

<b>STN</b>	<b>Optovláknové spájacie prvky a pasívne súčiastky</b> <b>Základné skúšobné a meracie postupy</b> <b>Časť 3-30: Skúšanie a meranie</b> <b>Geometria výstupnej plochy pravouhlej feruly</b>	<b>STN</b> <b>EN IEC</b> <b>61300-3-30</b>  35 9252
------------	---	---

Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-30: Examinations and measurements - Endface geometry of rectangular ferrule

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 05/21

Obsahuje: EN IEC 61300-3-30:2021, IEC 61300-3-30:2020

Oznámením tejto normy sa od 18.01.2024 ruší  
STN EN 61300-3-30 (35 9252) z augusta 2003

**132692**



EUROPEAN STANDARD

**EN IEC 61300-3-30**

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2021

ICS 33.180.20

Supersedes EN 61300-3-30:2003 and all of its  
amendments and corrigenda (if any)

English Version

**Fibre optic interconnecting devices and passive components -  
Basic test and measurement procedures - Part 3-30:  
Examinations and measurements - Endface geometry of  
rectangular ferrule  
(IEC 61300-3-30:2020)**

Dispositifs d'interconnexion et composants passifs  
fibroniques - Procédures fondamentales d'essais et de  
mesures - Partie 3-30: Examens et mesures - Géométrie de  
la face terminale de la ferrule rectangulaire  
(IEC 61300-3-30:2020)

Lichtwellenleiter - Verbindungselemente und passive  
Bauteile - Grundlegende Prüf- und Messverfahren - Teil 3-  
30: Untersuchungen und Messungen - Endflächen-  
Geometrie einer rechteckigen Ferrule  
(IEC 61300-3-30:2020)

This European Standard was approved by CENELEC on 2021-01-18. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

**EN IEC 61300-3-30:2021 (E)****European foreword**

The text of document 86B/4357/FDIS, future edition 2 of IEC 61300-3-30, prepared by SC 86B "Fibre optic interconnecting devices and passive components" of IEC/TC 86 "Fibre optics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61300-3-30:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2021-10-18
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-01-18

This document supersedes EN 61300-3-30:2003 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

**Endorsement notice**

The text of the International Standard IEC 61300-3-30:2020 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61300 (series)	NOTE	Harmonized as EN 61300 (series)
IEC 61755-3-31:2015	NOTE	Harmonized as EN 61755-3-31:2015 (not modified)
IEC 61755-3-32:2015	NOTE	Harmonized as EN 61755-3-32:2016 (not modified)



# IEC 61300-3-30

Edition 2.0 2020-12

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

**Fibre optic interconnecting devices and passive components – Basic test and measurement procedures –  
Part 3-30: Examinations and measurements – Endface geometry of rectangular ferrule**

**Dispositifs d'interconnexion et composants passifs fibroniques – Procédures fondamentales d'essais et de mesures –  
Partie 3-30: Examens et mesures – Géométrie de la face terminale de la ferrule rectangulaire**

**THIS PUBLICATION IS COPYRIGHT PROTECTED****Copyright © 2020 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.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

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

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://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](http://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](http://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](http://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](mailto:sales@iec.ch).

**Electropedia - [www.electropedia.org](http://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 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

**IEC Glossary - [std.iec.ch/glossary](http://std.iec.ch/glossary)**

67 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

**A propos de l'IEC**

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

**A propos des publications IEC**

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

**Recherche de publications IEC -****[webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)**

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

**IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)**

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

**Service Clients - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)**

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: [sales@iec.ch](mailto:sales@iec.ch).

**Electropedia - [www.electropedia.org](http://www.electropedia.org)**

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 000 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

**Glossaire IEC - [std.iec.ch/glossary](http://std.iec.ch/glossary)**

67 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.



