Australian Standard®

Road lighting luminaires with integral control gear

STANDARDS AUSTRALIA

This Australian Standard was prepared by Committee LG/2, Street Lighting. It was approved on behalf of the Council of Standards Australia on 20 December 1989 and published on 7 May 1990.

The following interests are represented on Committee LG/2:

Australian Automobile Association

Australian Electrical and Electronic Manufacturers Association

Australian Local Government Engineers Association

Australian Road Research Board

Austroads

Department of Transport and Communications (Commonwealth)

Electricity Supply Association of Australia

Illuminating Engineering Societies of Australia

The University of New South Wales

This Standard was issued in draft form for comment as DR 89060 and DR 89061.

AS/NZS 2293

Emergency evacuation lighting for buildings

AS/NZS 2293.1:1995

System design, installation and operation 52pp *G*

Sets out requirements for the design, installation and operation of electric emergency evacuation lighting systems for buildings. Object is to provide visual conditions which will alleviate panic and permit safe evacuation of the building's occupants, should this be necessary, in the event of failure of the electrical supply to the normal lighting. Does not specify types of buildings nor particular locations which should be provided with emergency evacuation lighting. Different requirements are specified for application in Australia and New Zealand, particularly with respect to the spacing of emergency luminaires.

(LG/7) (ISBN 0 7262 9882 4)

AS/NZS 2293.2:1995

Inspection and maintenance 10pp *CC*

Sets out periodic inspection and maintenance procedures for emergency evacuation lighting systems for buildings. The procedures are intended to ensure that such systems will be in a state of readiness for operation at all times. Requirements apply to the central and single-point emergency lighting systems, as defined in AS/NZS 2293.1.

(LG/7) (ISBN 0 7262 9887 5)

AS/NZS 2293.3:1995

Emergency luminaires and exit signs 32pp *EE*

Sets out requirements for the design, construction, performance and testing of emergency luminaires and exit signs to ensure that they function in a safe and effective manner under expected operational and environmental conditions. Applies both to emergency luminaires and exit signs which are centrally supplied and emergency luminaires and exit signs of the self-contained type. Different requirements are specified for application in Australia and New Zealand, particularly with respect to exit signs.

(EL/41) (ISBN 0 7262 9883 2)

AS 2502—1981

The lighting of operating rooms 8pp *C*

Prescribes requirements for the installation and maintenance of artificial lighting in operating rooms and associated service areas of hospitals and medical premises. It also deals with design, construction and performance of special purpose lighting devices.

(LG/1) (ISBN 0 7262 2391 3)

AS 2946—1991

Suspended ceilings, recessed luminaires and air diffusers—Interface requirements for physical compatibility 22pp *G*

(EL/41) (ISBN 0 7262 6449 0)

SAA SP 017

Glare Index Software *$650*

Glare Index is a computer program for the determination of a glare index value according to the method described in the definitive Chartered Institute of Building Services Engineers (CIBSE) Technical Memorandum No 10. For lighting engineers, architects, designers and occupational health specialists, it provides a fast, accurate method of calculating glare index values in accordance with AS 1680.1—1990, Section 8.

(ISBN 0 7262 7229 9)

91.160.20 Exterior lighting

AS 1158

Code of practice for public lighting

AS 1158.1—1986

Performance and installation design requirements 25pp *F*

Amdt 1 May 1987 *X*

Applies to the whole of urban road hierarchy from major arterial roads, including freeways, to residential streets and certain public thoroughfares, other than roads, which provide for the movement of pedestrians and /or cyclists. A number of lighting categories are described for application to particular types of road or area and appropriate performance and installation design requirements are specified for each category. It also specifies the luminaire and installation design data that must be provided to facilitate lighting design and assessment of compliance with the specified requirements.

(LG/2) (ISBN 0 7262 4053 2)

AS 1158.2—1986

Computer procedures for the calculation of light technical parameters for category A lighting 32pp *K*

Amdt 1 May 1987 *X*

Specifies the computer based procedures applicable to Category A lighting for use in the derivation of installation design data or for the direct calculation of light technical parameters to determine compliance with the requirements of AS 1158.1. It describes the use of a computer program, designated SAA STAN, for the calculation of light technical parameters on straight sections of road. The source code for the program, on a 13 cm IBM-formatted flexible disc (designated AS 1158.2S), is provided with the Standard. The program is written in the FORTRAN language and complies with Subset FORTRAN 77. The disc contains a text file which gives information on the implementation of the program. Information on the use of the program for road lighting calculations is given in AS 1158.2.

