



SLOVENSKI STANDARD
SIST EN 3745-412:2022

01-julij-2022

Nadomešča:
SIST EN 3745-412:2006

Aeronavtika - Optična vlakna in kabli za uporabo v zračnih plovilih - Preskusne metode - 412. del: Odpornost proti vlagi

Aerospace series - Fibres and cables, optical, aircraft use - Test methods - Part 412: Humidity resistance

Luft- und Raumfahrt - Faseroptische Leitungen für Luftfahrzeuge - Prüfverfahren - Teil 412: Beständigkeit gegen Feuchtigkeit

Série aérospatiale - Fibres et câbles optiques à usage aéronautique - Méthodes d'essais - Partie 412 : Résistance à l'humidité

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Ta slovenski standard je istoveten z: EN 3745-412:2022

ICS:

33.180.10	(Optična) vlakna in kabli	Fibres and cables
49.060	Letalska in vesoljska električna oprema in sistemi	Aerospace electric equipment and systems

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en,fr,de

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EUROPEAN STANDARD

EN 3745-412

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2022

ICS 49.090

Supersedes EN 3745-412:2005

English Version

Aerospace series - Fibres and cables, optical, aircraft use - Test methods - Part 412: Humidity resistance

Série aérospatiale - Fibres et câbles optiques à usage
aéronautique - Méthodes d'essais - Partie 412 :
Résistance à l'humidité

Luft- und Raumfahrt - Faseroptische Leitungen für
Luftfahrzeuge - Prüfverfahren - Teil 412: Beständigkeit
gegen Feuchtigkeit

This European Standard was approved by CEN on 10 January 2022.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 3745-412:2022) has been prepared by the Aerospace and Defence Industries Association of Europe — Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this document has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2022, and conflicting national standards shall be withdrawn at the latest by November 2022.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this document: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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EN 3745-412:2022 (E)**1 Scope**

This document evaluates the resistance of the fiber optic cable to humidity changes at different temperatures.

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.

EN 2591-100, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 100: General*

EN 3745-100, *Aerospace series — Fibres and cables, optical, aircraft use — Test methods — Part 100: General*

EN 3745-201, *Aerospace series — Fibres and cables, optical, aircraft use — Test methods — Part 201: Visual examination*

EN 3745-301, *Aerospace series — Fibres and cables, optical, aircraft use — Test methods — Part 301: Attenuation*

3 Terms and definitions

No terms and definitions are listed in this document.

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 <https://www.electropedia.org/>
<https://standards.iteh.ai/catalog/standards/sist/b2b0f6ab-a596-4dda-a010-32aa83176094/sist-en-3745-412-2022>

4 Preparation of specimen

4.1 Specimen shall be prepared as specified in the product standard.

If not at standard test conditions, the specimens shall be subjected to standard test conditions and stabilized at these conditions for 24 h as defined in EN 3745-100.

The specimen shall be coiled in a free coil, with a bend radius not smaller than the specified storage radius.

4.2 Unless otherwise specified in the technical specification or product standard, the following data shall be defined and recorded in the test report:

- type of cable/fibre;
- length of specimen: (10 ± 1) m;
- number of specimens, if not 1;
- number of temperature humidity cycles, if not 56;
- specified storage radius;
- maximum variation of attenuation during and after test at ambient temperature.

5 Apparatus

A Light Launch System (LLS) as defined in EN 2591-100.

A Light Detector System (LDS) as defined in EN 2591-100.

A test chamber designed so that its temperature and relative humidity are controlled.

Condensed water from chamber walls or ceiling shall not drip on the specimens.

6 Method

6.1 Procedure

For each specimen, perform the following procedure:

The attenuation shall be monitored continuously throughout the test sequence in accordance with EN 3745-301, method C. <http://standards.iteh.ai/catalog/standards/sist/b2b0f6ab-a596-4dda-a010-32aa83176094/sist-en-3745-412-2022>

Connect the specimen to the LLS and the LDS.

Place the specimen in the test chamber. Perform the following phases:

- Phase 1: within 2 h, the temperature of the test chamber shall be uniformly raised to (65 ± 3) °C and the relative humidity increased to $(95 \begin{smallmatrix} +2 \\ -3 \end{smallmatrix})$ %.
- Phase 2: the above conditions shall be maintained for 6 h.
- Phase 3: within 16 h, the temperature shall be uniformly reduced to (38 ± 4) °C while the relative humidity is maintained as high as possible and shall not decrease below 85 %.

These 3 (three) phases (see Figure 1) constitute 1 (one) cycle.

Perform the specified number of cycles.

6.2 Final measurements and requirements

After allowing the specimen to recover to standard conditions, measure the attenuation in accordance with EN 3745-301, method C.

Remove each specimen from the test equipment, then examine each test specimen for physical changes in accordance with EN 3745-201: visual examination.