

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Optical fibres –
Part 2-50: Product specifications – Sectional specification for class B single-
mode fibres**

**Fibres optiques –
Partie 2-50: Spécifications de produits – Spécification intermédiaire pour les
fibres unimodales de classe B**



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CONTENTS

FOREWORD.....	5
1 Scope.....	7
2 Normative references	8
3 Terms and definitions	9
4 Abbreviated terms and symbols	10
5 Specifications	10
5.1 General.....	10
5.2 Dimensional requirements.....	10
5.3 Mechanical requirements	11
5.4 Transmission requirements	12
5.5 Environmental requirements	13
5.5.1 General	13
5.5.2 Optical environmental requirements – Attenuation	14
5.5.3 Mechanical environmental requirements	14
Annex A (normative) Family specification for category B-652 Dispersion unshifted single-mode fibres	16
A.1 General.....	16
A.2 Dimensional requirements.....	16
A.3 Mechanical requirements	17
A.4 Transmission requirements	17
A.5 Hydrogen ageing for sub-category B-652.D.....	19
A.6 Environmental requirements	19
Annex B (normative) Family specification for category B-653 Dispersion shifted single-mode fibres	20
B.1 General.....	20
B.2 Dimensional requirements.....	20
B.3 Transmission requirements	21
B.3.1 General	21
B.3.2 Chromatic dispersion coefficient requirement for sub-category B-653.A fibres	21
B.3.3 Chromatic dispersion coefficient requirement for sub-category B-653.B fibres	22
B.4 Environmental requirements	22
Annex C (normative) Family specification for category B-654 cut-off shifted single-mode fibres.....	23
C.1 General.....	23
C.2 Dimensional requirements.....	23
C.3 Mechanical requirements	23
C.4 Chromatic dispersion parameters for B-654.E fibres	25
C.5 Environmental requirements	25
Annex D (normative) Family specification for category B-655 non-zero dispersion shifted single-mode fibres	26
D.1 General.....	26
D.2 Dimensional requirements.....	26
D.3 Mechanical requirements	26
D.4 Transmission requirements	27
D.4.1 General	27

D.4.2	Chromatic dispersion coefficient limits for sub-category B-655.C fibres.....	27
D.4.3	Chromatic dispersion coefficient limits for sub-category B-655.D fibres.....	28
D.4.4	Chromatic dispersion coefficient limits for sub-category B-655.E fibres.....	28
D.5	Environmental requirements	28
Annex E (normative)	Family specification for category B-656 Wideband non-zero dispersion shifted single-mode fibres	29
E.1	General.....	29
E.2	Dimensional requirements.....	29
E.3	Mechanical requirements	29
E.4	Transmission requirements	30
E.4.1	General	30
E.4.2	Chromatic dispersion coefficient for category B-656 fibres.....	30
E.5	Environmental requirements	31
Annex F (normative)	Family specification for category B-657 Bending loss insensitive single-mode fibres	32
F.1	General.....	32
F.2	Dimensional requirements.....	32
F.3	Mechanical requirements	33
F.4	Transmission requirements	33
F.5	Environmental requirements	35
Annex G (informative)	System design information for category B-655 non-zero dispersion shifted single-mode fibres	36
G.1	General.....	36
G.2	One standard deviation limits for sub-category B-655.D fibres	36
G.3	One standard deviation limits for sub-category B-655.E fibres.....	37
Bibliography	39
Figure G.1	– Sub-category B-655.D chromatic dispersion coefficient limits	37
Figure G.2	– Sub-category B-655.E chromatic dispersion coefficient limits	38
Table 1	– Map of IEC designation to ITU-T Recommendations and IEC 60793-2-50:2015 designation.....	8
Table 2	– Dimensional attributes and measurement methods.....	11
Table 3	– Dimensional requirements common to all category B fibres	11
Table 4	– Mechanical attributes and test methods.....	11
Table 5	– Mechanical requirements common to all class B fibres	12
Table 6	– Transmission attributes and measurement methods	12
Table 7	– Transmission, requirements common to all class B fibres	13
Table 8	– Additional transmission attributes required in the family specifications	13
Table 9	– Environmental exposure tests	13
Table 10	– Attributes measured in environmental exposure tests	13
Table 11	– Change in attenuation for environmental tests.....	14
Table 12	– Coating strip force for environmental tests.....	14
Table 13	– Tensile strength for environmental tests	15
Table 14	– Stress corrosion susceptibility for environmental tests.....	15
Table A.1	– Dimensional requirements specific to category B-652.B fibres.....	16
Table A.2	– Dimensional requirements specific to category B-652.D fibres	17

Table A.3 – Mechanical requirements specific to category B-652 fibres	17
Table A.4 – Transmission requirements specific to sub-category B-652.B fibres	18
Table A.5 – Transmission requirements specific to sub-category B-652.D Fibres	18
Table A.6 – Chromatic dispersion properties for sub-category B-652.D fibres	19
Table B.1 – Dimensional requirements specific to category B-653 fibres	20
Table B.2 – Mechanical requirements specific to category B-653 fibres	21
Table B.3 – Transmission requirements specific to category B-653 fibres	21
Table C.1 – Dimensional requirements specific to category B-654 fibres.....	23
Table C.2 – Mechanical requirements specific to category B-654 fibres	24
Table C.3 – Transmission requirements specific to category B-654 fibres	24
Table D.1 – Dimensional requirements specific to category B-655 fibres.....	26
Table D.2 – Mechanical requirements specific to category B-655 fibres	27
Table D.3 – Transmission requirements specific to category B-655 fibres	27
Table E.1 – Dimensional requirements specific to category B-656 fibres.....	29
Table E.2 – Mechanical requirements specific to category B-656 fibres	30
Table E.3 – Transmission requirements specific to category B-656 fibres	30
Table F.1 – Dimensional requirements specific to category B-657 fibres	33
Table F.2 – Mechanical requirements specific to category B-657 fibres.....	33
Table F.3 – Transmission requirements specific to category B-657 fibres	34
Table G.1 – Examples for $\lambda_{\min} = 1\,530\text{ nm}$ and $\lambda_{\max} = 1\,565\text{ nm}$	36

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OPTICAL FIBRES –

**Part 2-50: Product specifications –
Sectional specification for class B single-mode fibres**

FOREWORD

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International Standard IEC 60793-2-50 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics.

