

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Optical fibres –

Part 2-40: Product specifications – Sectional specification for category A4 multimode fibres

Fibres optiques –

Partie 2-40: Spécifications de produits – Spécification intermédiaire pour les fibres multimodales de catégorie A4



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fibres multimodales de catégorie A4**

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OPTICAL FIBRES –

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

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International Standard IEC 60793-2-40 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics.

This fifth edition cancels and replaces the fourth 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) revision of NA range of A4a.2;
- b) addition of a new subcategory A4i;
- c) deletion of the subcategory A4f and of Annex F.

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

CDV	Report on voting
86A/1943/CDV	86A/1981/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- withdrawn,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.

OPTICAL FIBRES –

Part 2-40: Product specifications – Sectional specification for category A4 multimode fibres

1 Scope

This part of IEC 60793 is applicable to category A4 optical multimode fibres and the related subcategories A4a, A4b, A4c, A4d, A4e, A4g, A4h and A4i. These fibres have a plastic core and plastic cladding and may have step-index, multi-step index or graded-index profiles. The fibres are used in information transmission equipment and other applications employing similar light transmitting techniques, and in fibre optic cables. Table 1 summarizes some of the salient characteristics and applications of these fibres.

Table 1 – Characteristics and applications of category A4 fibres

Sub-category	A4a		A4b	A4c	A4d	A4e	A4f	A4g	A4h	A4i
	A4a.1	A4a.2								
Core diameter (µm)	a		a	a	a	≥ 500	c	120	62,5	55
Cladding diameter (µm)	1 000		750	500	1 000	750	c	490	245 ^d	490
Numerical aperture Na _{ff} e	0,50	0,53	0,50	0,50	0,30	0,25	c	0,190	0,190	0,24
Operating wave-length(s) (nm)	650 ^b		650	650	650	650	c	650 850 1 300	850 1 300	850
Applications	Digital audio interface, automobile, industrial, sensor and data transmission		Industrial and sensor	Sensor	Digital audio-visual interface and data transmission	Digital audio-visual interface and data transmission	c	Data transmission	Data transmission; primarily used in ribbon structures	Industrial data transmission

^a Typically 15 µm to 35 µm smaller than the cladding diameter.

^b Other potential wavelengths for A4a fibre are described in Annex K.

^c This sub-category is outdated and therefore no more specified.

^d Cladding diameters of 490 µm and 750 µm are also possible.

^e Na_{ff} is numerical aperture measured by far field pattern method.

In addition to the applications shown in Table 1, other applications for A4 fibres include, but are not restricted to, the following: support for short reach, high bit-rate systems in telephony, distribution and local networks, carrying data, voice and/or video services and on-premises intrabuilding and interbuilding fibre installations, including local area networks (LANs), private branch exchanges (PBXs), video, various multiplexing uses and miscellaneous related uses, such as consumer electronics and industrial and mobile networks.

Three types of requirements apply to A4 fibres:

- general requirements, as defined in IEC 60793-2;
- specific requirements common to category A4 multimode fibres covered in this document and which are given in Clause 4;

- particular requirements applicable to individual fibre sub-categories and implementations or specific applications which are defined in this document, in the normative family 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 60068-1, *Environmental testing – Part 1: General and guidance*

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

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

IEC 60793-1-40:2019, *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 60793-1-46, *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*

IEC 60793-1-50, *Optical fibres – Part 1-50: Measurement methods and test procedures – Damp heat (steady state) tests*

IEC 60793-1-51, *Optical fibres – Part 1-51: Measurement methods and test procedures – Dry heat (steady state) tests*

IEC 60793-1-52, *Optical fibres – Part 1-52: Measurement methods and test procedures – Change of temperature tests*

3 Terms and definitions

No terms and definitions are listed in this document.

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

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