

SLOVENSKI STANDARD
SIST EN IEC 61756-1:2020**01-maj-2020****Nadomešča:**
SIST EN 61756-1:2006

Povezovalne naprave in pasivne komponente optičnih vlaken - Vmesniški standard za sisteme upravljanja z optičnimi kabli - 1. del: Splošno in smernice (IEC 61756-1:2019)

Fibre optic interconnecting devices and passive components - Interface standard for fibre management systems - Part 1: General and guidance (IEC 61756-1:2019)

iTeh STANDARD PREVIEW
(standard iTeh ni)
Lichtwellenleiter - Verbindungselemente und passive Bauteile - Schnittstellennorm für Einzelfasermanagementsysteme - Teil 1: Allgemeines und Leitfaden (IEC 61756-1:2019)**SIST EN IEC 61756-1:2020**
<https://standards.iteh.ai/catalog/standards/sist/c00ba063-16d6-41c7-9867-ccb1a0c0f4/sist-en-iec-61756-1-2020>
Dispositifs d'interconnexion et composants passifs à fibres optiques - Norme d'interface pour les systèmes de gestion de fibres - Partie 1: Généralités et lignes directrices (IEC 61756-1:2019)**Ta slovenski standard je istoveten z: EN IEC 61756-1:2020****ICS:**

33.180.20 Povezovalne naprave za optična vlakna Fibre optic interconnecting devices

SIST EN IEC 61756-1:2020 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN IEC 61756-1:2020

<https://standards.iteh.ai/catalog/standards/sist/cb0ba6b3-f8d8-4a64-9867-cc3fbfa0e0f4/sist-en-iec-61756-1-2020>

EUROPEAN STANDARD

EN IEC 61756-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

March 2020

ICS 33.180.01

Supersedes EN 61756-1:2006 and all of its amendments
and corrigenda (if any)

English Version

**Fibre optic interconnecting devices and passive components -
Interface standard for fibre management systems - Part 1:
General and guidance
(IEC 61756-1:2019)**

Dispositifs d'interconnexion et composants passifs
fibroniques - Norme d'interface pour les systèmes de
gestion de fibres - Partie 1: Généralités et
recommandations
(IEC 61756-1:2019)

Lichtwellenleiter - Verbindungselemente und passive
Bauteile - Schnittstellennorm für
Einzelfasermanagementsysteme - Teil 1: Allgemeines und
Leitfaden
(IEC 61756-1:2019)

This European Standard was approved by CENELEC on 2020-01-01. 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 61756-1:2020 (E)**European foreword**

The text of document 86B/4228/FDIS, future edition 2 of IEC 61756-1, 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 61756-1:2020.

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) 2020-10-01
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2021-01-01

This document supersedes EN 61756-1:2006 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.

iTeh STANDARD PREVIEW (standards.iteh.ai)

Endorsement notice

[SIST EN IEC 61756-1:2020](https://standards.iteh.ai/catalog/standards/sist/cb0ba6b3-f8d8-4a64-9867-cc3fb60e0f4/sist-en-iec-61756-1-2020)

[https://standards.iteh.ai/catalog/standards/sist/cb0ba6b3-f8d8-4a64-9867-](https://standards.iteh.ai/catalog/standards/sist/cb0ba6b3-f8d8-4a64-9867-cc3fb60e0f4/sist-en-iec-61756-1-2020)

[cc3fb60e0f4/sist-en-iec-61756-1-2020](https://standards.iteh.ai/catalog/standards/sist/cb0ba6b3-f8d8-4a64-9867-cc3fb60e0f4/sist-en-iec-61756-1-2020)

The text of the International Standard IEC 61756-1:2019 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 60794-2	NOTE	Harmonized as EN 60794-2
IEC 60794-3	NOTE	Harmonized as EN 60794-3
IEC 60874-1:2011	NOTE	Harmonized as EN 60874-1:2012 (not modified)
IEC 61753 (series)	NOTE	Harmonized as EN 61753 (series)
IEC 62134-1	NOTE	Harmonized as EN 62134-1

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.cenelec.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 60793-2-50	-	Optical fibres - Part 2-50: Product specifications - Sectional specification for class B single-mode fibres	EN IEC 60793-2-50	-

[SIST EN IEC 61756-1:2020](https://standards.iteh.ai/catalog/standards/sist/cb0ba6b3-f8d8-4a64-9867-cc3fbfa0e0f4/sist-en-iec-61756-1-2020)

<https://standards.iteh.ai/catalog/standards/sist/cb0ba6b3-f8d8-4a64-9867-cc3fbfa0e0f4/sist-en-iec-61756-1-2020>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN IEC 61756-1:2020

<https://standards.iteh.ai/catalog/standards/sist/cb0ba6b3-f8d8-4a64-9867-cc3fbfa0e0f4/sist-en-iec-61756-1-2020>



IEC 61756-1

Edition 2.0 2019-11

INTERNATIONAL STANDARD

NORME INTERNATIONALE



Fibre optic interconnecting devices and passive components – Interface standard for fibre management systems – Part 1: General and guidance

Dispositifs d'interconnexion et composants passifs fibroniques – Norme d'interface pour les systèmes de gestion de fibres – Partie 1: Généralités et recommandations

