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ISO/DIS 2100-314

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Aerospace elements of electrical and optical connection — Test methods —

Part 314:
Immersion at low pressure

Connections électriques et optiques d'éléments aérospatiaux — Méthodes d'essai —

Partie 314: Immersion à basse pression d'air

ICS: 49.060

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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 3.

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 part of ISO 2100 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 2100-314 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 1, *Aerospace electrical requirements*.

This second/third/... edition cancels and replaces the first/second/... edition (), [clause(s) / subclause(s) / table(s) / figure(s) / annex(es)] of which [has / have] been technically revised.

ISO 2100 consists of the following parts, under the general title *Aerospace — Elements of electrical andn optical connection - Test methods*:

— ***Part 314: Immersion at low air*** *pressure*

— *Part [n]:*

— *Part [n+1]:*

Aerospace elements of electrical and optical connection — Test methods —

Part 314: Immersion at low pressure

1 Scope

This standard specifies a method of assessing the sealing ability of elements of connection immersed in salt water and exposed to low air pressure.

It shall be used together with ISO 2100.

2 Normative references

ISO 2100 Aerospace series — Elements of electrical and optical connection — Test methods — General

ISO 2100-101 Aerospace series — Elements of electrical and optical connection — Test methods — Part 101: Visual examination

ISO 2100-206 Aerospace series — Elements of electrical and optical connection — Test methods — Part 206: Measurement of insulation resistance

ISO 2100-207 Aerospace series — Elements of electrical and optical connection — Test methods — Part 207: Voltage proof test

ISO 2100-311 Aerospace series — Elements of electrical and optical connection — Test methods — Part 311: Low air pressure

3 Preparation of specimens

3.1 Specimens shall be prepared according to the technical specification.

Unless otherwise specified, 50 % of cables shall be of the minimum diameter, 50 % of the maximum diameter, evenly distributed.

Unwired cavities shall be fitted with filler plugs.

A conductor shall be connected to the housing (shell) to allow measurements to be carried out. For specimens with an unprotected cable termination area (e.g. with solder contacts) a means of protection shall be used.

3.2 Unless specified in the technical specification, the following details shall be stated:

— specimens mated or unmated and fitted with protective cover;

— mounting method, type of cable and definition of specimen wiring;

— initial measurements and requirements (if applicable);

— method according to ISO 2100-206 and minimum insulation resistance value;

— method according to ISO 2100-207 and voltage value;

— pressure value if different from that given in 5.2.2.1;

— final measurements and requirements (if applicable).

4 Apparatus

4.1 Low air pressure chamber

It shall be of sufficient size to house the container holding the specimen immersed in the salt solution. Its volume shall not exceed 1 m^3.

The low air pressure chamber shall also be provided with a window for visual observation of the specimens.

A vacuum pump shall be capable of maintaining the specified pressure.

4.2 Salt solution

Salt solution shall be prepared by dissolving 5 % by mass of sodium chloride in deionized water.

5 Method

5.1 Initial measurements and requirements (if applicable)

The initial measurements shall be carried out as specified.

5.2 Test procedure

5.2.1 Immersion

The specimens shall be fully immersed in the solution.

The cables shall be taken out along the specimen axis without any mechanical stress and arranged to project from the solution. Unsealed cable ends shall be located inside the chamber.

5.2.2 Low air pressure cycle

5.2.2.1 The chamber pressure shall be reduced from ambient to 2 kPa, unless otherwise specified, within 5 min to 15 min and maintained for (30^{+5}_{0}) min.

5.2.2.2 The chamber pressure shall then be increased to ambient within 1 min and maintained for (30^{+5}_{0}) min.

This constitutes one cycle (see figure 1).

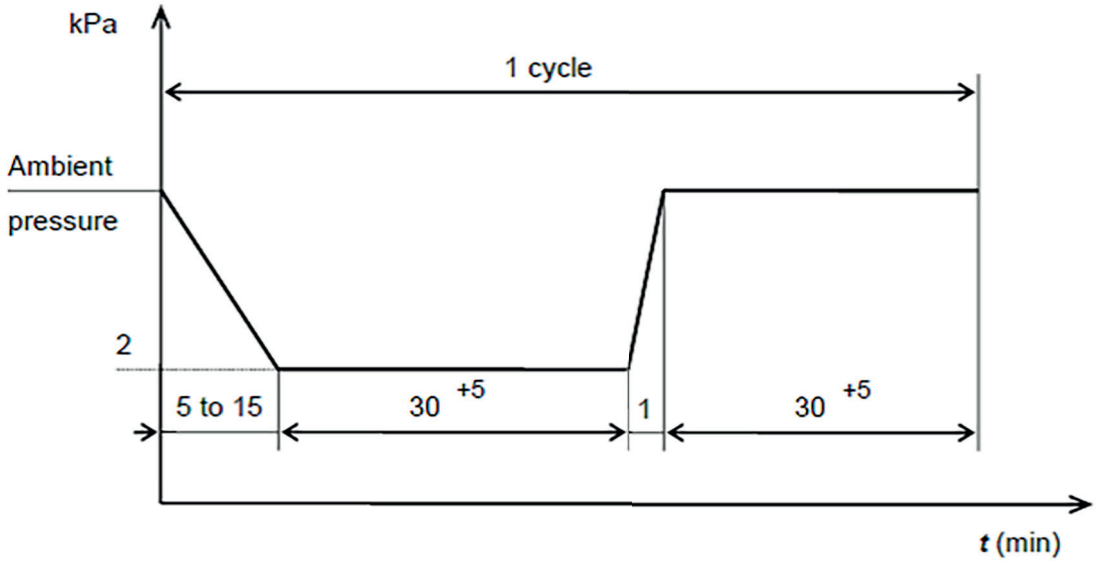

Figure 1 — Test cycle

5.2.2.3 Three cycles shall be carried out.

The specimens shall remain in the salt solution during measurements.

The container with the immersed specimens may be removed from the chamber between two cycles.

5.3 Final measurements and requirements

After the third cycle, and while the specimens are still immersed, they shall be subjected to the following test sequence:

— ISO 2100-206;

— ISO 2100-207: the test voltage shall be applied for a minimum of 5 s.

Specimens shall then be removed from the salt solution, drained, carefully unmated and be tested to ISO 2100-101 with particular attention to salt water ingress and the condition of the seals.