

PUBLICLY
AVAILABLE
SPECIFICATION

IEC
PAS 60794-3-21

Pre-Standard

First edition
2004-03

Optical fibre cables –

Part 3-21:

Outdoor cables –

**Detailed specification for optical
self-supporting aerial telecommunication
cables for use in premises cabling**

IECNORM.COM: Click to view the full IEC/PAS 60794-3-21:2004



Reference number
IEC/PAS 60794-3-21:2004(E)

Publication numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series. For example, IEC 34-1 is now referred to as IEC 60034-1.

Consolidated editions

The IEC is now publishing consolidated versions of its publications. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

Further information on IEC publications

The technical content of IEC publications is kept under constant review by the IEC thus ensuring that the content reflects current technology. Information relating to this publication, including its validity, is available in the IEC Catalogue of publications (see below) in addition to new editions, amendments and corrigenda. Information on the subjects under consideration and work in progress undertaken by the technical committee which has prepared this publication, as well as the list of publications issued, is also available from the following:

- **IEC Web Site (www.iec.ch)**
- **Catalogue of IEC publications**

The on-line catalogue on the IEC web site (www.iec.ch/searchpub) enables you to search by a variety of criteria including text searches, technical committees and date of publication. On-line information is also available on recently issued publications, withdrawn and replaced publications, as well as corrigenda.

- **IEC Just Published**

This summary of recently issued publications (www.iec.ch/online_news/justpub) is also available by email. Please contact the Customer Service Centre (see below) for further information.

- **Customer Service Centre**

If you have any questions regarding this publication or need further assistance, please contact the Customer Service Centre:

Email: custserv@iec.ch
Tel: +41 22 919 02 11
Fax: +41 22 919 03 00

PUBLICLY AVAILABLE SPECIFICATION

IEC
PAS 60794-3-21

Pre-Standard

First edition
2004-03

Optical fibre cables –

Part 3-21:

Outdoor cables –

**Detailed specification for optical
self-supporting aerial telecommunication
cables for use in premises cabling**

IECNORM.COM: Click to view the full IEC PAS 60794-3-21:2004

© IEC 2004 — Copyright - all rights reserved

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 the publisher.

International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

For price, see current catalogue

F

CONTENTS

FOREWORD	3
1 Scope	4
2 Normative references	4
3 General requirements	4
4 Particular requirements	5
4.1 Environmental requirements	5
4.1.1 Temperature cycling	5
4.2 Transmission requirements	5
4.2.1 Attenuation of cabled fibre	5
4.2.2 Fibre bandwidth requirements	5

IECNORM.COM: Click to view the full PDF of IEC PAS 60794-3-21:2004

INTERNATIONAL ELECTROTECHNICAL COMMISSION

OPTICAL FIBRE CABLES –

**Part 3-21: Outdoor cables –
Detailed specification for optical self-supporting aerial
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.

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 provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.

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.

A PAS is a technical specification not fulfilling the requirements for a standard, but made available to the public.

IEC-PAS 60794-3-21 has been processed by subcommittee 86A: Fibre and cables, of IEC technical committee 86: Fibre optics.

The text of this PAS is based on the following document:

This PAS was approved for publication by the P-members of the committee concerned as indicated in the following document

Draft PAS	Report on voting
86A/865/NP	86A/887/RVN

Following publication of this PAS, which is a pre-standard publication, the technical committee or subcommittee concerned will transform it into an International Standard.

OPTICAL FIBRE CABLES –

Part 3-21: Outdoor cables –

Detailed specification optical self-supporting aerial telecommunication cables for use in premises cabling

1 Scope

This document presents the detailed requirements specific to this type of cable to ensure compatibility with ISO 11801. The requirements of IEC 60794-3-20 are applicable to cables covered by this document.

2 Normative references

The following referenced documents are indispensable for the application 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:Optical fibres – Part 2-10: Product specification – Sectional specification for category A1 multimode fibre ¹⁾

IEC 60793-2-50:Optical fibres – Part 2-50: Product specification – Sectional specification for class B single-mode fibre

IEC 60794-3-20:Optical fibre cables – Part 3-20: Outdoor cables – Family specification for optical self-supporting aerial telecommunication cables

ISO 11801:Information technology – Generic cabling for customer premises

3 General requirements

The cable shall meet the requirements of IEC 60794-3-20, along with the normative requirements defined in it.