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 33.180.01

ISBN 978-2-8322-7511-5

**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
3.1 Fibre management related definitions	6
3.2 Component related definitions	9
3.3 Protective housing related definitions	11
4 Abbreviated terms	12
5 Description of a fibre management system	13
6 Parts and functions of a fibre management system	14
6.1 General	14
6.2 Splice trays	15
6.3 Minimum bending radius for stored fibres	16
6.4 Splice protector	19
6.5 Splice holder	20
6.6 Guiding elements	21
6.7 Patchcords and pigtails	22
6.8 Identification of fibres, fibre tubes or single elements	22
7 Other factors relevant to fibre management systems	22
7.1 Re-entry and access	22
7.2 Quality of mouldings	22
7.3 Polymer materials	22
7.4 Marked or colour coded parts	22
Annex A (informative) Use of flow chart for calculation of the minimum bending radius for stored fibres	23
A.1 Example of calculation minimum bending radius	23
A.2 Results for various fibre types with a 1 m storage length	28
A.3 Results for various fibre types with 2 m storage length	29
Bibliography	31
Figure 1 – Multiple element management system	7
Figure 2 – Single circuit management system	8
Figure 3– Single element management system	8
Figure 4– Patchcord	11
Figure 5– Pigtail	11
Figure 6 – Functional parts diagram of a protective housing	13
Figure 7 – Functional parts diagram of FMS	14
Figure 8 – Typical required failure probabilities of various networks	17
Figure 9 – Lifetimes per bent fibre metre versus failure probability for various bending radii	18
Figure 10 – Flow chart for minimum bending radius of stored fibres	19
Figure 11 – F type splice protector	20
Figure 12– S type splice protector	20
Figure 13 – M type fibre splice	20

Figure A.1 – Step 1: Find radius that matches the failure probability target requirement.....	23
Figure A.2 – Find bending radius for specified failure probability target and fibre length	24
Figure A.3 – Step 2: Estimate the maximum attenuation increase for bending radius	25
Figure A.4 – Estimated maximum attenuation increase for bending radius of 15 mm.....	25
Figure A.5 – Step 3: Compare estimated maximum attenuation with requirement.....	26
Figure A.6 – Estimated attenuation increase for bending radius of 20 mm.....	27
Figure A.7 – Step 5: Check the estimated attenuation with requested maximum limit	28
Figure A.8 – Estimated maximum attenuation increase for bending radius	29
Table 1 – Optical fibre fusion splice protectors – Outline and nominal dimensions	20
Table 2 – Mechanical fibre splices – Outline and nominal dimensions.....	20
Table A.1 – Minimum bending radius for storage of the various fibre types with typical mechanical failure probability targets for different network locations and fibre storage length of 1 metre and maximum attenuation increase of 0,05 dB at 1 625 nm	29
Table A.2 – Minimum storage radius for the various fibre types with typical mechanical failure probability targets for different network locations and fibre storage length of 2 metres and maximum allowed attenuation increase of 0,1 dB at 1 550 nm	30

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN IEC 61756-1:2020

<https://standards.iteh.ai/catalog/standards/sist/cb0ba6b3-f8d8-4a64-9867-cc3fbfa0e0f4/sist-en-iec-61756-1-2020>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC INTERCONNECTING
DEVICES AND PASSIVE COMPONENTS –
INTERFACE STANDARD FOR FIBRE MANAGEMENT SYSTEMS –****Part 1: General and guidance**

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 61756-1 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 2006. This edition constitutes a technical revision.

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

- a) addition of figures to show the interface between protective housing and fibre management system;
- b) addition of definitions for protective housing, closure, box, street cabinets and optical distribution frame modules;
- c) addition of table with dimensions of fusion splice protectors and mechanical splices;
- d) addition of method to identify the minimum bending radius for stored fibres;

- e) addition of clause for other factors relevant to fibre management systems;
- f) addition of annex A for example of calculating the minimum bending radius of stored fibres in a fibre management system.

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

FDIS	Report on voting
86B/4228/FDIS	86B/4240/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.

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.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

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 – INTERFACE STANDARD FOR FIBRE MANAGEMENT SYSTEMS –

Part 1: General and guidance

1 Scope

This part of IEC 61756 covers general information on fibre management system interfaces. It includes the definitions and rules under which a fibre management system interface is created and it provides also criteria to identify the minimum bending radius for stored fibres.

This document allows both single-mode and multimode fibre to be used.

Liquid, gas or dust sealing requirements at the cable entry area or cable element ending are not covered in this document.

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.

[SIST EN IEC 61756-1:2020](https://standards.iteh.ai/catalog/standards/sist/cb0b7c13-8d18-4a61-9867-cc31bfa0e0f4/sist-en-iec-61756-1-2020)

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

IEC 60793-2-50, *Optical fibres - Part 2-50: Product specifications - Sectional specification for class B single-mode fibres*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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>

3.1 Fibre management related definitions

3.1.1

distribution element

element for a fibre management system providing fibre branching, holding and distribution function

3.1.2

fibre management system

system to control, protect and store splices, connectors, passive optical components and fibres from incoming to outgoing cables