(LG/2) (ISBN 0 7262 4054 0)

AS 1158.4—1987

Supplementary lighting at pedestrian crossings 6pp *C*

Specifies requirements for a system of floodlighting pedestrian (zebra) crossings with the object of providing advance warning to motorists and of enhancing the visibility of pedestrians. It assumes the existence of and is supplementary to road lighting complying with at least Category A 3 in AS 1158.1.

(LG/2) (ISBN 0 7262 4635 2)

AS 1798—1992

Lighting poles and bracket arms—Preferred dimensions 18pp *F*

Specifies a series of preferred dimensions for lighting poles which are designed to support luminaires and ancillary equipment for the lighting of roads and other outdoor public spaces. Applies to a variety of pole types, including those of the 'frangible' and 'slip-base' design. Also specifies preferred dimensions for separate bracket arms of a type designed for mounting onto electricity distribution poles, walls or other supporting surfaces.

(LG/2) (ISBN 0 7262 7255 8)

AS 3771—1990

Road lighting luminaires with integral control gear 24pp *G*

Amdt 1 April 1991 (ISBN 0 7262 6783 X) *X*

Specifies requirements for the design, construction, performance and testing of road lighting luminaires and for the supporting documentation which should be provided. Applies to luminaires with discharge lamps of various types and ratings which are designed to provide road lighting of Category A or Category B in accordance with AS 1158.1.

(EL/41) (ISBN 0 7262 6149 1)

AS 4065—1992

Concrete poles for overhead lines and street lighting 20pp *FF*

(CE/19) (ISBN 0 7262 7757 6)

AS 4282(Int)—1995

Control of the obtrusive effects of outdoor lighting

Expires 5 June 1997 44pp *G*

Sets out guidelines for control of the obtrusive effects of outdoor lighting and gives recommended limits for the relevant lighting parameters. Refers to the potential effects of lighting systems on nearby residents, users of adjacent roads and transport signalling systems, and on astronomical observations. Does not apply to public lighting; illuminated advertising signs, except for those of the externally illuminated 'floodlit' type; lighting systems installed for the purposes of television broadcasting; and lighting systems which are of a cyclic or flashing nature.

(LG/10) (ISBN 0 7262 9655 4)

SAA SP 007

CARL (Computer Assisted Road Lighting Software) Software *$520*

CARL is a Computer Assisted Road Lighting program which takes the codes and calculations contained within AS 1158, Parts 1 and 2 (the SAA Public Lighting Code) and integrates them into a knowledge-based system of exceptional power and user-friendliness. It provides an indispensable tool for road lighting planners with greatly differing levels of experience and skill. CARL incorporates SAA STAN, the calculation software included as part of AS 1158.2

(ISBN 0 7262 5573 4)

91.200 Construction technology

AS 2601—1991

The demolition of structures 31pp *H*

Sets out requirements for the planned demolition of buildings and certain other structures so that the risk of injury to the public and site personnel, and the risk of damage to adjacent property and the immediate environment, is minimized. Does not apply to major civil engineering structures such as bridges or dams. Covers the methods and safety procedures which are applicable to demolition works in general, as well as deemed-to-satisfy procedures for some types of structures and members. Deals with both manual and mechanical demolition techniques including those employing specialized earthmoving-type machinery. Also includes a number of informative appendices covering the demolition of prestressed concrete structures, some contractual considerations, qualifications of site personnel and a contractor's checklist.

(BD/59) (ISBN 0 7262 7050 4)

91.220 Construction equipment

AS/NZS 1576

Scaffolding

AS/NZS 1576.1:1995

General requirements 14pp *EE*

Sets out design and operational requirements for scaffolding, except trestle scaffolding, portable ladders intended to be used as working platforms and elevating working platforms.

(BD/36) (ISBN 0 7262 9410 1)

AS 3771—1990

Australian Standard®

Road lighting luminaires with integral control gear

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PREFACE

This Standard was prepared by the Standards Australia Committee on Street Lighting. It is based on documents submitted by the Electricity Supply Association of Australia and grateful acknowledgement is made of the assistance derived from that source.

The Standard applies to luminaires with integral control gear which are designed to provide road lighting of Category A or Category B in accordance with AS 1158.1, *SAA Public Lighting Code—Part 1: Performance and installation design requirements.*

Road lighting luminaires must withstand and be capable of operation under adverse conditions including the effects of salt spray, industrially contaminated atmospheres, fog, smoke, dust storms, snow, ultraviolet radiation, driving rain, wind and traffic induced vibration.

