

INTERNATIONAL STANDARD

**Optical fibre cables –
Part 3-70: Outdoor cables – Family specification for outdoor optical fibre cables
for rapid/multiple deployment**



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2021 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC online collection - oc.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 18 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

preview generated by EVS

INTERNATIONAL STANDARD

**Optical fibre cables –
Part 3-70: Outdoor cables – Family specification for outdoor optical fibre cables
for rapid/multiple deployment**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 33.180.01; 33.180.10

ISBN 978-2-8322-9655-4

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references	5
3 Terms and definitions	5
4 General requirements	6
5 Specification for outdoor optical fibre cables for rapid/multiple deployment.....	6
5.1 Construction	6
5.1.1 General.....	6
5.1.2 Rapid/multiple deployment optical fibre cables.....	6
5.2 Optical fibres	7
5.3 Secondary coating.....	7
5.4 Outer sheath.....	7
5.5 Mechanical and environmental tests	7
6 Testing of rapid/multiple deployment optical fibre cables	7
6.1 General.....	7
6.2 Applicable tests	7
6.3 Tensile performance	9
6.4 Abrasion	9
6.5 Crush.....	9
6.6 Impact.....	9
6.7 Ribbon strippability	10
6.8 Repeated bending.....	10
6.9 Torsion	10
6.10 Flexing.....	10
6.11 Kink	11
6.12 Bend.....	11
6.13 Bending under tension	11
6.14 Multiple cable coiling and uncoiling performance.....	11
6.15 Temperature cycling	12
6.16 Water penetration	12
6.17 Ageing	12
6.18 UV resistance	12
6.19 External freezing.....	13
6.20 Fibre ribbon separability	13
6.21 Tube kinking	13
Annex A (normative) Blank detail specification and minimum requirements.....	14
Bibliography.....	15
Table 1 – Tests applicable for mechanical and environmental performance of a rapid/multiple deployment optical fibre cable.....	8
Table A.1 – Cable description	14

INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPTICAL FIBRE CABLES –

Part 3-70: Outdoor cables – Family specification for outdoor optical fibre cables for rapid/multiple deployment

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 60794-3-70 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. It constitutes a technical revision.

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

- a) incorporation of the new classification system for optical fibre categories, sub-categories in IEC 60793-2-10;
- b) incorporation of the new classification system for optical fibre categories, sub-categories and models in IEC 60793-2-50;
- c) updating of cabled fibre performance categories in alignment with ISO/IEC 11801-1;
- d) updating of bibliographical references.

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

FDIS	Report on voting
86A/2086/FDIS	86A/2091/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.

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

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.

OPTICAL FIBRE CABLES –

Part 3-70: Outdoor cables – Family specification for outdoor optical fibre cables for rapid/multiple deployment

1 Scope

This part of IEC 60794 is a family specification that covers outdoor optical fibre cables intended for rugged terrestrial rapid/multiple deployment. These cables, with enhanced mechanical, environmental and ingress performance can be used wherever a rapid or multiple deployment is relevant (e.g. mobile broadcast units, emergency rescue services, tactical ground-forces, outdoor motion-robotics, mining machinery, temporary repair cables for damaged links, etc.).

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 60793-2-10:2019, *Optical fibres – Part 2-10: Product specifications – Sectional specification for category A1 multimode fibres*

IEC 60793-2-50:2019, *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 60794-1-21:2015, *Optical fibre cables – Part 1-21: Generic specification – Basic optical cable test procedures – Mechanical tests methods*
IEC 60794-1-21:2015/AMD1:2020

IEC 60794-1-22:2017, *Optical fibre cables – Part 1-22: Generic specification – Basic optical cable test procedures – Environmental tests methods*

IEC 60794-1-23:2019, *Optical fibre cables – Part 1-23: Generic specification – Basic optical cable test procedures – Cable element test methods*

IEC 60794-1-215, *Optical fibre cables – Part 1-215: Generic specification – Basic optical cable test procedures – Environmental test methods – Cable external freezing test, Method F15*

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

ISO 4892-2, *Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps*

3 Terms and definitions

No terms and definitions are listed in this document.