BSI Standards Publication

Optical fibres

Part 2-10: Product specifications - Sectional specification for category A1 multimode fibres (IEC 60793-2-10:2017)

bsi.

National foreword

This British Standard is the UK implementation of EN 60793-2-10:2017. It is identical to IEC 60793-2-10:2017. It supersedes BS EN 60793-2-10:2016, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee GEL/86/1, Optical fibres and cables.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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English Version

Optical fibres - Part 2-10: Product specifications - Sectional specification for category A1 multimode fibres (IEC 60793-2-10:2017)

Fibres optiques - Partie 2-10: Spécifications de produits - Spécification intermédiaire pour les fibres multimodales de catégorie A1
(IEC 60793-2-10:2017)

Lichtwellenleiter - Teil 2-10: Produktspezifikationen - Rahmenspezifikation für Mehrmodenfasern der Kategorie A1
(IEC 60793-2-10:2017)

This European Standard was approved by CENELEC on 2017-09-14. 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.

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

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The text of document 86A/1771/CDV, future edition 6 of IEC 60793-2-10, 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 60793-2-10:2017.

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) 2018-06-14
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-09-14

This document supersedes EN 60793-2-10:2016.

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Endorsement notice

The text of the International Standard IEC 60793-2-10:2017 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 61280-1-4	NOTE	Harmonized as EN 61280-1-4.
IEC 61280-1-3	NOTE	Harmonized as EN 61280-1-3.
IEC 60794-1-1	NOTE	Harmonized as EN 60794-1-1.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

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.

Publication	Year	Title	EN/HD	Year
IEC 60793-1-20	-	Optical fibres - Part 1-20: Measurement methods and test procedures - Fibre geometry	EN 60793-1-20	-
IEC 60793-1-21	-	Optical fibres -- Part 1-21: Measurement methods and test procedures - Coating geometry	EN 60793-1-21	-
IEC 60793-1-22	-	Optical fibres -- Part 1-22: Measurement methods and test procedures - Length measurement	EN 60793-1-22	-
IEC 60793-1-30	-	Optical fibres -- Part 1-30: Measurement methods and test procedures - Fibre proof test	EN 60793-1-30	-
IEC 60793-1-31	-	Optical fibres -- Part 1-31: Measurement methods and test procedures - Tensile strength	EN 60793-1-31	-
IEC 60793-1-32	-	Optical fibres -- Part 1-32: Measurement methods and test procedures - Coating strippability	EN 60793-1-32	-
IEC 60793-1-33	-	Optical fibres - Part 1-33: Measurement methods and test procedures - Stress corrosion susceptibility	FprEN 60793-1-33	-
IEC 60793-1-34	-	Optical fibres -- Part 1-34: Measurement methods and test procedures - Fibre curl	EN 60793-1-34	-
IEC 60793-1-40	-	Optical fibres -- Part 1-40: Measurement methods and test procedures - Attenuation	EN 60793-1-40	-
IEC 60793-1-41	-	Optical fibres -- Part 1-41: Measurement methods and test procedures - Bandwidth	EN 60793-1-41	-
IEC 60793-1-42	-	Optical fibres -- Part 1-42: Measurement methods and test procedures - Chromatic dispersion	EN 60793-1-42	-
IEC 60793-1-43	-	Optical fibres - Part 1-43: Measurement methods and test procedures - Numerical aperture measurement	EN 60793-1-43	-
IEC 60793-1-46	-	Optical fibres -- Part 1-46: Measurement methods and test procedures - Monitoring of changes in optical transmittance	EN 60793-1-46	-

		Macrobending loss		
IEC 60793-1-49	-	Optical fibres -- Part 1-49: Measurement methods and test procedures - Differential mode delay	EN 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 60793-2	2015	Optical fibres - Part 2: Product specifications - General	EN 60793-2	2016
IEC 61280-4-1	2009	Fibre optic communication subsystem test procedures -- Part 4-1: Installed cable plant - Multimode attenuation measurement	EN 61280-4-1	2009

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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OPTICAL FIBRES –

Part 2-10: Product specifications – Sectional specification for category A1 multimode fibres

FOREWORD

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International Standard IEC 60793-2-10 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics.

This sixth edition cancels and replaces the fifth edition published in 2015. This edition constitutes a technical revision.

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

a) addition of model A1a.4 fibre which supports single wavelength or multi-wavelength transmission systems in the vicinity of 850 nm to 950 nm.

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

CDV	Report on voting
86A/1771/CDV	86A/1794/RVC

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

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

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 "http://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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

OPTICAL FIBRES –

Part 2-10: Product specifications – Sectional specification for category A1 multimode fibres

1 Scope

This part of IEC 60793 is applicable to optical fibre sub-categories A1a, A1b, and A1d. These fibres are used or can be incorporated in information transmission equipment and optical fibre cables.

Sub-category A1a applies to 50/125 μm graded index fibre. Four bandwidth grades are defined as models A1a.1, A1a.2, A1a.3 and A1a.4. Each of these bandwidth grades is defined for two levels of macrobend loss performance that are distinguished by "a" or "b" suffix. Those models with suffix "a" are specified to meet traditional macrobend loss performance levels. Those models with suffix "b" are specified to meet enhanced macrobend loss (i.e. lower loss) performance levels. Model A1a.4 supports single wavelength or multi-wavelength transmission systems in the vicinity of 850 nm to 950 nm.

Sub-category A1b applies to 62,5/125 μm graded index fibre and sub-category A1d applies to 100/140 μm graded index fibre.

Other applications include, but are not restricted to, the following: short reach, high bit-rate systems in telephony, distribution and local networks carrying data, voice and/or video services; on-premises intra-building and inter-building fibre installations including data centres, local area networks (LANs), storage area networks (SANs), private branch exchanges (PBXs), video, various multiplexing uses, outside telephone cable plant use, and miscellaneous related uses.

Three types of requirements apply to these fibres:

- general requirements, as defined in IEC 60793-2;
- specific requirements common to the category A1 multimode fibres covered in this document and which are given in Clause 5;
- particular requirements applicable to individual fibre sub-categories and models, or specific applications, which are defined in the normative specification annexes.

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*