

Vehicle Standard (Australian Design Rule 104/00 — Retro-reflective Devices and Markings 2025

Made under section 12 of the *Road Vehicle Standards Act 2018*

Draft for Consultation Explanatory Statement

Approved by the Hon XXX, XXX

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1. LEGISLATIVE AUTHORITY

1.1. National Road Vehicle Standards

The Vehicle Standard (Australian Design Rule 104/00 – Retro-reflective Devices and Markings 2025, which may also be cited as the Australia Design Rule 104/00 – Retro-reflective Devices and Markings or ADR 104/00, is made under the *Road Vehicle Standards Act 2018* (RVSA).

The RVSA enables the Australian Government to establish nationally uniform standards that apply to road vehicles or road vehicle components when they are provided to the market in Australia for the first time. The RVSA applies to vehicles or components whether they are manufactured in Australia or imported.

The making of the vehicle standards necessary for the RVSA’s effective operation is provided for in section 12, which empowers the Minister to “determine standards for road vehicles or road vehicle components”. These standards are also referred to as the Australian Design Rules (ADRs).

1.2. Exemption from Sunsetting

ADR 104/00, is exempt from the sunseting provisions of the *Legislation Act 2003*.

Source of the Exemption

A standard made under section 12 of the RVSA is not subject to the sunseting provisions of section 50 of the *Legislation Act 2003* through section 12 of the Legislation (Exemptions and Other Matters) Regulation 2015 (table item 56C). A similar exemption was previously granted in respect of national road vehicle standards made under section 7 of the *Motor Vehicle Standards Act 1989* (MVSA) (item 40, section 12 of the Legislation (Exemptions and Other Matters) Regulation 2015). This exemption is important to ensure that ADRs, including ADR 104/00, continue to remain in force, and available to regulators, industry and the public.

Intergovernmental dependencies

The exemption concerns ADRs that facilitate the establishment and operation of the intergovernmental vehicle standard regime that Commonwealth, state and territory governments rely on to regulate the safety of vehicles on public roads.

The Commonwealth uses the ADRs as the basis on which approvals to supply types of road vehicles to the market are granted under *the Road Vehicle Standards Rules 2019*. States and territories and the National Heavy Vehicle Regulator use the ADRs as the primary criteria on which vehicles are assessed for road worthiness. This ‘in-service’ aspect is dependent on the date of manufacture, which determines the applicable version of the ADRs against which the vehicle can be assessed. The ability to rely on national standards is particularly relevant given the long service life of vehicles – the average age of vehicles in Australia is over 10 years.

While the ADRs are regularly updated to reflect changes in technology, it is generally not possible to apply these new standards retrospectively to vehicles that are already in use. With former ADRs kept on the Federal Register of Legislation, state and territory governments can use them to ensure vehicles continue to comply with the ADRs that were in force when they were first supplied to the market.

In the event that the Commonwealth could not justify the maintenance of the ADRs, state and territory governments would be compelled to create their own vehicle

standards. Whilst this could mean adopting the substance of the lapsed ADRs as an interim measure, the differing needs and agendas of each state and territory government may result in variations to in-service regulations. Having different vehicle standards across the states and territories would make the scheme operate contrary to the underlying policy intent of the RVSA which is to set nationally consistent performance-based standards.

Commercial dependencies

The effect on vehicle manufacturers to redesign existing models to comply with new ADRs would present a burden and be a costly and onerous exercise. Manufacturers should not be expected to continually go back to redesign existing vehicles. Furthermore, ongoing product recalls to comply with new ADRs would undermine consumer confidence with significant financial impact to manufacturers. This exemption allows vehicle manufacturers to focus their efforts to ensure new models supplied to the market continue to comply.

Reviews of Australian Design Rules

ADRs are subject to regular reviews, as resources permit, and when developments in vehicle technology necessitates updates to requirements. Reviews of the ADRs ensure the ongoing effectiveness of a nationally consistent system of technical regulations for vehicle design, which are closely aligned, wherever appropriate with leading international standards such as United Nations (UN) regulations. This method facilitates the rapid introduction of the latest safety devices and technological advances into the Australian market, while also contributing to the industry's cost competitiveness in the domestic market. Where a review results in a new or amended ADR, these changes are subject to full parliamentary scrutiny.

