

AS/NZS 4173:2018
(Incorporating Amendment No. 1)

AS/NZS 4173:2018

Australian/New Zealand Standard™

**Safe use of lasers and intense light
sources in health care**



AS/NZS 4173:2018

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee HE-003, Medical Electrical Equipment. It was approved on behalf of the Council of Standards Australia on 22 March 2018 and by the New Zealand Standards Approval Board on 3 April 2018.

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The following are represented on Committee HE-003:

Australasian College of Physical Scientists and Engineers in Medicine
Australasian Society for Ultrasound in Medicine (ASUM)
Australian and New Zealand College of Anaesthetists
Australian Chamber of Commerce and Industry
Australian Dental Association
Australian Institute of Radiography
Australian Radiation Protection and Nuclear Safety Agency
Australian Society of Anaesthetists
Canterbury District Health Board
Certification Body Australia (Certification Interests Australia)
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Engineers Australia
Health Industry Suppliers Association of New Zealand
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ACORN (Australian College of Operating Room Nurses)

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This Standard was issued in draft form for comment as DR AS/NZS 4173:2017.

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**Safe use of lasers and intense light
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Sub-Committee HE-003-12, Lasers in Medical Procedures, under the responsibility of Committee HE-003, Medical Electrical Equipment, to supersede AS/NZS 4173:2004, *Guide to the safe use of lasers in health care*.

This Standard incorporates Amendment No. 1 (March 2019). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

The objective of this Standard is to specify requirements for the safe use of lasers and intense light sources, including intense pulsed light (IPL) for diagnostic, cosmetic and therapeutic uses in health care facilities (including hospitals, private medical facilities and dental practices) and the cosmetic industry. To this end, it identifies engineering and administrative control measures designed to avoid the most significant hazards, and includes in Appendices explanations of basic laser and light physics as they apply to this Standard, and radiation/tissue interactions. Protocols to be observed during certain specialist medical and dental procedures are also included.

This Standard was prepared in the knowledge that separate Standards exist for medical laser and IPL equipment (AS IEC 60601.2.22, *Medical electrical equipment, Part 2.22: Particular requirements for basic safety and essential performance of surgical, cosmetic, therapeutic and diagnostic laser equipment*, and AS IEC 60601.2.57, *Medical electrical equipment, Part 2.57: Particular requirements for the basic safety and essential performance of non-laser light source equipment intended for therapeutic, diagnostic, monitoring and cosmetic/aesthetic use*, respectively). These Standards incorporate mandatory engineering and installation requirements to be observed by the manufacturers and constructors. Accordingly, this Standard concentrates on identifying those administrative needs and user precautions which are of equal importance. In particular, the importance of staff training is emphasized and this Standard—

- (a) identifies appropriate levels of staff training (i.e. not all staff are required to be trained to the same level); and
- (b) recommends that relevant educational organizations insist on formal medical laser/ILS training and certification of post graduate specialists.

This Standard differs from the second (2004) edition in the following respects:

- (i) Changes to the IEC laser classification scheme.
- (ii) The terminology and language used is intended to make it easier to read, interpret, and implement where applicable, for users and administrators alike.
- (iii) Normative material has been separated from informative material, the latter being in Appendices.
- (iv) Descriptions and definitions have been updated, taking into account the changes in the technology and science of lasers in health care since the second edition.
- (v) Inclusion of consideration of intense light sources, in particular IPLs which, while using incoherent light and thus not lasers, have similar operator and patient safety issues.

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

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