INTERNATIONAL STANDARD

**ISO 11807-1**

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# Integrated optics — Vocabulary —

## Part 1: Optical waveguide basic terms and symbols

*Optique intégrée — Vocabulaire —*

*Partie 1: Termes fondamentaux et symboles des guides d'onde optique*

Reference number
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# Contents

Page

**Foreword** ..... **iv**
**Introduction** ..... **v**
**1 Scope** ..... **1**
**2 Normative references** ..... **1**
**3 Terms and definitions** ..... **1**
3.1 General ..... 1
3.2 Waveguide structures ..... 2
3.3 Modes in integrated optical waveguides ..... 2
3.4 Refractive index distribution in integrated optical waveguides ..... 4
3.5 Properties of integrated optical waveguides ..... 8
3.6 Loss or attenuation in integrated optical waveguides ..... 8
**Annex A** (informative) **Coordinate system** ..... **12**
**Annex B** (informative) **Symbols and units** ..... **13**
**Bibliography** ..... **14**

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# Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 172 *Optics and photonics*, Subcommittee SC 9, *Laser and electro optical systems,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 123, *Lasers and photonics*, in accordance with the agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 11807-1:2001), which has been technically revised. The main changes compared to the previous edition are as follows:

— Terminologies that have not been frequently used over the last 5 to 10 years are revised to those matching to current trends.

— In the revision process, terminologies and definitions are compared to similar terminology definitions in IEC and harmonized.

A list of all parts of ISO 11807 can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html .


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# Introduction

The aim of this document is to clarify the terms of the field of "integrated optics" and to define a unified vocabulary. It is expected that this document will be revised periodically to adopt the requirements of customers and suppliers of integrated optical products. At a later stage, it is planned to add definitions from other International Standards which deal with integrated optics.

Some of the definitions are closely related to definitions given in IEC 60050-731. Wherever this can lead to misunderstanding, integrated optics or integrated optical waveguide should be used together with the defined term.

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# Integrated optics — Vocabulary —

# Part 1:
# Optical waveguide basic terms and symbols

## 1 Scope

This document defines basic terms for integrated optical devices, their related optical chips and optical elements which find applications, for example, in the fields of optical communications and sensors.

— The coordinate system used in Clause 3 is described in Annex A.

— The symbols and units defined in detail in Clause 3 are listed in Annex B.

## 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.

ISO 11807-2, *Integrated optics — Vocabulary — Part 2: Terms used in classification*

ISO 14881, *Integrated optics — Interfaces — Parameters relevant to coupling properties*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11807-2 and ISO 14881 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

### 3.1 General

**3.1.1**
**integrated optics**
planar optical *waveguide* (3.2.1) structures, manufactured either in or on a *substrate* (3.2.6), including the optical components necessary for the input and output coupling of lightwaves

Note 1 to entry: In this context the term “planar” is used to include small deviations from planarity which are associated with Luneburg lenses, for example. By use of a suitable material, it is possible to integrate both optoelectronic and purely optical functions on the same substrate. The simplest case is electrodes, which can be used for controlling the properties of a waveguide. It is also possible to fabricate lasers and detectors using compound semiconductor materials.

Note 2 to entry: It is envisaged that integrated optical components will be combined with other microtechnologies, such as microelectronics and micromechanics, to build more complex systems. However, such systems are beyond the scope of this document, which will be concerned only with the integrated optical component and its immediate interfaces (see IEC 60050-731:1991, 06-43).

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