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Optična vlakna - 2-60. del: Specifikacije izdelka - Področna specifikacija za enorodna vlakna kategorije C za notranje povezovanje

Optical fibres - Part 2-60: Product specifications - Sectional specification for category C single-mode interconnection fibres

iTeh Standards

Fibres optiques - Partie 2-60: Spécifications de produits - Spécification intermédiaire pour les fibres d'interconnexion unimodales de catégorie c

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PROJECT NUMBER: IEC 60793-2-60 ED2



86A/2470/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

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SECRETARIAT:		SECRETARY:		
France		Mr Laurent Gasca		
OF INTEREST TO THE FOLLOWING COMMITTEES:		PROPOSED HORIZONTAL STANDARD:		
		Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.		
FUNCTIONS CONCERNED:				
☐ EMC ☐ ENVIR	RONMENT	Quality assur.	ANCE SAFETY	
☐ SUBMITTED FOR CENELEC PARALLEL VOTING		☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING		
Attention IEC-CENELEC parallel vo			eh.ai)	
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The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.			V V V	
The CENELEC members are invited to vote through the CENELEC online voting system.		60793-2-60:202 -45e3-aab3-cd9	<u>4</u> 95ed54eab6/osist-pren-iec-60793	
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TITLE:				
Optical fibres - Part 2-60: Product specifications - Sectional specification for category C single-mode interconnection fibres				
PROPOSED STABILITY DATE: 2029				
NOTE FROM TC/SC OFFICERS:				

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OPTICAL FIBRES -

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Part 2-60: Product specifications – Sectional specification for category C single-mode interconnection fibres

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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.
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- 122 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.
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- IEC 60793-2-60 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics. It is an International Standard.
- This second edition cancels and replaces the first edition published in 2008. This edition constitutes a technical revision.
- This edition includes the following significant technical changes with respect to the previous edition:
- a) Replace 'intraconnection' by 'interconnection' and include definition of 'interconnection fibres';
- b) Modify nominal MFD limit of C1 fibres;
- 135 c) Inclusion of limits of 'Primary coating diameter-colored' for class C fibres and change of 'Primary coating diameter-uncolored' limits of class C_80 fibres;
- d) Change of coating strip force limits for class C1, C2, and C3 fibres;

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- e) Replace 'Fibre cut-off wavelength' by 'Cable cut-off wavelength' and revise 'Note b' in Table 6:
- f) Replace 'Fibre cut-off wavelength' by 'Cable cut-off wavelength' and delete the 'Note' in Table 8;
- g) Inclusion of 200 μm coating diameter requirements of C1_125 and change of coating
 diameters limits of C1_80 fibres in Table A.1;
- h) Inclusion of 200 μm coating diameter requirements of C1_125 fibre and change of coating
 strip force limits in Table A.2 and in Table A.5;
- i) Replace 'Fibre cut-off wavelength' by 'Cable cut-off wavelength', modify 'Cable cutoff wavelength' limit and include a new 'note' in Table A.3;
- j) Include transmission requirements at 1625 nm and delete 1310 nm for C1 fibres in Table A.4;
- k) Modify 'Fibre cut-off wavelength' limits of C3 fibres in Table C.3;
- 151 I) Replace 'Fibre cut-off wavelength' by 'Cable cut-off wavelength' for C4 fibres in Table D.3.

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

	Draft	Report on voting
1.	XX/XX/FDIS	XX/XX/RVD

The language used for the development of this International Standard is English. Ten-lec-60793-2-60-2024

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

<u>oS1S1 prEN IEC 60/93-2-60:2024</u>

- This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available
- at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are
- described in greater detail at www.iec.ch/standardsdev/publications.
- 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
- 168 amended.

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171	OPTICAL FIBRES –
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173	Part 2-60: Product specifications –
174	Sectional specification for category C
175	single-mode interconnection fibres
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179	1 Scope
180	This part of IEC 60793 is applicable to optical fibre types C1, C2, C3, C4, as described in Table
181	1. These fibres are used for the interconnections within or between optical components systems
182	and are optimized to support dense optical connectivity. While the fibres could be overcoated
183	or buffered for the purpose of making protected pigtails, they may be used without overcoating. They may, however, be colour-coded.
184	They may, however, be colour-coded.
185	2 Normative references
186	The following referenced documents are indispensable for the application of this document. For
187	dated references, only the edition cited applies. For undated references, the latest edition of
188	the referenced document (including any amendments) applies.
189	IEC 60793-1-20, Optical fibres – Part 1-20: Measurement methods and test procedures – Fibre
190	geometry (https://standards.iteh.ai)
191	IEC 60793-1-21, Optical fibres – Part 1-21: Measurement methods and test procedures –
192	Coating geometry
193 https://194.n.	IEC 60793-1-22, Optical fibres — Part 1-22: Measurement methods and test procedures — Length measurement methods are supplied to the length measurement methods and test procedures — Length measurement methods are supplied to the length methods are supplied to the length measurement methods are supplied to the length method to the length method of the length method of the length method to the length method of the
195	IEC 60793-1-30, Optical fibres – Part 1-30: Measurement methods and test procedures – Fibre
196	proof test
197	IEC 60793-1-31, Optical fibres - Part 1-31: Measurement methods and test procedures -
198	Tensile strength
199	IEC 60793-1-32, Optical fibres – Part 1-32: Measurement methods and test procedures –
200	Coating strippability
201 202	IEC 60793-1-33, Optical fibres – Part 1-33: Measurement methods and test procedures – Stress corrosion susceptibility
	JEO 00700 A 40 Octival Character Book A 40 Management with the real test assessment
203	IEC 60793-1-40, Optical fibres – Part 1-40: Measurement methods and test procedures – Attenuation
204	Attenuation
205 206	IEC 60793-1-44, Optical fibres – Part 1-44: Measurement methods and test procedures – Cutoff wavelength
207 208	IEC 60793-1-45, Optical fibres – Part 1-45: Measurement methods and test procedures – Mode field diameter
209 210	IEC 60793-1-46, Optical fibres – Part 1-46: Measurement methods and test procedures – Monitoring of changes in attenuation

