INTERNATIONAL STANDARD

ISO 18185-3

First edition
2006-06-01

Freight containers — Electronic seals —

Part 3: Environmental characteristics

Conteneurs pour le transport de marchandises — Scellés électroniques —

Partie 3: Caractéristiques environnementales

Reference number
ISO 18185-3:2006(E)

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Published in Switzerland

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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.

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.

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.

ISO 18185-3 was prepared by Technical Committee ISO/TC 104, *Freight containers*, Subcommittee SC 4, *Identification and communication*.

ISO 18185 consists of the following parts, under the general title *Freight containers — Electronic seals*:

— *Part 1: Communication protocol*

— *Part 2: Application requirements*

— *Part 3: Environmental characteristics*

— *Part 7: Physical layer*

The following parts are under preparation:

— *Part 4: Data protection*

— *Part 6: Message sets for transfer between seal reader and host computer*

Introduction

This part of ISO 18185 defines the environmental characteristics for compliant electronic seals.

Freight containers — Electronic seals —

Part 3:
Environmental characteristics

1 Scope

This part of ISO 18185 specifies the minimum environmental characteristics for electronic seals.

This part of ISO 18185 describes the environmental requirements for the ISO 18185 series, for ISO 10374 (*Freight containers — RF automatic identification*) and for ISO 17363 (*Supply chain applications of RFID — Freight containers*), since it is expected that the implementation of these International Standards will face the same environmental conditions. However, each of these International Standards has its own unique requirements other than environmental conditions.

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 668, *Series 1 freight containers — Classification, dimensions and ratings*

ISO 830, *Freight containers — Vocabulary*

ISO 17712, *Freight containers — Mechanical seals*

ISO 18185-1:—[1)], *Freight containers — Electronic seals — Part 1: Communication protocol*

ISO 18185-2:—[2)], *Freight containers — Electronic seals — Part 2: Application requirements*

ISO 18185-7:—[3)], *Freight containers — Electronic seals — Part 7: Physical layer*

ISO/IEC 19762-1, *Information technology — Automatic identification and data capture (AIDC) techniques — Harmonized vocabulary — Part 1: General terms relating to AIDC*

ISO/IEC 19762-3, *Information technology — Automatic identification and data capture (AIDC) techniques — Harmonized vocabulary — Part 3: Radio frequency identification (RFID)*

IEC 60068-2-1, *Environmental testing — Part 2: Tests. Tests A: Cold*

IEC 60068-2-2, *Environmental testing — Part 2: Tests. Tests B: Dry heat*

IEC 60068-2-11, *Environmental testing — Part 2: Tests. Test Ka: Salt mist*

1) To be published.

2) To be published.

3) To be published.

IEC 60068-2-18, *Environmental testing — Part 2-18: Tests — Test R and guidance: Water*

IEC 60068-2-27, *Environmental testing — Part 2: Tests. Test Ea and guidance: Shock*

IEC 60068-2-31, *Environmental testing — Part 2: Tests. Test Ec: Drop and topple, primarily for equipment-type specimens*

IEC 60068-2-32, *Environmental testing — Part 2: Tests. Test Ed: Free fall*

IEC 60068-2-38, *Environmental testing — Part 2: Tests. Test Z/AD: Composite temperature/humidity cyclic test*

IEC 60068-2-53, *Environmental testing — Part 2: Tests. Guidance to Tests Z/AFc and Z/BFc: Combined temperature (cold and dry heat) and vibration (sinusoidal) tests*

IEC 60068-2-68, *Environmental testing — Part 2: Tests — Test L: Dust and sand*

MIL-STD-810F, *Department of Defense test method standard for environmental engineering considerations and laboratory tests*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 830, ISO/IEC 19762-1, ISO/IEC 19762-3, ISO 17712, and the following apply.

3.1
electronic seal
eSeal
read-only, non-reusable freight container seal, conforming to the high-security seal defined in ISO 17712 and to ISO 18185, that electronically provides evidence of tampering or intrusion through the container doors

3.2
seal identification
seal ID
unique code used to identify each manufactured seal, incorporating a combination of the serial number (i.e. Tag ID) and the manufacturer ID

3.3
interrogator identification
interrogator ID
code used to identify the source address during every communication session originated by the interrogator

4 Environmental characteristics

4.1 General

This part of ISO 18185 shall be used in conjunction with the other parts of ISO 18185.

This part of ISO 18185 applies to all electronic seals used on freight containers covered by the following International Standards: ISO 668, ISO 1496-1, ISO 1496-2, ISO 1496-3, ISO 1496-4, ISO 1496-5 and ISO 830. This part of ISO 18185 should also, wherever appropriate and practicable, be applied to freight containers other than those covered by the aforementioned International Standards.

Container seals are typically subjected to the harsh environments of the marine, rail and road transportation industries. Sand and dust, salt spray, grease, snow, ice and grime can be expected to coat the tag and sensing equipment. Physical shock and vibration are commonly encountered as a result of handling and transport operations.