

INTERNATIONAL STANDARD

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

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





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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC INTERCONNECTING
DEVICES AND PASSIVE COMPONENTS –
FIBRE OPTIC PASSIVE CHROMATIC DISPENSATORS –**

Part 1: Generic specification

FOREWORD

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International Standard IEC 61978-1 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 2000. It constitutes a technical revision. Changes from the previous edition of this standard are to reconsider the requirements.

The text of this standard is based on the following documents:

FDIS	Report on voting
86B/2908/FDIS	86B/2946/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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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 be polarization sensitive.

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

2 Normative references

The following referenced documents are indispensable for the application 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 (IEV) – 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, *Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode fibres*

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

IEC 60869-1, *Fibre optic attenuators - Part 1: Generic specification*

IEC 60874 (all parts), *Connectors for optical fibres and cables*

IEC 60974 (all parts), *Arc welding equipment*

IEC 61073-1, *Fibre optic interconnecting devices and passive components – Mechanical splices and fusion splice protectors for optical fibres and cables – Part 1: Generic specification*

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

IEC 61754-4, *Fibre optic connector interfaces – Part 4: Type SC connector family*

IEC 61754-13, *Fibre optic connector interfaces – Part 13: Type FC-PC connector*

IEC 61754-15, *Fibre optic connector interfaces – Part 15: Type LSH connector family*

IEC/TR 61930, *Fibre optic graphical symbology*

IEC Guide 102, *Electronic components — Specification structures for quality Assessment (Qualification approval and capability approval)*

IECQ 01, *IEC Quality Assessment System for Electronic Components (IECQ System) Basic Rules*

IECQ QC 001002-3, *IEC Quality Assessment System for Electronic Components (IECQ) – Rules of Procedure – Part 3: Approval procedures*

ISO 129-1, *Technical drawings – Indication of dimensions and tolerances – Part 1: General principles*

ISO 286-1, *ISO system of limits and fits – Part 1: Bases of tolerances, deviations 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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050(731), as well as the following definitions apply.

3.1 Basic term

3.1.1 port

optical fibre or optical fibre connector attached to a passive component for the entry and/or exit of the optical power (input and/or output port)

3.2 Component

3.2.1

passive chromatic dispersion compensator

PCDC

two-port in-line passive device used to perform chromatic dispersion compensation. PCDCs are commonly used to compensate the chromatic dispersion of an optical path by adding the opposite sign chromatic dispersion. The typical optical paths are single-mode fibre, dispersion shifted fibre and non-zero dispersion shifted fibre. PCDCs have either negative or positive chromatic dispersion values depending on the chromatic dispersion sign of the optical path