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

INTERNATIONAL
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COMMISSION

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The main task of IEC technical committees is to prepare International Standards. However, a technical committee may propose the publication of a technical report when it has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

IEC 60825-3, which is a technical report, has been prepared by IEC technical committee 76: Optical radiation safety and laser equipment.

This second edition cancels and replaces the first edition published in 1995. It constitutes a technical revision. The main changes since the first edition include clarification of the scope; specific guidance on factors to take into account regarding scanning safeguards; clarification of the records to be maintained; and modification of the requirements for the zones where unattended laser projectors are used.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
76/371/DTR	76/379/RVC

Full information on the voting for the approval of this technical report 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.

A list of all parts of the IEC 60825 series, published under the general title *Safety of laser products,* can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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- withdrawn,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.

SAFETY OF LASER PRODUCTS –

Part 3: Guidance for laser displays and shows

1 Scope and object

1.1 Scope

This part of IEC 60825, which is a technical report, gives guidance on the planning and design, set-up and conduct of laser displays and shows that make use of high power lasers. The laser power needed to produce effective theatrical or artistic displays in large spaces such as theatres, arenas, or architectural sites is great enough to pose a severe accidental exposure hazard, even when personal exposure is very brief. For this reason, subclause 4.1.5 of IEC/TR 60825-14 specifies that only laser products that are Class 1, Class 2 or visible-beam Class 3R should be used for demonstration, display or entertainment purposes in unsupervised areas. Laser products of other classes should only be permitted under carefully controlled conditions and under the control of a trained experienced operator.

The guidance provided in this technical report is not intended to include the display or demonstration of scientific, medical or industrial laser products. However, many of the principles in this guidance may be relevant. This guidance provides recommendations for safety for those laser displays or demonstrations that are shows, artistic displays, advertising or light sculptures, or museum pieces used to demonstrate optical principles, etc.

Laser products available for use in a domestic environment or for use by people who cannot be expected to have received a suitable level of training should be Class 1, Class 2 or visible beam Class 3R. Therefore, such equipment is outside the scope of this guidance.

1.2 Object

This guidance is intended to be used by those who:

– design, manufacture, assemble, install or operate laser products that are Class 4, Class 3B, or non-visible beam Class 3R for display and entertainment purposes;

– operate arenas, theatres, planetaria, discotheques or other places where such laser products may be installed and operated; or

– are responsible for reviewing the safety of such equipment, installations or displays.

This guidance is not normative, but rather a code of practice for the design, installation, operation and evaluation of the safety of laser light shows and displays, and the equipment employed in their production. This guidance is also intended for persons who modify laser display installations or equipment.

This guidance contains safety criteria for the protection of the public or persons in the vicinity of laser displays in the course of their employment.

In some countries, there may be specific requirements, such as government permissions or notifications of shows, or prohibitions, such as against laser scanning of spectators without appropriate safeguards. This guidance is not to be understood as in conflict with such requirements but merely to be supplementary.

2 Normative references

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

IEC 60825-1:2007*, Safety of laser products – Part 1: Equipment classification and requirements.*

IEC/TR 60825-14:2004, *Safety of laser products – Part 14: A user's guide*