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BS EN 62471-5:2015



BSI Standards Publication

Photobiological safety of lamps and lamp systems —

Part 5: Image projectors

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The UK participation in its preparation was entrusted to Technical Committee EPL/76, Optical radiation safety and laser equipment.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

Photobiological safety of lamps and lamp systems - Part 5:
Image projectors
(IEC 62471-5:2015)

Sécurité photobiologique des lampes et des appareils
utilisant des lampes - Partie 5: Projecteurs d'images
(IEC 62471-5:2015)

Photobiologische Sicherheit von Lampen und
Lampensystemen - Teil 5: Photobiologische Sicherheit von
Lampensystemen für Bildprojektoren
(IEC 62471-5:2015)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European Foreword

The text of document 76/519/FDIS, future edition 1 of IEC 62471-5, prepared by IEC/TC 76 "Optical radiation safety and laser equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62471-5:2015.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2016-04-16
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-07-14

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u> <u>series</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u> <u>series</u>
IEC 60050		International Electrotechnical Vocabulary - -		
IEC 60065	-	Audio, video and similar electronic apparatus - Safety requirements	EN 60065	-
IEC 60825-1	2014	Safety of laser products -- Part 1: Equipment classification and requirements	EN 60825-1	2014
IEC 60950-1	-	Information technology equipment - Safety -- Part 1: General requirements	EN 60950-1	-
IEC 62471	-	Photobiological safety of lamps and lamp systems	EN 62471	-

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CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
2 Normative references.....	8
3 Terms and definitions	9
4 General	15
4.1 Basis for risk groups	15
4.2 Example applications	16
4.2.1 RG0 / RG1 projectors.....	16
4.2.2 RG2 projectors.....	16
4.2.3 RG3 projectors.....	16
4.3 Projector lamps.....	16
4.4 Assessment criteria (background).....	16
5 Risk group determination	17
5.1 Test conditions.....	17
5.2 Measurement conditions for image projectors	18
5.2.1 Measurement throw ratio	18
5.2.2 Measurement distance	18
5.3 The position and size of apparent source, the calculation of angular subtense.....	18
5.4 Measurement of irradiance – specified apertures	19
5.5 Measurement of radiance	19
5.6 Accessible emission limits	20
5.6.1 For CW emission.....	20
5.6.2 For pulsed emission	21
5.6.3 Spectral weighting functions.....	22
5.7 Applying information from the lamp manufacturers	23
5.7.1 General	23
5.7.2 Limits provided in irradiance/radiant exposure	24
5.7.3 Limits provided in radiance or radiance dose	24
6 Manufacturer's requirements.....	24
6.1 General.....	24
6.2 Determination of HD (hazard distance)	25
6.3 Safety feature "soft start"	25
6.4 Optional safety features	25
6.4.1 Projection of warning message.....	25
6.4.2 Power reduction by sensor system	25
6.5 Labelling on products	25
6.5.1 General	25
6.5.2 RG0 projector	26
6.5.3 RG1 projector	26
6.5.4 RG2 projector	27
6.5.5 RG3 projector	28
6.6 User information.....	28
6.6.1 General	28
6.6.2 Assessment of user accessible area	29

This is a preview of "BS EN 62471-5:2015". [Click here to purchase the full version from the ANSI store.](#)

6.6.3	User information (user manual)	29
6.6.4	User information for maintenance	30
6.7	Labelling and user information for image projectors where the risk group will be changed by interchangeable lens	30
6.7.1	General	30
6.7.2	Labelling on the projector	30
6.7.3	Mark on the interchangeable lens	32
6.7.4	The user information in the user manual of the projector	32
6.7.5	The user information in the user manual of the interchangeable lens	32
7	Information for service	33
Annex A (normative)	Test scheme for lamp types	34
Annex B (informative)	Example of calculations	35
B.1	Radiance calculations	35
B.1.1	General	35
B.1.2	Calculation from measured irradiance	35
B.1.3	Calculation from luminous output	36
B.2	Calculation example of risk group (CW)	37
B.2.1	Example of a 5 000 lm projector	37
B.2.2	10 000 lm professional-use projector with an apparent source of small subtense angle (CW)	39
B.2.3	2 000 lm projector with small apparent source (CW)	40
B.3	Calculation example of risk group (pulsed emission)	41
B.3.1	General	41
B.3.2	14 000 lm projector with one peak	41
B.3.3	14 000 lm projector with two peaks	44
Annex C (informative)	Example of intra-beam of projector sources with millimetre scale	47
Annex D (informative)	Measurement distance	48
Annex E (informative)	Hazard distance as a function of modifying optics	50
Bibliography	51
Figure 1	– Exit pupil in projector	10
Figure 2	– Examples of the application of the definition of pulse duration	13
Figure 3	– Definition of throw ratio	15
Figure 4	– Diameter of the apparent source	18
Figure 5	– RG1 label (optional)	26
Figure 6	– RG2 label	27
Figure 7	– RG2 caution symbol	27
Figure 8	– Sample design of RG2 caution pictogram	27
Figure 9	– RG3 label	28
Figure 10	– Optical radiation warning symbol	28
Figure 11	– "Not for household use" symbol	28
Figure 12	– RG2 label with the caution for RG3	31
Figure 13	– RG2 caution label with the caution for RG3	31
Figure 14	– RG2 pictogram with the caution for RG3	32
Figure B.1	– Image of the apparent source and measurement condition	37

