# Optical fibres - Part 1-40: Attenuation measurement methods

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## NATIONAL FOREWORD

| | |
|---|---|
| See Eesti standard EVS-EN IEC 60793-1-40:2025 sisaldab Euroopa standardi EN IEC 60793-1-40:2025 ingliskeelset teksti. | This Estonian standard EVS-EN IEC 60793-1-40:2025 consists of the English text of the European standard EN IEC 60793-1-40:2025. |
| Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. | This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. |
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EUROPEAN STANDARD

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English Version

# Optical fibres - Part 1-40: Attenuation measurement methods (IEC 60793-1-40:2024)

Fibres optiques - Partie 1-40: Méthodes de mesure de l'affaiblissement
(IEC 60793-1-40:2024)

Lichtwellenleiter - Teil 1-40: Dämpfungsmessverfahren
(IEC 60793-1-40:2024)

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# European foreword

The text of document 86A/2355/CDV, future edition 3 of IEC 60793-1-40, 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 60793-1-40:2025.

The following dates are fixed:

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# IEC 60793-1-40

Edition 3.0 2024-11

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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## Optical fibres –
## Part 1-40: Attenuation measurement methods

## Fibres optiques –
## Partie 1-40: Méthodes de mesure de l'affaiblissement

IEC 60793-1-40:2024-11 (en-fr)

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# IEC 60793-1-40

Edition 3.0 2024-11

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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## Optical fibres –
## Part 1-40: Attenuation measurement methods

## Fibres optiques –
## Partie 1-40: Méthodes de mesure de l'affaiblissement

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# OPTICAL FIBRES –

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## FOREWORD

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IEC 60793-1-40 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics. It is an International Standard.

This third edition cancels and replaces the second edition published in 2019. This edition constitutes a technical revision.

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

a) modifying the definition of attenuation to be compatible with the definition in electropedia.org

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

| Draft | Report on voting |
|---|---|
| 86A/2355/CDV | 86A/2446/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

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# OPTICAL FIBRES –

# Part 1-40: Attenuation measurement methods



## 1 Scope

This part of IEC 60793 establishes uniform requirements for measuring the attenuation of optical fibre, thereby assisting in the inspection of fibres and cables for commercial purposes.

Four methods are described for measuring attenuation, one being that for modelling spectral attenuation:

– method A: cut-back;
– method B: insertion loss;
– method C: backscattering;
– method D: modelling spectral attenuation.

Methods A to C apply to the measurement of attenuation for all categories of the following fibres:

- class A multimode fibres;
- class B single-mode fibres.

Method C, backscattering, also covers the location, losses and characterization of point discontinuities.

Method D is applicable only to class B fibres.

Information common to all four methods appears in Clause 1 to Clause 11, and information pertaining to each individual method appears in Annex A, Annex B, Annex C, and Annex D, respectively.

## 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 60793-1-1, *Optical fibres – Part 1-1: Measurement methods and test procedures – General and guidance*

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

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

IEC 61746-1, *Calibration of optical time-domain reflectometers (OTDR) – Part 1: OTDR for single mode fibres*

IEC 61746-2, *Calibration of optical time-domain reflectometers (OTDR) – Part 2: OTDR for multimode fibres*