

# TECHNICAL REPORT

# IEC TR 60825-14

First edition  
2004-02

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**Safety of laser products –**

**Part 14:  
A user's guide**

Withdrawn



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**SAFETY OF LASER PRODUCTS –**

**Part 14: A user's guide**

FOREWORD

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IEC 60825-14, which is a technical report, has been prepared by IEC technical committee 76: Optical radiation safety and laser equipment.

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

Enquiry draft	Report on voting
76/271/DTR	76/282/RVC

Full information on the voting for the approval of this technical report 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.

IEC consists of the following parts, under the general title *Safety of laser products*:

- Part 1: Equipment classification, requirements and user's guide
- Part 2: Safety of optical fibre communication systems
- Part 3: Guidance for laser displays and shows
- Part 4: Laser guards
- Part 5: Manufacturer's checklist for IEC 60825-1
- Part 6: Safety of products with optical sources, exclusively used for visible information transmission to the human eye
- Part 7: Safety of products emitting infrared optical radiation, exclusively used for wireless 'free air' data transmission and surveillance
- Part 8: Guidelines for the safe use of medical laser equipment
- Part 9: Compilation of maximum permissible exposure to incoherent optical radiation
- Part 10: Application guidelines and explanatory notes to IEC 60825-1
- Part 12: Safety of free space optical communication systems used for transmission of information<sup>1)</sup>
- Part 13: Measurements for classification of laser products<sup>1)</sup>
- Part 14: A user's guide

The committee has decided that the contents of this publication will remain unchanged until 2007. At this date, the publication will be

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- withdrawn;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

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<sup>1)</sup> To be published

## INTRODUCTION

To help in the use of this technical report, an outline of the topics that are covered within it is given below. The topics are presented in the order in which they would normally be considered as part of a laser safety programme.

- Safety responsibilities with regard to the operation of lasers and the need for appropriate training are covered in Clause 3.
- The meaning of the laser product classes and the assessment of laser exposure are covered in Clause 4.
- The determination of the maximum permissible exposure (MPE), and the concept of the hazard distance and hazard zone within which the MPE can be exceeded, are covered in Clause 5.
- Associated laser hazards (that is, hazards other than those of eye or skin exposure to the emitted laser beam) are covered in Clause 6.
- A three-stage process for evaluating risk (arising from both the laser radiation hazards discussed in Clauses 4 and 5, and the associated laser hazards discussed in Clause 6) is covered in Clause 7. These three stages are:
  - 1) the identification of all potentially injurious situations,
  - 2) the assessment of the risk arising from these situations and
  - 3) the determination of the necessary protective measures.
- The use of control measures for reducing the risk to an acceptable level is covered in Clause 8.
- The need to ensure the continuation over time of safe laser operation is covered in Clause 9.
- The reporting of laser-related hazardous incidents and the investigation of accidents is covered in Clause 10.
- The role of medical surveillance (eye examinations) is covered in Clause 11.
- Additional information on the use of interlock protection is given in Annex A.
- Examples of laser safety calculations are given in Annex B.
- An explanation of the biophysical effects of laser exposure to the eyes and skin is given in Annex C.