

TECHNICAL SPECIFICATION

Categorization of optical devices

STANDARD PREVIEW
(standards.iteh.ai)

[IEC TS 62538:2008](#)

<https://standards.iteh.ai/catalog/standards/sist/7b90b83a-4865-4a40-99ef-1922efeaeb8a/iec-ts-62538-2008>



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2008 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester.

If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de la CEI ou du Comité national de la CEI du pays du demandeur.

Si vous avez des questions sur le copyright de la CEI ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de la CEI de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland
Email: inmail@iec.ch
Web: www.iec.ch

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

- Catalogue of IEC publications: www.iec.ch/searchpub

The IEC on-line Catalogue enables you to search by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, withdrawn and replaced publications.

- IEC Just Published: www.iec.ch/online_news/justpub

Stay up to date on all new IEC publications. Just Published details twice a month all new publications released. Available on-line and also by email.

- Electropedia: www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing more than 20 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary online.

- Customer Service Centre: www.iec.ch/webstore/custserv

If you wish to give us your feedback on this publication or need further assistance, please visit the Customer Service Centre FAQ or contact us:

Email: csc@iec.ch
Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00



IEC/TS 62538

Edition 1.0 2008-10

TECHNICAL SPECIFICATION

Categorization of optical devices

STANDARD PREVIEW

(standards.iteh.ai)

IEC TS 62538:2008

<https://standards.iteh.ai/catalog/standards/sist/7b90b83a-4865-4a40-99ef-1922efeacb8a/iec-ts-62538-2008>

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

PRICE CODE

M

ICS 33.180.01

ISBN 978-2-88910-757-5

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Terms and definitions.....	6
2.1 Categorization of main definitions.....	6
2.2 Other related definitions.....	7
3 Categorization procedure of optical devices.....	7
Annex A (informative) Categorization criteria.....	9
Annex B (informative) Allocation of optical devices by categories and working groups.....	10
Bibliography.....	12
Table A.1 – Allocation of optical devices by categories and working groups.....	10

iTeh STANDARD PREVIEW **(standards.iteh.ai)**

[IEC TS 62538:2008](https://standards.iteh.ai/catalog/standards/sist/7b90b83a-4865-4a40-99ef-1922efaeab8a/iec-ts-62538-2008)

<https://standards.iteh.ai/catalog/standards/sist/7b90b83a-4865-4a40-99ef-1922efaeab8a/iec-ts-62538-2008>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

CATEGORIZATION OF OPTICAL DEVICES

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

The main task of IEC technical committees is to prepare International Standards. In exceptional circumstances, a technical committee may propose the publication of a technical specification when

- The required support cannot be obtained for the publication of an International Standard, despite repeated efforts, or
- The subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard. Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC/TS 62538, which is a technical specification, has been prepared by IEC technical committee 86: Fibre optics.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
86/282/DTS	86/308/RVC

Full information on the voting for the approval of this technical specification 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

- transformed into an International standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

iTeh STANDARD PREVIEW **(standards.iteh.ai)**

[IEC TS 62538:2008](#)

<https://standards.iteh.ai/catalog/standards/sist/7b90b83a-4865-4a40-99ef-1922efeae8a/iec-ts-62538-2008>

INTRODUCTION

IEC/TS 62538, which is a technical specification, is based on the conclusions of the coordinating group on categorization, approved by TC86 in 2005 and 2006, with the aim to allocate the various optical devices among the appropriate working groups. It contains fundamental definitions of broad validity and the procedure to categorize any optical devices.

iTeh STANDARD PREVIEW **(standards.iteh.ai)**

[IEC TS 62538:2008](https://standards.iteh.ai/catalog/standards/sist/7b90b83a-4865-4a40-99ef-1922efeacb8a/iec-ts-62538-2008)

<https://standards.iteh.ai/catalog/standards/sist/7b90b83a-4865-4a40-99ef-1922efeacb8a/iec-ts-62538-2008>

CATEGORIZATION OF OPTICAL DEVICES

1 Scope

IEC/TS 62438, which is a technical specification, applies to optical devices (i.e. elements, components, assemblies, sub-assemblies or modules) of interest to TC86 and its subcommittee. It provides the definitions of the three main categories of optical devices (i.e. dynamic, active and passive) together with other related definitions. It also gives a general procedure to identify the category of any optical devices.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

NOTE 1 The definitions given in 2.1 are determined for the three main categories of optical devices: “optical dynamic devices,” “optical active devices” and “optical passive devices.” Other supporting definitions are given in 2.2 and concern the term “optical device” and the related terms “optical element,” “optical component,” “optical assembly,” “optical sub-assembly” and “optical module.” The categorization criteria leading to the definitions of 2.1 are reported in Annex A.

