

TECHNICAL REPORT



Safety of laser products – Part 14: A user's guide



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TECHNICAL REPORT



Safety of laser products – Part 14: A user's guide

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CONTENTS

FOREWORD..... 7

INTRODUCTION..... 9

1 Scope..... 10

2 Normative references 10

3 Terms, definitions and symbols..... 11

 3.1 Terms and definitions..... 11

 3.2 Symbols..... 11

4 Administrative policies 13

 4.1 Safety responsibilities 13

 4.2 Competent Person 13

 4.3 Laser Safety Officer 13

 4.4 Information and training 14

 4.5 Levels of competence 15

 4.5.1 Laser Protection Adviser..... 15

 4.5.2 Laser Safety Officer..... 15

 4.5.3 Laser Safety Supervisor 17

 4.5.4 Laser user 17

 4.5.5 Awareness for other persons 17

 4.6 Training requirements 18

 4.7 Accreditation..... 18

5 Laser radiation hazards 19

 5.1 Laser products 19

 5.1.1 Laser product classification 19

 5.1.2 Product classes 19

 5.1.3 Embedded lasers..... 22

 5.1.4 Optical fibres 23

 5.1.5 Laser demonstrations and displays..... 23

 5.1.6 Consumer laser products 24

 5.2 Exposure to laser radiation 24

 5.2.1 Maximum permissible exposure 24

 5.2.2 Transient visual effects..... 24

 5.3 Determining the level of laser exposure 25

 5.3.1 The effective exposure 25

 5.3.2 Limiting apertures 26

 5.3.3 Angle of acceptance for the assessment of exposure from extended sources..... 27

 5.3.4 Use of binoculars..... 29

6 Determining the maximum permissible exposure (MPE)..... 29

 6.1 General remarks 29

 6.2 Repetitively pulsed or modulated lasers 36

 6.3 Multiple wavelengths..... 38

 6.4 Extended source MPEs 38

 6.5 Hazard distance and hazard area..... 39

 6.5.1 Nominal ocular hazard distance 39

 6.5.2 Nominal ocular hazard area 39

7 Associated hazards 40

7.1	Additional health hazards	40
7.2	Hazards arising from the laser	40
7.2.1	Electricity	40
7.2.2	Collateral radiation	40
7.2.3	Other laser radiation	41
7.2.4	Hazardous substances	41
7.2.5	Fume	41
7.2.6	Noise	41
7.2.7	Mechanical hazards	41
7.2.8	Fire, explosion and thermal damage	41
7.2.9	Heat and cold	42
7.3	Hazards arising from the environment	42
7.3.1	Temperature and humidity	42
7.3.2	Mechanical shock and vibration	42
7.3.3	Atmospheric effects	42
7.3.4	Electromagnetic and radio-frequency interference	42
7.3.5	Power supply interruption or fluctuation	42
7.3.6	Computer software problems	42
7.3.7	Ergonomic and human-factor considerations	42
7.4	Control of associated hazards	43
8	Evaluating risk	43
8.1	Hazards and risks	43
8.2	Risk assessment: Stage 1 – Identifying potentially injurious situations	44
8.2.1	General	44
8.2.2	The hazards involved	44
8.2.3	The laser environment	44
8.2.4	The people at risk	44
8.3	Risk assessment: Stage 2 – Assessing risk for potentially injurious situations	45
8.3.1	General	45
8.3.2	Frequency	45
8.3.3	Severity	45
8.3.4	Resultant risk	45
8.4	Risk assessment: Stage 3 – Selecting control measures	46
9	Control measures	46
9.1	General	46
9.2	Hazard reduction	47
9.3	Enclosing the hazard	48
9.3.1	Beam enclosures	48
9.3.2	Viewing windows	48
9.3.3	Interlock protection	48
9.4	Hazard mitigation	49
9.4.1	Preventing access	49
9.4.2	Laser controlled areas	50
9.4.3	Local rules and procedures	56
9.4.4	Localized risk reduction	57
9.4.5	Personal protection	58
9.4.6	Protective clothing	61
9.5	Equipment servicing	61
9.5.1	Increased risks during laser equipment servicing	61

