SLOVENSKI STANDARD
SIST EN 4641-001:2009

01-maj-2009

Aeronavtika - Kabli, optiļ ni, zunanji premer obloge 125 Õm - 001. del: Tehniļ na specifikacija

Aerospace series - Cables, optical, 125 µm diameter cladding - Part 001: Technical specification

Luft- und Raumfahrt - Kabel, optisch, 125 µm Außendurchmesser des Fasermantels - Teil 001: Technische Spezifikation

Série aérospatiale - Câbles, optiques, diamètre extérieur de la gaine optique 125 µm - Partie 001 : Spécification technique

Ta slovenski standard je istoveten z: **EN 4641-001:2009**

ICS:

49.060	Letalska in vesoljska elektriļ na oprema in sistemi	Aerospace electric equipment and systems

SIST EN 4641-001:2009 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 4641-001

March 2009

ICS 49.060

English Version

Aerospace series - Cables, optical, 125 µm diameter cladding - Part 001: Technical specification

Série aérospatiale - Câbles, optiques, diamètre extérieur de la gaine optique 125 µm - Partie 001 : Spécification technique

Luft- und Raumfahrt - Kabel, optisch, 125 µm Außendurchmesser des Fasermantels - Teil 001: Technische Spezifikation

This European Standard was approved by CEN on 7 February 2009.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword

This document (EN 4641-001:2009) 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 Standard 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 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 September 2009, and conflicting national standards shall be withdrawn at the latest by September 2009.

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, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard specifies the general characteristics, conditions for qualification, acceptance and quality assurance, as well as the test methods and groups for fibre optic cables with a cladding of 125 µm outside diameter.

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 2591-602, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 602: Optical elements — Variation of attenuation and optical discontinuity.*

EN 3745-100:2008*, *Aerospace series — Fibres and cables, optical, aircraft use — Test methods — Part 100: General.*

EN 3838, *Aerospace series — Requirements and tests on user-applied markings on aircraft electrical cables.* 1)

EN 3909, *Aerospace series — Test fluids and test methods for electric components and sub-assemblies.*

EN 9133, *Aerospace series — Quality management systems — Qualification procedure for aerospace standard parts.*

IEC 60793-1-42, *Optical fibres — Part 1-42: Measurement methods and test procedures — Chromatic dispersion.*

ISO 2574, *Aircraft — Electrical cables — Identification marking.*

3 Terms and definitions, symbols and abbreviations

For the purposes of this document, the following terms and definitions and the symbols and abbreviations given in EN 3745-100:2008 apply.

3.1
tight structure cable
cable where there is very limited movement of the fibre within the buffer and other elements of the cable construction; typically designed for use with non-pull proof fibre optic contacts

3.2
semi-loose structure cable
cable where the fibre is designed to move within the buffer and other elements of the cable construction; typically designed for use with full pull proof fibre optic contacts

---

* And all parts quoted in this standard.

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

4 Required characteristics

4.1 Description

The characteristics of the cables, tested according to the methods described hereafter shall comply with the values defined in the product standard.

4.2 Materials and construction of cables

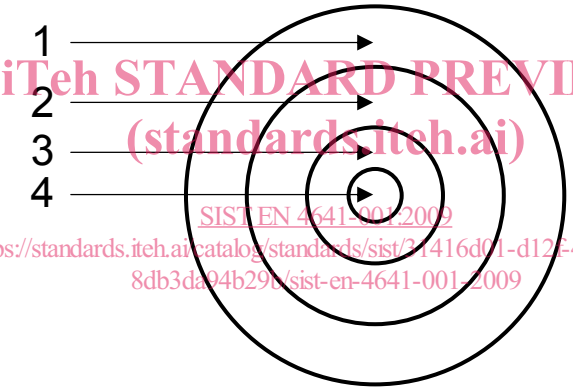
The configuration, dimensions and mass of the cable shall meet the values specified in the product standard as well as the requirements hereafter.

Materials and colour shall meet the product standard.

