

Australian/New Zealand Standard™

Safety of laser products

**Part 1: Equipment classification and
requirements**



AS/NZS IEC 60825.1:2011

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee SF-019, Personal Protection Against Laser Radiation. It was approved on behalf of the Council of Standards Australia on 20 October 2011 and on behalf of the Council of Standards New Zealand on 25 October 2011. This Standard was published on 5 December 2011.

The following are represented on Committee SF-019:

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Australian Dental Association
Defence Materiel Organisation (Australia)
Defence Science & Technology Organisation
Electronics Industry Association
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This Standard was issued in draft form for comment as DR AS/NZS IEC 60825.1.

Australian/New Zealand Standard™

Safety of laser products

Part 1: Equipment classification and requirements

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee SF-019, Personal Protection Against Laser Radiation, to supersede Sections 1 and 2 of AS/NZS 2211.1:2004, *Safety of laser products, Part 1: Equipment classification, requirements and user's guide, (IEC 60825-1:2001, MOD)*.

The objectives of this Standard are as follows:

- (a) To protect people from laser radiation in the wavelength range 180 nm to 1 mm by introducing a system of classification of lasers and laser products according to their degree of optical radiation hazard.
- (b) To lay down requirements for the manufacturer to supply information so that proper precautions can be adopted.
- (c) To ensure adequate warnings are provided to individuals of hazards associated with accessible radiation from laser products through the use of labels and instructions.
- (d) To reduce the possibility of injury by minimizing unnecessary accessible radiation and to give improved control of the laser radiation hazards through protective features.

This Standard is identical with, and has been reproduced from IEC 60825-1, Ed.2.0 (2007), *Safety of laser products—Part 1: Equipment classification and requirements*. IEC Interpretation Sheets 1 and 2 have been incorporated after the contents list.

As this Standard is reproduced from an International Standard, the following applies:

- (a) Its number appears on the cover and title page while the International Standard number appears only on the cover.
- (b) In the source text 'IEC 60825-1' should read 'This Australian/New Zealand Standard'.
- (c) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

<i>Reference to International Standard</i>		<i>Australian/New Zealand Standard</i>	
IEC		AS	
60601	Medical electrical equipment	3280	Medical electrical equipment
60601-2-22	Part 2-22: Particular requirements for basic safety and essential performance of surgical, cosmetic, therapeutic and diagnostic laser equipment	3280.2.22	Part 2.22: Particular requirements for basic safety and essential performance of surgical, cosmetic, therapeutic and diagnostic laser equipment
61010	Safety requirements for electrical equipment for measurement, control and laboratory use	61010	Safety requirements for electrical equipment for measurement, control and laboratory use
61010-1	Part 1: General requirements	61010.1	Part 1: General requirements (IEC 61010-1:2001, MOD)

The term 'informative' has been used in this Standard to define the application of the annex to which it applies. An 'informative' annex is only for information and guidance.

Standards in the IEC 60825 series may have been adopted as either AS/NZS IEC 60825 series standards, e.g. IEC/TR 60825-14 has been adopted as AS/NZS IEC 60825.14, or AS/NZS 2211 series standards, e.g. IEC 60825-4 has been adopted as AS/NZS 2211.4.

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AUSTRALIAN/NEW ZEALAND STANDARD

Safety of laser products

Part 1: Equipment classification and requirements

1 Scope and object

IEC 60825-1 is applicable to safety of laser products emitting laser radiation in the wavelength range 180 nm to 1 mm.

A laser product may consist of a single laser with or without a separate power supply or may incorporate one or more lasers in a complex optical, electrical, or mechanical system. Typically, laser products are used for demonstration of physical and optical phenomena, materials processing, data reading and storage, transmission and display of information, etc. Such systems have found use in industry, business, entertainment, research, education, medicine and consumer products.

Laser products that are sold to other manufacturers for use as components of any system for subsequent sale are not subject to IEC 60825-1, since the final product will itself be subject to this standard. However, if the laser system within the laser product is operable when removed from the equipment, the requirements of this Part 1 apply to the removable unit.

NOTE 1 Operable equipment does not require a tool to prepare for operation.

Any laser product is exempt from all further requirements of this Part 1 if classification by the manufacturer of that product according to Clauses 3, 8 and 9 shows that the emission level does not exceed the AEL (accessible emission limit) of Class 1 under all conditions of operation, maintenance, service and failure.

NOTE 2 The above exemption is to ensure that inherently safe laser products are not unnecessarily subject to the standard.

In addition to the hazards resulting from laser radiation, laser equipment may also give rise to other hazards such as fire and electric shock.

NOTE 3 However, the classification and other requirements of this standard are intended to address only the laser radiation hazards to the eyes and skin. Other hazards are not included within its scope.

This Part 1 describes the minimum requirements. Compliance with this Part 1 may not be sufficient to achieve the required level of product safety. Laser products must conform to the applicable performance and testing requirements of the applicable product safety standards.

NOTE 4 Other standards may contain additional requirements. Consideration should also be given to the intended application and user group. For example, a class 3B or class 4 laser product may not be suitable for use as a consumer product.