# INTERNATIONAL STANDARD

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# Space systems — Re-entry risk management for unmanned spacecraft and launch vehicle orbital stages

Systèmes spatiaux — Gestion du risque de la rentrée pour les étapes orbitales des véhicules spatiaux non habités et des lanceurs spatiaux

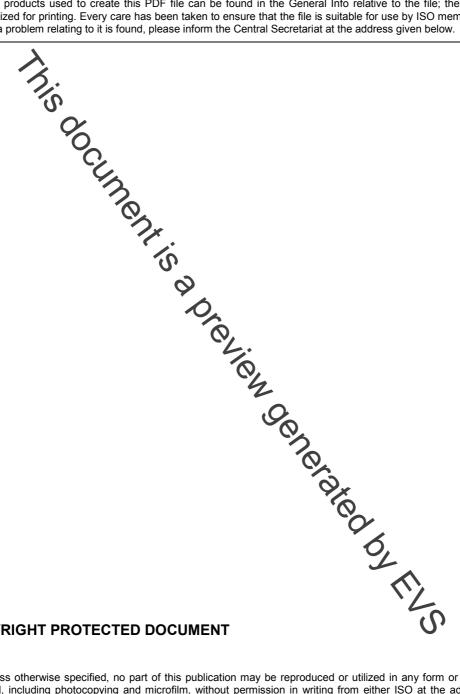


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# **Foreword**

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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.

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ISO 27875 was prepared by Technical Committee ISO/TC 20, Aircraft and space vehicles, Subcommittee SC 14, Space systems and operations.

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# Introduction

According to international treaties, the "launching state" is liable for damage or injuries caused by unmanned spacecraft and launch vehicle orbital stages that re-enter the Earth's atmosphere. In addition, commercial operators are subject to the national safety regulations or laws of the launching country that relate to re-entry of spacecraft and launch vehicle orbital stages. In order to minimize damage and injury from re-entering spacecraft and launch vehicle orbital stages, it is the responsibility of all parties (developers, manufacturers, space service providers, satellite operators and launch service providers) to take preventive measures during spacecraft design and space operations.

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# Space systems — Re-entry risk management for unmanned spacecraft and launch vehicle orbital stages

# 1 Scope

This International Standard provides a framework with which to assess, reduce and control the potential risks that spacecraft and laurch vehicle orbital stages pose to people and the environment when those space vehicles re-enter the Earth's atmosphere and impact the Earth's surface. It is intended to be applied to the planning, design and review of space vehicle missions for which controlled or uncontrolled re-entry is possible. Objects that separate during the ascent phase and impact the ground are addressed in ISO 14620-2. This International Standard complements ISO 14620-1 and ISO 17666.

This International Standard is not applicable to spacecraft containing nuclear power sources<sup>1)</sup>.

NOTE Useful background information on this International Standard is available in ISO 24113.

# 2 Normative references

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

ISO 17666, Space systems — Risk management

# 3 Terms and definitions

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

## 3.1

# controlled re-entry

type of re-entry where the time of re-entry is controlled and the impact of debris is confined to a designated ground zone

NOTE This International Standard does not cover specific design to be retrieved, such as the Space Transportation System.

# 3.2

### launch vehicle orbital stage

stage of a launch vehicle that can be injected into orbit

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<sup>1)</sup> Such spacecraft are controlled by the *Principles Relevant to the Use of Nuclear Power Sources in Outer Space*, (General Assembly resolution 47/68 of 14 December 1992), A/RES/47/68 47 U.N.