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Space systems — Unmanned spacecraft transportation — General requirements

*Systèmes spatiaux — Transport des véhicules spatiaux non habités —
Exigences générales*



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Foreword

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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.

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ISO 16458 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 14, *Space systems and operations*.

Introduction

International cooperation in space system design and operation determines how a spacecraft (SC) and its hardware are transported, such as

- transportation of special hardware for setup and operation of the SC from other countries;
- transportation of the SC with hardware for integration with the launch vehicles.

To ensure that the problems of ground transportation of the SC and its hardware will not hinder the development of international cooperation

- transportation should not require excessive or unusual preparation of the SC and its hardware, and
- transportation should be based on the available civilian or military transport facilities.

It would be ideal to develop international transportation requirements for all SC and all types of transportation modes. However, development of such requirements for all areas and all SC of other countries is difficult; so the following general requirements should be established initially:

- the environment for the SC transportation;
- the loads from all transportation modes;
- the rules for the SC loading, transportation, and unloading.

This International Standard contains a list of requirements for different types of transport (rail, road, air, and water).

Space systems — Unmanned spacecraft transportation — General requirements

1 Scope

This International Standard is applicable to unmanned spacecraft and their supporting hardware including science instrument and payloads. It establishes the requirements for transportation by rail, road, air, and water and as a part of a launch vehicle and establishes the requirements for special containers and loading/unloading operations meant to safeguard unmanned spacecraft and their supporting hardware during transportation.

This International Standard is intended to be applied in international transportation. It may also be used in national transportation.

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 14303, *Space systems — Launch-vehicle-to-spacecraft interfaces*

ISO 15863, *Space systems — Spacecraft-to-launch-vehicle interface control document*

ISO 17401, *Space systems — Documents for space craft interface requirements for launch vehicle services*

3 Symbols and abbreviated terms

LC	launch complex
OD	operational documentation
RF	radio frequency
SC	spacecraft
TS	technical specification

4 Transportation requirements

4.1 General provisions

4.1.1 SC shipping containers or railway cars

When transporting an SC to an LC or to a maintenance structure, the spacecraft shipping container and other special devices shall provide for the safe transportation of the spacecraft. The shipping container shall safely provide for various transportation conditions, such as temperature, humidity, and shock. These conditions shall be specified in the operational documentation (OD).