



SLOVENSKI STANDARD

SIST EN 61280-1-3:2001

01-februar-2001

Fibre optic communication subsystem basic test procedures - Part 1-3: Test procedures for general communication subsystems - Central wavelength and spectral width measurement (IEC 61280-1-3:1998)

Fibre optic communication subsystem basic test procedures -- Part 1-3: Test procedures for general communication subsystems - Central wavelength and spectral width measurement

Lichtwellenleiter-Kommunikationsuntersysteme - Grundlegende Prüfverfahren -- Teil 1-3: Prüfverfahren für allgemeine Kommunikationsuntersysteme - Messung von Mittelwellenlänge und Spektralbreite

[SIST EN 61280-1-3:2001](https://standards.iteh.ai/catalog/standards/sist/31cc5f49-cd08-42df-89dd-3300a5920101/SIST-EN-61280-1-3-2001)

Procédures d'essai de base des sous-systèmes de télécommunication à fibres optiques - - Partie 1-3: Procédures d'essai des sous-systèmes généraux de télécommunication - Mesure de la longueur d'onde centrale et de la largeur spectrale

Ta slovenski standard je istoveten z: EN 61280-1-3:1999

ICS:

33.180.01	Sistemi z optičnimi vlakni na splošno	Fibre optic systems in general
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ICS 33.180.01

Descriptors: Fibre optic communication subsystem, test procedures, central wavelength, spectral width

English version

**Fibre optic communication subsystem basic test procedures
Part 1-3: Test procedures for general communication subsystems
Central wavelength and spectral width measurement
(IEC 61280-1-3:1998)**

Procédures d'essai de base des
sous-systèmes de télécommunication
à fibres optiques
Partie 1-3: Procédures d'essai des
sous-systèmes généraux de
télécommunication - Mesure de la
longueur d'onde centrale et de la largeur
spectrale
(CEI 61280-1-3:1998)

Lichtwellenleiter-Kommunikations-
untersysteme - Grundlegende
Prüfverfahren
Teil 1-3: Prüfverfahren für allgemeine
Kommunikationsuntersysteme
Messung von Mittelwellenlänge und
Spektralbreite
(IEC 61280-1-3:1998)

This European Standard was approved by CENELEC on 1999-01-01. 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 Central Secretariat or to any CENELEC member.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels



Foreword

The text of document 86C/223/FDIS, future edition 1 of IEC 61280-1-3, prepared by SC 86C, Fibre optic systems and active devices, of IEC TC 86, Fibre optics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61280-1-3 on 1999-01-01.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 1999-10-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2001-10-01

Endorsement notice

The text of the International Standard IEC 61280-1-3:1998 was approved by CENELEC as a European Standard without any modification.

In the official version, for annex A, Bibliography, the following note has to be added for the standard indicated:

IEC 60825-1 NOTE: Harmonized as EN 60825-1:1994 + A11:1996.

NORME
INTERNATIONALE
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CEI
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61280-1-3

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**Procédures d'essai de base des sous-systèmes
de télécommunication à fibres optiques –**

Partie 1-3:

**Procédures d'essai des sous-systèmes généraux
de télécommunication –**

**Mesure de la longueur d'onde centrale
et de la largeur spectrale**

[SIST EN 61280-1-3:2001](https://standards.iteh.ai/catalog/standards/sist/31cc5f49-cd08-42df-89dd-53bb3bada44b/sist-en-61280-1-3-2001)

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**Fibre optic communication subsystem
basic test procedures –**

Part 1-3:

**Test procedures for general communication
subsystems –**

**Central wavelength and spectral width
measurement**

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC COMMUNICATION SUBSYSTEM
BASIC TEST PROCEDURES –**

**Part 1-3: Test procedures for general communication subsystems –
Central wavelength and spectral width measurement**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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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International Standard IEC 61280-1-3 has been prepared by subcommittee 86C: Fibre optic systems and active devices, of IEC technical committee 86: Fibre optics.

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

FDIS	Report on voting
86C/223/FDIS	86C/231/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.

Annex A is for information only.

FIBRE OPTIC COMMUNICATION SUBSYSTEM BASIC TEST PROCEDURES –

Part 1-3: Test procedures for general communication subsystems – Central wavelength and spectral width measurement

1 Scope and object

The object of this test procedure is to measure several wavelength and spectral width properties of an optical spectrum associated with a fibre optic communication subsystem.

The measurement is done for the purpose of system construction and/or maintenance. The optical transmitter is typically under modulation.

NOTE – Different properties may be appropriate to different spectral types, such as continuous spectra characteristic of light-emitting diodes (LEDs), and multilongitudinal mode (MLM) spectra and single-longitudinal mode (SLM) spectra, both characteristic of laser diodes (LDs).

WARNING – Exercise care to avoid possible eye damage from looking into the end of an energized fibre from any light source. Most importantly, personnel should avoid looking into any energized fibre using any type of magnification device.

The requirements in IEC 60825-1 should be followed.

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2 Definitions

SIST EN 61280-1-3:2001

For the purpose of this standard, the following definitions apply:

2.1 The wavelength types are:

2.1.1

centre wavelength (λ_{centre})

the mean of the closest spaced half-power wavelengths in an optical spectrum, one above and one below the peak wavelength

2.1.2

half-power wavelength (λ_3)

a wavelength corresponding to a half peak power value of the optical spectrum

2.1.3

peak wavelength (λ_p)

the wavelength corresponding to the maximum power value of the optical spectrum

2.1.4

centroidal wavelength (λ_{avg})

the mean or average wavelength of an optical spectrum

2.2 The spectral widths are:

2.2.1

root-mean square width ($\Delta\lambda_{\text{rms}}$)

2.2.2

N-dB-down width ($\Delta\lambda_n$)

the positive difference of the closest spaced wavelengths, one above and one below the peak wavelength λ_p , at which the spectral power density is N dB down from its peak value

2.2.3

full-width at half-maximum ($\Delta\lambda_{\text{fwhm}}$)

a special case of the above with $n = 3$

2.3 Side-mode suppression ratio (SSR) (see 6.7)

3 Apparatus

3.1 Calibrated optical spectrum analyzer

This special-purpose test equipment uses a dispersive spectrophotometric method to resolve the optical spectral distribution. The spectral distribution resolved periodically is displayed on the CRT display section of the optical spectrum analyzer. The resolution and range shall, respectively, be at least 1 nm and 200 nm for LEDs, and 0,1 nm and 50 nm for LDs. The resolution for MLM-LDs is at least 0,2 nm, and 0,1 nm for SLM-LDs, with a 50 nm range for both types of LDs.

3.2 Power supplies

[SIST EN 61280-1-3:2001](https://standards.iteh.ai/catalog/standards/sist/31cc5f49-cd08-42df-89dd-531b7bada44b/sist-en-61280-1-3-2001)

3.3 Input signal source or modulator

The input signal source is a single generator or modulator with the appropriate digital or analogue signal of the system.

3.4 Jumper cable

Unless otherwise specified, the test jumpers shall have physical and optical properties nominally equal to the cable plant with which the equipment is intended to operate. The jumpers shall be 2 m to 5 m long, and shall contain fibres with coatings which remove cladding light. Appropriate connectors shall be used. Single-mode jumpers shall be deployed with two 90 mm diameter loops. If the equipment is intended for multimode operation and the intended cable plant is unknown, the fibre size shall be 62,5/125.

4 Test sample

The test sample shall be a specified fibre optic transmitter. The system inputs and outputs shall be those normally seen by the user.