

# INTERNATIONAL STANDARD



---

**Optical fibres –  
Part 2-20: Product specifications – Sectional specification for category A2  
multimode fibres**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

---

ICS 33.180.10

ISBN 978-2-8322-3020-6

|  |
|--|
| <b>Warning! Make sure that you obtained this publication from an authorized distributor.</b> |
|--|

## CONTENTS

|   |    |
|---|----|
| FOREWORD.....   | 4  |
| 1 Scope.....  | 6  |
| 2 Normative references.....   | 6  |
| 3 Specifications.....   | 7  |
| 3.1 General.....  | 7  |
| 3.2 Dimensional requirements.....   | 7  |
| 3.3 Mechanical requirements.....  | 8  |
| 3.4 Transmission requirements.....  | 8  |
| 3.5 Environmental requirements.....   | 9  |
| Annex A (normative) Specifications for sub-category A2a multimode fibres.....   | 10 |
| A.1 General.....  | 10 |
| A.2 Dimensional requirements.....   | 10 |
| A.3 Mechanical requirements.....  | 10 |
| A.4 Transmission requirements.....  | 10 |
| A.5 Environmental requirements.....   | 11 |
| Annex B (normative) Specifications for sub-category A2b multimode fibres.....   | 12 |
| B.1 General.....  | 12 |
| B.2 Dimensional requirements.....   | 12 |
| B.3 Mechanical requirements.....  | 12 |
| B.4 Transmission requirements.....  | 12 |
| B.5 Environmental requirements.....   | 13 |
| Annex C (normative) Specifications for sub-category A2c multimode fibres.....   | 14 |
| C.1 General.....  | 14 |
| C.2 Dimensional requirements.....   | 14 |
| C.3 Mechanical requirements.....  | 14 |
| C.4 Transmission requirements.....  | 14 |
| C.5 Environmental requirements.....   | 15 |
| Bibliography.....   | 16 |
| Table 1 – Relevant dimensional attributes and measurement methods.....          | 7  |
| Table 2 – Dimensional requirements common to all category A2 fibres.....        | 7  |
| Table 3 – Additional dimensional attributes required for each sub-category..... | 8  |
| Table 4 – Relevant mechanical attributes and test methods.....                  | 8  |
| Table 5 – Mechanical requirements common to all category A2 fibres.....         | 8  |
| Table 6 – Relevant transmission attributes and measurement methods.....         | 8  |
| Table 7 – Requirements common to all category A2 fibres.....                    | 9  |
| Table 8 – Relevant environmental attributes and test methods.....               | 9  |
| Table A.1 – Dimensional requirements specific to A2a fibres.....                | 10 |
| Table A.2 – Mechanical requirements specific to A2a fibres.....                 | 10 |
| Table A.3 – Transmission requirements specific to A2a fibres.....               | 11 |
| Table A.4 – Environmental exposure tests.....                                   | 11 |
| Table A.5 – Attributes measured.....  | 11 |

|  |    |
|--|----|
| Table B.1 – Dimensional requirements specific to A2b fibres .....  | 12 |
| Table B.2 – Mechanical requirements specific to A2b fibres .....   | 12 |
| Table B.3 – Transmission requirements specific to A2b fibres ..... | 12 |
| Table B.4 – Environmental exposure tests .....                     | 13 |
| Table B.5 – Attributes measured .....                              | 13 |
| Table C.1 – Dimensional requirements specific to A2c fibres .....  | 14 |
| Table C.2 – Mechanical requirements specific to A2c fibres .....   | 14 |
| Table C.3 – Transmission requirements specific to A2c fibres ..... | 14 |
| Table C.4 – Environmental exposure tests .....                     | 15 |
| Table C.5 – Attributes measured .....                              | 15 |

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## OPTICAL FIBRES –

**Part 2-20: Product specifications –  
Sectional specification for category A2 multimode fibres**

## 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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60793-2-20 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. This edition constitutes a technical revision.

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

- a)  $Na_{th}$  has been replaced by  $NA_{ff}$ ;
- b) specified test specimen length and measurement details for core diameter and  $NA_{ff}$  measurements.

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

| CDV          | Report on voting |
|--------------|------------------|
| 86A/1602/CDV | 86A/1628A/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 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 publication will remain unchanged until the stability date indicated on the IEC website 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.

A bilingual version of this publication may be issued at a later date.

**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 2-20: Product specifications – Sectional specification for category A2 multimode fibres

#### 1 Scope

This part of IEC 60793 is applicable to sub-categories A2a, A2b, and A2c. These fibres are used or can be incorporated in information transmission equipment and optical fibre cables (typically up to 2 km).

Three types of requirements apply to these fibres:

- general requirements as defined in IEC 60793-2;
- specific requirements common to the category A2 multimodal fibres covered in this standard and which are given in Clause 3;
- particular requirements applicable to individual sub-categories or specific applications, which are defined in the normative family specification 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 60793-1-20:2001, *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 60793-1-43, *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 60793-1-50, *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*

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