ICS 31.260, 33.180.01 SLOVENSKÁ TECHNICKÁ NORMA Október 2024

STN	**Kalibrácia laditeľných laserových zdrojov**	**STN** **EN IEC 62522** 35 9209

Calibration of tuneable laser sources

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 09/24

Obsahuje: EN IEC 62522:2024, IEC 62522:2024

Oznámením tejto normy sa od 25.07.2027 ruší
STN EN 62522 (35 9209) z decembra 2014

139249

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 62522

August 2024

ICS 31.260; 33.180.01

Supersedes EN 62522:2014

English Version

Calibration of tuneable laser sources (IEC 62522:2024)

Etalonnage des sources laser accordables (IEC 62522:2024)

Kalibrierung von abstimmbaren Laserquellen (IEC 62522:2024)

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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 86/639/FDIS, future edition 2 of IEC 62522, prepared by IEC/TC 86 "Fibre optics" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62522:2024.

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)	2025-04-25
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2027-07-25

This document supersedes EN 62522:2014 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.

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Endorsement notice

The text of the International Standard IEC 62522:2024 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 60027-3	NOTE Approved as EN 60027-3
IEC 60359	NOTE Approved as EN 60359
IEC 60793-1 (series)	NOTE Approved as EN 60793-1 (series)
IEC 60793-2	NOTE Approved as EN IEC 60793-2
IEC 61280-1-3:2021	NOTE Approved as EN IEC 61280-1-3:2021 (not modified)
IEC 61300-3-2	NOTE Approved as EN 61300-3-2
ISO/IEC 17025	NOTE Approved as EN ISO/IEC 17025
ISO 80000-3	NOTE Approved as EN ISO 80000-3

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.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60793-2-50	-	Optical fibres - Part 2-50: Product specifications - Sectional specification for class B single-mode fibres	EN IEC 60793-2-50	-
IEC 60825-1	-	Safety of laser products - Part 1: Equipment classification and requirements	EN 60825-1	-
IEC 60825-2	-	Safety of laser products - Part 2: Safety of optical fibre communication systems (OFCSs)	-	-
IEC 61315	-	Calibration of fibre-optic power meters	EN IEC 61315	-
IEC 62129-2	-	Calibration of wavelength/optical frequency measurement instruments - Part 2: Michelson interferometer single wavelength meters	EN 62129-2	-
ISO/IEC Guide 98-3	2008	Uncertainty of measurement - Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)	-	-

IEC 62522

Edition 2.0 2024-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Calibration of tuneable laser sources

Étalonnage des sources laser accordables

IEC 62522:2024-06(en-fr)

IEC 62522

Edition 2.0 2024-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Calibration of tuneable laser sources

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CALIBRATION OF TUNEABLE LASER SOURCES

FOREWORD

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IEC 62522 has been prepared by IEC technical committee 86: Fibre optics. It is an International Standard.

This second edition cancels and replaces the first 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) addition of references to IEC 61315;
b) addition of Table 1 and Table 2 on uncertainties;
c) clarification of the reference power meter settings in 6.2.3 and 6.3.2.3.

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

Draft	Report on voting
86/639/FDIS	86/643/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.

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.

INTRODUCTION

Wavelength-division multiplexing (WDM) transmission systems have been deployed in optical trunk lines. ITU-T Recommendations in the G.694 series describe the frequency and wavelength grids for WDM applications. For example, the frequency grid of ITU-T Recommendation G.694.1 supports a variety of channel spacing ranging from 12,5 GHz to 100 GHz and wider. WDM devices, such as arrayed waveguide grating (AWG), thin film filter or grating based multiplexers (MUX), and demultiplexers (DMUX) with narrow channel spacing are incorporated in the WDM transmission systems. When measuring the characteristics of such devices, wavelength tuneable laser sources are commonly used and are required to have well-calibrated performances; wavelength uncertainty, wavelength tuning repeatability, wavelength stability, and output optical power stability are important parameters.

The tuneable laser source (TLS) is generally equipped with the following features:

a) the output wavelength is continuously tuneable in a wavelength range starting at 1 260 nm or higher and ending at less than 1 675 nm (the output should excite only the fundamental LP01 fibre mode);

b) an output port for optical fibre connectors.

The envelope of the spectrum is a single longitudinal mode with a full-width at half-maximum (FWHM) of at most 0,1 nm. Any adjacent modes are at least 20 dB lower than the main spectral mode (for example, a distributed feedback laser diode (DFB-LD), external cavity laser, etc.).

CALIBRATION OF TUNEABLE LASER SOURCES

1 Scope

This document provides a stable and reproducible procedure to calibrate the wavelength and power output of a tuneable laser against reference instrumentation such as optical power meters and optical wavelength meters (including optical frequency meters) that have been previously traceably calibrated.

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

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

IEC 60825-2, *Safety of laser products – Part 2: Safety of optical fibre communication systems (OFCSs)*

IEC 61315, *Calibration of fibre-optic power meters*

IEC 62129-2, *Calibration of wavelength/optical frequency measurement instruments – Part 2: Michelson interferometer single wavelength meters*

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