

INTERNATIONAL STANDARD

NORME INTERNATIONALE



Optical fibre cables –

Part 3-12: Outdoor cables – Detailed specification for duct and directly buried optical telecommunication cables for use in premises cabling

Câbles à fibres optiques –

Partie 3-12: Câbles extérieurs – Spécification particulière pour les câbles optiques de télécommunication destinés à être installés dans des conduites ou à être directement enterrés et utilisés dans le câblage de locaux



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPTICAL FIBRE CABLES –

**Part 3-12: Outdoor cables –
Detailed specification for duct and directly buried optical
telecommunication cables for use in premises cabling**

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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International Standard IEC 60794-3-12 has been prepared by subcommittee SC 86A: Fibres and cables, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition published in 2005. This edition constitutes a technical revision.

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

- reference to ISO/IEC 24702;
- reference to Fibre B6 (IEC 60793-2-50);
- reference to Fibre A1a.3 (IEC 60793-2-10);
- reference to the OS2 Fibre as defined by ISO/IEC 11801;
- reference to the OM4 Fibre as defined by ISO/IEC 11801.

This International Standard is to be used in conjunction with IEC 60794-1-1, IEC 60794-1-2 and IEC 60794-3-10.

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

FDIS	Report on voting
86A/1471/FDIS	86A/1486/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.

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 stability 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.

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OPTICAL FIBRE CABLES –

Part 3-12: Outdoor cables – Detailed specification for duct and directly buried optical telecommunication cables for use in premises cabling

1 Scope

This part of IEC 60794 is a detailed specification for duct and directly buried optical telecommunication cables for use in premises cabling to ensure compatibility with ISO/IEC 11801 and ISO/IEC 24702. Those standards have requirements to ensure that models work for generic cabling and system performances. Values in this standard support these models.

The requirements of the family specification IEC 60794-3-10 are applicable to cables covered by this standard. Particular requirements detailed in Clause 4 of this standard either define a specific option relative to the requirements of IEC 60794-3-10 or define additional requirements.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE These references complete the normative references already listed in the generic specifications IEC 60794-1-1 and IEC 60794-1-2, in the sectional specification IEC 60794-3 and in the family specification IEC 60794-3-10.

IEC 60793-2-10:2011, *Optical fibres – Part 2-10: Product specifications – Sectional specification for category A1 multimode fibres*

IEC 60793-2-50:2012, *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 – Cross reference table for optical cable test procedures*

IEC 60794-1-2, *Optical fibre cables – Part 1-2: Generic specification – Cross reference table for optical cable test procedures*¹

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

IEC 60794-3-10, *Optical fibre cables – Part 3-10: Outdoor cables – Family specification for duct, directly buried and lashed aerial optical telecommunication cables*

ISO/IEC 11801, *Information technology – Generic cabling for customer premises*

¹ IEC 60794-1-2:2003, Second edition has been withdrawn. A third edition, with the revised title *Optical fibre cables – Part 1-2: Generic specification – Cross reference table for optical cable test procedures*, is currently in preparation.

ISO/IEC 24702, Information technology – Generic cabling – Industrial premises

3 General requirements

The cable shall comply with the family specification, IEC 60794-3-10, and meet the requirements which are defined in it, including requirements in the sectional specification, 60794-3. Particular requirements detailed in Clause 4 are optional, relative to the requirements of IEC 60794-3-10, or define additional requirements.

The optical fibre contained in cables covered by this standard shall comply with one of the following standards, and meet the normative requirements defined within them as applicable:

- IEC 60793-2-50:2008, Annex A (Single-mode fibre category B1.1);
- IEC 60793-2-50:2008, Annex C (Single-mode fibre category B1.3) ;
- IEC 60793-2-50:2008, Annex G (Single-mode fibre sub-categories B6 a1 and B6 a2)
- IEC 60793-2-10:2011, Annex A (Multimode fibre sub-category A1a, 50 µm core diameter);
- IEC 60793-2-10:2011, Annex B (Multimode fibre sub-category A1b, 62,5 µm core diameter).

To ensure compatibility with ISO/IEC 11801 and ISO/IEC 24702, optical performance level requirements are presented in terms of the performance classification codes as follows:

- OS1 Single-mode fibre categories B1.1, B1.3 or sub-categories B6 a1, B6 a2;
- OS2 Single-mode fibre category B1.3 or sub-categories B6 a1, B6 a2;
- OM1 Multimode fibre sub-categories A1a, A1b;
- OM2 Multimode fibre sub-categories A1a, A1b;
- OM3 Multimode fibre model A1a.2;
- OM4 Multimode fibre model A1a.3.

NOTE These codes are informative from the perspective of the requirements defined in this detailed specification.

4 Particular requirements

4.1 General

These requirements either define a specific option relative to the requirements of IEC 60794-3-10 or define additional requirements.

4.2 MICE (mechanical, ingress, climatic and chemical and electromagnetic) characteristics

Cables intended for installation in conformity with ISO/IEC 24702, and related standards, may require the specification of additional tests to ensure their suitability in the applicable environments defined by the mechanical, ingress, climatic and chemical and electromagnetic (MICE) classification. Such tests are outside the scope of IEC 60794 cable specifications, and MICE criteria are not part of the requirements for IEC 60794 specifications. The MICE tests may be the same as, similar to, or substantially different from, the tests required by IEC 60794 specifications. Cables manufactured per IEC 60794 specifications may or may not meet the MICE criteria. For supplemental discussion see IEC/TR 62362 [1]².

² Numbers in square brackets refer to the Bibliography.