TECHNICAL REPORT

IEC TR 60825-5

Second edition
2003-06

Safety of laser products –

Part 5:
Manufacturer's checklist for IEC 60825-1

Sécurité des appareils à laser –

Partie 5:
Liste de contrôle du fabricant
relative à la CEI 60825-1

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SAFETY OF LASER PRODUCTS –

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FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The 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 the 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 National Committees.
3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports, technical specifications or guides and they are accepted by the National Committees in that sense.
4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
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6) Attention is drawn to the possibility that some of the elements of this technical report may be the subject of patent rights. The 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. However, a technical committee may propose the publication of a technical report when it has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

IEC 60825-5, which is a technical report, has been prepared by IEC technical committee 76: Optical radiation safety and laser equipment.

This second edition of IEC 60825-5 cancels and replaces the first edition published in 1998 and constitutes a technical revision.

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

Enquiry draft	Report on voting
76/244/DTR	76/262/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.

The committee has decided that the contents of this publication will remain unchanged until 2006. At this date, the publication will be

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

SAFETY OF LASER PRODUCTS –

Part 5: Manufacturer's checklist for IEC 60825-1

SECTION ONE – GENERAL

NOTE Numbers shown in parenthesis refer to the relevant clause in IEC 60825-1.

1 Scope (1.1)

This technical report is applicable to laser products as described in IEC 60825-1.

2 Object (1.2)

The checklist is intended for use by manufacturers of laser products and their agents to establish that each new or modified design complies with the requirements of IEC 60825-1: 1993 and its amendments 1 and 2. The checklist is not a substitute for IEC 60825-1. It is necessary to use IEC 60825-1 in conjunction with the checklist, as relevant clauses and subclauses are referred to in the text.

The layout of the checklist is intended only as a guide. Manufacturers and examiners are encouraged to produce their own document, omitting questions and clauses that are not relevant to the types of product under examination, but noting in the appropriate positions the numbers of such clauses stating, for example: "subclause 4.3.2: Question omitted – not applicable".

The manufacturer should ensure that the examiner is a person competent in the inspection and classification of laser products.

3 Normative references

The following referenced documents are indispensable for the application 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 60825-1:1993, *Safety of laser products – Part 1: Equipment classification, requirements and user's guide* [1)]
Amendment 1 (1997)
Amendment 2 (2001)

4 Definitions

The definitions of IEC 60825-1 apply.

Throughout this document, the abbreviation N.A, means "not applicable".

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1) A consolidated edition of IEC 60825-1 exists consisting of edition 1 (1993) and its Amendments 1 (1997) and 2 (2001).

5 Identification

5.1 Details of examiner

Identification of the person responsible for examining and classifying the product under inspection:

Name:_____ Position:_____
print full name print full title

If the above named person is not an employee of the manufacturer of the laser product to be examined, state the details of the examiner's employer or organization:

Organization:

_____

Address:

_____

_____

5.2 Laser product

Details of product to be inspected:

5.2.1 Is the product a component intended to be incorporated in another laser product ? YES/NO

Manufacturer:

_____

Address:

_____

_____

Name and/or model number of laser product:

_____

_____

Serial number of laser product:

_____

Date of manufacture (if known): _____ Date of examination: _____

SECTION TWO – MANUFACTURING REQUIREMENTS

NOTE 1 Numbers shown in parenthesis and italics refer to the relevant clause in IEC 60825-1.

NOTE 2 Where a YES or NO answer is shown in this text as underlined, failure to give that answer, if applicable for this product, implies failure to comply with the requirements of IEC 60825-1 and corrective action will be required by the manufacturer or his agent if compliance is to be achieved.

NOTE 3 If additional information is available to support answers given, write ENCL. in the right hand column and attach the information to the back of the checklist, referencing the relevant clause in the checklist.

NOTE 4 If a question is not applicable to the laser product being examined, select N/A in the right hand column

6 Tests

6.1 Measurements for determining classification

6.1.1 Have measurements of laser radiation been carried out in accordance with the requirements of Clause 9 of IEC 60825-1? YES/NO/N.A.

6.1.2 If NO, have measurements been deemed unnecessary by virtue of the physical characteristics and limitations of the laser source, so that the laser product is placed clearly in a particular class according to Clause 9 of IEC 60825-1? YES/NO/N.A.

