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TECHNICAL REPORT

colour inside

Safety of laser products –
Part 13: Measurements for classification of laser products

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FOREWORD

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IEC 60825-13, 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 of IEC 60825-13, published in 2006. It constitutes a technical revision.

The main changes with respect to the previous edition are as follows:

Minor changes and additions have been made in the definitions, classification flow has been updated, apparent source sections have been clarified, scanning has been updated, and more examples and useful conversions have been added to the annexes.

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

Enquiry draft	Report on voting
76/424/DTR	76/447/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.

This technical report is to be used in conjunction with IEC 60825-1:2007.

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 stability 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- withdrawn,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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

SAFETY OF LASER PRODUCTS –

Part 13: Measurements for classification of laser products

1 Scope

This part of IEC 60825 provides manufacturers, test houses, safety personnel, and others with practical guidance on methods to perform radiometric measurements or analyses to establish the emission level of laser energy in accordance with IEC 60825-1:2007 (herein referred to as “the standard”). The measurement procedures described in this technical report are intended as guidance for classification of laser products in accordance with that standard. Other procedures are acceptable if they are better or more appropriate.

Information is provided for calculating accessible emission limits (AELs) and maximum permissible exposures (MPEs), since some parameters used in calculating the limits are dependent upon other measured quantities.

This document is intended to apply to lasers, including extended sources and laser arrays. Users of this document should be aware that the procedures described herein for extended source viewing conditions may yield more conservative results than when using more rigorous methods.

NOTE Work continues on more complex source evaluations and will be provided as international agreement on the methods is reached.

2 Normative references

The following referenced document is 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*

3 Terms and definitions

For the purposes of this document, the terms and definitions contained in IEC 60825-1:2007 as well as the following terms and definitions apply.

3.1
angular velocity
speed of a scanning beam in radians per second

3.2
beam profile
irradiance distribution of a beam cross-section

3.3
beam waist
minimum diameter of an axis-symmetric beam

Note 1 to entry: For non-symmetric beams, there may be a beam waist along each major axis, each located at a different distance from the source.