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Foreword

GB/T 30117 Photobiological safety of lamps and lamp systems is divided into 5 parts.

- Part 1. Photobiological safety of lamps and lamp systems;
- Part 2. Guidance on manufacturing requirements relating to non-laser optical radiation safety;
- Part 3. Guidelines for the safe use of intense pulsed light source equipment on humans;
- Part 4. Measuring methods;
- Part 5. Image projectors.

This part is Part 2 of GB/T 30117.

This part was drafted in accordance with the rules given in GB/T 1.1-2009.

This part was translated from and is identical to IEC TR 62471-2:2009 Photobiological safety of lamps and lamp systems - Part 2. Guidance on manufacturing requirements relating to non-laser optical radiation safety issued by the International Electrotechnical Commission.

The Chinese documents that have consistent correspondence with the normative

reference documents in this part are as follows.

-- GB/T 20145-2006 Photobiological safety of lamps and lamp systems (CIE S 009/E.2002, IDT)

-- GB/T 2900.65-2004 Electrotechnical terminology - Lighting (IEC 60050-845.1987, MOD)

-- GB/T 5465.2-2008 Graphical symbols for use on electrical equipment - Part 2. Graphical symbols (IEC 60417 DB.2007, IDT)

NOTE: CIE S.009-2002 was released in 2006 as the IEC standard IEC 62471.2006.

Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying these patents.

This part was proposed by China Machinery Industry Federation.

This part is under the jurisdiction of the National Technical Committee on Optical Radiation Safety and Laser Equipment of Standardization Administration of China (SAC/TC284).

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Photobiological safety of lamps and lamp systems - Part 2.

Guidance on manufacturing requirements relating to non-laser optical radiation safety

1 Scope

This part of GB/T 30117 provides the basis for optical radiation safety requirements of non-laser products, serving as a guide for development of safety requirements in vertical product standards and assisting lamp system manufacturers in the interpretation of safety information provided by the lamp manufacturers.

2 Normative references

The following documents are essential to the application of this document. For the dated referenced documents, only the versions with the indicated dates are applicable to this document; for the undated referenced documents, only the latest version (including all the amendments) is applicable to this document.

IEC 62471 Photobiological safety of lamps and lamp systems

3 Terms and definitions

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

The maximum level of exposure of optical radiation to the eye or skin that is not expected to result in adverse biological effects. These ELVs are used to determine hazard distances in respect to foreseeable photobiological effects.

Risk for intended or unintended viewers of a source under application-specific realistic conditions.

4 Risk groups applied for optical radiation safety assessments

There may be a small number of applications where an incoherent optical radiation source appears as a nearly monochromatic "point" source and shall be considered within a laser safety standard framework. Generally, this will only apply to super luminescent diodes (SLDs) (see 3.16), which resemble "point sources"; and LEDs which are employed in optical fiber communications, where the fiber source also resembles a very small, or "point" source.

5 Guidelines for lamp and lamp system manufacturers on how to apply IEC 62471

In the spectral ranges 200 nm to 400 nm and 1400 nm to 3000 nm where the emission limits in IEC 62471 are provided in irradiance or radiant exposure, the measurements of a single lamp cannot simply be transferred directly to a lamp system but require an analysis of the optical additivity to determine the system risk group.

6 Allocation of safety measures

Allocation of restricted access areas is product-specific and shall be addressed by product vertical standards.

Allocation of a lamp into a particular risk group is based on the assessment of lamp emission at a distance of 200 mm and the applicable risk group exposure duration.

However, when a lamp is integrated into a product, depending on product design and its application, these assessment conditions may become non-representative.

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