

Optical fibres - Part 1-1: Measurement methods and
test procedures - General and guidance

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

**Optical fibres - Part 1-1: Measurement methods and test
procedures - General and guidance
(IEC 60793-1-1:2022)**

Fibres optiques - Partie 1-1: Méthodes de mesure et
procédures d'essai - Généralités et recommandations
(IEC 60793-1-1:2022)

Lichtwellenleiter - Teil 1-1: Messmethoden und
Prüfverfahren - Allgemeines und Leitfaden
(IEC 60793-1-1:2022)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

The text of document 86A/2166/CDV, future edition 5 of IEC 60793-1-1, 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 IEC 60793-1-1:2022.

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) 2023-04-25
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2025-07-25

This document supersedes EN 60793-1-1:2017 and all of its amendments and corrigenda (if any).

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Endorsement notice

The text of the International Standard IEC 60793-1-1:2022 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 60793-2 (series) NOTE Harmonized as EN 60793-2 (series)

ISO 80000-1:2009 NOTE Harmonized as EN ISO 80000-1:2013 (not modified)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60793-1-43	-	Optical fibres - Part 1-43: Measurement methods and test procedures - Numerical aperture measurement	EN 60793-1-43	-
IEC 60793-1-44	-	Optical fibres - Part 1-44: Measurement methods and test procedures - Cut-off wavelength	EN 60793-1-44	-
IEC 60793-1-45	-	Optical fibres - Part 1-45: Measurement methods and test procedures - Mode field diameter	EN IEC 60793-1-45	-
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 60793-1-47	-	Optical fibres - Part 1-47: Measurement methods and test procedures - Macrobending loss	EN IEC 60793-1-47	-
IEC 60793-1-48	-	Optical fibres - Part 1-48: Measurement methods and test procedures - Polarization mode dispersion	EN 60793-1-48	-
IEC 60793-1-49	-	Optical fibres - Part 1-49: Measurement methods and test procedures - Differential mode delay	EN IEC 60793-1-49	-
IEC 60793-1-50	-	Optical fibres - Part 1-50: Measurement methods and test procedures - Damp heat (steady state) tests	EN 60793-1-50	-
IEC 60793-1-51	-	Optical fibres - Part 1-51: Measurement methods and test procedures - Dry heat (steady state) tests	EN 60793-1-51	-
IEC 60793-1-52	-	Optical fibres - Part 1-52: Measurement methods and test procedures - Change of temperature tests	EN 60793-1-52	-
IEC 60793-1-53	-	Optical fibres - Part 1-53: Measurement methods and test procedures - Water immersion tests	EN 60793-1-53	-
IEC 60793-1-54	-	Optical fibres - Part 1-54: Measurement methods and test procedures - Gamma irradiation	EN IEC 60793-1-54	-
IEC 60793-1-60	-	Optical fibres - Part 1-60: Measurement methods and test procedures - Beat length	EN 60793-1-60	-
IEC 60793-1-61	-	Optical fibres - Part 1-61: Measurement methods and test procedures - Polarization crosstalk	EN 60793-1-61	-
IEC 60793-2	-	Optical fibres - Part 2: Product specifications - General	EN IEC 60793-2	-

INTERNATIONAL STANDARD

**Optical fibres –
Part 1-1: Measurement methods and test procedures – General and guidance**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPTICAL FIBRES –

**Part 1-1: Measurement methods and test procedures –
General and guidance**

FOREWORD

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IEC 60793-1-1 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2017. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) changes in normative references;
- b) renamed Clause 10 and added documentation-related requirements in a new subclause 10.2.

The text of this International Standard is based on the following documents:

Draft	Report on voting
86A/2166/CDV	86A/2203/RVC

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 60793 series, published under the general title *Optical fibres*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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

INTRODUCTION

Publications in the IEC 60793-1 series concern measurement methods and test procedures as they apply to optical fibres.

The documents are categorized as follows:

- Measurement methods and test procedures for dimensions
- Measurement methods and test procedures for mechanical characteristics
- Measurement methods and test procedures for transmission and optical characteristics
- Measurement methods and test procedures for environmental characteristics
- Measurement methods and test procedures for polarization-maintaining fibres

OPTICAL FIBRES –

Part 1-1: Measurement methods and test procedures – General and guidance

1 Scope

This part of IEC 60793 lists and gives guidance on the use of documents giving uniform requirements for measuring and testing optical fibres, thereby assisting in the inspection of fibres and cables for commercial (mostly telecommunications) purposes.

The individual measurement and test methods are contained in the different parts of the IEC 60793 series. They are identified as IEC 60793-1-X, where "X" is an assigned sub-part number, indicating its affiliation to the IEC 60793-1 series.

In general, measurements and tests methods apply to all class A multimode fibres and class B and class C single-mode optical fibres covered by the IEC 60793-2 series relating to product specifications, although there can be exceptions. Clause 1 of each part of the IEC 60793 series contains the scope for each particular attribute.

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 60793-1-20, *Optical fibres – Part 1-20: Measurement methods and test procedures – Fibre geometry*

IEC 60793-1-21, *Optical fibres – Part 1-21: Measurement methods and test procedures – Coating geometry*

IEC 60793-1-22, *Optical fibres – Part 1-22: Measurement methods and test procedures – Length measurement*

IEC 60793-1-30, *Optical fibres – Part 1-30: Measurement methods and test procedures – Fibre proof test*

IEC 60793-1-31, *Optical fibres – Part 1-31: Measurement methods and test procedures – Tensile strength*

IEC 60793-1-32, *Optical fibres – Part 1-32: Measurement methods and test procedures – Coating strippability*

IEC 60793-1-33, *Optical fibres – Part 1-33: Measurement methods and test procedures – Stress corrosion susceptibility*

IEC 60793-1-34, *Optical fibres – Part 1-34: Measurement methods and test procedures – Fibre curl*

IEC 60793-1-40, *Optical fibres – Part 1-40: Attenuation measurement methods*

IEC 60793-1-41, *Optical fibres – Part 1-41: Measurement methods and test procedures – Bandwidth*

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

IEC 60793-1-43, *Optical fibres – Part 1-43: Measurement methods and test procedures – Numerical aperture measurement*

IEC 60793-1-44, *Optical fibres – Part 1-44: Measurement methods and test procedures – Cut-off wavelength*

IEC 60793-1-45, *Optical fibres – Part 1-45: Measurement methods and test procedures – Mode field diameter*

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

IEC 60793-1-47, *Optical fibres – Part 1-47: Measurement methods and test procedures – Macrobending loss*

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IEC 60793-1-60, *Optical fibres – Part 1-60: Measurement methods and test procedures – Beat length*

IEC 60793-1-61, *Optical fibres – Part 1-61: Measurement methods and test procedures – Polarization crosstalk*

IEC 60793-2, *Optical fibres – Product specifications – General*

3 Terms and definitions

No terms and definitions are listed in this document.