1.3. International Harmonisation

A majority of Australian road vehicle standards, including ADR 104/00, are closely harmonised with internationally based UN regulations, which are developed by the UN World Forum for Harmonization of Vehicle Regulations. Harmonisation ensures that vehicles built to most recent safety, environmental and anti-theft standards are supplied to the Australian market at the least cost and that Australia has access to the latest vehicle technologies. In contrast, more Australian specific standards would require vehicles to be designed, developed and produced specifically for the relatively small Australian market. Unless needed to achieve legitimate policy objectives, a market specific standard would generally result in a significantly lower net benefit and benefit-cost ratio, than if costs were amortised over a number of markets, such as occurs with UN regulations.

2. PURPOSE AND OPERATION

2.1. Overview of the Regulatory Framework

The RVSA establishes a framework to regulate the importation and first provision of road vehicles to the market in Australia. The core principle of this framework is that vehicles that comply with appropriate standards are suitable for provision to the market in Australia. The ADRs have set out those standards since the early 1970s. At that time, they were applied cooperatively by the Australian Motor Vehicle Certification Board representing the Commonwealth and state and territory governments. In 1989, this

arrangement was replaced by the MVSA and the Australian Design Rules were determined as national standards. The RVSA commenced in full and replaced the MVSA on 1 July 2021. A two-year transition period was provided between 1 July 2021 and 30 June 2023.

Under the RVSA, the ADRs are national road vehicle standards intended to make vehicles safe to use, control the emission of gas, particles or noise, secure vehicles against theft, provide for the security marking of vehicles and promote the saving of energy. The ADRs are applied to vehicles as criteria for approval under various regulatory pathways set out in the Road Vehicle Standards legislation. Vehicles approved under these regulatory pathways can be provided to the market in Australia for use in transport.

2.2. Overview of the ADR

The purpose of ADR 104/00 is to specify the dimensions, photometric and stability requirements for retro-reflecting devices and materials. Reflectors are devices used to indicate the presence of a vehicle by the reflection of light from a light source not connected with the vehicle.

Lighting and light signalling devices are fundamental vehicle safety features. Lights play a critical role in improving visibility for drivers, especially at night or in adverse weather conditions, and help other road users identify vehicles and understand their intentions. Lighting and signalling devices, such as headlamps, turn signals, and reflectors, enable drivers to navigate safely, particularly in low-light conditions, and help reduce accidents by enhancing conspicuity and communication between road users.

A major review of all lighting regulations by a UN expert group for lighting has resulted in the restructure of the requirements for each lighting device, i.e. lamp, light or reflector, to a more modern simplified approach based on three road safety functions, i.e. Road Illumination Devices (RID), Light Signalling Devices (LSD) or Retro Reflective Devices (RRD). This review has reduced the number of UN regulations for vehicle lighting from 20 to three. The simplified UN regulations maintain the same level of stringency as the lighting regulations they replace.

ADR 104/00 combines the technical provisions of individual ADRs (UN R No), 47 (3) – Retro-reflecting devices, (27) – Advanced warning triangles, (69) – Rear marker plates for slow moving vehicles, (70) – Rear marking plates for heavy and long vehicles, (104) – Retro reflective markings.

The number and conditions for use of RRDs are governed by either ADR 13/00 Installation of Lighting and Light-signalling Devices on other than L-Group Vehicles, ADR 19/02 Installation of Lighting & Light-signalling Devices on L-Group Vehicles or ADR 67/00 Installation of Lighting and Light-Signalling Devices on Three-Wheeled Vehicles. These ADRs describe the number, colour and position of RRDs with respect to vehicle categories.

Retro-reflectors of the Classes IA, IB, IIIA, IIIB and IVA These are used to increase the conspicuity of vehicles at night or under low-light conditions. They are divided into three classes according to their photometric characteristics, Class IA or IB, Class IIIA or IIIB and Class IVA.

Retro-reflective Marking Materials of the Classes C, D, E and F, D/E

These different classes are used to identify retro-reflective markings of differing photometric specifications and retro-reflective contours and areas.

Clause 3.1 includes a reference to ADRs 13/..., 19/... or 67/.... The circumstances under which RRDs are mandatory, optional, or prohibited are set out in either ADRs 13/..., 19/... or 67/....

Clause 4 establishes where defined terms are to be found.

Clause 5 determines that Retro-reflective Devices complying with the technical requirements of Appendix A except as varied by clause 6 (Exemptions and Alternative Procedures) or clause 7 (Alternative Standards), shall be accepted as complying with this rule. Appendix A is the UN Regulation No. 150 – UNIFORM PROVISIONS CONCERNING THE APPROVAL OF RETRO-REFLECTIVE DEVICES AND MARKINGS FOR POWER-DRIVEN VEHICLES AND THEIR TRAILERS. Manufacturers have the flexibility to demonstrate compliance to ADR 104/00 through clause 5 and Appendix A as varied by clause 6 (Exemptions and Alternative Procedures), or through clause 7 (Alternative Standards).

