

Fibre optic interconnecting devices and passive components - Connector optical interfaces - Part 6-2:
Connection of 50 μm core diameter multimode
physically contacting fibres - Non-angled for reference
connector application, at wavelength of 850 nm using
selected A1a fibre only

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 61755-6-2:2018 sisaldab Euroopa standardi EN IEC 61755-6-2:2018 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 61755-6-2:2018 consists of the English text of the European standard EN IEC 61755-6-2:2018.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 24.08.2018.	Date of Availability of the European standard is 24.08.2018.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 33.180.20

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

ICS 33.180.20

English Version

Fibre optic interconnecting devices and passive components -
Connector optical interfaces - Part 6-2: Connection of 50 μm
core diameter multimode physically contacting fibres - Non-
angled for reference connector application, at wavelength of 850
nm using selected A1a fibre only
(IEC 61755-6-2:2018)

Dispositifs d'interconnexion et composants passifs
fibroniques - Interfaces optiques de connecteurs - Partie 6-
2: Connexion de fibres multimodales en contact physique
d'un diamètre de coeur de 50 μm - Connecteurs de
référence sans angle, à une longueur d'onde de 850 nm et
en utilisant uniquement les fibres A1a choisies
(IEC 61755-6-2:2018)

Lichtwellenleiter - Verbindungselemente und passive
Bauteile - Optische Schnittstellen von Lichtwellenleiter-
Steckverbindern - Teil 6-2: Verbindung von nicht
abgeschrägten Mehrmodenfasern mit 50 μm
Kerndurchmesser mit physikalischem Kontakt zum Einsatz
in Referenz Steckverbinder Anwendungen bei einer
Wellenlänge von 850nm unter Verwendung von
herkömmlichen biegeempfindlichen Fasern
(IEC 61755-6-2:2018)

This European Standard was approved by CENELEC on 2018-07-26. 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, 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

European foreword

The text of document 86B/4124/FDIS, future edition 1 of IEC 61755-6-2, 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 61755-6-2:2018.

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) 2019-04-26
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2021-07-26

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 61755-6-2:2018 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 61300-1	NOTE	Harmonized as EN 61300-1
IEC 61300-3-42	NOTE	Harmonized as EN 61300-3-42
IEC 61755-3 series	NOTE	Harmonized as EN 61755-3 series
IEC 62614	NOTE	Harmonized as EN 62614

CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references	5
3 Terms and definitions	5
4 Performance grade	6
5 Description	6
6 Criteria for a fit within the performance grade	7
7 Use of selected fibre in reference-grade connectors	8
8 Calculated attenuation of random mated grade 1 reference connectors	8
9 Reference adapter	9
10 Attenuation measurement uncertainty contribution.....	9
Annex A (informative) Multimode attenuation measurement uncertainty contribution	10
A.1 General.....	10
A.2 Sources of variability.....	10
A.2.1 Measurement condition and setup	10
A.2.2 Geometry mismatch.....	10
A.3 Overall uncertainty.....	11
Bibliography.....	12
Figure 1 – Geometrical requirements for fibre core location after termination relative to the ferrule axis and the connector plug key.....	8
Figure 2 – Calculated attenuation of random mated grade 1 reference connectors.....	9
Figure A.1 – Attenuation measurement uncertainty contribution for grade 1 reference connectors resulting from lateral offset, NA and CD mismatch	10
Table 1 – Multimode attenuation grade at 850 nm.....	6
Table 2 – Optical interface parameter values for 1,25 mm and 2,5 mm diameter PC ferrules for MM reference connectors.....	8
Table A.1 – Evaluation of the uncertainty contribution due to measurement conditions	11

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC INTERCONNECTING
DEVICES AND PASSIVE COMPONENTS –
CONNECTOR OPTICAL INTERFACES –****Part 6-2: Connection of 50 µm core
diameter multimode physically contacting fibres –
Non-angled for reference connector application,
at wavelength of 850 nm using selected A1a fibre only**

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 61755-6-2 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics.

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

FDIS	Report on voting
86B/4124/FDIS	86B/4128/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 61755 series, published under the general title *Fibre optic interconnecting devices and passive components – Connector optical interfaces*, 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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – CONNECTOR OPTICAL INTERFACES –

Part 6-2: Connection of 50 µm core diameter multimode physically contacting fibres – Non-angled for reference connector application, at wavelength of 850 nm using selected A1a fibre only

1 Scope

This part of the IEC 61755 defines the dimensional limits of an optical interface for reference connectors necessary to meet specific requirements for fibre-to-fibre interconnection of non-angled polished multimode reference connectors with cylindrical ferrules intended to be used for attenuation measurements in the field or factory.

One grade of reference connector is defined in this document. The reference connector is terminated to selected IEC 60793-2-10:2015 A1a fibre. The geometrical dimensions and tolerances of the specified reference connector have been developed primarily to limit the variation in measured attenuation between multiple sets of two reference connectors, and therefore to limit the variation in measured attenuation between randomly chosen reference connectors when mated with connectors in the field or factory.

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 60793-2-10:2015, *Optical fibres – Part 2-10: Product specifications – Sectional specification for category A1 multimode fibre*

IEC 61300-3-4, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-4: Examinations and measurements – Attenuation*

3 Terms and definitions

No terms and definitions are listed in this document.

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>