

Australian/New Zealand Standard™

Safety of laser products

Part 12: Safety of free space optical communication systems used for transmission of information



AS/NZS 2211.12:2006

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 19 January 2006 and on behalf of the Council of Standards New Zealand on 3 February 2006.
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Australian Chamber of Commerce and Industry
Australian Defence Force Academy
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Australian Radiation Laboratory
Department of Defence (Australia)
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STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

RECONFIRMATION

OF

AS/NZS 2211.12:2006

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NOTES

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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.

The Standard is identical with and has been reproduced from IEC 60825-12 Ed.1.0 (2005), *Safety of laser products, Part 12: Safety of free space optical communication systems used for transmission of information*.

The objective of this Standard is to provide requirements and specific guidance for the manufacture and safe use of laser products and systems used for point-to-point or point-to-multipoint free space optical data transmission.

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.

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 part of IEC 60825’ should read ‘this Australian/New Zealand Standard’.
- (c) A full point should be substituted for a comma when referring to a decimal marker.

References to International Standards should be replaced by references Australian Standards, as follows:

<i>Reference to International Standard</i>		<i>Australian/New Zealand Standard</i>	
IEC		AS/NZS	
60825	Safety of laser products	2211	Laser safety
60825-1	Part 1: Equipment classification, requirements and user’s guide	2211.1	Part 1: Equipment classification, requirements and user’s guide (IEC 60825-1:2001, MOD)
60825-2	Part 2: Safety of optical fibre communication systems (OFCS)	2211.2	Part 2: Safety of fibre optical communication systems (OFCS)

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AUSTRALIAN/NEW ZEALAND STANDARD

Safety of laser products

Part 12:

Safety of free space optical communication systems used for transmission of information

1 Scope

This part of IEC 60825 provides requirements and specific guidance for the manufacture and safe use of laser products and systems used for point-to-point or point-to-multipoint free space optical data transmission. This standard only addresses the open beam portion of the system. If portions of the equipment or system incorporate optical fibre that extends from the confinements of the enclosure(s), the manufacturing and safety requirements under IEC 60825-1 apply to those portions only. This standard does not apply to systems designed for purposes of transmitting optical power for applications such as material processing or medical treatment. This standard also does not apply to the use of systems in explosive atmospheres.

Throughout this part of IEC 60825, light-emitting diodes (LEDs) are included whenever the word "laser" is used.

The objective of this part of IEC 60825 is to:

- provide information to protect people from potentially hazardous optical radiation produced by free space optical communication systems (FSOCS) by specifying engineering controls and requirements, administrative controls and work practices according to the degree of the hazard;
- specify requirements for manufacturing, installation, service and operating organisations in order to establish procedures and provide written information so that proper precautions can be adopted.

Because of the nature of FSOCS, also known as optical wireless or free-air information transmission systems, care must be taken in their manufacture as well as their installation, operation, maintenance and service to assure the safe deployment and use of these systems. This standard places the responsibility for certain product safety requirements, as well as requirements for providing appropriate information on how to use these systems safely, on the manufacturer of the system and/or transmitters. It places the responsibility for the safe deployment and use of these systems on the installer and/or operating organisation. It places the responsibility for adherence to safety instructions during installation and service operations on the installation and service organisations as appropriate, and during operation and maintenance functions on the operating organisation. It is recognised that the user of this standard may fall into one or more of the categories of manufacturer, installer, service organisation and/or operating organisation as mentioned above.

Any laser product is exempt from all further requirements of this part of IEC 60825 if

- classification by the manufacturer according to IEC 60825-1 shows that the emission level does not exceed the accessible emission limit (AEL) of Class 1 under all conditions of operation, maintenance, service and failure, and
- it does not contain an embedded laser product.