# IEC 61300-3-30

Edition 2.0 2020-12

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

---

**Fibre optic interconnecting devices and passive components – Basic test and measurement procedures –  
Part 3-30: Examinations and measurements – Endface geometry of rectangular ferrule**

**Dispositifs d'interconnexion et composants passifs fibroniques – Procédures fondamentales d'essais et de mesures –  
Partie 3-30: Examens et mesures – Géométrie de la face terminale de la ferrule rectangulaire**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

ICS 33.180.20

ISBN 978-2-8322-9121-4

**Warning! Make sure that you obtained this publication from an authorized distributor.  
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

## CONTENTS

FOREWORD .....	4
1 Scope .....	6
2 Normative references .....	6
3 Terms and definitions .....	6
4 General description .....	6
5 Measurement regions .....	7
6 Apparatus .....	8
6.1 General .....	8
6.2 Ferrule holder .....	8
6.3 Positioning stage .....	9
6.4 Three-dimensional interferometry analyser .....	9
7 Procedure .....	9
8 Details to be specified .....	11
Annex A (normative) Formulae for approximating the end face geometry .....	12
A.1 Approximation of the ferrule surface .....	12
A.2 Approximation of the fibre tip radii .....	12
Annex B (normative) Surface angle sign convention (shown graphically) .....	13
Annex C (normative) Fibre counting convention (shown graphically) .....	14
Annex D (normative) Minus coplanarity and fibre plane angle determination .....	15
D.1 Overview .....	15
D.1.1 General .....	15
D.1.2 Minus coplanarity .....	15
D.1.3 Fibre plane x-axis and y-axis angles .....	15
D.2 Method for analysis .....	15
D.2.1 Single row ferrules .....	15
D.2.2 Multi-row ferrules .....	15
D.3 Documentation .....	16
Annex E (normative) Calculation of core dip using the paraboloid method .....	17
E.1 General .....	17
E.2 Method for analysis .....	17
Annex F (normative) Calculation of <i>GL</i> parameter .....	18
F.1 General .....	18
F.2 Method for analysis .....	18
Bibliography .....	20
Figure 1 – Measurement regions on ferrule and fibre .....	7
Figure 2 – Measurement setup .....	8
Figure B.1 – Surface angle sign convention .....	13
Figure C.1 – Fibre counting convention .....	14
Figure E.1 – Paraboloid fit to a fibre endface exhibiting core dip .....	17
Table 1 – Ferrule measurement areas and parameters .....	8
Table F.1 – Parameter constants for 4-fibre ferrules .....	19



IEC 61300-3-30:2020 © IEC 2020

– 3 –

Table F.2 – Parameter constants for 8-fibre ferrules .....	19
Table F.3 – Parameter constants for 12-fibre ferrules .....	19

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

---

**FIBRE OPTIC INTERCONNECTING DEVICES  
AND PASSIVE COMPONENTS –  
BASIC TEST AND MEASUREMENT PROCEDURES –****Part 3-30: Examinations and measurements –  
Endface geometry of rectangular ferrule**

## 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.

International Standard IEC 61300-3-30 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

This second edition cancels and replaces the first edition published in 2003. This edition constitutes a technical revision.

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

- a) measurement of the individual fibre tip radii;
- b) introduction of the geometry limit (GL) metric;
- c) introduction of the minus coplanarity metric;
- d) new method for measuring the core dips;
- e) all measurement regions are now identical for MM and SM fibres;

f) the ferrule surface angle sign convention has been changed.

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

FDIS	Report on voting
86B/4357/FDIS	86B/4378/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.

A list of all parts in the IEC 61300 series, published under the general title *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures*, 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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

**FIBRE OPTIC INTERCONNECTING DEVICES  
AND PASSIVE COMPONENTS –  
BASIC TEST AND MEASUREMENT PROCEDURES –**

**Part 3-30: Examinations and measurements –  
Endface geometry of rectangular ferrule**

## **1 Scope**

This part of IEC 61300 describes a method of measuring the end face geometry of rectangular multifibre ferrules having an IEC defined optical interface. The primary attributes are fibre position relative to the end face, either withdrawal or protrusion, end face angle relative to the guide pin bores, fibre tip radii and core dip for multimode fibres.

## **2 Normative references**

There are no normative references in this document.

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**