

INTERNATIONAL STANDARD



**Optical fibres –
Part 2-30: Product specifications – Sectional specification for category A3
multimode fibres**

IEC 60793-2-30:2012
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INTERNATIONAL
ELECTROTECHNICAL
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OPTICAL FIBRES –

Part 2-30: Product specifications – Sectional specification for category A3 multimode fibres

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International Standard IEC 60793-2-30 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics.

This third edition cancels and replaces the second edition, published in 2007. It constitutes a technical revision.

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

- addition of a new sub-category A3e;
- changed unit for core-cladding concentricity error and proof stress level.

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

CDV	Report on voting
86A/1414/CDV	86A/1434/RVC

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

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

A list of all parts of 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 publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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- withdrawn,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

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OPTICAL FIBRES –

Part 2-30: Product specifications – Sectional specification for category A3 multimode fibres

1 Scope

This part of IEC 60793-2 is applicable to sub-categories A3a, A3b, A3c, A3d and A3e. These fibres are used or can be incorporated in different information transmission equipments, other applications employing similar light transmitting techniques, and finally fibre optic cables.

Three types of requirements apply to these fibres:

- general requirements, as defined in IEC 60793-2;
- specific requirements common to the category A3 multimode fibres covered in this standard and which are given in Clause 3;
- particular requirements applicable to the individual sub-categories or specific applications (e.g. automotive or industrial applications) which are defined in the normative sub-category annexes.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 60793-1-40, *Optical fibres – Part 1-40: Measurement methods and test procedures – Attenuation*

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

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

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

IEC 60793-1-51, *Optical fibres – Part 1-51: Measurement methods and test procedures – Dry heat*

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

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

3 Specifications

3.1 General

The fibre shall consist of a glass core and a plastic cladding in accordance with the definition in IEC 60793-2.

3.2 Dimensional requirements

Relevant dimensional attributes and measurement methods are given in Table 1.

Dimensional requirements common to all sub-categories are indicated in Table 2.

Table 3 lists additional dimensional attributes that shall be specified for each sub-category.

Table 1 – Relevant dimensional attributes and measurement methods

Attributes	Measurement methods
Core diameter	IEC 60793-1-20
Core non-circularity	IEC 60793-1-20
Cladding diameter	IEC 60793-1-20
Core-cladding concentricity error	IEC 60793-1-20
Coating diameter	IEC 60793-1-21
Fibre length	IEC 60793-1-22

Table 2 – Dimensional requirements common to all category A3 fibres

Attributes	Unit	Limits
Fibre length	km	^a
^a Length requirements vary and should be agreed between supplier and customer.		

Table 3 – Additional dimensional attributes required for each sub-category

Attributes
Core diameter
Core non-circularity
Cladding diameter
Core-cladding concentricity error
Coating diameter

3.3 Mechanical requirements

Relevant mechanical attributes and test methods are given in Table 4.

Requirements to be specified for each sub-category are listed in Table 5.

Table 4 – Relevant mechanical attributes and test methods

Attribute	Test method
Tensile strength	IEC 60793-1-31 (0,5 m sample length) Strain rate 3 % to 5 %/min
Proof test	IEC 60793-1-30

Table 5 – Mechanical requirements to be specified for each sub-category

Attribute	Unit
Proof stress level	GPa

3.4 Transmission requirements

Relevant transmission attributes and measurement methods are given in Table 6.

Additional attributes required in the sub-categories are listed in Table 7.

Table 6 – Relevant transmission attributes and measurement methods

Attribute	Measurement method
Attenuation coefficient ^a	IEC 60793-1-40
Modal bandwidth ^a	IEC 60793-1-41
Theoretical numerical aperture	IEC 60793-1-20
Change of optical transmission	IEC 60793-1-46
^a When measuring attenuation and modal bandwidth, the appropriate launching conditions should be applied, as specified in IEC 60793-1-40 and IEC 60793-1-41. Attenuation and bandwidth are not necessarily linear with length.	

Table 7 – Additional transmission attributes required for each sub-category

Attributes
Attenuation coefficient
Modal bandwidth
Theoretical numerical aperture

3.5 Environmental requirements

Relevant environmental attributes and test methods are given in Table 8.

Table 8 – Relevant environmental attributes and test methods

Attributes	Test methods
Damp heat tests	IEC 60793-1-50
Dry heat tests	IEC 60793-1-51
Change of temperature tests	IEC 60793-1-52

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