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REDLINE VERSION

Fiberoptik – Anslutningsdon och passiva komponenter – Passiva dispersionskompensatorer – Del 1: Artspecifikation

Fibre optic interconnecting devices and passive components –

Fibre optic passive chromatic dispersion compensators –

Part 1: Generic specification

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IEC 61978-1

Edition 4.0 2024-04
REDLINE VERSION

INTERNATIONAL STANDARD



**Fibre optic interconnecting devices and passive components – Fibre optic
passive chromatic dispersion compensators –
Part 1: Generic specification**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 33.180.01

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC INTERCONNECTING DEVICES
AND PASSIVE COMPONENTS – FIBRE OPTIC PASSIVE
CHROMATIC DISPERSION COMPENSATORS –****Part 1: Generic specification****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.
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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 61978-1:2014. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

IEC 61978-1 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.

This fourth edition cancels and replaces the third edition published in 2014. This edition constitutes a technical revision.

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

- a) harmonization of terms and definitions with IEC TS 62627-09;
- b) change of Clause 4 regarding requirements.

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

Draft	Report on voting
86B/4866/FDIS	86B/4901/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.

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.

A list of all parts in the IEC 61978 series, published under the general title *Fibre optic interconnecting devices and passive components – Fibre optic passive chromatic dispersion compensators*, 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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – FIBRE OPTIC PASSIVE CHROMATIC DISPERSION COMPENSATORS –

Part 1: Generic specification

1 Scope

This part of IEC 61978 applies to fibre optic passive chromatic dispersion compensators, all exhibiting the following features:

- they are optically passive;
- they have an optical input and an optical output for transmitting optical power;
- the ports are optical fibres or optical fibre connectors;
- they are wavelength sensitive;
- they ~~may~~ can be polarization sensitive.

This document establishes uniform requirements for the passive chromatic dispersion compensator.

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 60027 (all parts), *Letter symbols to be used in electrical technology*

IEC 60050-731, *International Electrotechnical Vocabulary – Chapter 731: Optical fibre communication*

IEC 60617 (all parts), *Graphical symbols for diagrams*

~~IEC 60695-11-5, Fire hazard testing – Part 11-5: Test flames – Needle flame test method – Apparatus, confirmatory test arrangement and guidance~~

~~IEC 60793-2-50:2012, Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode fibres~~

~~IEC 60825 (all parts), Safety of laser products~~

IEC 61300 (all parts), *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures*

~~IEC 61300-3-38, Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-38: Examinations and measurements – Group delay, chromatic dispersion and phase ripple~~

IEC 61753 (all parts), *Fibre optic interconnecting devices and passive components performance standard*

IEC TR 61930, *Fibre optic graphical symbology*

IEC 62005 (all parts), *Reliability of fibre optic interconnecting devices and passive components*

IEC TS 62627-09, *Fibre optic interconnecting devices and passive components – Vocabulary for passive optical devices*

~~IEC Guide 102, *Electronic components – Specification structures for quality assessment (Qualification approval and capability approval)*~~

ISO 129-1, *Technical ~~drawings~~ product documentation (TPD) – ~~Indication~~ Presentation of dimensions and tolerances – Part 1: General principles*

~~ISO 286-1, *Geometrical product specifications (GPS) – ISO coding system for tolerances of linear sizes – Part 1: Bases of tolerances and fits*~~

ISO 1101, *Geometrical product specifications (GPS) – Geometrical tolerancing – Tolerances of form, orientation, location and run-out*

~~ISO 8601, *Data elements and interchange formats – Information interchange – Representation of dates and times*~~

ISO 8601-1, *Date and time – Representations for information interchange – Part 1: Basic rules*

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*Fibre optic interconnecting devices and passive components –
Fibre optic passive chromatic dispersion compensators –
Part 1: Generic specification*

Som svensk standard gäller europastandarden EN IEC 61978-1:2024. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 61978-1:2024.

Nationellt förord

Europastandarden EN IEC 61978-1:2024

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 61978-1, Fourth edition, 2024 - Fibre optic interconnecting devices and passive components –
Fibre optic passive chromatic dispersion compensators –
Part 1: Generic specification**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 61978-1, utg 3:2014 med eventuella tillägg, ändringar och rättelser gäller ej fr o m 2025-05-20.

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

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Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

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English Version

Fibre optic interconnecting devices and passive components -
Fibre optic passive chromatic dispersion compensators - Part 1:
Generic specification
(IEC 61978-1:2024)

Dispositifs d'interconnexion et composants passifs
fibroniques - Compensateurs de dispersion chromatique
passifs fibroniques - Partie 1 : Spécification générique
(IEC 61978-1:2024)

Lichtwellenleiter - Verbindungselemente und passive
Bauteile - Passive Lichtwellenleiter - Kompensatoren mit
chromatischer Dispersion - Teil 1: Fachgrundspezifikation
(IEC 61978-1:2024)

This European Standard was approved by CENELEC on 2024-05-20. 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.

