

Australian Standard[®]

**REFLECTORS
FOR PEDAL BICYCLES**

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The following scientific, industrial, consumer and governmental organizations and departments were officially represented on the committee entrusted with the preparation of this standard:

Associated Chambers of Manufactures of Australia
Australia Post
Department of Business and Consumer Affairs
Metal Trades Industry Association of Australia
Road Safety and Traffic Authority of Victoria
University of New South Wales (School of Transport and Highways)

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PREFACE

This standard was prepared by a subcommittee of the Association's Committee on Pedal Bicycles.

Reflectors effectively increase the visibility and safety of pedal cyclists during the period dusk to dawn. Traffic accident statistics show clearly that the majority of accidents involving pedal cyclists during this period resulted from the bicycle being struck from the side or rear. For this reason AS 1927, Pedal Bicycles, which is largely based on regulations prepared by the Consumer Product Safety Commission of the United States of America, includes mounting specifications for reflectors.

This standard specifies the colorimetric and photometric performance of such reflectors. These requirements are similar to those specified in the U.S. regulations and the committee considered that these should be the minimum requirements for bicycle reflectors in Australia.

In particular all reflectors, except pedal reflectors, must meet photometric requirements for entrance angles up to and including 50 degrees left and right. Many reflectors in use at present reflect less light than is specified in this standard, this light being reflected within the smaller range of entrance angles of up to 30 degrees left and right.

Reflectors complying with this standard and mounted in accordance with the requirements specified in AS 1927 will make a bicycle more easily visible. Visibility depends on the reflectors being kept in a clean condition and being illuminated by clean and correctly adjusted dipped headlights. It is emphasized that the efficiency of a wide angle reflector depends critically on the reflector being mounted correctly, especially in regard to its rotation about its own axis which is the line perpendicular to the backing plate of the reflector passing through the centre of the reflector face.

The photometric test methods are drawn from AS 1906, Retroreflective Materials and Devices for Road Traffic Control Purposes, Part 1—Retroreflective Materials. The colorimetric test methods are tentative pending international agreement. A visual method to facilitate the checking of colour is included for use where a suitable instrument is unavailable.

It is strongly recommended that in view of the nature of this standard, manufacturers and purchasers make use of the scheme operated by the Standards Association of Australia, whereby the product may bear the certification mark of SAA (see Note to Clause 7).

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard Specification
for
REFLECTORS FOR PEDAL BICYCLES

1 SCOPE. This specification sets out photometric and colorimetric requirements for retroreflective devices (reflectors) for pedal bicycles.

2 APPLICATION. The specification applies to retroreflective devices that are usually relatively small in area and constructed as an array of corner cube reflectors or other retroreflective elements.

NOTE: For the method of mounting the reflectors on a pedal bicycle, see AS 1927, Pedal Bicycles.

3 DEFINITIONS. For the purpose of this specification, the following definitions apply;

Observation angle (α)—the angle formed by a line from the point of observation to the centre of the reflector with a second line from the centre of the reflector to the source of illumination (see Appendix A, Fig. A1).

Entrance angle (β)—the angle between the axis of the reflector and a line from the centre of the reflector to the source of illumination (see Appendix A, Fig. A1). The entrance angle is designated left, right, up or down in accordance with the position of the source of illumination with respect to the axis of the reflector, as viewed behind the reflector (see Appendix A, Fig. A2).

Rotation angle (ϵ)—the angle about the axis of the reflector, measured from an arbitrary starting point, through which the retroreflective device is rotated during photometric testing.

Axis of reflector—the line perpendicular to the backing plate of the reflector passing through the centre of the reflector face.

Luminous intensity—the intensity of luminous flux in a given direction from a light source. It is the quotient of the luminous flux leaving the source, propagated in an element of solid angle containing the given direction, divided by the element of solid angle. The unit is the candela (cd).

Illuminance—the amount of luminous flux reaching a surface. It is the quotient of the luminous flux incident in an element of the surface divided by the area of that element. The unit is the lux (lx).

Illuminance at the retroreflective device—the illuminance produced by the source of light and measured in a plane perpendicular to the incident light beam and passing through the centre of the test specimen.