Traffic signal lanterns

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The following interests are represented on Committee LG-006:

ARRB Transport Research
Australian Electrical and Electronic Manufacturers Association
Australian Industry Group
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Road and Traffic Authority of N.S.W.
Transport SA
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Australian/New Zealand Standard™

Traffic signal lanterns

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee LG-006 Road Traffic Signals to supersede AS 2144—1995. It is one of a number of Standards which set out requirements for the equipment associated with traffic signal installations. These include the following:

AS	
2339	Traffic signal posts and attachments
2353	Pedestrian push-button assemblies
2578	Traffic signal controllers
2578.1	Part 1: Physical and electrical compatibility
2703	Vehicle loop detector sensors
2979	Traffic signal mast arms
4113	Traffic signal lamps
4113.1	Part 1: Lamps for 240 V a.c. operation
4113.2	Part 2: Lamps for a.c. operation at extra-low voltage
4191	Portable traffic signal systems
AS/NZS	
2144	Traffic signal lanterns (this Standard)
4192	Illuminated flashing arrow signs

The Standard includes requirements for the dimensions of certain features of traffic signal lanterns and associated components, arising from a specific desire on the part of road and traffic authorities for uniformity in the appearance of traffic signalling equipment to road users, and from the need to facilitate the compatibility of equipment from different manufacturers. In particular, Appendix F gives recommended dimensions for the attachment of visors and target boards which have the objective of achieving interchangeability between components supplied by different manufacturers.

The requirements have the objective of ensuring that, with the exception of replaceable items such as lamps and LED arrays, lanterns will continue to function effectively for a period of at least 20 years; furthermore, that surface finishes applied to the exterior of lanterns (e.g. powder coatings, paint) will last for at least 10 years without the need for further treatment.

The photometric requirements for vehicular lanterns have been derived from the considerable body of research which has been conducted in Australia into factors affecting the visibility of these signals (see references in Appendix C).

The photometric requirements apply to new lanterns. In service the photometric performance will deteriorate, sometimes appreciably. Therefore to ensure that the lanterns continue to perform at a satisfactory level a maintenance program will be necessary.

It is recommended that the tests necessary to determine compliance with this Standard be conducted by laboratories that are independently accredited as having competence to carry out the type of measurements involved.

A number of changes have been introduced in this edition, all with the objective of enlarging the scope of the Standard to cover traffic signals using light emitting diodes (LEDs) as the l

CONTENTS

Page

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard
Traffic signal lanterns

S E C T I O N 1 S C O P E A N D G E N E R A L

1.1 SCOPE

This Standard specifies requirements for the design, construction and performance of traffic signal lanterns that use either incandescent, or light emitting diode (LED) light sources and are intended to control the movement of vehicles, including bicycles, and pedestrians. It does not apply to the control equipment that may be necessary for the functioning of the lanterns.

For vehicular lanterns, two basic levels of performance are specified, namely, for general purpose lanterns and for extended range lanterns. Requirements are also specified for a variety of special purpose lanterns.

NOTES:

1 Requirements for the use of traffic signal lanterns in the control of vehicular and pedestrian traffic are set out in the AS 1742 series.

2 See Appendix A for the information which should be supplied with an inquiry or order for traffic signal lanterns to this Standard.

1.2 REFERENCED DOCUMENTS

The Standards referred to in this document are listed in Appendix B.

NOTE: See Appendix C for bibliographical details of other sources of information.

1.3 DEFINITIONS

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

NOTE: Definitions of lighting quantities are of the simplified form given in AS 3665, which are intended to convey a basic understanding of the concepts involved. For the more precise primary definitions of these terms reference should be made to AS 1852.845.

1.3.1 Aspect

A single optical system of a traffic signal lantern, capable of being illuminated at any given time.

1.3.2 Beam axis (for vehicular lanterns)

A straight line passing through the geometric centre of the lens in the direction of maximum intensity of the light emitted by the lantern, as determined in accordance with Paragraph D3.1 of Appendix D.

1.3.3 Bicycle lantern

A lantern which is intended for the control of bicycle traffic.

1.3.4 Chromaticity

A term referring to colour quality expressed numerically.