



**International
Standard**

ISO 21886

**Space systems — Configuration
management**

Systèmes spatiaux — Gestion de la configuration

**Second edition
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Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 General	2
5 Configuration management planning	3
5.1 General	3
5.2 Configuration management plan	3
5.3 Configuration management interfaces	3
6 Configuration identification	4
6.1 General	4
6.2 Main activities of configuration identification	4
6.3 Product tree	4
6.4 Configuration item	4
6.5 Selection of configuration items	5
6.6 Configuration documents list	5
6.7 Identification marking	6
6.7.1 General	6
6.7.2 Configuration item identifier	6
6.7.3 Configuration document identifier	6
6.8 Configuration document	7
6.9 Configuration baseline	8
6.10 Configuration change documentation	9
6.11 Publication and maintenance of the configuration documentation	9
7 Configuration control	9
7.1 General	9
7.2 Configuration control requirements	9
7.3 Change	9
7.4 Deviation or waiver	12
7.4.1 Deviation or waiver requirements	12
7.4.2 Deviation or waiver classification	12
7.4.3 Deviation or waiver application	12
7.4.4 Deviation and waiver control procedure	13
7.5 Interface control	14
8 Configuration status accounting	15
8.1 General	15
8.2 Configuration status accounting requirements	15
8.3 Configuration status accounting process	16
8.3.1 General	16
8.3.2 Configuration documents accumulation	16
8.3.3 Configuration documents handover	16
8.3.4 Data collection	16
8.3.5 Record of the configuration status	16
8.3.6 Report of the configuration status	17
8.3.7 Configuration status accounting system analysis	17
9 Configuration verification	17
9.1 General	17
9.2 Verification of the product configuration definition	17
9.3 Verification of the product configuration	17
10 Configuration audit	18

10.1	General.....	18
10.2	Configuration audit requirements.....	18
10.3	Configuration audit team.....	18
10.4	Responsibilities of the supplier and the customer.....	18
10.5	Meeting minutes.....	19
10.6	Functional configuration audit.....	19
10.7	Physical configuration audit.....	20
10.8	Others.....	20
11	Configuration control board	20
Annex A	(informative) Structure and content of a configuration management plan	22
Annex B	(informative) Configuration management	24
Annex C	(informative) Configuration status accounting reports.....	25
Bibliography		28

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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 21886:2019), which has been technically revised.

The main change is as follows:

- revision of the descriptions of class 2 in [7.3.1.3](#) to ensure consistency.

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.

Introduction

The space system is a complex system that requires configuration management to ensure its success. Configuration management establishes and maintains a consistent record of a product's functional and physical characteristics in relation to its design and operational requirements. This process enables personnel to be aware, at any time, of the technical description of a product through approved documentation, as well as the operational capabilities and limitations of each product.

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Space systems — Configuration management

1 Scope

This document defines the contents, methods and requirements of configuration management for space projects, and the responsibilities and authorities of related parties. It is intended to be used in conjunction with ISO 14300-1:2023, Clause 10.

This document is applicable to the configuration management of space projects from the mission analysis phase to the disposal phase.

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

ISO 10007, *Quality management — Guidelines for configuration management*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 14300-1, ISO 10007, ISO 10795 and the following apply.

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

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1 configuration

interrelated *functional characteristics* (3.1.1) and *physical characteristics* (3.1.2) of a product or service defined in *configuration document* (3.4)

3.1.1 functional characteristic

performance parameter and design constraint to be realized or required, including operational and logistic parameters and their respective tolerances

Note 1 to entry: Functional characteristics include all performance parameters such as range, speed, lethality, reliability, maintainability and safety.

3.1.2 physical characteristic

quantitative and qualitative expression of a product and its tolerance

EXAMPLE Mechanical, electrical, chemical or biological characteristic.

3.2

configuration management

activity for establishing and maintaining consistent records of the status of and *changes* (3.7) to the performance parameters of a product and its functional and physical attributes compared to the product design and operational requirements

Note 1 to entry: Configuration management is applied throughout the entire life of the product (i.e. development, production, deployment, operation and disposal).

3.3

configuration item

aggregation of hardware, software, processed materials, services or any of its discrete portions, that is designated for *configuration management* (3.2) and treated as a single entity in the configuration management process

Note 1 to entry: A configuration item can contain other configuration item(s).

3.4

configuration document

document that defines the requirements for the function, design, build, production and verification for a *configuration item* (3.3)

Note 1 to entry: For space systems, configuration documents can include documents relating to the operation and disposal of the configuration item.

3.5

configuration baseline

approved status of requirements and design of a product at a project key milestone that serves as the reference for activities throughout the life cycle of the product

3.6

change control

activity for controlling the *changes* (3.7), deviations or waivers to the product after the formal approval of its *configuration baseline* (3.5)

3.7

change

official numerically issued alterations to a document or any portion thereof, usually brought about by changed conditions or more complete information

4 General

4.1 Configuration management establishes and maintains a consistent record of product functional and physical characteristics compared to its design and operational requirements. It shall be applied throughout the product's life cycle and improved as the project develops.

4.2 Establish the configuration control board (CCB) consisting of representatives of related fields based on the complexity of the configuration item and its position in the project breakdown structure. The CCB consists of permanent representatives of all program or project disciplines necessary for reviewing and evaluating changes. The members of the CCB are with the decision-making authority.

4.3 Each supplier shall develop a configuration management (CM) plan responding to the customer's configuration management requirements. The CM plan shall specify the objectives, missions, responsibilities and requirements of each phase during the entire life cycle and make necessary revisions according to the specific circumstances as the project develops.

4.4 Configuration management interfaces with engineering, product assurance, manufacturing and production. It contributes to the programme or project organization and execution schedule by identifying all constraints related to the business agreement provisions.

5 Configuration management planning

5.1 General

Configuration management planning is aimed at specific configuration items. Effective configuration management planning coordinates configuration management activities in a specific context over the product life cycle, which shall be performed during the project's initial phase.

Configuration management planning shall:

- a) ensure the configuration management process can comprehensively and accurately record and control the evolution of product configuration;
- b) ensure the participating personnel know the correct configuration documents of a product at any time;
- c) ensure the configuration documents used are complete, correct, controlled and approved;
- d) ensure the traceability of the configuration evolution;
- e) ensure the consistency of internal and external interfaces of a product;
- f) ensure the consistency of the configuration of the inspected product and requirements of the technical documents.

5.2 Configuration management plan

5.2.1 The configuration management plan is a document that outlines the organization's responsibilities, procedures, resources and methods for implementing configuration management. The result of this planning process is the configuration management plan itself. The configuration management plan prepared by the supplier shall be submitted to the customer for approval in response to a requirement from customer.

5.2.2 For a configuration item, the configuration management plan shall:

- a) meet the requirements of the contract;
- b) establish the overall objective and phase objectives for the implementation of configuration management;
- c) specify the responsibilities and authorities for the implementation of configuration management;
- d) establish the procedure and means to implement configuration management;
- e) conform to the configuration requirements defined by the customer;
- f) clarify the interface control requirements;
- g) ensure that the process of the configuration management is under control.

5.2.3 Annex A provides the structure and basic contents of the configuration management plan.

5.3 Configuration management interfaces

Configuration management is an integral part of project management. Configuration management processes shall interface with engineering management, product assurance, product manufacturing and information or documentation management. The contractual provision and schedule shall also be considered when defining and phasing of configuration management activities.