NOTE 2 Some definitions reported in IEC 61931, analogous to those given in this clause, are superseded by the present technical specification.

NOTE 3 The terms optical (or fibre optic) “system” and “subsystem” as defined in IEC 61281-1 do not describe an optical device (according to the definitions given in this clause) and are outside the scope of this technical specification. The use of these two terms to indicate optical assemblies, sub-assemblies or modules is deprecated.

2.1 Categorization of main definitions

IEC TS 62538:2008
<https://standards.iteh.ai/catalog/standards/sist/7b90b83a-4865-4a40-99ef-1922efeae8a/iec-ts-62538-2008>

2.1.1

optical dynamic device

optical device designed to monitor and control dynamically some characteristics of one or more optical signals, by means of suitable electronic controls, in order to improve or to maintain definite performances of the system in which it is intended to be inserted

NOTE 1 Said characteristics may include optical paths, optical intensities, spectrum characteristics, polarization states, dispersion, etc.

NOTE 2 Optical dynamic devices may comprise optical active and optical passive elements or components.

NOTE 3 The control/response time of optical dynamic devices is much larger than the signal time characteristics and typically may range from a few microseconds to tens of seconds.

2.1.2

optical active device

optical device, other than an optical dynamic device, exhibiting one or more of the following functions:

- generation or detection of optical power;
- conversion of an electronic signal to a corresponding optical one or vice versa;
- optical amplification or optical regeneration (2R or 3R) of an optical signal;
- direct conversion of the optical frequency of an optical signal.

NOTE Optical active devices may comprise optical passive elements.

2.1.3

optical passive device

optical device, other than an optical dynamic device or an optical active device, which does not require external power for its operation, unless to control the stability of its own characteristics

NOTE Optical passive devices may comprise optical detectors for monitoring purposes only.

2.2 Other related definitions

2.2.1

optical element

unpacked or partially packaged optical basic unit, typically non repairable and non re-workable (at least by users)

NOTE Examples of optical elements include laser chips or laser diodes, photodiodes, lenses, prisms, optical collimators, grating chips and filter chips.

2.2.2

optical component

packaged unit comprising at least one optical element, typically non repairable and non re-workable (at least by users), suitably pigtailed or connectorized

NOTE Examples of optical components include packaged lasers, photodiodes, optical splitters, couplers, attenuators, isolators, MEMS's and modulators.

2.2.3

optical assembly

unpacked integration of optical components and/or elements, accomplishing defined functionality, typically settable, repairable, re-workable and re-arrangeable (possibly also with addition of other components) by the user

<https://standards.iteh.ai/catalog/standards/sist/7b90b83a-4865-4a40-99ef-f922caac6ba/iec-62538-2008>

NOTE 1 An optical assembly may comprise electronic components.

NOTE 2 An optical assembly may usually appear as a printed wiring board with optical components/elements.

2.2.4

optical sub-assembly

part of an optical assembly, incomplete to fully accomplish the target functionality of the assembly

2.2.5

optical module

packaged integration of optical components and/or elements, accomplishing defined functionality, typically repairable and re-workable

NOTE 1 An optical module may comprise electronic components.

NOTE 2 An optical module is to be used as it is; users are not normally enabled to re-arrange inner components or add other components inside.

2.2.6

optical device

generic optical unit, either an optical element, an optical component, an optical assembly, an optical sub-assembly or an optical module.

NOTE This term may have more specific meanings in different contexts.

3 Categorization procedure of optical devices

The categorization definitions given in 2.1 allow the following 3-step procedure to be pursued in order to identify the category of any optical device: