IEC 60794-2-22

Edition 1.0 2016-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

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

Câbles à fibres optiques –
Partie 2-22: Câbles intérieurs – Spécification particulière pour câbles optiques épanouis simplex multiples munis de connecteurs

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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

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International Standard IEC 60794-2-22 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:

FDIS	Report on voting
86A/1765/FDIS	86A/1773/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.

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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

1 Scope

This part of IEC 60794 is a detail specification and specifies breakout optical cables with multiple simplex fibre cables for termination with connectors.

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 60793-2, *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*

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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*

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
breakout cable
cable consisting of multiple simplex 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

3.2
simplex fibre cable
cable including a secondary coated fibre that is surrounded with either metallic or non-metallic strength members within a sheath of suitable material

4 Construction

4.1 General

In addition to the constructional requirements in IEC 60794-2 and IEC 60794-2-20, the following considerations 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.

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4.2 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.

4.3 Simplex cables

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

4.4 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 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.

4.5 Ripcord

If required, a ripcord may be provided beneath the cable sheath. The functionality of the ripcord shall be tested according to IEC 60794-1-21, Method E25.

4.6 Cable sheath

The cable shall have an overall protective sheath. The cable diameter shall be specified in the relevant detail specification (or product specification).

4.7 Sheath marking

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

4.8 Examples of cable constructions

Examples of some main types of cable construction are shown in Figure B.1 and Figure B.2. Other configurations (e.g. multi-layer constructions) are not precluded if they meet the mechanical, environmental and transmission requirements given in this document.

5 Tests

5.1 General

Compliance with the specification requirements shall be verified by carrying out tests selected from the following subclauses. It is not intended that all tests be carried out in all cases. The tests to be applied and the frequency of testing shall be agreed upon between the customer and the supplier.

Single-mode cables shall be measured at 1 550 nm and multi-mode cables at 1 300 nm. Measurement at other wavelengths may be agreed upon between the customer and the supplier.

If cable loops are used within a test to fix the ends of a cable, the loop diameter shall be equal or greater than the specified minimum cable bend diameter to avoid cable damage and excessive mode filtering in multi-mode fibre.

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