9.5.2	Temporary laser controlled areas.....	61
9.5.3	Controls during servicing	62
9.5.4	Visiting installation and service engineers	62
10	Maintenance of safe operation.....	62
11	Contingency plans	63
11.1	General.....	63
11.2	Dealing with an actual eye injury.....	63
11.3	Dealing with an actual skin injury	63
11.4	Dealing with a suspected eye injury	64
12	Incident reporting and accident investigation	64
13	Medical surveillance	64
Annex A (informative) Examples of interlock systems for laser controlled areas		65
A.1	General.....	65
A.2	Common elements	65
A.2.1	Interlock control system	65
A.2.2	Door interlock switches	65
A.2.3	Override switches	65
A.2.4	Shutter	66
A.2.5	Illuminated warning sign	66
A.2.6	Emergency stop switch	66
A.2.7	Electric locks (door strikes).....	66
A.2.8	Non-locking interlock systems (see Figure A.1)	66
A.2.9	Locking interlock systems (see Figure A.2).....	66
Annex B (informative) Examples of calculations		69
B.1	General.....	69
B.2	Symbols used in the examples of Annex B.....	69
B.3	Maximum permissible exposure (MPE) – Overview	69
B.4	Maximum permissible exposure (MPE) – Single small source	70
B.4.1	General	70
B.4.2	Example for a helium-cadmium laser	70
B.4.3	Example for a pulsed ruby laser.....	70
B.4.4	Example for a single pulse of a gallium-arsenide laser.....	70
B.4.5	Example for a continuous wave helium-neon laser.....	71
B.5	Maximum permissible exposure (MPE) – Repetitively pulsed systems.....	71
B.5.1	General	71
B.5.2	Example for a pulsed argon laser.....	71
B.5.3	Example for a pulsed Nd:YAG laser	73
B.6	Nominal ocular hazard distance (NOHD).....	74
B.6.1	General	74
B.6.2	Example NOHD for a Gaussian beam with negligible atmospheric attenuation	79
B.6.3	Example of NOHD with beam expanding optics	80
B.6.4	Example of NOHD with atmospheric attenuation	80
B.6.5	Example of NOHD for a helium-neon laser with an expanding beam	81
B.6.6	Example for an infrared surveying instrument	82
B.6.7	Example for a Q-switched rangefinder	83
B.6.8	Example for a CW optical fibre transmitter	85
B.7	Diffuse reflections that are extended sources.....	87

B.7.1	General	87
B.7.2	Example for a reflection from a perfect diffuser	88
B.7.3	Example for close viewing of reflection from a perfect diffuser	89
B.7.4	Example for assessing the minimum safe viewing distance	90
B.8	Eye protection	90
B.8.1	General	90
B.8.2	Example protective eyewear for example B.6.7	91
B.8.3	Example protective eyewear for example B.6.2	91
B.9	Example for a complex laser diode array source	92
B.9.1	General	92
B.9.2	Single diode	94
B.9.3	Horizontal two-diode group	95
B.9.4	Vertical two-diode group	95
B.9.5	Four-diode group	95
B.9.6	One row of 10 diodes	96
B.9.7	20-diode group	97
B.9.8	Additional remarks	97
B.9.9	Required optical density	98
B.9.10	Use of an optical device	98
Annex C (informative)	Biophysical considerations	100
C.1	Anatomy of the eye	100
C.2	The effects of laser radiation on biological tissue	101
C.2.1	General	101
C.2.2	Hazards to the eye	103
C.2.3	Skin hazards	106
C.3	MPEs and irradiance averaging	107
Bibliography	108
Figure 1	– Measurement set-ups to achieve a well-defined angle of acceptance	28
Figure 2	– Combination of safety signs	54
Figure 3	– Warning; Laser beam symbol (ISO 7010-W004:2011-05),	54
Figure 4	– Wear eye protection symbol (ISO 7010-M004:2011-05)	55
Figure 5	– No thoroughfare symbol (ISO 7010-P004:2011-05)	56
Figure A.1	– Non-locking interlock system	67
Figure A.2	– Locking interlock system	68
Figure B.1	– Nominal ocular hazard distance	75
Figure B.2	– Chart for determining the NOHD (with various atmospheric attenuation factors from the NOHD found without considering atmospheric attenuation)	78
Figure B.3	– Laser diode array with three groupings	92
Figure C.1	– Anatomy of the eye	100
Figure C.2	– Diagram of laser-induced damage in biological systems	102
Table 1	– Default protective control measures for laser products	22
Table 2	– The diameter of the limiting aperture applicable to measurements of irradiance and radiant exposure (t is time of the relevant exposure, either pulse duration or total exposure)	26
Table 3	– Typical transmission percentages for binoculars	29