4.3 Fibre construction

The fibre shall consist of a single all silica core and a silica cladding protected by a primary coating in accordance with the product standards.

See Figure 1.



Key

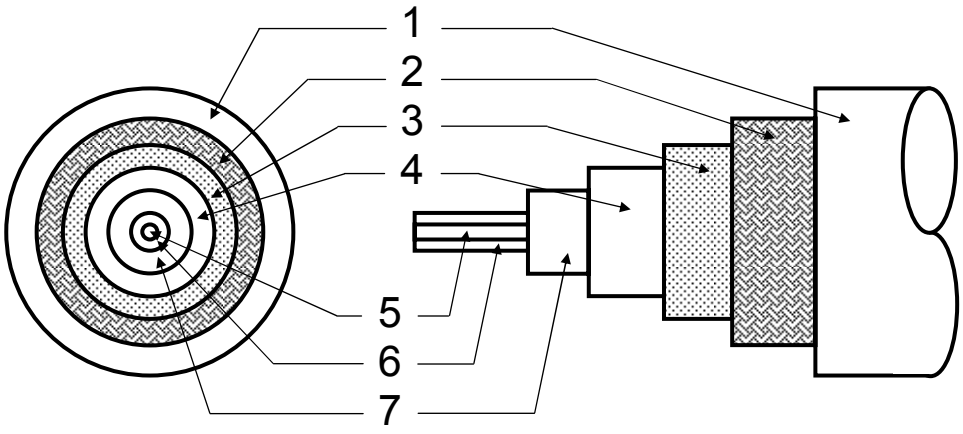
1 Buffer
2 Primary coating
3 Cladding
4 Core

Figure 1 — Fibre construction (axial view)

4.4 Cable construction

The typical requirements of the cable shall be an outer jacket, strength member, buffer and fibre, which is protected by a primary coating. See example at Figure 2.

Details of the materials used for the outer sheath, strength member, inner sheath and buffer shall be defined in the product standard.



Key

1 Outer jacket
2 Strength member
3 Inner sheath
4 Buffer
5 Core
6 Cladding
7 Primary coating

Figure 2 — Example of cable construction

5 Test methods

5.1 Tests in accordance with EN 3745-100

5.1.1 Optical fibre

See Table 1.

Table 1 — Optical fibre test methods

Test method EN 3745-	Designation of test	Test performance/conditions/criteria
201	Visual examination	The primary coating and buffer shall have the correct identification outer colour if specified in the product standard.
202	Fibre dimensions	See product standard.
501	Optical fibre proof test	See product standard.
301 Method A	Attenuation	See product standard.
302	Numerical aperture	See product standard.
403	Bandwidth	See product standard.

5.1.2 Fibre optic cable

See Table 2.

Table 2 — Fibre optic cable test methods

Test method EN 3745-	Designation of test	Test performance/conditions/criteria
201	Visual examination	The outer jacket shall have the correct identification if specified in the appropriate product standard. The coating shall be continuous and free of visible defects such as lumps, abrasions, cracks, splits or blisters. See product standard.
203	Cable dimensions	Primary coating outside diameter.
		Buffer diameter.
		Outer jacket outside diameter.
		Outer jacket wall thickness. To be measured at both ends of each batch.
205	Cable longitudinal dimensional stability	See product standard.
301: Method A	Attenuation	See product standard.
402	Temperature cycling	See product standard.
301: Method C	Attenuation during temperature cycling	See product standard.
404	Thermal shock	See product standard.
406	Cold bend test	See product standard.
407	Flammability	See product standard.
410	Thermal life	See product standard.
411	Resistance to fluids	See product standard.
412	Humidity resistance	See product standard.
503	Scrape abrasion	See product standard.
504	Micro bending test	See product standard.
505	Cable tensile strength	See product standard.
506	Impact resistance	See product standard.
507	Cut-through	See product standard.
508	Torsion	See product standard.
509	Kink test	See product standard.
510	Bending test	See product standard.
511	Cable to cable abrasion	See product standard.

continued