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Space systems — General management requirements for space test centres

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Foreword

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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).

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For an explanation on 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 14, *Space systems and operations*.

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0 Introduction

0.1 General

This document provides the minimum requirements to demonstrate the competence of the test centres working for space projects.

This document also incorporates requirements from ISO/IEC 17025 that are considered applicable for space test centres.

In a specific context, the requirements defined in this document may be tailored to match the requirements of this context.

0.2 Nomenclature/formal verbs

To understand the verbal forms and expressions of provisions in this document, please consult Clause 7 of the ISO/IEC Directives Part 2.

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Space systems — General management requirements for space test centres

1 Scope

This document specifies requirements for when a space test centre needs to demonstrate its competence to consistently provide space testing that meets customer requirements.

It specifies requirements for space test centres, applicable to the test process, test personnel (both, of the customer and the space test centre), test facilities, test environment and any operations related to the test item under responsibility of the space test centre as requested by the customer.

This document also defines the requirements for space testing and the development of test facilities.

This document was originally prepared with a focus on environmental testing (i.e. thermal vacuum, vibrations, acoustic, Electromagnetic Compatibility (EMC), Radio Frequency (RF), physical properties measurements, etc.).

This document applies to space test centres as self-standing organizations, or those belonging to a parent organization. This document has been prepared for organizations providing test services for space and launch segment elements and subsystems.

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 10794, *Space systems — Programme management — Material, mechanical parts and processes*

ISO 10795, *Space systems — Programme management and quality — Vocabulary*

ISO 14300-2, *Space systems — Programme management — Part 2: Product assurance*

ISO 14620-1, *Space systems — Safety requirements — Part 1: System safety*

ISO 15388, *Space systems — Contamination and cleanliness control*

ISO 15864, *Space systems — General test methods for space craft, subsystems and units*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

ISO 17566, *Space systems — General test documentation*

ISO 17666, *Space systems — Risk management*

ISO 23460, *Space projects — Programme management — Dependability assurance requirements*

ISO 23461, *Space systems — Programme management — Non-conformance control system*

ISO 27025, *Space systems — Programme management — Quality assurance requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10795 and the following apply.

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ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
critical operation
operation that can result in injury to persons, significant material damage or other unacceptable consequences if not properly performed

3.2
modification
change in the configuration of an existing test facility

Note 1 to entry: In the context of a test facility.

3.3
quality representative
representative from the space test centre management with designated responsibility for quality management

Note 1 to entry: In the context of test centres.

3.4
safety policy
overall intentions and directions of the space test centre with regard to safety as formally expressed by executive management

3.5
safety representative
representative from the space test centre management with designated responsibility for safety

Note 1 to entry: In the context of test centres.

3.6
space test
environmental test that is applied to space items using space centres facilities

3.7
space test centre
complete entity including the organization which provides, maintains, develops and operates test facilities for space project and applications including accompanied services

3.8
test campaign
series of test processes starting with the arrival of the test specimen in the space test centre and ending with its departure from the space test centre

Note 1 to entry: In the context of test centres.

3.9
test facility
technical plant to provide specific simulated conditions for testing equipment for space projects and applications, including test connections and instrumentation attached as necessary to perform the test

Note 1 to entry: Test facility includes test equipment and associated infrastructure, including supplies.

3.10
test personnel
staff developing, maintaining or operating a test process

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3.11
test process
set of activities necessary to perform a test, or a series of tests, to comply with the requirements specified in the business agreement

Note 1 to entry: This includes, but is not limited to, test design, planning, preparation, acceptance, performance, reporting, reviewing and recording.

3.12
test specimen
spacecraft, subsystem, item or device under test

Note 1 to entry: This term is a synonym of test article and test item.

4 Abbreviated terms

The following abbreviated terms are defined and used in this document:

DRD document requirements definition

ESD electrostatic discharge

FRR facility readiness review

GSE ground support equipment

NCR non-conformance report

PTR post-test review

QA quality assurance

TRR test readiness review

5 Space test centre management principles

5.1 Objective

The objective is to ensure that all technical and programmatic risks associated with the testing of space products performed under the responsibility of the space test centre are adequately managed through the implementation of an effective management program.

5.2 General principles

The space test centre is responsible for demonstrating that a management programme covering the definition, design, development, implementation and continuous improvement, of competences, processes and facilities, is established, implemented and maintained throughout the test service provision to a customer.

The basic principles of the space test centre management programme are the early identification of aspects potentially detrimental for the quality of the test service, the safety of persons and products, and the cost-effective prevention of any adverse consequence of such aspects.

The management programme shall demonstrate the integration of activities from the following disciplines:

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