Table 4 – Maximum permissible exposure (MPE) at the cornea for small sources expressed as irradiance or radiant exposure ^{a,b} 31

Table 5 – Maximum permissible exposure (MPE) at the cornea for extended sources in the wavelength range from 400 nm to 1 400 nm (retinal hazard region) expressed as irradiance or radiant exposure 32

Table 6 – Maximum permissible exposure (MPE) of Table 4 ($C_6 = 1$) for the wavelength range from 400 nm to 1 400 nm expressed as power or energy ^{a,b} 33

Table 7 – Maximum permissible exposure (MPE) of Table 5 (extended sources) for the wavelength range from 400 nm to 1 400 nm expressed as power or energy ^{a,b} 34

Table 8 – Maximum permissible exposure (MPE) of the skin to laser radiation ^{a,b} 35

Table 9 – Correction factors and breakpoints for use in MPE evaluations 35

Table 10 – Duration T_i below which pulse groups are summed up 38

Table 11 – Additivity of effects on eye (O) and skin (S) of radiation of different spectral regions 38

Table 12 – Laser controlled areas 51

Table C.1 – Summary of pathological effects from excessive exposure to light 104

Table C.2 – Explanation of measurement apertures applied to the MPEs 107

INTERNATIONAL ELECTROTECHNICAL COMMISSION

SAFETY OF LASER PRODUCTS –

Part 14: A user's guide

FOREWORD

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IEC TR 60825-14 has been prepared by IEC technical committee 76: Optical radiation safety and laser equipment. It is a Technical Report.

This second edition cancels and replaces the first edition published in 2004. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) incorporates changes made in IEC 60825-1:2014;
- b) adds information to users of laser equipment on administrative controls to ensure safety in the workplace, including the training and appointment of people to specific laser safety management roles;
- c) updates an approach to risk assessment;
- d) includes updated guidance on the management of incidents and accidents;
- e) includes updated guidance on medical surveillance for laser workers;
- f) includes revised examples of calculations.

The text of this Technical Report is based on the following documents:

Draft	Report on voting
76/661/DTR	76/693/RVDTR

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 Technical Report 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/standardsdev/publications.

A list of all parts of the IEC 60825 series, published under the general title *Safety of laser products*, can be found on the IEC website.

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,
- replaced by a revised edition, or
- amended.

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INTRODUCTION

To help in the use of this document, 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 4.
- The meaning of the laser product classes and the assessment of laser exposure are covered in Clause 5.
- 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 6.
- Associated laser hazards (that is, hazards other than those of eye or skin exposure to the emitted laser beam) are covered in Clause 7.
- A three-stage process for evaluating risk (arising from both the laser radiation hazards discussed in Clause 5 and Clause 6, and the associated laser hazards discussed in Clause 7) is covered in Clause 8. These three stages are
 - 1) the identification of 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 9.
- The need to ensure the continuation over time of safe laser operation is covered in Clause 10.
- The reporting of laser-related hazardous incidents and the investigation of accidents is covered in Clause 11 and Clause 12.
- The role of medical surveillance (eye examinations) is covered in Clause 13.
- 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.