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# Space systems — Electrical, electronic and electromechanical (EEE) parts —

## Part 2: Control programme requirements

*Systèmes spatiaux — Composants électriques, électroniques et électromécaniques (EEE) —*

*Partie 2: Exigences du programme de contrôle*

Reference number
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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 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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 edition cancels and replaces the first edition (ISO 14621-2:2003), which has been technically revised. The main changes compared to the previous edition are as follows:

— Introduction and definitions have been revised,

— consistency has been checked with ISO 14621-1, and

— the document has been aligned with the ISO/IEC Directives Part 2, 2018 edition.

A list of all parts in the ISO 14621 series can be found on the ISO website.

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

ISO 14621-1 and ISO 14621-2 are designed to jointly assist the user and supplier communities in developing and executing an effective process for the design, selection and application of electrical, electronic, and electromechanical (EEE) space parts throughout the life cycle of the programme.

NOTE In both ISO 14621-1 and ISO 14621-2, the family of EEE parts includes electro-optical parts.

The strategy represented in the ISO 14621 series is:

— for ISO 14621-1 a system approach to managing risk throughout the life cycle of the programme, by developing, selecting and properly applying the right EEE part for its intended application;

— for ISO 14621-2 a framework for developing and documenting an EEE parts control programme to assure that the parts used in space flight hardware have acceptable risk, i.e. possess adequate functional, radiation and reliability characteristics to meet the system requirements.

Both ISO 14621-1 and ISO 14621-2 should be tailored to meet the specific needs of each individual programme, i.e. to address the applicable system performance requirements, risk tolerance, budget, mission duration, operating environment, and schedule. Tailoring should result in a set of planned activities that are not only capable of achieving all contractual EEE parts related requirements, but also commensurate with the space system's unit-value/mission-criticality and life cycle technical data product requirements.

NOTE This type of planning is sometimes referred to as capability-based Safety, Dependability, and Quality Assurance (SD&QA) programme tailoring; and the guidance for performing it is provided in ISO/TS 18667.

ISO 14621-1 and ISO 14621-2 are relevant to all users and customers of space systems, and the suppliers and vendors that furnish space flight hardware. However, to utilize these documents to their fullest potential, it is necessary to understand the commercial space business environment which has unique cost and schedule constraint challenges.

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# Space systems — Electrical, electronic and electromechanical (EEE) parts —

# Part 2:
# Control programme requirements

## 1 Scope

This document establishes technical guidelines for developing and documenting an electrical, electronic and electromechanical (EEE) parts control program, in order to assure that the parts used in the flight hardware are acceptable and possess adequate functional, radiation and reliability characteristics to meet the system requirements. The family of EEE parts includes electro-optical parts.

This document identifies a set of management guidelines for dealing with space systems engineering activities and defines the minimum existing processes on the subject.

These guidelines are tailorable to the needs of each individual programme based on the project performance criteria, risk tolerance, budget, mission duration, environment, schedule and other considerations. This document is applicable to all customers and suppliers furnishing flight hardware and is suitable for reference in proposal instructions.

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

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

ISO 17666, *Space systems — Risk management*

## 3 Terms, definitions, and abbreviated terms

### 3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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/

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**3.1.1**
**customer**
person or organization that could or does receive a product or a service that is intended for or required by this person or organization

[SOURCE: ISO 9000:2015, 3.2.4, modified — EXAMPLE and Note 1 to entry have been deleted.]

**3.1.2**
**manufacturer**
company or organization that transforms raw material into a product

**3.1.3**
**electronic, electrical, or electromechanical part**
**EEE part**
device that performs an electrical, electronic, or electromechanical (EEE) function, including electro-optical devices, and consists of one or more elements so joined together that they cannot normally be disassembled without destroying the functionality of the device

**3.1.4**
**procurement responsible**
party accountable for the process of procuring an *EEE part* (3.1.3)

EXAMPLE *Customer* (3.1.1), *supplier* (3.1.6), or independent procurement agent.

**3.1.5**
**service company**
organization that provides services related to *EEE parts* (3.1.3)

EXAMPLE Distributor, screening laboratories or DPA laboratories.

**3.1.6**
**supplier**
organization or person that provides a product as part of a business agreement

[SOURCE: EN 16601-00-01:2015, 2.3.209]

## 3.2 Abbreviated terms

CID commercial item description

DPA destructive physical analysis

EEE electrical, electronic and electromechanical

LAT lot acceptance testing

MRB material review board

PPL preferred parts list

QCI quality conformance inspection

RHA radiation hardness assurance

RVT radiation verification testing

TCI technology conformance inspection


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