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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**Photobiological safety of lamps and lamp systems - Part 4:
Measuring methods
(English Translation)**

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Foreword

This document was drafted in accordance with the rules provided in GB/T 1.1-2020 Directives

for Standardization - Part 1.Rules for the Structure and Drafting of Standardizing Documents.

This document is Part 4 of GB/T 30117 Photobiological Safety of Lamps and Lamp Systems.

GB/T 30117 has issued the following parts.

---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 document modifies and adopts IEC TR 62471-4.2022 Photobiological Safety of Lamps and Lamp Systems - Part 4.Measuring Methods. The document type is adjusted from ISO's technical report to the national standard of China.

In comparison with IEC TR 62471-4.2022, this document makes the following structural adjustments.

---Appendix C corresponds to Appendix F in IEC TR 62471-4.2022;

---Appendix D corresponds to Appendix I in IEC TR 62471-4.2022;

---Appendix E corresponds to Appendix D in IEC TR 62471-4.2022;

---Appendix F corresponds to Appendix E in IEC TR 62471-4.2022;

---Appendix G corresponds to Appendix H in IEC TR 62471-4.2022;

---Appendix H corresponds to Appendix G in IEC TR 62471-4.2022;

---Appendix I corresponds to Appendix C in IEC TR 62471-4.2022.

The technical differences between this document and IEC TR 62471-4.2022 and the

causes for

these differences are as follows.

---The normative reference GB/T 30117 (all parts) is used to replace IEC 62471 to facilitate the application of this document;

---"for retinal thermal hazards, measure the radiance dose and / or peak radiance of the pulse" is added to E.1, and "for retinal thermal hazards, measure the pulse width ($1\ \mu\text{s} \sim 0.25\ \text{s}$)" is added to E.2. The supplemented content is based on the requirements of the International Commission on Non-Ionizing Radiation Protection (ICNIRP 2013) for the assessment of retinal thermal hazards of pulsed light sources.

This document makes the following editorial modifications.

---A NOTE is added to Chapter 1;

---The abbreviation "HID" is deleted from 3.2, because this term does not appear in the text;

---The NOTE below Table 1 is deleted;

---NOTE 2 is deleted from 4.7.4.3;

---A NOTE is added below Formula (3);

---Index numbers are used instead of text descriptions in all figures, and the description of index numbers is supplemented;

---Symbol descriptions are added for some letter symbols in the figures;

---"Le" in Formula (D.2) is modified into "L", and "Phie" is modified into "Phi".

Please be noted that certain content of this document may involve patents. The issuing institution of this document does not undertake the responsibility of identifying these patents.

This document was proposed by China Machinery Industry Federation.

This document shall be under the jurisdiction of National Technical Committee 284 on Optical

Radiation Safety and Laser Equipment of Standardization Administration of China (SAC/TC 284).

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1 Scope

This document describes the radiometric and spectral radiometric measurement methods required to determine the accessible optical radiation levels of lamps and lamp systems in accordance with GB/T 30117 (all parts).

This document is intended for practical measurement by manufacturers, testing organizations,

safety personnel, and other relevant personnel, etc.

NOTE: this document involves both Level A and Level B assessments. Level A assessment is an accurate measurement method that uses sophisticated spectral radiometric equipment to measure accessible optical radiation and can be used in all situations. Level B assessment uses common and simple instruments for measurement, which is only used for preliminary screening and is not suitable for use in rigorous judgment and data reporting.