SLOVENSKI STANDARD

SIST EN 3745-503:2006

01-julij-2006

Aeronavtika ï Optiļ na vlakna in kabli za uporabo v zraļ nih plovilih ï Preskusne metode ï 503. del: Obstojnost pri odrgnjenju

Aerospace series - Fibres and cables, optical, aircraft use - Test methods - Part 503: Scrape abrasion

Luft- und Raumfahrt - Faseroptische Leitungen für Luftfahrzeuge - Prüfverfahren - Teil 503: Abriebbeständigkeit

Série aérospatiale - Fibres et câbles optiques a usage aéronautique - Méthodes d'essais - Partie 503 : Abrasion par raclage

Ta slovenski standard je istoveten z: EN 3745-503:2005

ICS:

49.060

SIST EN 3745-503:2006 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 3745-503

November 2005

ICS 49.060

English Version

Aerospace series - Fibres and cables, optical, aircraft use - Test methods - Part 503: Scrape abrasion

Série aérospatiale - Fibres et câbles optiques à usage aéronautique - Méthodes d'essais - Partie 503 : Abrasion par raclage

Luft- und Raumfahrt - Faseroptische Leitungen für Luftfahrzeuge - Prüfverfahren - Teil 503: Abriebbeständigkeit

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 3745-503:2005: E

Contents

Foreword

This European Standard (EN 3745-503:2005) has been prepared by the European Association of Aerospace Manufacturers - Standardization (AECMA-STAN).

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

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2006, and conflicting national standards shall be withdrawn at the latest by May 2006.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] 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 European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard specifies a method for testing the resistance of an optical to scrape abrasion.

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.

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*[1)]

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 Preparation of specimens

3.1 The specimens shall be prepared as specified in EN 3745-100.

3.2 The following details shall be specified if not already included in the product standard:

- load to be applied;
- length of the specimen: (0,75 ± 0,05) m;
- maximum permissible variation of attenuation;
- number of cycles;
- intervals for visual examination of specimen.

4 Apparatus

The apparatus shall comprise:

- a Light Launch System (LLS) as defined in EN 2591-100;
- a Light Detector System (LDS) as defined in EN 2591-100;
- a climatic chamber;
- a test fixture capable of applying the scrape abrasion test.

A typical arrangement is shown in Figure 1.

The apparatus shall consist of a device designed to wear the surface of the jacket parallel to the cable axis, over a length equal to (10 ± 1) mm at a frequency of (55 ± 5) cycles/min.

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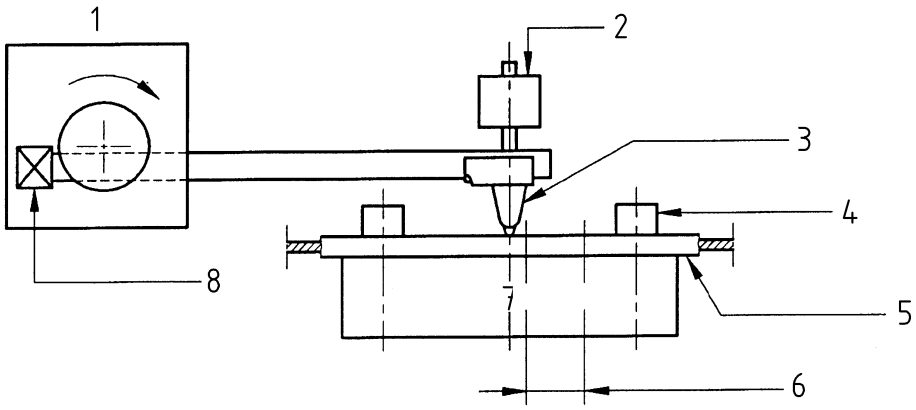
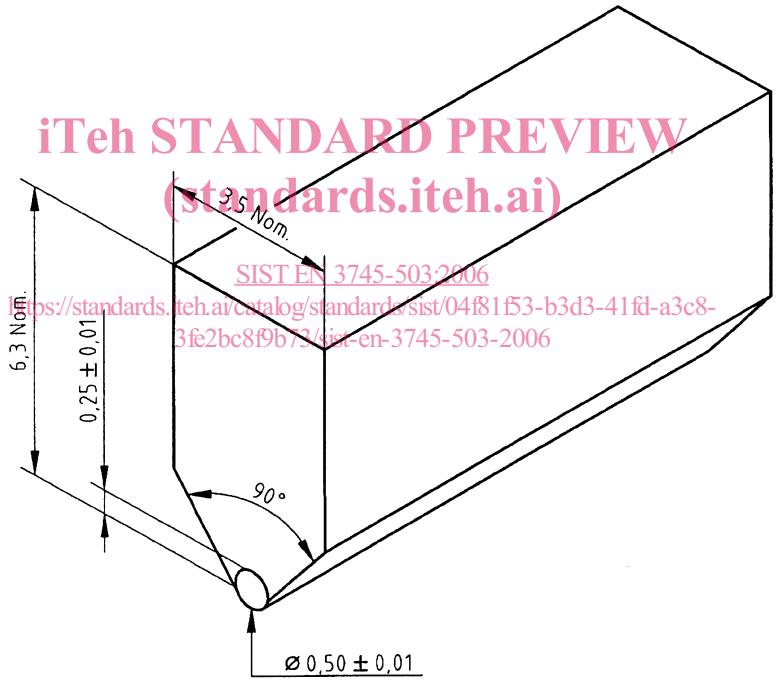
1) In preparation at the date of publication of this standard.

Dimensions in millimetres





Key

1 Mechanism
2 Mass
3 Needle holder
4 Cable clamp
5 Cable on test
6 Travel (10 ± 1)
7 Anvil (low thermal mass)
8 Counter mass

Figure 1

5 Method

This test shall be performed at ambient temperature and at the maximum operating temperature of the cable.

One cycle consists of a backward and forward movement of the needle. Scrape abrasion resistance shall be defined as the number of complete cycles before the sheath is penetrated.

The attenuation shall be monitored throughout the test in accordance with EN 3745-301, method C.

5.1 Procedure

Connect the specimen ends to the LLS and LDS.

Secure the specimen to the support by means of a cable clamp, apply a specified load to the needle holder.

Zero the LDS to obtain the reference level.

Perform the specified number of cycles.

Repeat the test a further five times moving the cable 100 mm and rotating through 90° between each test always in the same direction.

5.2 Final measurements and requirements

Examine the test specimen for damage in accordance with EN 3745-201: Visual examination.