Optical fibres - Part 1-44: Measurement methods and test procedures - Cut-off wavelength

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NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 60793-1-44:2023 sisaldab Euroopa standardi EN IEC 60793-1-44:2023 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 60793-1-44:2023 consists of the English text of the European standard EN IEC 60793-1-44:2023.
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.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 01.09.2023.	Date of Availability of the European standard is 01.09.2023.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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English Version

Optical fibres - Part 1-44: Measurement methods and test procedures - Cut-off wavelength (IEC 60793-1-44:2023)

Fibres optiques - Partie 1-44: Méthodes de mesure et procédures d'essai - Longueur d'onde de coupure (IEC 60793-1-44:2023)

Lichtwellenleiter - Teil 1-44: Mess- und Prüfverfahren - Grenzwellenlänge (IEC 60793-1-44:2023)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 86A/2314/FDIS, future edition 3 of IEC 60793-1-44, 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 60793-1-44:2023.

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) 2024-05-28
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-08-28

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

IEC 60793-1-40 NOTE Approved as EN IEC 60793-1-40

IEC 60793-2-10 NOTE Approved as EN IEC 60793-2-10

IEC 60793-2-50 NOTE Approved as EN IEC 60793-2-50

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INTERNATIONAL STANDARD

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

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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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IEC 60793-1-44 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 2011. This edition constitutes a technical revision.

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

a) used the diameter of the fibre loops to describe deployment;
b) added Annex D related to cut-off curve artifacts;
c) reorganized information and added more figures to clarify concepts.

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

Draft	Report on voting
86A/2314/FDIS	86A/2327/RVD

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.

This document is to be read in conjunction with IEC 60793-1-1.

A list of all parts of the IEC 60793-1 series, published under the general title *Optical fibres – Measurement methods and test procedures*, 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.

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OPTICAL FIBRES –

Part 1-44: Measurement methods and test procedures – Cut-off wavelength

1 Scope

This part of IEC 60793 establishes uniform requirements for measuring the cut-off wavelength of single-mode optical fibre, thereby assisting in the inspection of fibres and cables for commercial purposes.

This document gives methods for measuring the cut-off wavelength for uncabled or cabled single mode telecom fibre. These procedures apply to all category B and C fibre types.

There are three methods of deployment for measuring the cut-off wavelength:

- method A: cable cut-off using uncabled fibre 22 m long sample, λ_{cc};
- method B: cable cut-off using cabled fibre 22 m long sample, λ_{cc};
- method C: fibre cut-off using uncabled fibre 2 m long sample, λ_{c}.

All methods require a reference measurement. There are two reference-scan techniques, either or both of which can be used with all methods:

- bend-reference technique;
- multimode-reference technique using category A1(OM1-OM5) multimode 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.

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

3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

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