IEC 62129-1

Edition 1.0 2016-01

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Calibration of wavelength/optical frequency measurement instruments – Part 1: Optical spectrum analyzers

Étalonnage des appareils de mesure de longueur d'onde/appareil de mesure de la fréquence optique –
Partie 1: Analyseurs de spectre optique

IEC 62129-1:2016-01

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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CALIBRATION OF WAVELENGTH/OPTICAL FREQUENCY MEASUREMENT INSTRUMENTS –

Part 1: Optical spectrum analyzers

FOREWORD

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International Standard IEC 62129-1 has been prepared by IEC technical committee 86: Fibre optics.

This first edition of IEC 62129-1 cancels and replaces the first edition of IEC 62129, published in 2006. This edition constitutes a technical revision.

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

a) update of term and definitions;
b) update of calibration conditions;
c) calculation change of uncertainties related to wavelength temperature dependence, power linearity, power level temperature dependence;
d) move of Annex E to the bibliography.

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

CDV	Report on voting
86/477/CDV	86/483/RVC

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.

A list of all parts in the IEC 62129 series, published under the general title *Calibration of wavelength/optical frequency measurements instruments*, can be found on the IEC website.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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CALIBRATION OF WAVELENGTH/OPTICAL FREQUENCY MEASUREMENT INSTRUMENTS –

Part 1: Optical spectrum analyzers

1 Scope

This part of IEC 62129 specifies procedures for calibrating an optical spectrum analyzer that is developed for use in fibre-optic communications and designed to measure the power distribution of an optical spectrum. It does not apply to an optical wavelength meter that measures only centre wavelengths, a Fabry-Perot interferometer or a monochromator that has no display unit.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050-731, *International Electrotechnical Vocabulary - Chapter 731: Optical fibre communication* (available at http://www.electropedia.org)

IEC 60793-2 (all parts), *Optical fibres – Part 2: Product specifications*

IEC 60825-1, *Safety of laser products – Part 1: Equipment classification and requirements*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

ISO/IEC Guide 98-3:2008, *Uncertainty of measurement – Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-731 and the following apply.

3.1
accredited calibration laboratory
calibration laboratory authorized by an appropriate national organization to issue calibration certificates that demonstrates traceability to national standards

3.2
calibration
set of operations that establish, under specified conditions, the relationship between the values of quantities indicated by a measuring instrument and the corresponding values realized by standards

Note 1 to entry: The results of a calibration permit either the assignment of measurand values to the indications or the determination of corrections with respect to the indications.