IEC 60794-2-22

Edition 2.0 2023-03
REDLINE VERSION

INTERNATIONAL STANDARD

colour inside

Optical fibre cables –
Part 2-22: Indoor cables – Detail specification for multi-simplex breakout optical cables ~~to be terminated with connectors~~ for use in terminated breakout cable assemblies



IEC 60794-2-22:2023-03 RLV(en)



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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OPTICAL FIBRE CABLES –

Part 2-22: Indoor cables – Detail specification for multi-simplex breakout optical cables ~~to be terminated with connectors~~ for use in terminated breakout cable assemblies

FOREWORD

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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 60794-2-22:2016. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

IEC 60794-2-22 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 2016. This edition constitutes a technical revision.

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

a) changed partly the wording in the title and the scope to align with IEC 60794-2-50, IEC 60794-2-23 and IEC 60794-2-24;
b) added IEC 60793-1-40, IEC 60793-1-46 and IEC 60794-1-2 to the normative references;
c) deleted reference to IEC 60794-2-51;
d) added the definition of terminated breakout cable assembly;
e) changed the number of bend cycles from 10 to 3 to harmonise with IEC 60794-2-50;
f) changed test parameters for temperature cycling to harmonise with IEC 60794-2-50;
g) added maximum attenuation requirements after temperature cycling;
h) replaced the text for the fire performance with an improved description.

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

Draft	Report on voting
86A/2285/FDIS	86A/2317/RVD

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

The language used for the development of this International Standard is English.

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/publications.

A list of all parts in the 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 document will remain unchanged until the stability date indicated on the IEC website under 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
- amended.

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OPTICAL FIBRE CABLES –

Part 2-22: Indoor cables – Detail specification for multi-simplex breakout optical cables ~~to be terminated with connectors~~ for use in terminated breakout cable assemblies

1 Scope

This part of IEC 60794 is a detail specification and specifies breakout optical cables with multiple simplex optical fibre cables for ~~termination with connectors~~ use in terminated breakout cable assemblies.

~~The requirements of the sectional specification IEC 60794-2 are applicable to cables covered by this document.~~

~~The requirements of the family specification IEC 60794-2-20 are applicable to breakout cables to be installed without terminated connectors.~~

~~Fan-out kits used for cable systems are not covered by this document.~~

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 60811-202, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 202: General tests – Measurement of thickness of non-metallic sheath*~~

~~IEC 60811-203, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 203: General tests – Measurement of overall dimensions*~~

~~IEC 60793-1-1, *Optical fibres – Part 1-1: Measurement methods and test procedures – General and guidance*~~

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 60793-1-40, *Optical fibres – Part 1-40: Attenuation measurement methods*

IEC 60793-1-46, *Optical fibres – Part 1-46: Measurement methods and test procedures – Monitoring of changes in optical transmittance*

~~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 60793-2-50, *Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode fibres*

IEC 60794-1-1, *Optical fibre cables – Part 1-1: Generic specification – General*

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

IEC 60794-1-21, *Optical fibre cables – Part 1-21: Generic specification – Basic optical cable test procedures – Mechanical tests methods*

IEC 60794-1-22, *Optical fibre cables – Part 1-22: Generic specification – Basic optical cable test procedures – Environmental test methods*

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

IEC 60794-2-20, *Optical fibre cables – Part 2-20: Indoor cables – Family specification for multi-fibre optical cables*

IEC 60794-2-50, *Optical fibre cables – Part 2-50: Indoor cables – Family specification for simplex and duplex cables for use in terminated cable assemblies*

~~IEC 60794-2-51, *optical fibre cables – Part 2-51: Indoor cables – Detail specification for simplex and duplex cables for use in cords for controlled environment*~~

IEC 60811-202, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 202: General tests – Measurement of thickness of non-metallic sheath*

IEC 60811-203, *Electric and optical fibre cables – Test methods for non-metallic materials – Part 203: General tests – Measurement of overall dimensions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60794-1-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1.1
multi-simplex breakout cable
cable consisting of multiple simplex optical fibre cables, stranded together under a common sheath, which may be stranded in one layer or multi-layers or bundled to subunits around a central member as necessary

3.1.2
simplex optical fibre cable
cable including a primary or secondary coated fibre that is surrounded with either metallic or non-metallic strength members within a sheath of suitable material

3.1.3
terminated breakout cable assembly
breakout cable terminated with connectors

4 General

The requirements of the sectional specification IEC 60794-2 are applicable to cables covered by this document.

The requirements of the family specification IEC 60794-2-20 are applicable to breakout cables to be installed without terminated connectors.

Fan-out kits used for cable systems are not covered by this document.

5 Construction

5.1 General

In addition to the constructional requirements in IEC 60794-2 and IEC 60794-2-20, the considerations in Clause 5 apply to multi-simplex breakout cables for use in terminated breakout cable assemblies.

It is not the intention of this document to specify the finished terminated breakout cable assembly complete with terminations.

There shall be no fibre splice in any delivery length. It shall be possible to identify each individual fibre throughout the length of the cable.

5.2 Optical fibres

~~Multi-mode or single-mode optical fibres meeting the requirements of IEC 60793-2-10 sub-categories A1a and A1b and IEC 60793-2-50 class B shall be used. Other fibre types may be used if agreed upon between the customer and the supplier. In this case, the mechanical and environmental requirements shall be agreed upon between the customer and the supplier.~~

Multimode or single-mode optical fibres shall meet the requirements of IEC 60793-2-10 sub-categories A1-OM1 or A1-OM2 to A1-OM5 or IEC 60793-2-50 class B.

5.3 Simplex optical fibre cables

~~The simplex cables shall meet the requirements of the family specification IEC 60794-2-50 and the detail specification IEC 60794-2-51.~~

The simplex optical fibre cables shall meet the requirements of the family specification IEC 60794-2-50. The buffer type, the buffer diameter and simplex optical fibre cable diameter shall be according to the relevant specification or agreed between customer and supplier.

5.4 Strength and anti-buckling members

~~The cable shall be designed with enough strength members to meet installation and service conditions so that the fibres are not subjected to strain in excess of the limits agreed upon between the customer and the supplier.~~

The cable shall be designed with sufficient strength members to meet the requirements of this document.

The strength and/or anti-buckling members may be either metallic or non-metallic and may be located in the cable core and/or under the sheath and/or in the sheath.