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- 211 IEC 60793-1-47, Optical fibres Part 1-47: Measurement methods and test procedures –
- 212 Macrobending loss
- 213 IEC 60793-1-50, Optical fibres Part 1-50: Measurement methods and test procedures Damp
- 214 heat (steady state)
- 215 IEC 60793-1-51, Optical fibres Part 1-51: Measurement methods and test procedures Dry
- 216 *heat*
- 217 IEC 60793-1-52, Optical fibres Part 1-52: Measurement methods and test procedures –
- 218 Change of temperature
- 219 IEC 60793-2, Optical fibres Part 2: Product specifications General

220 3 Terms and definitions

221 3.1 Terms and definitions

- 222 For the purposes of this document, the following terms and definitions and the terms and
- definitions given in IEC 60793-2 apply. Moreover, the definitions of the specified attributes are
- contained in the test methods.
- 225 ISO and IEC maintain terminological databases for use in standardization at the following
- 226 addresses:
- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

229 3.2 Interconnection fibres

- 230 Fibres up to 1 km in length that are used within or between optical components or systems to
- 231 support dense connectivity

232 4 Symbols and abbreviations

- The following symbols and abbreviations are used in this document:
- F_{avg} average strip force
- F_{peak} peak strip force
- 236 MFD Mode Field Diameter
- $n_{\rm d}$ stress corrosion parameter dynamic

5 Specifications

239 **5.1 General**

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- 240 The general requirements defined in IEC 60793-2 apply to these fibres. Specific requirements
- that are common to these fibres are found in the body of this text. Particular requirements for
- individual fibre types or applications are defined in Annexes A, B, C and D, which refer to
- 243 normative family specifications. These family specifications are distinguished based on
- optimum transmission wavelengths and nominal Mode Field Diameter (MFD), which affects
- splice loss.
- 246 For each family specification, there are two sub-categories that are distinguished on the basis
- of the cladding diameter and other related attributes. The conventional nominal cladding

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diameter of 125 μm is augmented with the reduced cladding type product with a nominal

diameter of 80 μ m. These are distinguished with the suffixes: "_125" or "_80". For example C1 fibre can be selected as C1_125 or C1_80. The transmission characteristics of both the cladding diameter choices should be the same.

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For each family specification except C1, there are two sub-categories that are distinguished on the basis of transmission characteristics that relate to MFD. To denote these sub-categories, a suffix "_a" or "_b" is added, for lower or higher MFD. In general, the fibres can be optimised for either splice loss or macro-bend loss using MFD as a main variable. A C2 fibre with 80 μm

cladding diameter and lower MFD is designated as C2 80 a.

Fibres for the C1_125 family specification can be selected from category B-652.B or B-652.D or B-657 single-mode fibres and are suitable for use with any category B single-mode fibre at wavelengths from 1 260 nm to 1 625 nm. Fibres for the C2 and C3 family specifications are optimized at nominal wavelengths of 1 310 nm and 1 550 nm respectively for connection to any category B single-mode fibre. Fibres for the C4 family specification are optimized for transporting optical amplifier pump light at 980 nm or higher.

Table 1 - List of families and main differences

Families	Nominal transmission wavelengths	Nominal MFDs
	nm	
C1	1 260, 1 310,1 550 and 1 625	8,6 - 9,2 μm at 1 310 nm
C2	1 6 1 310 12 11 0 2	5,0 - 7,0 μm at 1 310 nm
C3	1 550 and 1 625	5,5 – 7,5 μm at 1 550 nm
C4	ttp5.//5 ₉₈₀ tuzii us	4,0 – 7,0 μm at 980 nm

Document Preview

The fibre shall consist of a glass core, glass cladding, and coating in accordance with 5.3 of IEC 60793-2.

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5.2 Dimensional requirements

Dimensional attributes and measurement methods that may be specified are given in Table 2. Minimum requirements, common to all fibres in this category, are given in Table 3. Some family specification requirements may be stricter.

Table 2 - Dimensional attributes and measurement methods

Attributes	Tests
Cladding diameter	IEC 60793-1-20
Cladding non-circularity	IEC 60793-1-20
Core concentricity error	IEC 60793-1-20
Coating diameter	IEC 60793-1-21
Coating non-circularity	IEC 60793-1-21
Cladding-coating concentricity error	IEC 60793-1-21
Fibre length	IEC 60793-1-22

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