IEC 60793-2-60

Edition 1.0 2008-02

INTERNATIONAL STANDARD

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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

PRICE CODE T

ICS 33.180.10

ISBN 2-8318-9629-0

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OPTICAL FIBRES –

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FOREWORD

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International Standard IEC 60793-2-60 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics.

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

CDV	Report on voting
86A/1160A/CDV	86A/1201/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 can be found, under the general title *Optical Fibres*, on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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- withdrawn;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.

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

OPTICAL FIBRES –

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

1 Scope

This part of IEC 60793 is applicable to optical fibre types C1, C2, C3, C4, as described in Table 1. These fibres are used for the intraconnections within or between components or photonic systems or subsystems. While the fibres are sold in lengths on the scale of kilometres, they are normally cut into short lengths for use in these intraconnections. While the fibres could be overcoated or buffered for the purpose of making protected pigtails, they may be used without overcoating. They may, however, be colour-coded.

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 normative family specifications. These family specifications are distinguished based on optimum transmission wavelengths and nominal Mode Field Diameter (MFD), which affects splice loss.

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 diameter of 125 µm is augmented with the reduced cladding type product with a nominal diameter of 80 µm. These are distinguished with the suffixes: "_125" or "_80". For example C1 fibre can be selected as either C1_125 or C1_80. The transmission characteristics of the two cladding diameter choices should be the same.

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 "_a" or "_b" suffix 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 fom category B1.1 or B1.3 single-mode fibres and are suitable for use with any category B single-mode fibre at wavelengths from 1 280 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 nm	Nominal MFDs
C1	1 260, 1 550 and 1 625	8,6 – 9,5 µm at 1 310 nm
C2	1 310	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	980	4,0 – 7,0 µm at 980 nm

2 Normative references

The following referenced documents are indispensable for the application 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 60793-1-20, *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 60793-1-40, *Optical fibres – Part 1-40: Measurement methods and test procedures – Attenuation*

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 60793-1-50, *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*

IEC/TR 61931, *Fibre optic – Terminology*