– *If NO, measurements for the determination of classification are required and shall be carried out in accordance with the requirements of Clause 9 of IEC 60825-1 before proceeding further. See Annex A of this technical report for guidance.*

6.1.3 If YES to either 6.1.1 or 6.1.2, state the following:

– wavelength or wavelength range of accessible laser radiation:

– maximum level of accessible laser radiation:

7 Classification

7.1 Classification procedure

See Annex A

State the class assigned to the laser product: _____

7.1.1 Are the measurement results enclosed ? YES/NO/N.A.

7.1.2 Are calculations of the accessible emission limit(s) (AEL) enclosed ? YES/NO/N.A.

8 Labelling for laser radiation (5)

8.0.1 For all labels for light emitting diodes, is the word "laser" replaced by "LED"? YES/NO/N.A.

8.0.2 For output of the laser outside the visible range of 400 nm – 700 nm wavelength, are the words "laser radiation" replaced by "invisible laser radiation" ? YES/NO/N.A.

8.0.3 For output of the laser both inside and outside the visible range of 400 nm – 700 nm wavelength, are the words “laser radiation” substituted by " visible and invisible laser radiation " ? YES/NO/N.A.

8.0.4 For a product classified on the basis of the level of visible laser radiation and which also emits in excess of the AEL of Class 1 at invisible wavelengths, does the label include the words “visible and invisible laser radiation” in lieu of “laser radiation” ? YES/NO/N.A.

8.0.5 Are all required labels permanently affixed? YES/NO/N.A.

8.0.6 Are labels legible and clearly visible during operation, maintenance or service, according to their purpose ? YES/NO/N.A.

8.0.7 Are all required labels positioned so that they can be read without the necessity for human exposure to laser radiation in excess of the AEL for Class 1 ? YES/NO/N.A.

8.0.8 Are labels with black text on a yellow background, except for Class 1 where this colour combination need not be used ? YES/NO/N.A.

NOTE 1 The words "laser light" on explanatory labels may be substituted for "laser radiation" if the output of the laser is in the visible range of 400 nm – 700 nm wavelength.

NOTE 2 If the size or design of the product makes labelling impractical, the labels should be included with the user information or the package

8.1 Class 1 laser products

8.1.1 Is the following explanatory label (IEC 60825-1, Figure 15) affixed to the product or included in the information for the user?

CLASS 1 LASER PRODUCT YES/NO/N.A.

NOTE The colour combination of black/yellow is optional for this label.

8.2 Class 1M laser products

8.2.1 Is the following explanatory label (IEC 60825-1, Figure 15) affixed to the product or included in the information for the user?

LASER RADIATION
DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS
CLASS 1M LASER PRODUCT YES/NO/N.A.

(See 8.8 for additional requirements for this label.)

NOTE The type of optical instruments which could result in an increased hazard may be added in parenthesis after the word “instruments”.

8.3 Class 2 laser products

8.3.1 Is a warning label affixed to the product (IEC 60825-1, Figure 14)? YES/NO/N.A.

8.3.2 Is the following explanatory label (IEC 60825-1, Figure 15) affixed to the product?

LASER RADIATION
DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT

YES/NO/N.A.

(See 8.8 for additional requirements for this label.)

8.4 Class 2M laser products

8.4.1 Is a warning label affixed to the product (IEC 60825-1, Figure 14)? YES/NO/N.A.

8.4.2 Is the following explanatory label (IEC 60825-1, Figure 15) affixed to the product?

LASER RADIATION

DO NOT STARE INTO THE BEAM OR VIEW
DIRECTLY WITH OPTICAL INSTRUMENTS
CLASS 2M LASER PRODUCT

YES/NO/N.A.

(See 8.8 for additional requirements for this label.)

NOTE The type of optical instruments which could result in an increased hazard may be added in parenthesis after the word “instrument”.

8.5 Class 3R laser products

8.5.1 Is a warning label affixed to the product (IEC 60825-1, Figure 14)? YES/NO/N.A.

8.5.2 Is the following explanatory label (IEC 60825-1, Figure 15) affixed to the product:

LASER RADIATION
AVOID DIRECT EYE EXPOSURE
CLASS 3R LASER PRODUCT

YES/NO/N.A.

for products in the wavelength range from 400 nm to 1400 nm, or

LASER RADIATION
AVOID EXPOSURE TO BEAM
CLASS 3R LASER PRODUCT

for other wavelengths?

(See 8.8 for additional requirements for this label.)