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Systèmes spatiaux — Exigences en matière d'assurance produit des satellites commerciaux

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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 document 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 of 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 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*.

This second edition cancels and replaces the first edition (ISO 20188:2018), which has been technically revised.

The main changes are as follows:

— normative references with related references in the text have been updated;

— requirement related to the role of product assurance manager has been added;

— requirements have been updated in 6.21 (non-conformity control), in 6.25 (quality assurance role in configuration management, in Clause 7 (dependability) and in Clause 8 (safety);

— the Bibliography has been updated.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

This document specifies the product assurance (PA) activities from the standpoint of commercial business during each phase of the project such as design, procurement, manufacturing, assembly, integration, test, and launch. These product assurance requirements are requested by customers for accomplishing the mission successfully and can lead to customer satisfaction.

The responsibility of the prime contractor is to allocate these requirements to subcontractors and suppliers, and to ensure their implementation.

The prime objective of PA is to ensure that commercial satellites accomplish their defined mission objectives and that they are safe and reliable.

A further objective is to achieve more cost-effective space projects and thereby to promote competitiveness by coordinating the development and implementation of appropriate PA methods and standards.

PA requirements defined in this document have been established to prevent potential problems. PA programmes also ensure that hardware and software of ground support equipment are also safe, reliable and do not degrade the flight hardware in any way.

This document intends to clarify the best practices and typical requirements dealing with product assurance activities in commercial business and realize quality improvement especially for customers having less experience.

The requirements described in this document are created by comparing and mixing experience and practical management methodologies used by main actors of aerospace industry in the world. The framework of PA policy and principles are based on ISO 14300-2,[24]ISO 27025, ISO 14620-1, ISO 23460, ISO 10794 and ISO 14621-2 and unified as one PA process. Detailed requirements of PA, quality assurance (QA), dependability, electrical, electronic, and electromechanical (EEE) parts, material, mechanical parts and processes, software product assurance and ground support equipment are referenced from relevant standards.

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Space systems — Product assurance requirements for commercial satellites

1 Scope

This document provides product assurance requirements and recommendations for commercial satellites throughout all phases. This document is applicable to the prime contractor, subcontractors and suppliers.

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 10007, *Quality management — Guidelines for configuration management*

ISO 10794:2018, *Space systems — Programme management — Material, mechanical parts and processes*

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

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

ISO 14621-1, *Space systems — Electrical, electronic and electromechanical (EEE) parts — Part 1: Parts management*

ISO 14621-2, *Space systems — Electrical, electronic and electromechanical (EEE) parts — Part 2: Control programme requirements*

ISO 16192, *Space systems — Lessons learned — Principles and guidelines*

ISO 17666, *Space systems — Risk management*

ISO 21886, *Space systems — Configuration management*

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

ISO 23461:2010, *Space systems — Programme management — Non-conformance control system*

ISO 27025, *Space systems — Programme management — Product quality assurance requirements*

3 Terms and definitions

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

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

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

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

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