895a-42e7-ad74-cfab16ff4d7b/sist-en-14736-2004>

5 Management responsibility

5.1 Management commitment

- a) EN ISO 9001:2000, 5.1 shall apply.
- b) The test centre shall define its organization and management structure, its place in the parent organization, and the relationships between management, technical operations, support services and the quality management system.

5.2 Customer focus

EN ISO 9001:2000, 5.2 shall apply.

5.3 Quality policy

- a) EN ISO 9001:2000, 5.3 shall apply.
- b) The test centre policy shall include management commitment to achieve full support to the quality management system by all personnel.

5.4 Planning

5.4.1 Quality objectives

EN ISO 9001:2000, 5.4.1 shall apply.

5.4.2 Quality management system planning

- a) EN ISO 9001:2000, 5.4.2 shall apply.
- b) The test centre shall give timely consideration to the following tasks:
- 1) preparation of project and quality plans for critical processes;
 - 2) identification of controls, processes, equipment, fixtures, resources and skills;
 - 3) updating of quality control, inspection and verification techniques, including the development of new instrumentation or complex facilities;
 - 4) identification, in sufficient time, to develop the capability of the test centre for any measurement requirements that exceed the current known state of the art;
 - 5) identification of standards for maintenance and calibration of systems, sub-systems, measuring equipment and items;
 - 6) establishment and follow-up of clear rules to control conformity to requirements between design and acceptance by means of e.g. calculation test analysis, and simulation;
 - 7) assessment of risks related to customer supplied products and the required processes.

5.5 Responsibility, authority and communication

5.5.1 Responsibility and authority

EN ISO 9001:2000, 5.5.1 shall apply.

5.5.2 Management representative

- a) The quality organization shall appoint a QA (quality assurance) representative with defined authority to ensure that the quality management system is established, implemented and maintained and to report its performance to the test centre management and any needs for improvement.
- b) A safety officer shall be nominated for critical and hazardous operations or tests.

NOTE The responsibility of the QA representative can also include liaison with external parties on matters relating to the test centre quality management system.

5.5.3 Internal communication

EN ISO 9001:2000, 5.5.3 shall apply.

5.6 Management review

EN ISO 9001:2000, 5.6 shall apply.

EN 14736:2004 (E)**6 Resource management****6.1 Provision of resources**

EN ISO 9001:2000, 6.1 shall apply.

6.2 Human resources**6.2.1 General**

- a) The test centre shall ensure that all personnel are adequately trained to perform their assigned tasks and to comply with all safety regulations. All test centre staff and customers, conducting or supporting potentially hazardous operations in the test centre, shall receive the appropriate safety training.
- b) For each test, in addition to other training, briefings shall be provided for operators on potential risks. These briefings shall include the technical preventive measures to be observed and the precautions to be taken. Briefing of operators should include dry runs of the tasks to be performed and associated emergency actions.

6.2.2 Competence, awareness and training

- a) The identification of the training needs and training objectives for the test centre staff shall be carried out on a periodic basis, as a minimum once a year. The identification of needs shall also consider training for personnel being re-assigned to jobs other than those for which they were originally trained.
- b) A skills and competences matrix, or an equivalent method, shall be used to identify the required competence profiles and the training requirements.
- c) Personnel performing selected handling operations, such as lift and hoist operators, shall be trained and certified by an authorized function or body.

The certification shall be based on recognized (national or international) standards or regulations and granted upon objective evidence of knowledge or proficiency.

The certification shall be granted with a predefined validity and shall be renewed upon expiration after refresher training programmes have been successfully completed.

- d) The training or certification records shall be kept and shall be maintained to document:
 - 1) planned training;
 - 2) training or certification actually received by personnel; and
 - 3) validity and maintenance of certification.

6.3 Infrastructure and work environment**6.3.1 General**

The test centre shall ensure that all processes are carried out under controlled conditions using suitable test facilities, test and measuring equipment (hardware and software), servicing equipment and environmental conditions as required.

In particular, the test centre shall take all the necessary provisions to ensure that the specified environmental conditions are achieved and maintained throughout the test process in order to preserve the test specimen and the test equipment, from acceptance of responsibility to return to the custody of the customer. These