The optical fibre contained in the cable shall meet the requirements of one of the following, along with the normative requirements defined within them:

- IEC 60793-2-50, Annex A (single-mode B1.1 fibre)
- IEC 60793-2-50, Annex C (single-mode B1.3 fibre)
- IEC 60793-2-10, Annex A (multimode A1a, 50 µm core fibre)
- IEC 60793-2-10, Annex B (multimode A1b, 62.5 µm core fibre)

To ensure compatibility with ISO 11801, optical performance level requirements are presented in terms of the performance classification codes found there. These codes are informative from the perspective of the requirements defined in the following clauses. The codes are:

- OS1 Single-mode B1.1 or B1.3 fibre
- OM1 Multimode A1a or A1b fibre
- OM2 Multimode A1a or A1b fibre
- OM3 Multimode A1a fibre defined in IEC 60793-2-10 as A1a.2

¹⁾ Second edition to be published.

NOTE The multimode fibre performance levels are distinguished by bandwidth requirements. In edition 2 of 60793-2-10, two sub-categories of A1a fibre are defined, with A1a.1 as being suitable for both OM1 and OM2, but only A1a.2 as being suitable for OM3. Where either the prior overall category or sub-category A1a.1 is required, the .1 is enclosed in parenthesis. Where sub-category A1a.2 is required, there is an asterisk pointing to a note. It is expected that these editorial aspects will be removed before this document is submitted for FDIS ballot.

4 Particular requirements

These requirements either define a specific option relative to the requirements of IEC 60794-3-20 or define additional requirements.

4.1 Environmental requirements

4.1.1 Temperature cycling

The cable shall meet the requirement of IEC 60794-3-20, 4.6.2.8, with the following values:

- T_{A1} : -20 °C
- T_{B1} : +60 °C

4.2 Transmission requirements

4.2.1 Attenuation of cabled fibre

Depending on the fibre type, the attenuation coefficient of the cabled fibre shall be less than the maximum values in Table 1 for the multimode fibres and less than the maximum values in Table 2 for single-mode fibres – for the wavelengths listed in the column headings.

The fibre type shall be agreed between customer and supplier.

Table 1 – Multimode maximum cable attenuation coefficient (dB/km)

Fibre category	Attenuation coefficient at 850 nm	Attenuation coefficient at 1300 nm
IEC 60793-2-10, A1a(1)	3,5	1,5
IEC 60793-2-10, A1a.2*	3,5	1,5
IEC 60793-2-10, A1b	3,5	1,5

* Pending approval of IEC 60793-2-10, Ed. 2.

Table 2 – Single-mode maximum cable attenuation coefficient (dB/km)

Fibre category	Attenuation coefficient at 1310 nm	Attenuation coefficient at 1550 nm
60793-2-50, B1.1 or B1.3	1,0	1,0

4.2.2 Fibre bandwidth requirements

The are no bandwidth requirements on single-mode fibre.

For cables containing multimode fibres, the uncabled fibre shall be specified at one of performance levels defined in Table 3 in terms of minimum bandwidth (MHz•km), wavelength, and type of measurement.

The fibre type and performance level shall be agreed between customer and supplier.

Table 3 – Minimum multimode fibre bandwidth (MHz•km)

Fibre category	Nominal core diameter (μm)	Overfilled bandwidth at 850 nm	Overfilled bandwidth at 1300 nm	Effective modal bandwidth at 850 nm*	Performance code from IS 11801 [1]
60793-2-10, A1a(.1)	50	200	500	na	OM1
60793-2-10, A1a(.1)	50	500	500	na	OM2
60793-2-10, A1a.2*	50	1500	500	2000	OM3
60793-2-10, A1b	62,5	200	500	na	OM1
60793-2-10, A1b	62,5	500	500	na	OM2

* Pending approval of IEC 60793-2-10, Ed. 2.

IECNORM.COM: Click to view the full PDF of IEC PAS 60794-3-21:2004



Standards Survey

The IEC would like to offer you the best quality standards possible. To make sure that we continue to meet your needs, your feedback is essential. Would you please take a minute to answer the questions overleaf and fax them to us at +41 22 919 03 00 or mail them to the address below. Thank you!

Customer Service Centre (CSC)

International Electrotechnical Commission

3, rue de Varembé
1211 Genève 20
Switzerland

or

Fax to: **IEC/CSC** at +41 22 919 03 00

Thank you for your contribution to the standards-making process.

A Prioritaire

Nicht frankieren
Ne pas affranchir



Non affrancare
No stamp required

RÉPONSE PAYÉE

SUISSE

Customer Service Centre (CSC)
International Electrotechnical Commission
3, rue de Varembé
1211 GENEVA 20
Switzerland

