AS/NZS 2211.7:2002
IEC TS 60825-7:2000

Australian/New Zealand Standard™

Safety of laser products

Part 7: Safety of products emitting infrared optical radiation, exclusively used for wireless 'free air' data transmission and surveillance

Standards Australia

STANDARDS NEW ZEALAND
Paerewa Aotearoa

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 30 August 2002 and on behalf of the Council of Standards New Zealand on 3 September 2002. It was published on 1 October 2002.

The following are represented on Committee SF-019:

Australian Faculty of Occupational Medicine
Australian Chamber of Commerce and Industry
Australian Defence Force Academy
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Australian Radiation Laboratory
Department of Defence (Australia)
National Radiation Laboratory New Zealand
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Australian/New Zealand Standard™

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PREFACE

This Standard was prepared by the Standards Australia Committee SF-019, Safety of Laser Products.

This Standard is identical with and has been reproduced from IEC TS 60825-7:2000, *Safety of laser products*—Part 7: *Safety of products emitting infrared optical radiation, exclusively used for wireless 'free air' data transmission and surveillance*.

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, 'this technical specification' 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/New Zealand Standards, as follows:

Reference to International Standard or other publication		*Australian/New Zealand publication*	
IEC		AS/NZS	
60050	International Electrotechnical Vocabulary (IEV)	—	
60050(845)	Chapter 845: Lighting	—	
60825	Safety of laser products	2211	Safety of laser products
60825-1	Part 1: Equipment classification, requirements and user's guide	2211.1	Part 1: Equipment classification, requirements and user's guide
60825-2	Part 2: Safety of optical fibre communication systems	2211.2	Part 2: Safety of optical fibre communication systems
60825-6	Part 6: Safety of products with optical sources, exclusively used for visible information transmission to the human eye	2211.6	Part 6: Safety of products with optical sources, exclusively used for visible information transmission to the human eye

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.

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INTRODUCTION

Probably because of the increasing radiation power available from LEDs, and their physical similarity to laser diodes, these devices have been included in the scope of the laser safety standard IEC 60825-1. However, the optical radiation from LEDs differs in various aspects from laser sources; generally, they lie between incoherent broadband sources, and coherent laser sources.

The safety philosophy and classification requirements of IEC 60825-1, developed for coherent point sources (with the assumption of Gaussian radiation characteristics), has been transferred to incoherent intermediate sources (with typically Lambertian radiation characteristics) which are often made for intentional viewing. The result has been an overestimation of the real risk from this kind of source.

In Europe, and effective since January 1997, EN 60825-1, which includes LEDs, is valid. According to the European product safety laws, this means that each LED product has to be classified under single-fault conditions.

IEC technical committee 76 (jointly with subcommittee 100C/working group 17) was established with the objective of preparing additional parts to the 60825 series, for specific application-related requirements.

Due to problems with LED source, the basic standard IEC 60825-1 is also under consideration and technical development. If a new edition of IEC 60825-1 with a changed safety philosophy becomes valid in the future, it will influence all subsidiary standards. This development will influence and/or change the basis for a more realistic assessment of the optical hazard of LEDs in the future. With this background, the value of this technical specification could be temporary if a suitable treatment is developed in IEC 60825-1.

This technical specification is considered as a "prospective standard for provisional application" in the field of optical radiation safety of LEDs. This is because there is an urgent need for guidance on how standards in this field should be used to meet an identified need.

AUSTRALIAN/NEW ZEALAND STANDARD

Safety of laser products

Part 7:

Safety of products emitting infrared optical radiation, exclusively used for wireless 'free air' data transmission and surveillance

1 Scope and object

This technical specification provides the requirements and specific guidance for the safe use of products that are within the scope of IEC 60825-1, which emit infrared optical radiation, when such products are used exclusively for wireless "free air" data transmission and surveillance.

The peak wavelength for these products must be greater than 780 nm. This specification is limited to sources with *NOHD* less than 2,5 m. Also, Class 4-products are not covered by this specification and should be treated by the requirements of IEC 60825-1.

NOTE Applications with nearly collimated beams (e.g. free space point to point transmission lines) are not covered by this specification. In most cases, the selected application group diode emitter sources, which cover laser diodes and infrared LEDs as well, will be used. However, throughout this specification all sources covered by the scope are included whenever the word "diode emitter" is used.

The object of this specification is as follows:

– to protect persons from exposure to hazardous infrared optical radiation, resulting from products used for free air infrared data transmission, remote control, surveillance;

– to lay down requirements, for both user and manufacturer, to establish procedures and supply information so that proper precautions can be adopted;

– to ensure adequate warning to individuals of hazards associated with accessible optical radiation from products with infrared optical sources, through signs, labels and instructions;

– to reduce the possibility of injury by minimizing unnecessary accessible radiation, and to give improved control of the optical radiation emitted by products with infrared optical sources, through protective features and also to provide safe usage of products.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this technical specification. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this technical specification are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

IEC 60050(845):1987, *International Electrotechnical Vocabulary (IEV) – Chapter 845: Lighting*

IEC 60825-1:1993, *Safety of laser products – Part 1: Equipment classification, requirements and users guide*
Amendment 1:1997

IEC 60825-2:1993, *Safety of laser products – Part 2: Safety of optical fibre communication systems*

IEC 60825-6:1999, *Safety of laser products – Part 6: Safety of products with optical sources, exclusively used for visible information transmission to the human eye*