AS 2144:2014

Australian STANDARD

Traffic signal lanterns

STANDARDS Australia

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- Australian Industry Group
- AUSTROADS
- Brisbane City Council
- CIE Australia
- Department of Planning, Transport and Infrastructure, SA
- Department of Transport and Main Roads, Qld
- IES: The Lighting Society
- Intelligent Transport Systems Australia
- Lighting Council of Australia
- Main Roads Western Australia
- Roads and Maritime Services
- VicRoads

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Australian Standard®

Traffic signal lanterns

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PREFACE

This Standard was prepared by Standards Australia Committee LG-006, Road Traffic Signals, to supersede AS/NZS 2144:2002. It is one of a number of Standards which set out requirements for the equipment associated with traffic signal installations. These include the following:

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2144	Traffic signal lanterns (this Standard)
2339	Traffic signal posts and attachments
2353	Pedestrian push-button assemblies
2578	Traffic signal controllers
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
4192	Illuminated flashing arrow signs
4852	Variable message signs
4852.1	Part 1: Fixed signs
4852.2	Part 2: Portable signs
5156	Electronic speed limit signs

The objective of this Standard is to ensure that, with the exception of replaceable items such as 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 major changes that have been introduced in this edition are due to the changes that have occurred in technology since the previous (2002) edition. The principal differences between this and the previous edition are as follows:

(a) Incandescent lamps are no longer covered by this Standard as they are considered obsolescent.

(b) Requirements for lanterns operating at extra-low voltage (ELV) have been added.

(c) Environmental tests are now required and a clause defining them has been added.

Statements expressed in mandatory terms in footnotes to figures are deemed to be requirements of this Standard.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A normative appendix is an integral part of a Standard, whereas an informative appendix is only for information and guidance.

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FOREWORD

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.

NOTE: In particular, Appendix F gives recommended dimensions for visors and the attachment of target boards, with the objective of achieving interchangeability between components supplied by different manufacturers.

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.

NOTE: 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.

STANDARDS AUSTRALIA

Australian 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 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 external 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 lanterns that display symbols.

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 that comply with this Standard.

1.2 REFERENCED DOCUMENTS

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

NOTE: See Appendix C for bibliographic references.

1.3 DEFINITIONS

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

NOTE: Definitions of lighting quantities are given in AS 1852.845.

1.3.1 Aspect

A single optical system of a traffic signal lantern.

1.3.2 Beam axis (for vehicular lanterns)

A straight line passing through the geometric centre of the lens in the direction of maximum luminous 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.

1.3.5 Chromaticity coordinates

Two numbers that fix the position of a point on a colour diagram in order to numerically and graphically represent the colour of an object or light source.

NOTE: In essence, the numbers represent the proportions of two of three primary colours in a mixture that matches the colour specified. These proportions are often expressed in terms of the coordinates x, y in the CIE colorimetric system (see AS/NZS 2633).