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**GB/T 7247.4-2025**

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**Safety of laser products - Part 4: Laser guards  
(English Translation)**

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Damage resistance

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Damage resistance

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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 4 of GB/T 7247 "Safety of Laser Products". GB/T 7247 "Safety of Laser Products" has been published for Lower part.

- 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/T 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 7247.4-2016 "Safety of Laser Products Part 4: Laser Protection Screens" and GB/T 7247.4-2016, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- Added some terms and definitions (see Chapter 3);
- "Protective screen for laser processing machine" is changed to "Requirements for laser protective screen" (see Chapter 4, Chapter 4 of the 2016 edition);
- The content of Appendix G has been changed (see Appendix G, Appendix G of the 2016 edition).

This document is equivalent to IEC 60825-4:2022 "Safety of Laser Products Part 4: Laser

Protection Screens".

## Introduction

Under low irradiance or irradiation, the selection of materials and thickness for shielding laser radiation mainly depends on the required shielding effect of laser radiation.

Sufficient optical attenuation. Under high irradiance or irradiation, the erosion effect of laser radiation on the protective screen material must also be considered.

Typical phenomena are melting, oxidation or ablation, which can cause the laser radiation to penetrate the originally opaque material.

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 degree of optical radiation hazards of 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 break, optical fiber the level is divided according to the degree of exposure to optical radiation in the case of loose fiber connectors, etc.

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

--- Part 3: Guidelines for laser shows and performances. For Class 3B and Class 4 lasers used in similar venues such as theater projections and stage performances.

For optical products, any possible occurrence during laser operation that exceeds the maximum permissible exposure that may cause biological effects and hazards to human eyes and skin.

The MPE analysis is given to clarify the responsibilities of on-site design, installation, operation and performance personnel, as well as risk control and evaluation.

Estimate to reduce risk.

--- Part 4: Laser protection screen. Aims to specify permanent and temporary (such as maintenance period) enclosures used to enclose the working area of the laser processing machine.

Laser protection screens and technical requirements for special laser protection screens to