This is a preview of "BS EN 62471-5:2015". [Click here to purchase the full version from the ANSI store.](#)

Figure B.2 – Picture of the apparent source of a projector at the exit pupil of the projection lenses with a scale.....	37
Figure B.3 – Example with one peak of pulsed emission	42
Figure B.4 – Example with two peaks of pulsed emission.....	44
Figure C.1 – Examples of intra-beam images of projector sources with millimetre scale.....	47
Figure E.1 – Hazard distance as a function of modifying optics (example).....	50
Table 1 – Measurement criteria — field of view (angles of acceptance) for CW source	19
Table 2 – Measurement criteria — field of view (angles of acceptance) for pulsed source	19
Table 3 – AEL (accessible emission limits) for risk groups of lamps and lamp systems emitting CW optical radiation.....	20
Table 4 – Time base values associated with the risk groups and hazards.....	20
Table 5 – Basic retinal thermal emission limit	20
Table 6 – The values of C_5 and α for AEL calculation	21
Table 7 – Pulse duration dependent values of α_{\max}	22
Table 8 – Spectral weighting functions $B(\lambda)$ and $R(\lambda)$ for assessing retinal hazards	23
Table 9 – Labelling on products	26
Table 10 – User information in user manual.....	29
Table A.1 –Required evaluations.....	34

INTERNATIONAL ELECTROTECHNICAL COMMISSION

PHOTOBIOLOGICAL SAFETY OF LAMPS AND LAMP SYSTEMS –**Part 5: Image projectors****FOREWORD**

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International Standard IEC 62471-5 has been prepared by IEC technical committee 76: Optical radiation safety and laser equipment.

The text of this standard is based on the following documents:

FDIS	Report on voting
76/519/FDIS	76/521/RVD

Full information on the voting for the approval of this standard 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.

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The committee has decided that the contents of this publication will remain unchanged until the stability 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

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

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

Most lamps and lamp systems are safe and do not pose photobiological risks except under unusual exposure conditions. This also is the case for optical image projectors where experience shows that even high power cinema projectors may be safe for accidental momentary viewing and can only under some conditions pose optical hazards at close distances or for intentional 'long-duration' staring into the source. The rapid development of solid-state and other lamps or lamp systems has permitted new projector products, and generated the need for a photobiological safety standard for this group of lamp systems.

Optical radiation hazards from all types of lamps and lamp systems are currently assessed by the application of IEC 62471:2006 (CIE S 009:2002), *Photobiological safety of lamps and lamp systems*. IEC 62471 covers LEDs, incandescent, low- and high-pressure gas-discharge, arc and other lamps. Following the concept of vertical standards, the risk group classification system in IEC 62471 for lamps is to be adapted for specific product groups such as image projectors.

This part of IEC 62471 provides a risk group classification system for image projectors, and measurement conditions for optical radiation emitted by image projectors. It includes manufacturing requirements that may be required as a result of an image projector system being assigned to a particular risk group. Therefore, this part of IEC 62471 provides safety requirements for lamp systems that are intended to produce projected visible optical radiation, such as theatre projectors, data projectors and home-use projectors. The assigned risk group of a projector product also may be used by projector manufacturers to assist with any risk assessments, e.g. for occupational exposure in workplaces. National requirements may exist for the assessment of products or occupational exposure.

The emission limits provided in this part of IEC 62471 are derived from the exposure limits specified by ICNIRP in their 2013 Guidelines for incoherent visible and infrared radiation [1]¹. These exposure limits are also the basis for the emission limits to be specified in the future International Standard IEC 62471-12.

¹ Numbers in square brackets refer to the Bibliography.

² Revision of IEC 62471:2006.

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PHOTOBIOLOGICAL SAFETY OF LAMPS AND LAMP SYSTEMS –

Part 5: Image projectors

1 Scope

This part of IEC 62471 provides requirements regarding photobiological safety of the optical radiation emitted by image projectors. This part of IEC 62471 does not deal with other hazards such as electrical, mechanical or fire hazards.

This part of IEC 62471 provides requirements regarding:

- optical radiation safety assessment of image projectors;
- projector risk groups;
- testing conditions and measurement conditions;
- manufacturer's requirements including user information.

The scope of this part of IEC 62471 is photobiological safety of image projectors including the emissions from laser-illuminated projectors that fulfill the requirements as specified in IEC 60825-1:2014, 4.4 and for which visible light emission has been excluded from classification in IEC 60825-1.

This part of IEC 62471 does not address safety requirements for laser display products where collimated laser beams — generally scanned — are employed. It does address those laser-illuminated projectors that employ a laser source to illuminate, for example, a micro-electro-mechanical system (MEMS) without scanned beams or crystal-based display projector system.

NOTE Image projectors containing lasers are subject to those provisions of IEC 60825-1 applicable to the embedded laser. See IEC 60825-1:2014, 4.4 for which visible light emission has been excluded from the laser product classification.

This part of IEC 62471 includes projectors for only visible image projection and does not include ultraviolet (UV) projectors, infrared (IR) projectors, general lighting service (GLS) lamps (GLS; defined in IEC 62471) or projector lamp systems used for general lighting, which are treated in separate International Standards.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62471, *Photobiological safety of lamps and lamp systems*

IEC 60825-1:2014, *Safety of laser products – Part 1: Equipment classification and requirements*

IEC 60050 (all parts), *International Electrotechnical Vocabulary* (available at <http://www.electropedia.org>)

IEC 60950-1, *Information technology equipment – Safety – Part 1: General requirements*