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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/4866/FDIS, future edition 4 of IEC 61978-1, 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 61978-1:2024.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2025-02-20 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2025-05-20 document have to be withdrawn

This document supersedes EN 61978-1:2014 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.

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 61978-1:2024 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 60068 series	NOTE	Approved as EN 60068 series
IEC 60695-11-5	NOTE	Approved as EN 60695-11-5
IEC 60793-2-50	NOTE	Approved as EN IEC 60793-2-50
IEC 60869-1	NOTE	Approved as EN IEC 60869-1
IEC 60974 series	NOTE	Approved as EN IEC 60974 series
IEC 61073-1	NOTE	Approved as EN 61073-1
IEC 61300-1	NOTE	Approved as EN IEC 61300-1
IEC 61300-2 series	NOTE	Approved as EN 61300-2 series
IEC 61300-3 series	NOTE	Approved as EN 61300-3 series
IEC 61300-3-38	NOTE	Approved as EN 61300-3-38
IEC 61753 series	NOTE	Approved as EN 61753 series
IEC 61754 series	NOTE	Approved as EN 61754 series
IEC 61754-4	NOTE	Approved as EN IEC 61754-4
IEC 61754-13	NOTE	Approved as EN 61754-13
IEC 61754-15	NOTE	Approved as EN 61754-15

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 60027	series	Letters symbols to be used in electrical technology	EN IEC 60027	series
IEC 60050-731	-	International Electrotechnical Vocabulary - Chapter 731: Optical fibre communication	-	-
IEC 60617	series	Standard data element types with associated classification scheme for electric components	-	-
IEC 61300	series	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures	EN IEC 61300	series
IEC 61753	series	Fibre optic interconnecting devices and passive components - Performance standard	EN IEC 61753	series
IEC/TR 61930	-	Fibre optic graphical symbology	-	-
IEC 62005	series	Reliability of fibre optic interconnecting devices and passive components	EN IEC 62005	series
IEC/TS 62627-09	-	Fibre optic interconnecting devices and passive components - Vocabulary for passive optical devices	-	-
ISO 129-1	-	Technical product documentation (TPD) - Presentation of dimensions and tolerances - Part 1: General principles	EN ISO 129-1	-
ISO 1101	-	Geometrical product specifications (GPS) - Geometrical tolerancing - Tolerances of form, orientation, location and run-out	EN ISO 1101	-
ISO 8601-1	-	Date and time - Representations for information interchange - Part 1: Basic rules	-	-

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Fibre optic interconnecting devices and passive components – Fibre optic
passive chromatic dispersion compensators –
Part 1: Generic specification**

**Dispositifs d'interconnexion et composants passifs fibroniques –
Compensateurs de dispersion chromatique passifs fibroniques –
Partie 1 : Spécification générique**

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A list of all parts in the IEC 61978 series, published under the general title *Fibre optic interconnecting devices and passive components – Fibre optic passive chromatic dispersion compensators*, 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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – FIBRE OPTIC PASSIVE CHROMATIC DISPERSION COMPENSATORS –

Part 1: Generic specification

1 Scope

This part of IEC 61978 applies to fibre optic passive chromatic dispersion compensators, all exhibiting the following features:

- they are optically passive;
- they have an optical input and an optical output for transmitting optical power;
- the ports are optical fibres or optical fibre connectors;
- they are wavelength sensitive;
- they can be polarization sensitive.

This document establishes uniform requirements for the passive chromatic dispersion compensator.

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 60027 (all parts), *Letter symbols to be used in electrical technology*

IEC 60050-731, *International Electrotechnical Vocabulary – Chapter 731: Optical fibre communication*

IEC 60617 (all parts), *Graphical symbols for diagrams*

IEC 61300 (all parts), *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures*

IEC 61753 (all parts), *Fibre optic interconnecting devices and passive components performance standard*

IEC TR 61930, *Fibre optic graphical symbology*

IEC 62005 (all parts), *Reliability of fibre optic interconnecting devices and passive components*

IEC TS 62627-09, *Fibre optic interconnecting devices and passive components – Vocabulary for passive optical devices*

ISO 129-1, *Technical product documentation (TPD) – Presentation of dimensions and tolerances – Part 1: General principles*

ISO 1101, *Geometrical product specifications (GPS) – Geometrical tolerancing – Tolerances of form, orientation, location and run-out*

ISO 8601-1, *Date and time – Representations for information interchange – Part 1: Basic rules*