The requirements of this Standard have the objective that luminaires will have a service life of at least 15 years. The requirements are based on the use of materials recognized as effective for the application as at the date of publication. Whilst the introduction of new technology is not discouraged, the acceptance of new materials and methods of construction will be considered for inclusion in future editions of this Standard only after evidence of satisfactory long-term performance. Similarly, consideration will be given to the inclusion of lamp types and ratings other than those provided for in the Standard when their suitability for the application has been satisfactorily demonstrated.

On the basis of service experience, the Standard does not permit power factor correction capacitors and overcurrent protection devices (e.g. fuses) to be incorporated in road lighting luminaires. Where these features are desired they should be provided separately from the luminaire, e.g. in the base of the lighting pole.

Because of differences which exist between luminaires of current manufacture, in terms of the depth of the fixing spigot entry provided, the Committee recommends that the requirements of Table 2.1 be not applied before November 1991. This is to allow time for manufacturers to retool, if necessary, to comply with the dimensions specified in that Table.

In relation to ballasts for discharge lamps this Standard references IEC 922 and IEC 923 (see Appendix B for titles) in lieu of the now out-of-date AS 1468—1974, *Ballasts for high pressure mercury vapour and low pressure sodium vapour discharge lamps.*

Australian Standards based on IEC 922 and IEC 923 are in the course of preparation by the Standards Australia Committee on Auxiliaries for Discharge Lamps and, following their completion and publication, it is anticipated that AS 1468 will be withdrawn.

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE. This Standard applies to luminaires with integral control gear which are designed to provide road lighting of Category A or Category B in accordance with AS 1158.1. It specifies requirements for the design, construction, performance and testing of the luminaires and for the supporting documentation which should be provided.

The following particular types of luminaire are covered:

(a) *Category A luminaires.* Luminaires for side-entry mounting designed for use with the following lamp types and ratings:

(i) High pressure mercury vapour—250 W and 400 W lamps with diffuse outer envelopes.

(ii) High pressure sodium vapour—100 W, 150 W, 250 W and 400 W lamps with clear or diffuse outer envelopes, of a type which requires the use of an external ignitor.

(b) *Category B luminaires.* Luminaires for side-entry or post-top mounting designed for use with the following lamp types and ratings:

(i) High pressure mercury vapour—50 W, 80 W and 125 W lamps with diffuse outer envelopes.

(ii) High pressure sodium vapour—35 W, 50 W and 70 W lamps with diffuse outer envelopes, of a type which requires the use of an external ignitor.

(iii) Low pressure sodium vapour—18 W and 26 W lamps.

NOTE: Appendix A provides a guide to the information which should be supplied by the purchaser with an enquiry or order for road lighting luminaires complying with this Standard.

1.2 APPLICATION. The requirements of this Standard apply to both Category A luminaires and Category B luminaires unless specifically stated otherwise.

1.3 REFERENCED DOCUMENTS. The documents referred to in this Standard are listed in Appendix B.

1.4 DEFINITIONS. For the purpose of this Standard, the definitions given in AS 1158.1 and those below apply:

1.4.1 Luminaire—apparatus which distributes, filters or transforms the light transmitted from one or more lamps and which includes, except for the lamps themselves, all the parts necessary for fixing and protecting the lamps and, where necessary, circuit auxiliaries together with the means for connecting them to the electric supply.

NOTE: See Clause 1.7 for the components which this Standard requires be provided with each luminaire.

1.4.2 Category A Luminaire—a luminaire designed to provide road lighting of Category A in accordance with AS 1158.1.

1.4.3 Category B luminaire—a luminaire designed to provide road lighting of Category B in accordance with AS 1158.1.

1.4.4 Type P (photoelectrically controlled) luminaire—a luminaire which incorporates facilities for the control of its operation by photoelectric means.

1.4.5 Type R (remotely switched) luminaire—a luminaire with no facilities for photoelectric control which is intended for switching at a location remote from the luminaire.

1.4.6 Aeroscreen luminaire—a luminaire with restricted light emission above the horizontal which complies with the requirements of the Civil Aviation Authority.

NOTE: Aeroscreen luminaires are designed for use in the vicinity of airports but they may also be used at other locations where the control of upward light is important.

1.4.7 Side-entry luminaire—a luminaire which is designed for mounting at the end of an outreach arm affixed to a lighting pole or bracket.

1.4.8 Post-top luminaire—a luminaire which is designed for mounting directly at the top of a lighting pole.

1.4.9 Rated voltage—the supply voltage or voltages assigned to the luminaire by the manufacturer.