



**NSAI**  
Standards

Irish Standard  
I.S. EN 60794-1-2:2017

# Optical fibre cables - Part 1-2: Generic specification - Basic optical cable test procedures - General guidance

**I.S. EN 60794-1-2:2017**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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## National Foreword

I.S. EN 60794-1-2:2017 is the adopted Irish version of the European Document EN 60794-1-2:2017, Optical fibre cables - Part 1-2: Generic specification - Basic optical cable test procedures - General guidance

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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EUROPEAN STANDARD

**EN 60794-1-2**

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2017

ICS 33.180.10

Supersedes EN 60794-1-2:2014

English Version

**Optical fibre cables - Part 1-2: Generic specification - Basic  
optical cable test procedures - General guidance  
(IEC 60794-1-2:2017)**

Câbles à fibres optiques - Partie 1-2: Spécification  
générique - Procédures fondamentales d'essais des câbles  
optiques - Lignes directrices générales  
(IEC 60794-1-2:2017)

Lichtwellenleiterkabel - Teil 1-2: Fachgrundspezifikation -  
Grundlegende Prüfverfahren für Lichtwellenleiterkabel -  
Allgemeine Anleitung  
(IEC 60794-1-2:2017)

This European Standard was approved by CENELEC on 2017-02-16. CENELEC 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-CENELEC Management Centre or to any CENELEC 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 CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

**EN 60794-1-2:2017**

**European foreword**

The text of document 86A/1767/FDIS, future edition 4 of IEC 60794-1-2, prepared by SC 86A "Fibres and cables" of IEC/TC 86 "Fibre optics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 60794-1-2:2017.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2017-11-16
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-02-16

This document supersedes EN 60794-1-2:2014.

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

**Endorsement notice**

The text of the International Standard IEC 60794-1-2:2017 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated

IEC 60794-1-21	NOTE	Harmonized as EN 60794-1-21.
IEC 60794-1-22	NOTE	Harmonized as EN 60794-1-22.
IEC 60794-1-23	NOTE	Harmonized as EN 60794-1-23.
IEC 60794-1-24	NOTE	Harmonized as EN 60794-1-24.

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60793-1-40	-	Optical fibres -- Part 1-40: Measurement methods and test procedures - Attenuation	EN 60793-1-40	-
IEC 60793-1-46	-	Optical fibres -- Part 1-46: Measurement methods and test procedures - Monitoring of changes in optical transmittance	EN 60793-1-46	-
IEC 60793-2-40	-	Optical fibres - Part 2-40: Product specifications - Sectional specification for category A4 multimode fibres	EN 60793-2-40	-
IEC 60794-1-1	2015	Optical fibre cables - Part 1-1: Generic specification - General	EN 60794-1-1	2016

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**IEC 60794-1-2**

Edition 4.0 2017-01

# **INTERNATIONAL STANDARD**

# **NORME INTERNATIONALE**

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**Optical fibre cables –  
Part 1-2: Generic specification – Basic optical cable test procedures – General  
guidance**

**Câbles à fibres optiques –  
Partie 1-2: Spécification générique – Procédures fondamentales d’essais des  
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#### Glossaire IEC - [std.iec.ch/glossary](http://std.iec.ch/glossary)

65 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

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**IEC 60794-1-2**

Edition 4.0 2017-01

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

### OPTICAL FIBRE CABLES –

#### **Part 1-2: Generic specification – Basic optical cable test procedures – General guidance**

#### FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60794-1-2 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics.

This fourth edition cancels and replaces the third edition published in 2013 and IEC 60794-1-20 published in 2014. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition and to IEC 60794-1-20:

- a) the multiple cross-reference tables have been deleted and replaced with a higher level one related to the generic standards;
- b) all pertinent text from IEC 60794-1-20 has been included;
- c) standard optical test wavelengths have been introduced;
- d) this document has been streamlined by cross-referencing IEC 60794-1-1;

- e) the "No change in attenuation" definitions contained in IEC 60794-1-20 have been transferred to IEC 60794-1-1;
- f) the title has been modified to reflect the contents of the new edition.

This International Standard is to be used in conjunction with IEC 60794-1-1:2015.

The text of this standard is based on the following documents:

FDIS	Report on voting
86A/1767/FDIS	86A/1775/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 60794 series, published under the general title *Optical fibre cables*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

## INTRODUCTION

IEC 60794-1-2:2013 comprised a detailed cross-reference table to the new document set, and general guidance was given in IEC 60794-1-20. These two specifications have been combined in this document, which allows for IEC 60794-1-20 to be withdrawn.

## OPTICAL FIBRE CABLES –

### Part 1-2: Generic specification – Basic optical cable test procedures – General guidance

#### 1 Scope

This part of IEC 60794-1 applies to optical fibre cables for use with telecommunications equipment and devices employing similar techniques, and to cables having a combination of both optical fibres and electrical conductors.

The prime objective of this document is to provide the end user with an overview about the content of different parts of the IEC 60794-1 series numbered -2X. Table 1 shows the different parts.

**Table 1 – Document overview**

Test methods	IEC reference
General guidance	IEC 60794-1-2
Methods E – Mechanical	IEC 60794-1-21
Methods F – Environmental	IEC 60794-1-22
Methods G – Cable elements	IEC 60794-1-23
Methods H – Electrical	IEC 60794-1-24
NOTE Several numbers in the test method numbering sequence are missing. The reasons for these omissions are historical. To avoid confusion, the existing numbering sequence has been retained.	

These documents define test procedures to be used in establishing uniform requirements for the geometrical, transmission, material, mechanical, ageing (environmental exposure) and climatic properties of optical fibre cables, and electrical requirements where appropriate.

Throughout the documents, the wording "optical cable" can also include optical fibre units, microduct fibre units, etc.

The secondary objective of this document is to provide the end user with useful guidance when testing optical fibre cables.

#### 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.

IEC 60793-1-40, *Optical fibres – Part 1-40: Measurement methods and test procedures – Attenuation*

IEC 60793-1-46, *Optical fibres – Part 1-46: Measurement methods and test procedures – Monitoring of changes in optical transmittance*



IEC 60793-2-40, *Optical fibres – Part 2-40: Product specifications – Sectional specification for category A4 multimode fibres*

IEC 60794-1-1:2015, *Optical fibre cables: Generic specification – General*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60794-1-1 apply.

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 General guidance

#### 4.1 Test procedure format

The standard descriptive order of each test method is in general as follows: object, sample, apparatus, procedure, requirement, details to be specified, details to be reported. Additional clauses may be inserted, whilst maintaining this general order.

#### 4.2 Standard atmospheric conditions

Two sets of allowable ambient conditions for cable testing are defined for use in testing in this document:

##### Standard test conditions

- Temperature:  $+23\text{ °C} \pm 5\text{ °C}$
- Pressure: site ambient
- Relative humidity: 20 % to 70 %

##### Expanded test conditions

- Temperature:  $+25\text{ °C} \pm 15\text{ °C}$
- Pressure: site ambient
- Relative humidity: 5 % to 95 %

Unless otherwise stated in the particular test, the expanded test conditions shall be used as the default atmospheric conditions when performing tests. The standard test conditions are only for use when specifically requested.

NOTE A tightly-controlled temperature range is considered unnecessary for most cable tests.

Consideration shall be given to the effects of temperature differences and variations on electronic and optical test equipment that may be used in performing the tests. It may be necessary to maintain such equipment at the controlled atmospheric conditions by appropriate means.

#### 4.3 Symbols and abbreviated terms

Symbols and abbreviated terms are given in IEC 60794-1-1.

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