
**Space systems — Programme
management —**

**Part 2:
Product assurance**

Systèmes spatiaux — Management de programmes —

Partie 2: Assurance produit
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Published in Switzerland

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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.

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 14300-2 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 14300-2:2002), which has been technically revised.

ISO 14300 consists of the following parts, under the general title *Space systems — Programme management*:

- *Part 1: Structuring of a project*
- *Part 2: Product assurance*

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Introduction

This part of ISO 14300 is intended to be applied for the product assurance in space programmes/projects and applications.

Requirements in this part of ISO 14300 are defined in terms of what is intended to 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 part of ISO 14300 takes into account the existing “ISO 9000 family of standards” and the content of ISO 14300-1.

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Space systems — Programme management —

Part 2: Product assurance

1 Scope

This part of ISO 14300 defines the product assurance (PA) policy, objectives, principles, and requirements for the establishment and implementation of PA programmes for space programmes covering mission definition, design, development, production and operations of space products, including disposal.

The PA discipline covers: PA management, quality assurance, safety assurance, dependability (reliability, availability and maintainability) assurance of software and hardware products, as well as parts (including electrical, electromechanical and electronic components, and mechanical parts), materials and processes assurance.

This part of ISO 14300 defines their respective objectives, policies, and principles to achieve the stated overall PA objectives throughout the complete life cycle of the products.

The provisions of this part of ISO 14300 apply to space products.

The term “programme” is understood as a group of several projects. Both “programme” and “project” can be used in the same context throughout this part of ISO 14300.

2 Normative references

[ISO 14300-2:2011](https://standards.iteh.ai/catalog/standards/sist/41bb7b54-8c9c-49ef-8556-35f99c458b21/iso-14300-2-2011)

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The following referenced documents are indispensable for the application 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 9000:2005, *Quality management systems — Fundamentals and vocabulary*

ISO 14300-1, *Space systems — Programme management — Part 1: Structuring of a project*

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 17666, *Space systems — Risk management*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 9000:2005 and the following apply.

3.1.1

product assurance

discipline devoted to the study, planning and implementation of activities intended to ensure that the design, controls, methods and techniques in a programme result in a satisfactory level of quality in a product

3.2 Abbreviated terms

For the purposes of this document, the following abbreviated terms apply.

EEE Electrical, electronic, electromechanical

PA Product assurance

4 Objectives, policy and principles — General

4.1 Objectives

The prime objective of PA is to ensure that the space products accomplish their defined mission objectives and, more specifically, that they are safe, available and reliable.

An additional objective is to achieve more cost effective space programmes by coordinating the development and implementation of appropriate PA methods and standards.

In support of programme risk management, PA will ensure an adequate identification, appraisal, prevention and control of technical and programmatic risks within programme constraints.

4.2 Policy and principles

In order to meet these objectives, a PA policy is defined in this part of ISO 14300, which requires a PA programme derived from a system based on preventive approach and includes:

- a) protection of human life, space products, investment and environment;
- b) definition and maintenance of a programme PA function, with appropriate autonomy with respect to other lines and programme level organizations; [ISO 14300-2:2011](https://standards.iteh.ai/catalog/standards/sist/41bb7b54-8c9c-49ef-8556-39605e9a1450/iso-14300-2)
- c) integrated application of the PA disciplines and coordination with the associated functions of programme management and programme engineering;
- d) tailoring of the PA requirements to the specific programme needs;
- e) assignment of PA requirements and their control commensurate with the function criticality within the system;
- f) integrated PA participation to the overall risk management process;
- g) PA contribution to proper control of the technical risks and ensuring awareness by the appropriate levels of management until the end of the disposal phase;
- h) implementation of a preventive approach, i.e. early identification of potential problems and continuous influence on the development process;
- i) verification activities consistent with programme objectives;
- j) certification activities by the supplier on the end product for the customer's final acceptance.

5 Product assurance management

5.1 Objective

The objective of product assurance management is to ensure and achieve an adequate, effective and efficient coordination and implementation of the PA activities through a proper integration of the PA disciplines, as well as the integration of PA with all programme management and engineering activities.

5.2 Policy and principles

5.2.1 The PA management policy is that a PA programme is implemented throughout all programme phases and coordinated with all the actors, and is managed in such a way as to ensure that:

- a) the PA programme and organization, requirements, methods, tools and resources are well defined and implemented at each level from system down to piece part;
- b) the applicable standards are tailored appropriately;
- c) aspects are identified, which can affect programme requirements having major impacts on safety, mission success and the related cost and schedule consequences;
- d) adverse consequences of these aspects are prevented by the early detection, characterization, elimination, minimization and containment of problem contributors and initiators;
- e) risks are assessed and controlled, and acceptability of the residual risks is evaluated;
- f) the end product conforms to its specifications and observed non-conformances are properly disposed of.

Such a programme provides, at any time, the necessary visibility of the quality status of the product.

5.2.2 The basic implementation principles are to:

- a) define all PA activities consistent with the programme objectives, requirements, criticality and constraints;
- b) ensure the allocation and availability of adequate resources, personnel and facilities to carry out the required PA tasks;
- c) ensure that lower level contractors/suppliers perform proper PA implementation, monitoring and control;
- d) ensure proper progress monitoring, reporting and visibility of all PA matters, in particular those related to risk dispositions, alerts, critical items, non-conformances, changes, deviations, waivers, actions and/or recommendations resulting from reviews, inspection and audits, qualification, verification and acceptance.

5.3 Requirements

5.3.1 Responsibility and authority

The following are the responsibility and authority requirements.

- a) The responsibility, the authority and the interrelation of PA shall be defined.
- b) The PA responsibilities and the interfaces of each organization, either external or internal, involved in a programme shall be defined and documented.
- c) The delegation of PA tasks by a supplier to another lower tier supplier shall be carried out in a documented and controlled way. The supplier retains the responsibility towards the customer.
- d) The parties involved shall perform risk management in accordance with ISO 17666.

5.3.2 Resources

The following are the resource requirements.

- a) The supplier shall provide adequate resources to perform the required PA tasks.
- b) Trained personnel shall be assigned to the various PA activities.
- c) The supplier shall assign a programme PA manager reporting to the programme manager and having unimpeded access to higher management through the company PA (or equivalent) executive as necessary to fulfil his/her duties.