AS 3562—1990

Australian Standard®

Lighting equipment for bicycles

This Australian Standard was prepared by Committee CS/8, Bicycle Lamps and Reflectors. It was approved on behalf of the Council of Standards Australia on 21 May 1990 and published on 17 September 1990.

The following interests are represented on Committee CS/8:

Attorney-General's Department
Australian Consumers Association
Bicycle Federation of Australia
Business and Consumer Affairs, N.S.W.
Confederation of Australian Industry
Department of Transport and Communications
Ministry of Consumers Affairs, Vic.
Road Traffic Authority, Vic.
Roads and Traffic Authority of New South Wales
State Bicycle Committee, Vic.
University of Melbourne

Additional interests participating in preparation of Standard:

Photometric Laboratories

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PREFACE

This Standard was prepared by the Standards Australia Committee on Bicycle Lamps and Reflectors at the request of the Consumer Safety Standards Board.

This Standard is based on International Standard ISO 6742/1, *Cycles—Lighting and reflective devices—Photometric and physical requirements*, Part 1: *Lighting equipment*. The differences are as follows:

(a) *Headlamp*

(i) *Luminous intensity of the headlamp* On the horizontal plane, the distribution points A_1, B_1, and B_3 have been shifted up by 3.5 degrees and the test points B_2 and B_4 have been positioned 1 degree up and 1 degree down from point A_1, respectively. Absolute values only are given; there is no reference to percentage of peak value.

(ii) *Colour of light* The selective yellow light, permitted by ISO 6742/1 as an alternative to a white light, has not been included.

(iii) *Lens size* A minimum effective optical area of the lamp lens has been included to improve the conspicuousness of the cyclist to other road users.

(iv) *Mounting devices* A requirement for the mounting device of the head lamp, so that it can be positioned within a defined area on the bicycle, has been added.

(b) *Rear lamp*

(i) *Luminous intensity of the rear lamp* Higher luminous intensity requirements than those given in ISO 6742/1 have been specified over the whole range of tests points, and additional test points at 5 degrees from the vertical and horizontal planes have been included. Absolute values only are given; there is no reference to percentage of peak value, and the intensities specified are equivalent to those of BS 6102, Part 3: *Specifications for photometric and physical requirements of lighting equipment.*

(ii) *Vertical cone of light* The luminous intensity requirements in a vertically upwards direction for red light from the rear lamp has not been included.

(iii) *Colour of light* The chromaticity region for the red light has been tightened to improve the conspicuousness of the cyclist to other road users.

(iv) *Lens size* A requirement for minimum optical area of the lamp lens has been added to improve the conspicuousness of the cyclist to other road users.

(v) *Mounting device* A requirement for the mounting device of the rear lamp, so that it can be positioned within a defined area on the bicycle, has been added.

(c) *Batteries* A requirement to ensure the continuance of luminous intensity for battery-operated headlamps and rear lamps has not been included.

(d) *Generators*

(i) *Output voltage* The output voltage characteristics of generators have been extended to include road speeds of 80 km/h, because velocities of this magnitude can be achieved on down-hill rides.

(ii) *Voltage regulation* A requirement relating to voltage regulation of generator output has been added.

During its work, the committee considered the inclusion of requirements for flashing yellow rear lamps for use on bicycles. The use of such lamps is illegal in some States of Australia, and thus the requirements have been omitted.

CONTENTS

STANDARDS AUSTRALIA

Australian Standard
Lighting equipment for bicycles

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard specifies the design performance, photometric, electrical, mechanical and marking requirements for lighting equipment for bicycles intended for use on public roads.

This Standard does not apply to reflectors (see AS 2142).

1.2 APPLICATION All lamps shall comply with the requirements of Section 2, and with the requirements of the following Sections, as applicable:

(a) Headlamps . . . . . Section 3.

(b) Rear lamps . . . . . Section 4.

1.3 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS
2142 Reflectors for pedal bicycles

2176 Primary batteries

2218 Cables for use in automotive vehicles—PVC insulated cables having copper conductors

2331 Methods of test for metallic and related coatings
2331.3.1 Method 3.1: Corrosion and related property tests—Neutral salt spray (NSS) test

IEC
285 Sealed nickel-cadmium cylindrical rechargeable single cells

1.4 DEFINITIONS For the purpose of this Standard, the definitions below apply.

1.4.1 Bicycle—any vehicle that has two wheels and is propelled solely by the muscular energy of the person on that vehicle, in particular by means of pedals. For the purpose of this Standard, use of the word bicycle is intended to include tricycle.

1.4.2 Bulb—a sealed beam unit or source of light within a lamp, including envelope, mounting, and connector.

1.4.3 Centre of reference—the intersection of the axis of reference with the light output surface of the lamp. (See Figure 1.1.)

1.4.4 Chromaticity—the colour quality of a colour stimulus definable by its chromaticity coordinates.

1.4.5 Headlamp—a lamp that shows a light to the front of the cycle.

1.4.6 Lamp—a complete assembly, including casing (with mounting bracket and external electrical connectors, if applicable), lens system, reflector(s), and bulb(s).

1.4.7 Lens—a refracting component of the lamp which distributes the luminous flux from the light source into preferred directions and may filter the light to give the desired colour.

1.4.8 Luminous flux—the total light emitted from a light source.

Unit: lumen Unit symbol: *lm*

1.4.9 Luminous intensity—the luminous flux emitted by a light source, in a given direction, in an infinitesimal cone containing the given direction divided by the solid angle of that cone.

Unit: candela Unit symbol: *cd*

1.4.10 Rated voltage—the voltage marked on the bulb.

1.4.11 Rear lamp—a lamp that shows a light to the rear of a bicycle.

1.4.12 Reference axis—a characteristic axis to define the 0,0 point in luminous intensity measurements. (See Figure 1.1.)

1.4.13 Reference luminous flux—the specified luminous flux of a filament lamp to which the photometric requirements of a headlamp or rear lamp are referred.

NOTE: This will be usually set by the bulb manufacturer.

1.4.14 Shall—indicates that a statement is mandatory.

1.4.15 Should—indicates a recommendation.

1.4.16 System—lamps, switches, power supplies, and wiring.