

BS EN 3745-301:2012



BSI Standards Publication

# Aerospace series — Fibres and cables, optical, aircraft use — Test methods

Part 301: Attenuation

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### **National foreword**

This British Standard is the UK implementation of EN 3745-301:2012. It supersedes BS EN 3745-301:2002 which is withdrawn.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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### **Amendments issued since publication**

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English Version

**Aerospace series - Fibres and cables, optical, aircraft use - Test methods - Part 301: Attenuation**Série aérospatiale - Fibres et câbles optiques à usage  
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Luftfahrzeuge - Prüfverfahren - Teil 301: Optische  
Dämpfung

This European Standard was approved by CEN on 21 January 2012.

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## Foreword

This document (EN 3745-301:2012) 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of an identical text or by endorsement, at the latest by November 2012, and conflicting national standards shall be withdrawn at the latest by November 2012.

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.

This document supersedes EN 3745-301:2002.

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## 1 Scope

This European Standard specifies procedures for the practical measurement of the attenuation and variation in attenuation of optical fibre or optical cable (both hereafter referred to as fibre). Methods A and B are intended for fibre acceptance testing and shall be performed on fibre lengths greater than 1 km. Method C is intended for attenuation measurement required during environmental and mechanical testing and shall be performed on fibre lengths less than 100 m.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 2591-100:2005, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 100: General*

EN 2591-601:2001, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 601: Optical elements — Insertion loss*

EN 2591-602:2001, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 602: Optical elements — Variation of attenuation and optical discontinuity*

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

EN 188000:1992, *Generic Specification: Optical fibres*<sup>1)</sup>

EN 60793-1-40:2003, *Optical fibres — Part 1-40: Measurement methods and test procedures — Attenuation (IEC 60793-1-40:2001)*

## 3 Preparation of specimens

**3.1** The fibre ends shall conform to the fibre end preparation criteria specified in EN 2591-100.

**3.2** The length of fibre to be tested shall be in accordance with the product specification.

**3.3** All other aspects of specimen preparation shall be in accordance with EN 188000:1992, method 301 or method 302, or EN 2591-602:2001 method A, or EN 60793-1-40:2003 depending on the test being performed.

## 4 Apparatus

**4.1** The light launch system for methods A and B shall conform to the criteria specified in EN 188000. The light launch system for method C shall conform to the criteria specified in EN 2591-100:2005. The light launch system for method D shall conform to the criteria specified in EN 60793-1-40:2003.

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**4.2** The light detection system shall be compatible with the light launch system as discussed in EN 2591-100.

**4.3** All other aspects of the apparatus shall be in accordance with EN 188000:1992 method 301, EN 2591-601:2001 method 1 or 4, or EN 2591-602:2001 method A, or EN 60793-1-40:2003 Annex C depending on the method being performed.

**4.4** Test conditions for attenuation or attenuation variation measurement shall be as specified in EN 3745-100 unless stated otherwise in the product specifications.

## **5 Methods**

### **5.1 Method A (Cut-back technique)**

Procedure: the test method shall conform to EN 188000:1992 method 301.

### **5.2 Method B (Insertion loss)**

Procedure: the test method shall conform to EN 188000:1992 method 302.

### **5.3 Method C (Attenuation variation)**

Procedure: the test method shall conform to EN 2591-602:2001 method A.

### **5.4 Method D (Backscattering)**

Procedure: the test method shall conform to EN 60793-1-40:2003 Annex C.







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