The 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) Introduction of a revised naming convention which better matches with those found in ITU-T Recommendations G.652, G.653, G.654, G.655, G.656, and G.657. These changes are outlined in the scope of this document along with a cross reference table for the new names. Annexes have been rearranged to improve clarity based on the new naming;
- b) Further details on the requirements for 200 micron coated single-mode fibre;
- c) Harmonization with the following ITU-T Recommendations published in November 2016: G.652, G.654, G.657 including revised chromatic dispersion specifications, new categories and new application spaces for these fibre categories;

d) Descriptions of fibre types have been added to the titles of Annexes A to F.

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

FDIS	Report on voting
86A/1884/FDIS	86A/1898/RVD

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

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OPTICAL FIBRES –

Part 2-50: Product specifications – Sectional specification for class B single-mode fibres

1 Scope

This part of IEC 60793 is applicable to optical fibre categories B-652, B-653, B-654, B-655, B-656 and B-657. A map illustrating the connection of IEC designations to ITU-T designations is shown in Table 1. These fibres are used or can be incorporated in information transmission equipment and optical fibre cables.

Three types of requirements apply to these fibres:

- general requirements, as defined in IEC 60793-2;
- specific requirements common to the class B single-mode fibres covered in this document and which are given in Clause 5;
- particular requirements applicable to individual fibre categories or specific applications, which are defined in Annexes A to F.

For some fibre categories (shown in the relevant family specifications), there are sub-categories that are distinguished on the basis of difference in transmission attribute specifications. The designations for these sub-categories are documented in the individual family specifications.

Table 1 shows a map from the IEC designations to the ITU-T recommendations. The table also provides the normative annex in this document that contains the detailed specification as well as the name used to describe this fibre type in IEC 60793-2-50:2015. The ITU-T recommendations as well as the IEC categories/sub-categories within each recommendation are given. In some cases, as for Recommendation G.652, a given IEC designation maps to multiple categories in the ITU-T because the ITU-T categories are distinguished by cabled fibre attribute (PMD_Q) performance which are not distinguished in the IEC fibre specifications.

Table 1 – Map of IEC designation to ITU-T Recommendations and IEC 60793-2-50:2015 designation

Annex	Category	Sub Category	Description	IEC 60793-2-50:2015	ITU-T Rec
	B-652		Dispersion unshifted fibre		G.652
A		B-652.B		B1.1	G.652.B
A		B-652.D		B1.3	G.652.D
	B-653		Dispersion shifted fibre		G.653
B		B-653.A		B2_a	G.653.A
B		B-653.B		B2_b	G.653.B
	B-654		Cut-off shifted fibre		G.654
C		B-654.A		B1.2_a	G.654.A
C		B-654.B		B1.2_b	G.654.B
C		B-654.C		B1.2_c	G.654.C
C		B-654.D		N/A	G.654.D
C		B-654.E		N/A	G.654.E
C	B-655		Non-zero dispersion shifted fibre	B4	G.655
D		B-655.C		B4_c	G.655.C
D		B-655.D		B4_d	G.655.D
D		B-655.E		B4_e	G.655.E
E	B-656		Wideband non-zero dispersion shifted fibre	B5	G.656
F	B-657		Bending loss insensitive fibre	B6	G.657
F		B-657.A1		B6_a1	G.657.A1
F		B-657.A2		B6_a2	G.657.A2
F		B-657.B2		B6_b2	G.657.B2
F		B-657.B3		B6_b3	G.657.B3

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 (all parts), *Optical fibres*

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 60793-1-32, *Optical fibres – Part 1-32: Measurement methods and test procedures – Coating strippability*

IEC 60793-1-33, *Optical fibres – Part 1-33: Measurement methods and test procedures – Stress corrosion susceptibility*

IEC 60793-1-34, *Optical fibres – Part 1-34: Measurement methods and test procedures – Fibre curl*

IEC 60793-1-40, *Optical fibres – Part 1-40: Measurement methods and test procedures – Attenuation*

IEC 60793-1-42, *Optical fibres – Part 1-42: Measurement methods and test procedures – Chromatic dispersion*

IEC 60793-1-44, *Optical fibres – Part 1-44: Measurement methods and test procedures – Cut-off wavelength*

IEC 60793-1-45, *Optical fibres – Part 1-45: Measurement methods and test procedures – Mode field diameter*

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 60793-1-48, *Optical fibres – Part 1-48: Measurement methods and test procedures – Polarization mode dispersion*

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 60793-1-53, *Optical fibres – Part 1-53: Measurement methods and test procedures – Water immersion tests*

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

IEC 60794-2, *Optical fibre cables – Part 2: Indoor cables – Sectional specification*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60793-2 and the IEC 60793-1 series apply.