



**SLOVENSKI STANDARD**  
**SIST EN 13291-1:2000**  
**01-december-2000**

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**Space product assurance - General requirements - Part 1: Policy and principles**

Space product assurance - General requirements - Part 1: Policy and principles

Raumfahrtproduktsicherung - Allgemeine Anforderungen - Teil 1: Grundsätze und  
Verfahrensweise

Assurance produit des projets spatiaux - Exigences générales - Partie 1: Politique et  
principes

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
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## Space product assurance - General requirements - Part 1: Policy and principles

Assurance produit des projets spatiaux - Exigences  
générales - Partie 1: Politique et principes

Raumfahrtproduktsicherung - Allgemeine Anforderungen -  
Teil 1: Grundsätze und Verfahrensweise

This European Standard was approved by CEN on 26 November 1998.

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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This European Standard has been prepared by CEN/CS.

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of an identical text or by endorsement, at the latest by September 1999, and conflicting national standards shall be withdrawn at the latest by September 1999.

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

This 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 standard are defined in terms of what must 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 standard takes into account the existing ISO 9000 family of documents.

This standard has been prepared by the ECSS Product Assurance Working Group, reviewed by the ECSS Technical Panel and approved by the ECSS Steering Board. 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.

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## 1 Scope

### 1.1 General

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

The PA discipline covers: PA management, quality assurance, safety assurance, reliability, availability and maintainability assurance, software product assurance, EEE components, materials, mechanical parts and processes. It defines their respective objectives, policies, requirements and implementation standards to achieve the stated overall PA objectives throughout the complete life cycle of the products.

The provisions of this standard apply to space products. The requirements of this standard and its associated level 2 and 3 standards should be tailored to the needs and classes of specific projects.

### 1.2 Objectives

- The prime objective of product assurance is to assure that the space products accomplish their defined mission objectives and more specifically that they are Safe, Available and Reliable;
- a further objective is to achieve more cost-effective space projects and thereby to promote the competitiveness of the European space industry by coordinating the development and implementation of appropriate PA methods and standards;
- in support of project risk management, PA will assure an adequate identification, appraisal, prevention and control of technical risks within project constraints.

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### 1.3 Policy

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In order to meet these objectives, the PA policy is defined in this document. This policy requires a PA programme derived from a system based and preventive approach and includes:

- protection of human life, space products and services, investment and environment;
- definition and maintenance of a project PA function, with appropriate autonomy with respect to other lines and project level organizations;
- integrated application of the PA disciplines and coordination with the associated functions of project management (EN 13290-1) and space engineering (EN 13292);
- tailoring of the PA requirements to the project classes as defined in the space management standards;
- assignment of PA requirements and their control commensurate with the function criticality within the system;
- integrated PA participation to the overall risk management process;
- PA contribution to proper control of the technical risks and assuring awareness by the appropriate levels of management until the end of the disposal phase;

- implementation of a preventive approach, i.e. early identification of potential problems and continuous influence on the development process;
- verification activities consistent with project objectives;
- certification activities on the end product for customer's final acceptance.

## 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 publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these 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.

ECSS-P-001A, Rev 1	ECSS - Glossary of terms
EN 13290-1	Space project management - Policy and principles
ECSS-Q-20A	Space product assurance - Quality assurance
ECSS-Q-30A	Space product assurance - Dependability
ECSS-Q-40A	Space product assurance - Safety
ECSS-Q-60A	Space product assurance - EEE components
ECSS-Q-70A	Space product assurance - Materials, mechanical parts and processes
ECSS-Q-80A	Space product assurance - Software product assurance
EN 13290	Space engineering – Policy and principles
ISO 9001:1994	Quality systems - Model for quality assurance in design/development, production, installation and servicing

## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of this standard, the definitions given in ECSS-P-001 Issue 1 apply.

### 3.2 Abbreviations

The following abbreviations are defined and used within this standard.

Abbreviation	Meaning
ECSS	European Cooperation for Space Standardization
EEE	Electrical, Electronic, Electromechanical
PA	Product Assurance



## 4 Product assurance management

### 4.1 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 discipline as well as the integration of PA with all management and engineering activities.

### 4.2 Policy and principles

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

- ensure that project and PA organization, requirements, methods, tools and resources are well defined before development and implemented at each level from system down to piece part;
- ensure that the applicable space standards are tailored appropriately;
- ensure that aspects are identified, which could affect project requirements having major impacts on safety, mission success and the related cost and schedule consequences;
- ensure that adverse consequences of these aspects are prevented by the early detection, characterization, elimination, minimization and containment of problem contributors and initiators;
- ensure that risks are assessed and controlled, and that acceptability of the residual ones is evaluated;
- provide at any time the necessary visibility of the quality status of the product;
- ensure that the end product conforms to its specifications and that observed nonconformances are properly dispositioned.

The basic implementation principles are to:

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

### 4.3 Requirements

#### 4.3.1 Responsibility and authority

The following requirements shall apply:

- The responsibility, the authority and the interrelation of personnel, who manage, perform and verify work-affecting quality shall be defined and documented.