

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Optical fibre cables –

Part 4-30: Aerial optical cables along electrical power lines – Family specification for optical phase conductor (OPPC) optical cables

Câbles à fibres optiques –

Partie 4-30: Câbles optiques aériens le long des lignes électriques de puissance – Spécification de famille pour les conducteurs de phase à fibres optiques (OPPC)



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OPTICAL FIBRE CABLES –

Part 4-30: Aerial optical cables along electrical power lines – Family specification for optical phase conductor (OPPC) optical cables

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IEC 60794-4-30 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics. It is an International Standard.

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

FDIS	Report on voting
86A/2079/FDIS	86A/2088/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/standardsdev/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 "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

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OPTICAL FIBRE CABLES –

Part 4-30: Aerial optical cables along electrical power lines – Family specification for optical phase conductor (OPPC) optical cables

1 Scope

This part of IEC 60794, which is a family specification, specifies the optical fibre, cable elements, cable construction requirements, main requirements for installation and operating conditions, cable design characteristics and test for OPPC (optical phase conductor), used for carrying current as well as communication and data transmission. The corresponding environmental declaration can be built according to IEC TR 62839-1.

The OPPC is a substitute for a conventional phase bare conductor containing optical fibres. Usually, the fibres are embedded loosely in protective buffer tubes. To fulfil mechanical and electrical requirements, an armouring of one or more layers with aluminium, aluminium alloy, and aluminium clad steel, galvanized steel or a mixture of them is helically stranded.

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 60104, *Aluminium-magnesium-silicon alloy wire for overhead line conductors*

IEC 60468, *Method of measurement of resistivity of metallic materials*

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

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

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

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

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

IEC 60794-1-24, *Optical fibre cables – Part 1-24: Generic specification – Basic optical cable test procedures – Electrical test methods*

IEC 60794-1-219, *Optical fibre cables – Part 1-219: Generic specification – Basic optical cable test procedures – Material compatibility test, method F19¹*

¹ Under preparation. Stage at the time of publication: IEC/CCDV 60794-1-219:2020.

IEC 60794-4, *Optical fibre cables – Part 4: Sectional specification – Aerial optical cables along electrical power lines*

IEC 60888, *Zinc-coated steel wires for stranded conductors*

IEC 60889, *Hard-drawn aluminium wire for overhead line conductors*

IEC 61089, *Round wire concentric lay overhead electrical stranded conductors*

IEC 61232, *Aluminium-clad steel wires for electrical purposes*

IEC 61394, *Overhead lines – Requirements for greases for aluminium, aluminium alloy and steel bare conductors*

IEC 61395, *Overhead electrical conductors – Creep test procedures for stranded conductors*

IEC 62219, *Overhead electrical conductors – Formed wire, concentric lay, stranded conductors*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60794-1-1, IEC 60794-4 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

optical phase conductor

OPPC

metallic hybrid optical cable that has the dual performance functions of a conventional phase conductor with telecommunication capabilities

3.2

current-carrying capacity

calculated value for the maximum continuous current carrying capacity without degradation of any element of the cable under specific conditions

Note 1 to entry: The value depends on various parameters (e.g. solar, wind speed, ambient temperature).

Note 2 to entry: If the construction contains an aluminium tube or aluminium slotted core, these elements are considered conductive parts.

3.3

operation temperature

steady state temperature the OPPC cable will reach during standard operation at the current carrying capacity, without degradation of any element's performance requirements under specific conditions

3.4

emergency condition temperature

maximum temperature the OPPC cable will reach during emergency operation for a limited period of time during cable's lifetime without degradation of any element's performance requirements