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

GB/T 7247.3-2025

**Safety of laser products - Part 3: Guidance for laser displays
and shows**

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is Part 3 of GB/T 7247 Safety of Laser Products. GB/T 7247 has been published in the following parts.

- Part 1: Equipment classification and requirements;
- Part 2: Safety of optical fiber communication systems (OFCS);
- Part 3: Guidelines for laser shows and performances;
- Part 4: Laser protection screens;
- Part 5: Producer's checklist for GB 7247.1;
- Part 9: Maximum permissible exposure to incoherent optical radiation;

--- Part 13: Classification and measurement of laser products;

--- Part 14: User Guide.

This document replaces GB/T 7247.3-2016 "Safety of Laser Products Part 3: Guide to Laser Shows and Performances" and Compared with GB/T 7247.3-2016, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

--- Added provisions on applicability of music festivals, TV studios, etc. (see Chapter 1);

--- Added some terms and definitions. photophobic reaction, Amsler grid, window, audience lighting, intermediate reflector, control signal, Controlled position, diffraction effects, effective pulse duration, emergency stop control, engineering controls, offset laser effects, inaccessible positions placement, intentional contact effects, laser classification, laser effects, laser effect categories, laser protection consultant, laser safety officer, no contact Effect, Potentially accessible effect, Projection area, Responsible person, Restricted location, Scan for failsafes, Scan for failsafes response time, unlimited position, xy gain control/effect range control, zero order (see 3.1, 3.2, 3.4, 3.5, 3.7, 3.8, 3.9, 3.12, 3.13, 3.14, 3.15, 3.16, 3.17, 3.18, 3.20, 3.22, 3.23, 3.25, 3.26, 3.30, 3.34, 3.35, 3.36, 3.37, 3.39, 3.40, 3.44, 3.45 and 3.46);

--- Changed some terms and definitions. barrier, laser display or show, baffle, operator, performance area, audience area (see 3.6, 3.21, 3.28, 3.31, 3.33 and 3.43);

--- Added "Radiation Hazards and Biological Effects" (see Chapter 4);

--- Changed and added "MPE of high-risk auxiliary personnel" (see 5.4, 4.3 of the 2016 edition);

--- Changed and added "Safety Guidelines for Equipment and Devices" (see Chapter 6, Chapter 5 of the 2016 edition);

--- Changed and added "Responsibilities of designers, installers, operators and performers" (see Chapter 7, 2016 edition, Section 6) chapter);

--- Added "Laser display risk management" (see Chapter 8);

--- Added "Exposure Assessment" (see Chapter 9).

This document is equivalent to IEC/T R60825-3:2022 "Safety of Laser Products Part 3: Guidelines for Laser Shows and Performances".

The type was adjusted from the IEC technical report to my country's national standard.

The following minimal editorial changes were made to this document.

---3.23 Notes to indicate the three categories of laser effects, add the annotation text "(see Table 2, refers to non-contactable effects, potentially contactable effects response, intentional contact effect)";

---3.45 The word "control" is missing in both Chinese and English. It is changed to "x-ygaincontrol" and "effectsizecontrol". The Chinese terms are adjusted accordingly.

Adjust to "xy gain control" and "effect range control".

Introduction

Laser products can create visual lighting effects for entertainment scenes. GB/T 7247.1 takes into account the hazard classification and engineering requirements of laser products.

GB/T 7247.14 provides general user guidance for the safe use of laser products.

In order to produce dramatic or artistic visual display effects in large occasions such as theaters, squares or buildings, it is necessary to have a laser power as high as it is enough to cause serious accidental exposure damage, even if it is extremely short-term exposure to people. Therefore, GB/T 7247.14 stipulates that Only Class 1, Class 2 or visible light Class 3R laser products can be used for teaching, display or entertainment purposes in supervised places. Other higher-level lasers when optical products are used for visual entertainment, they should only be used with caution under controlled conditions and under the guidance of trained and experienced operators.

This document expands the principles considered in GB/T 7247.14 and provides guidelines for the safe use of laser products for visual entertainment purposes.

Specific technical guidance.

GB/T 7247 "Safety of Laser Products" is intended to consist of the following parts.

--- Part 1: Equipment classification and requirements. Due to the wide range of wavelength, energy and pulse characteristics of laser beams, when using laser products, the degree of potential hazard varies greatly, and it is not possible to simply classify laser products using uniform safety limits.

Evaluate the hazard level of optical radiation from lasers and laser products and determine control measures.

--- Part 2: Safety of optical fiber communication systems (OFCS). Based on the safety of reasonably foreseeable fault conditions [such as cable breakage, optical fiber the level is divided according to the degree of exposure to optical radiation in the event of a loose (disconnected) connector, etc.

The corresponding danger level of accessible locations is specified based on the characteristics of the accessible locations to determine the equivalent safety protection measures.

--- Part 3: Guide to laser shows and performances. For use in theater projections and stage performances and other similar places 3B and 4 laser any possible occurrence during laser