



BSI Standards Publication

Aerospace series - Fibres and cables, optical, aircraft use - Test methods

Part 202: Fibre dimensions

National foreword

This British Standard is the UK implementation of EN 3745-202:2018. It supersedes [BS EN 3745-202:2005](#), which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ACE/6, Aerospace avionic electrical and fibre optic technology.

A list of organizations represented on this committee can be obtained on request to its secretary.

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à usage aéronautique - Méthodes d'essais
- Partie 202: Dimensions de la fibre

Luft- und Raumfahrt - Faseroptische
Leitungen für Luftfahrzeuge - Prüfverfahren
- Teil 202: Faserabmessungen

This European Standard was approved by CEN on 12 June 2017.

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European foreword

This document (EN 3745-202:2018) 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of an identical text or by endorsement, at the latest by April 2019, and conflicting national standards shall be withdrawn at the latest by April 2019.

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.

This document supersedes [EN 3745-202:2005](#).

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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

1 Scope

This European Standard specifies several methods for measuring the diameter of an optical fibre or cable, the non-circularity and the concentricity of the fibre core/cladding on an optical fibre.

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*

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:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Preparation of specimens

4.1 The specimen shall comprise a length of the optical fibre or cable to be measured. The fibre ends shall be prepared in accordance with [EN 2591-100](#). The length of specimen shall be $(3 \pm 0,5)$ m unless otherwise specified in the product standard.

If not yet 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](#).

4.2 The following detail shall be specified if not already included in the product standard:

- type of fibre/cable from which the specimen was taken.

5 Apparatus

For method B, the Light Launch System used shall be as specified in [EN 2591-100](#) with an angular size > 110 % of the fibre numerical aperture and a spot size > 110 % of fibre core diameter.

6 Method

6.1 Method A: Refracted near field

6.1.1 Object

The refracted near-field measurement is straightforward, accurate and measures directly the refractive index variation the fibre (core and cladding). The measurement is capable of good resolution and can be calibrated to give absolute values of refractive indexes. It can be used to obtain profiles of both single-mode and multimode fibre.