Clause 6 creates exemptions from some requirements of appendix A (UN R150) which pertain to gaining a Type Approval in the UN context. This is because they are not required in the Australian context where the Commonwealth administers approvals through the RVSA and the ADRs. Consequently, manufacturers supplying new vehicles to Australia are exempt from most administrative (non-technical) requirements of UN R150.

Alternative Procedures

Alternative Standards

Clause 7 states that, the technical requirements of the UN Regulation No. 150 – UNIFORM PROVISIONS CONCERNING THE APPROVAL OF RETRO-REFLECTIVE DEVICES AND MARKINGS FOR POWER-DRIVEN VEHICLES AND THEIR TRAILERS incorporating all amendments, are deemed to be equivalent to the technical requirements of this standard.

Paragraph 4.1 of Appendix A: describes the construction requirements for retro-reflective devices, to ensure they remain durable and functional. This includes design elements to prevent them being easily dismantled, and the durability and stability of the retro-reflective marking material.

Paragraph 4.2 of Appendix A: describes the colorimetric test conditions for testing the colours of retro-reflective devices.

Paragraph 4.3 of Appendix A: refers to Appendix A Part 3 of Annex 4 and describes the method for determining the luminance factor. The luminance factor is the ratio of

luminance of the sample in relation to the luminance of a perfect diffuser. A perfect diffuser has a known luminance factor under identical conditions and reflects or transmits the entire incident light. The luminous factor is used to specify performance requirements for retro-reflective devices to ensure they perform effectively.

Paragraph 5.1 of Appendix A: this paragraph describes the technical requirements for retro-reflectors of classes IA and IB. Retro-reflectors in these classes must meet basic requirements for shape, brightness, colour, and durability. The intent of this paragraph is to ensure that approved retro-reflectors are reliable, safe and durable for long-term use on vehicles.

Paragraph 5.2 of Appendix A: describes the technical requirements for retro-reflective marking materials and plates. These include dimensional and shape requirements further detailed in Annex 5 of Appendix A. Photometric and colorimetric requirements of retro-reflective marking materials and plates are detailed in paragraphs 5.2.5 and 5.2.6. This is to ensure retro-reflective devices and materials perform as designed to reflect light efficiently and in a controlled manner. Paragraph 5.2.7 of Appendix A outlines test requirements relating to resistance to external agents which includes resistance to weathering, corrosion, heat, water penetration, bonding strength and flexing. This is to ensure retro-reflective devices and materials continue to perform within design specifications.

3. MATTERS INCORPORATED BY REFERENCE

3.1. Legislative Instruments

Clause 4.1.1 includes a reference to the Vehicle Standard (Australian Design Rule Definitions and Vehicle Categories) 2005, which may also be cited as the Australian Design Rule – Definitions and Vehicle Categories. This sets out common definitions for many terms used in the ADRs, including the vehicle categories used in ADR applicability tables.

In accordance with paragraph 12(2)(b) of the RVSA, this ADR is incorporated as in force or existing from time to time.

The ADRs may be freely accessed online through the Federal Register of Legislation. The website is www.legislation.gov.au.

3.2. Other Documents

International Commission on Illumination

Annex 4 part 2 paragraph 1 of Appendix A includes a reference to Publication CIE 15:2004 Colorimetry. This standard provides recommendations about the way the basic principles of light measurement should be applied.

In accordance with paragraph 14(1)(b) and subsection 14(2) of the *Legislation Act 2003*, this document is incorporated as in force on the date this national road vehicle standard is made.

This standard is available for purchase from the online standards store CIE Online Store (www.store.accuristech.com). While not freely available, Publication CIE 15:2004 Colorimetry, is readily accessible and widely used by vehicle manufacturers and test facilities as part of their professional libraries. Subject to copyright conditions, people may view a copy of Publication CIE 15:2004 Colorimetry, at the Offices of the

Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts in Canberra.

Section 12 of the RVSA allows the Minister to incorporate a broad range of documents, including as in force or existing at a particular time or as in force from time to time, when making national road vehicle standards. This ensures that Australia's legislative framework is well-prepared for future developments in the international road vehicle space.

International Organization for Standardization

Paragraph 4.2.2, Annex 4 paragraph 3.3 and part 2 of Appendix A, include references to ISO 11664-2:2007(E). This document specifies standard illuminants.

