

Australian/New Zealand Standard™

**Retroreflective materials and devices for
road traffic control purposes**

**Part 3: Raised pavement markers
(retroreflective and non-retroreflective)**



AS/NZS 1906.3:2017

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee MS-049, Retroreflective Devices. It was approved on behalf of the Council of Standards Australia on 23 May 2017 and by the New Zealand Standards Approval Board on 7 June 2017.

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The following are represented on Committee MS-049:

Australian Chamber of Commerce and Industry
Australian Industry Group
Austroads
AWTA Product Testing (Testing Interests Australia)
CIE Australia
Council of Textile and Fashion Industries of Australia
Department of Planning, Transport and Infrastructure, SA
National Association of Testing Authorities Australia
New Zealand Road Safety Manufacturers Association
New Zealand Transport Agency
Roadmarking Industry Association of Australia
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Australian/New Zealand Standard™

Retroreflective materials and devices for road traffic control purposes

Part 3: Raised pavement markers (retroreflective and non-retroreflective)

Originated in Australia as AS 1906.3—1982 and AS 2445, Parts 3.1 to 3.10 (1982).
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PREFACE

This Standard was prepared by the Joint Australian/New Zealand Committee MS-049, Retroreflective Devices, to supersede AS 1906.3—1992, *Retroreflective materials and devices for road traffic control purposes, Part 3: Raised pavement markers (retroreflective and non-retroreflective)*.

This Standard is Part 3 in a series of Standards on retroreflective devices as follows:

AS/NZS

- 1906 Retroreflective materials and devices for road traffic control purposes
- 1906.1 Part 1: Retroreflective sheeting
- 1906.2 Part 2: Retroreflective devices (non-pavement application)
- 1906.3 Part 3: Raised pavement markers (retroreflective and non-retroreflective)
(this Standard)
- 1906.4 Part 4: High visibility materials for safety garments

The objective of this Standard is to provide road authorities, manufacturers and testing authorities with a uniform supply specification for raised pavement markers.

This Standard does not cover self-illuminated pavement markers, such as those which incorporate light emitting diodes.

The following are the principal changes and additions to this edition:

- (a) Revised classification methodology for marker coding and inclusion of temporary markers.
- (b) Introduction of higher photometric performance 'Class C' in Table 3.4.
- (c) Introduction of new colours green and blue, appropriate for use on Australian and New Zealand roads.
- (d) Introduction of provisions and performance requirements where claims are made in relation to the following:
 - (i) Abrasion resistance.
 - (ii) Flexural strength.
 - (iii) Resistance to lens cracking.
- (e) Revised photometrics of Table 3.3 'Class B'.
- (f) Introduction of chromaticity Table 3.6 for marker retroreflectivity and additional colours in Table 3.1 luminance for marker body colour.

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

The term 'normative' has been used in this Standard to define the application of the appendix to which it applies. A 'normative' appendix is an integral part of the Standard.

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FOREWORD

Raised pavement markers are used to provide delineation in both day and night-time conditions with the addition of colour important to advise the motorist of differing requirements or circumstances. This revision of the Standard includes colour of both the marker body in daytime and the retroreflective device at night-time.

This Standard is a performance specification for devices intended to provide night and day delineation by retroreflective and diffuse reflective means respectively, the latter type being referred to as ‘non-retroreflective raised pavement markers’. The Standard deals only with devices that are bonded to or inset in the pavement surface in locations where they are liable to be traversed by vehicle wheels.

For the purpose of this Standard, permanent and temporary retroreflective markers consist of discrete devices of sufficiently small size as to be effectively a point source of light when viewed at normal night-time highway viewing distances. They may provide a degree of delineation during daylight owing to the contrasting colour, reflection and profile with respect to the pavement surface. Non-retroreflective markers primarily reflect ambient light during the day-time and to a limited degree when illuminated by vehicle headlights or roadway lighting at night.

This description is not intended to limit the design or method of manufacture, provided that the devices can be satisfactorily type acceptance tested in accordance with Paragraph B2 and conform with the requirements of Section 3, as applicable to retroreflective markers, non-retroreflective markers, or both.

Retroreflective material for road signs is dealt with in AS/NZS 1906.1. Retroreflective devices for non-pavement application, frequently attached to marker posts and guard rails to aid road delineation, are dealt with in AS/NZS 1906.2. Retroreflective material for use on personal high visibility clothing is dealt with in AS/NZS 1906.4 and the manufacture of the signs is covered by AS 1743, *Road signs—Specification*.

The coefficient of luminous intensity measurement procedure in this Standard requires measurement with entrance angles in both the vertical ($\beta_1 = -0.25^\circ$) and horizontal ($\beta_2 = 0^\circ$ and $\pm 20^\circ$) planes and observation angle ($\alpha = 0.2^\circ$ and 1.0°) in the vertical plane.

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Australian/New Zealand Standard**Retroreflective materials and devices for road traffic control purposes****Part 3: Raised pavement markers (retroreflective and non-retroreflective)**

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies the performance requirements for permanent and temporary retroreflective and non-retroreflective raised pavement markers, which are to be bonded directly to or otherwise affixed directly to the pavement surface, and are intended for permanent and temporary delineation purposes.

Test methods are given in Appendices A to I.

The Standard does not apply to materials and devices that are to be located above or to one side of the carriageway. Self-illuminating pavement markers are not included in this Standard.

This Standard does not include pavement markers that are specifically designed for use on snow-covered roads (sometimes referred to as ‘depressible markers’, also known as ‘snow plowable markers’) but recommends reference to ASTM D4383.

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

- | | |
|-----------|--|
| 1742 | Manual of uniform traffic control devices |
| 1742.2 | Part 2: Traffic control devices for general use |
| 2001 | Methods of test for textiles |
| 2001.4.21 | Method 4.21: Colourfastness tests—Determination of colourfastness to light using an artificial light source (mercury vapour, tungsten filament, internally phosphor-coated lamp) |

AS/NZS

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|------------|--|
| 1580.601.1 | Paints and related materials—Methods of test
Method 601.1: Colour—Visual comparison |
| 1734 | Aluminium and aluminium alloys—Flat sheet, coiled sheet and plate |

ISO

- | | |
|---------|---|
| 11664 | Colorimetry |
| 11664-1 | Part 1: CIE standard colorimetric observers |
| 11664-2 | Part 2: CIE standard illuminants |

ISO/IEC Guide

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| 98 | Uncertainty of measurement |
| 98-3 | Part 3: Guide to the expression of uncertainty in measurement (GUM:1995) |