



BSI Standards Publication

Fibre optic interconnecting devices and passive components — Connector optical interfaces for enhanced Macro bend multimode fibre

Part 3-81: Connector parameters of physically contacting 50 µm core diameter fibres — Non-angled polyphenylene sulphide rectangular ferrules with a single row of 12, 8, 4, or 2 fibres for reference connector applications

National foreword

This British Standard is the UK implementation of EN IEC 63267-3-81:2025. It is identical to IEC 63267-3-81:2025.

The UK participation in its preparation was entrusted to Technical Committee GEL/86/2, Fibre optic interconnecting devices and passive components.

A list of organizations represented on this committee can be obtained on request to its committee manager.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2025
Published by BSI Standards Limited 2025

ISBN 978 0 539 35572 7

ICS 33.180.20

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 August 2025.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

English Version

Fibre optic interconnecting devices and passive components -
Connector optical interfaces for enhanced macro bend
multimode fibre - Part 3-81: Connector parameters of physically
contacting 50 μm core diameter fibres - Non-angled
polyphenylene sulphide rectangular ferrules with a single row of
12, 8, 4, or 2 fibres for reference connector applications
(IEC 63267-3-81:2025)

Dispositifs d'interconnexion et composants passifs
fibroniques - Interfaces optiques des connecteurs pour
fibres multimodales améliorées en macrocourbures - Partie
3-81: Paramètres de connexion des fibres d'un diamètre de
cœur de 50 μm en contact physique - Ferrules
rectangulaires non inclinées en polysulfure de phénylène
avec une seule rangée de 12, 8, 4 ou 2 fibres, pour les
applications de connecteurs de référence
(IEC 63267-3-81:2025)

Lichtwellenleiter - Verbindungselemente und passive
Bauteile - Optische Schnittstellen von Lichtwellenleiter-
Steckverbindern für verstärkte Makrobend-
Mehrmodenfasern - Teil 3-81: Parameter von
Steckverbindern mit Fasern mit 50 μm Kerndurchmesser
mit physikalischem Kontakt - Nicht abgeschrägte
rechteckige Polyphenylensulfid- Ferrule mit einer einzigen
Reihe von 12, 8, 4 oder 2 Fasern für die Anwendung mit
Referenzsteckverbindern
(IEC 63267-3-81:2025)

This European Standard was approved by CENELEC on 2025-07-30. 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, Türkiye 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/5037/FDIS, future edition 1 of IEC 63267-3-81, 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 63267-3-81:2025.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2026-08-31 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2028-08-31 document have to be withdrawn

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.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 63267-3-81:2025 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 standard indicated:

- | | | |
|---------------|------|------------------------------|
| IEC 61754-5 | NOTE | Approved as EN 61754-5 |
| IEC 61754-25 | NOTE | Approved as EN 61754-25 |
| IEC 63267-2-2 | NOTE | Approved as EN IEC 63267-2-2 |

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60793-2-10	-	Optical fibres - Part 2-10: Product specifications - Sectional specification for category A1 multimode fibres	EN IEC 60793-2-10	-
IEC 61300-3-4	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-4: Examinations and measurements - Attenuation	EN IEC 61300-3-4	-
IEC 61300-3-27	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-27: Examinations and measurements - Measurement method for the hole location of a multiway connector plug	EN 61300-3-27	-
IEC 61300-3-30	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-30: Examinations and measurements - Endface geometry of rectangular ferrule	EN IEC 61300-3-30	-
IEC 61754-5	2005	Fibre optic connector interfaces - Part 5: Type MT connector family	EN 61754-5	2005
IEC 61754-7-1	2014	Fibre optic interconnecting devices and passive components - Fibre optic connector interfaces - Part 7-1: Type MPO connector family - One fibre row	EN 61754-7-1	2014
IEC 61754-18	2001	Fibre optic connector interfaces - Part 18: Type MT-RJ connector family	EN 61754-18	2002
IEC 63267-1	-	Fibre optic interconnecting devices and passive components - Fibre optic connector optical interfaces - Part 1: Enhanced macro bend loss multimode 50 µm core diameter fibres - General and guidance	EN IEC 63267-1	-

CONTENTS

FOREWORD	2
1 Scope	4
2 Normative references	4
3 Terms and definitions	5
4 Reference grade variants and fibre numbering conventions	5
5 Attenuation grade	6
6 Description	6
7 Reference interface parameters	7
7.1 Geometry of reference plug after termination	7
7.2 Use of selected fibre in multimode reference-grade connectors	14
Annex A (informative) Attenuation test limit of reference connectors mated to grade B_m connectors	15
A.1 General	15
A.2 Performance grade B_m test limit against reference connectors	15
A.3 Attenuation grade of reference connectors	15
Bibliography	17
Figure 1 – Fibre numbering conventions	5
Figure 2 – Interface dimensions related to lateral and angular offset	8
Figure 3 – Alignment pin	8
Figure 4 – Interface dimensions related to longitudinal offset (physical contact)	10
Figure A.1 – Calculated attenuation of random mated Grade R_{m12} reference connectors	16
Table 1 – Reference connector optical interface variant information	5
Table 2 – Multimode reference attenuation grade at 850 nm	6
Table 3 – Optical interface dimensions related to lateral and angular offset for optical interface variant R_{m2}	9
Table 4 – Optical interface dimensions related to lateral and angular offset for optical interface variants R_{m12} , R_{m8} , and R_{m4}	9
Table 5 – Optical interface end face geometry dimensions related to physical contact for optical interface variant R_{m2}	11
Table 6 – Optical interface end face geometry dimensions related to physical contact for optical interface variant R_{m4}	12
Table 7 – Optical interface end face geometry dimensions related to physical contact for optical interface variant R_{m8}	13
Table 8 – Optical interface end face geometry dimensions related to physical contact for optical interface variant R_{m12}	14
Table A.1 – Performance grade test limits at 850 nm	15

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**Fibre optic interconnecting devices and passive components - Connector optical interfaces for enhanced macro bend multimode fibre -
Part 3-81: Connector parameters of physically contacting 50 µm core diameter fibres - Non-angled polyphenylene sulphide rectangular ferrules with a single row of 12, 8, 4, or 2 fibres for reference connector applications**

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) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 63267-3-81 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics. It is an International Standard.

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

Draft	Report on voting
86B/5037/FDIS	86B/5076/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.

A list of all parts in the IEC 63267 series, published under the general title *Fibre optic interconnecting devices and passive components – Connector optical interfaces for enhanced macro bend multimode fibre*, can be found on the IEC website.

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/publications.

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, or
- revised.