IEC 60794-2-30

Edition 2.0 2008-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Optical fibre cables –
Part 2-30: Indoor cables – Family specification for ribbon cables

Câbles à fibres optiques –
Partie 2-30: Câbles intérieurs – Spécification de famille pour les câbles à rubans

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colour inside

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CONTENTS

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OPTICAL FIBRE CABLES –

Part 2-30: Indoor cables – Family specification for ribbon cables

FOREWORD

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International Standard IEC 60794-2-30 has been prepared by sub-committee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition published in 2003. It constitutes a technical revision. The main changes are listed below:

a) subclause 5.4 has been detailed according to the fibre type;
b) Annex A has been added to show an example of cable construction;
c) Annex B has been added which is a blank detail specification including Mice classification and requirements;
d) a bibliography has been added.

This standard shall be used in conjunction with IEC 60794-1-1 and IEC 60794-1-2, and IEC 60794-2.

This bilingual version (2013-01) corresponds to the monolingual English version, published in 2008-10.

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

FDIS	Report on voting
86A/1233/FDIS	86A/1244/RVD

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

The French version of this standard has not been voted upon.

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

A list of all parts of IEC 60794 series, published under the general title *Optical fibre cables,* can be found 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- withdrawn,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.

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 FIBRE CABLES –

Part 2-30: Indoor cables – Family specification for ribbon cables

1 Scope

This part of IEC 60794 is a family specification which covers optical fibre ribbon cables for indoor use. The requirements of the sectional specification IEC 60794-2 are applicable to cables covered by this standard.

Clause B.2 contains requirements that supersede the normal requirements in case the cables are intended to be used in installations governed by the MICE table of ISO/IEC 24702.

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.

These documents complete the normative references already listed in the generic specification (IEC 60794-1-1, Clause 2, and IEC 60794-1-2, Clause 2) or in the sectional specification (IEC 60794-2, Clause 2).

IEC 60304:1982, *Standard colours for insulation for low-frequency cables and wires.*

IEC 60793-1-20, *Optical fibres – Part 1-20: Measurement methods and test procedures – Fibre geometry*

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 – Cutoff wavelength*

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

IEC 60793-2-10, *Optical fibres – Part 2-10: Product specifications – Sectional specification for category A1 multimode fibres*

IEC 60794-1-1, *Optical fibre cables – Part 1-1: Generic specification – General 86A/1054/NP*

IEC 60794-1-2, *Optical fibre cables – Part 1-2: Generic specification – Basic optical cable test procedures*

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

IEC 60794-3, *Optical fibre cables – Part 3: Sectional specification – Outdoor cables*

IEC 60811-1-1:1993, *Common test methods for insulating and sheathing materials of electric cables and optical cables – Part 1-1: Methods for general application –Measurement of thickness and overall dimensions – Tests for determining the mechanical properties*

IEC 60811-1-4:1985, *Common test methods for insulating and sheathing materials of electric cables – Part 1: Methods for general application – Section Four: Tests at low temperatures.*

3 Construction

3.1 General

In addition to the constructional requirements in IEC 60794-2, the following considerations apply to indoor ribbon cables.

The cable shall be designed and manufactured for a predicted operating lifetime of at least 15 years. In this context, the attenuation of the installed cable at the operational wavelength(s) shall not exceed values agreed between the customer and the supplier. The materials in the cable shall not present a health hazard within its intended use.

There shall be no fibre splice in a delivery length unless otherwise agreed by the customer and the supplier.

It shall be possible to identify each individual fibre throughout the length of the cable.

3.2 Optical fibres and primary coating

Multimode or single-mode optical fibres meeting the requirements of IEC 60793-2 shall be used.

3.3 Buffer

None.

3.4 Ruggedized fibre

None.

3.5 Slotted core

None.

3.6 Tube

None.

3.7 Stranded loose tube

None.

3.8 Ribbon structure

The ribbon structure shall conform to 6.5 and 8.2.3 of IEC 60794-3. Fibres shall be formed into units of typically two, four, six, eight, or twelve fibres each. The fibres within the units shall remain parallel and not cross over. An example of a ribbon construction is shown in Figure A.1

3.9 Strength and anti-buckling members

The optical fibre ribbon cable may incorporate a tensile strength member. The strength member can be a layer of suitable material, longitudinally or helically applied, and/or may be embedded in the overall sheath.

3.10 Ripcord

None.

3.11 Sheath

The optical fibre ribbon shall be uniformly covered with a protective sheath generally as shown in Figure A.1.

3.12 Sheath marking

If required, the cable shall be marked as agreed between the customer and the supplier.

3.13 Identification

The coated fibre shall be distinguishable by means of colour coding and positioning. For example (see Figure 1):

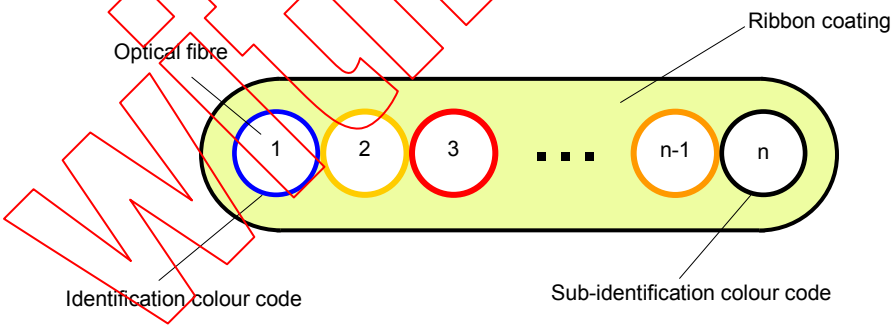
a) a fibre ribbon has an identification coloured fibre on one side and a sub-identification coloured one on the other side;

b) the identification and the sub-identification coloured fibres are the first and the last in the fibre ribbon, respectively;

c) any colour of the identification colours group is different from that of the sub-identification colours group;

d) the colour types and the order used for identification and sub-identification should be agreed between the customer and the supplier. The colours of the other fibres shall be agreed by the customer and/or the supplier;

e) the colour range used is similar to the first 12 colours described in Table 1 of IEC 60794-2, i.e. blue, yellow, red, white, green, violet, orange, grey, turquoise, black, brown and pink.



NOTE 1 The identification colour enables each fibre ribbon to be identified individually within a group of ribbons.

NOTE 2 The sub-identification colour shows the ribbon group.

NOTE 3 The identification and the sub-identification colour in a ribbon enables each fibre to be identified individually within the ribbon.

Figure 1 – Example of identification by means of colour coding and positioning

Other methods of identification are under consideration.

3.14 Example of cable construction

An example of a ribbon cable construction is shown in Figure A.1. Other configurations are not precluded if they meet the mechanical, environmental and transmission requirements given in this specification.