Annex 4 part 2 paragraph 1 includes a reference to ISO 23603:2005(E). This document specifies the standard method of assessing the spectral quality of daylight simulators for visual appraisal and measurement of colour.

Annex 6 part 4 paragraph 1 includes a reference to ISO Standard 9227:2017. This document specifies requirements for corrosion tests in artificial atmospheres – salt spray tests.

Annex 6 part 6 paragraphs 1.1 of Appendix A includes a reference to EN ISO 4892-1:2016. This document specifies general guidance for methods of exposure to laboratory light sources for plastics.

Annex 6 part 6 paragraphs 1.1, 1.12, 3, and table A6-1 of Appendix A includes a reference to EN ISO 4892-2:2013. This document specifies methods of exposure to xenon-arc light for plastics

In accordance with paragraph 14(1)(b) and subsection 14(2) of the *Legislation Act 2003*, each of these documents are incorporated as in force on the date this national road vehicle standard is made.

ISO standards are all available for purchase only from the ISO and various associated national standards bodies. While not freely available, ISO 11664-2:2007(E), ISO 23603:2005(E), ISO Standard 9227:201, EN ISO 4892-1:2016 and EN ISO 4892-2:2013 are readily accessible and widely used by vehicle manufacturers and test facilities as part of their professional libraries. Subject to copyright conditions, people may view copies of ISO 11664-2:2007(E), ISO 23603:2005(E), ISO Standard 9227:201, EN ISO 4892-1:2016 and EN ISO 4892-2:2013 at the Offices of the Department of Infrastructure, Transport, Regional Development, Communications, Sport and the Arts in Canberra.

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United Nations Regulations and/or Resolutions

Clauses 7.1 includes a reference to 01 series of UN Regulation No. 150 – UNIFORM PROVISIONS CONCERNING THE APPROVAL OF RETRO-REFLECTIVE DEVICES AND MARKINGS FOR POWER-DRIVEN VEHICLES AND THEIR

TRAILERS. This is an international standard for specific requirements for light signalling devices for power driven vehicles and their trailers.

Clauses 7.2 includes a reference to the 00 series of UN Regulation No. 150 – UNIFORM PROVISIONS CONCERNING THE APPROVAL OF RETRO-REFLECTIVE DEVICES AND MARKINGS FOR POWER-DRIVEN VEHICLES AND THEIR TRAILERS. This is an international standard for specific requirements for light signalling devices for power driven vehicles and their trailers.

The UN Regulations may be freely accessed online through the UN World Forum for the Harmonization of Vehicle Regulations (WP.29). The WP.29 website is www.unece.org/trans/main/welcwp29.html.

In accordance with subsections 14(1)(b) and 14(2) of the *Legislation Act 2003*, each of these UN documents are incorporated as in force on the date this national road vehicle standard is made.

4. CONSULTATION

4.1. General Consultation Arrangements

It has been longstanding practice to consult widely on proposed new or amended vehicle standards. For many years, there has been active collaboration between the Commonwealth and the state and territory governments, as well as consultation with industry and consumer groups. Much of the consultation takes place within institutional arrangements established for this purpose. The analysis and documentation prepared in a particular case, and the bodies consulted, depend on the degree of impact the new or amended standard is expected to have on industry or road users.

Proposals that are regarded as significant need to be supported by an Impact Analysis (IA) meeting the requirements of the Office of Impact Analysis (OIA) as published in the *Australian Government Guide to Policy Impact Analysis* or the *Regulatory Impact Analysis Guide for Ministers' Meetings and National Standard Setting Bodies*.

4.2. Specific Consultation Arrangements

[To be completed after public consultation]

5. REGULATORY IMPACT

A Preliminary Impact Analysis was submitted to the Office of Impact Analysis (OIA) and it was determined that a detailed analysis is not required under the Australian Government's Policy Impact Analysis Framework. The OIA reference number for the IA is OIA24-07660.

6. STATEMENT OF COMPATIBILITY WITH HUMAN RIGHTS

The following Statement is prepared in accordance with Part 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011*.

6.1. Overview

ADR 104/00 prescribes the requirements for Retro-reflective Devices and Markings fitted to vehicles and trailers to increase their conspicuity at night or under low-light conditions.

6.2. Human Rights Implications

ADR 104/00 does not engage any of the human rights and freedoms recognised or declared in the international instruments listed in section 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011*.

6.3. Conclusion

ADR 104/00 is compatible with human rights, as it does not raise any human rights issues.

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