



## **Vehicle Standard (Australian Design Rule 45/00 – Lighting and Light-Signalling Devices not Covered by ECE) 2006**

Compilation: 1 (up to and including Amendment 1)

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Compiled by: Vehicle Safety Standards, Department of Transport and Regional  
Services.

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## **0. LEGISLATIVE PROVISIONS**

### **0.1. NAME OF STANDARD**

0.1.1. This Standard is the Vehicle Standard (Australian Design Rule 45/00 – Lighting and Light-Signalling Devices not Covered by ECE) 2006.

0.1.2. This Standard may also be cited as Australian Design Rule 45/00 — Lighting and Light-Signalling Devices not Covered by ECE.

### **0.2. COMMENCEMENT**

0.2.1. This Standard commences on the day after it is registered.

### **0.3. REPEAL**

0.3.1. This Standard repeals each vehicle standard with the name Australian Design Rule 45/00 — Lighting and Light-Signalling Devices not Covered by ECE that is:

(a) made under section 7 of the Motor Vehicle Standards Act 1989; and

(b) in force at the commencement of this Standard.

0.3.2. This Standard also repeals each instrument made under section 7 of the Motor Vehicle Standards Act 1989 that creates a vehicle standard with the name Australian Design Rule 45/00 — Lighting and Light-Signalling Devices not Covered by ECE, if there are no other vehicle standards created by that instrument, or amendments to vehicle standards made by that instrument, that are still in force at the commencement of this Standard.

## **PURPOSE AND SCOPE**

This Australian Design Rule (ADR) is part of the Australian motor vehicle standards system and is a national standard for the purposes of the Motor Vehicle Standards Act 1989.

The function of this Australian Design Rule is to specify the photometric requirements for lighting and light-signalling devices which will ensure adequate illumination for the driver of the vehicle and signal to other road users the position, orientation, intention and movement of the vehicle, without producing undue glare for other road users.

## **APPLICABILITY**

This ADR applies to the design and construction of vehicles as set out in the table hereunder.

*'Side Marker Lamps', 'External Cabin Lamps', 'Passenger Car Side Marker Lamps', 'Search Lamps', 'Internal Lamps', 'Rear Marking Plates', 'Daytime Running Lamps',* Cornering Lamps fitted to the vehicles specified below shall comply with the relevant requirements of this Australian Design Rule.

The circumstances under which lamps are mandatory, optional, alternative or prohibited are set out in either ADR 13/... or ADR 19/...

The Package 13 issue of /00 defers the implementation date.

Vehicle Category	ADR Category Code *	UNECE Category Code *	Manufactured on or After	Acceptable Prior Rules
Moped 2 wheels	LA	L1	Not Applicable	
Moped 3 wheels	LB	L2	1 Oct 1991	Nil
Motor cycle	LC	L3	Not Applicable	
Motor cycle and sidecar	LD	L4	Not Applicable	
Motor tricycle	LE	L5	1 Oct 1991	Nil
Passenger car	MA	M1	1 Oct 1991	Nil
Forward-control passenger vehicle	MB	M1	1 Oct 1991	Nil
Off-road passenger vehicle	MC	M1	1 Oct 1991	Nil
Light omnibus	MD	M2		
up to 3.5 tonnes 'GVM' and up to 12 seats	MD1		1 Oct 1991	Nil
up to 3.5 tonnes 'GVM' and more than 12 seats	MD2		1 Oct 1991	Nil
over 3.5 tonnes and up to 4.5 tonnes 'GVM'	MD3		1 Oct 1991	Nil
over 4.5 tonnes and up to 5 tonnes 'GVM'	MD4		1 Oct 1991	Nil
Heavy omnibus	ME	M3	1 Oct 1991	Nil
Light goods vehicle	NA	N1	1 Oct 1991	Nil
Medium goods vehicle	NB	N2		
over 3.5 tonnes up to 4.5 tonnes 'GVM'	NB1		1 Oct 1991	Nil
over 4.5 tonnes up to 12 tonnes 'GVM'	NB2		1 Oct 1991	Nil
Heavy goods vehicle	NC	N3	1 Oct 1991	Nil
Very light trailer	TA	O1	1 Oct 1991	Nil
Light trailer	TB	O2	1 Oct 1991	Nil
Medium trailer	TC	O3	1 Oct 1991	Nil
Heavy trailer	TD	O4	1 Oct 1991	Nil

## 45.1. DEFINITIONS

45.1.1. Refer to Vehicle Standard (Australian Design Rule Definitions and Vehicle Categories) 2005.

## 45.2. GENERAL SPECIFICATIONS

45.2.1. Lamps shall be so designed and constructed that in normal use, despite the vibrations to which they may then be subjected, they continue to function satisfactorily and retain the characteristics prescribed by this Rule.

45.2.2. The colour of the light emitted shall be within the limits of the co-ordinates prescribed in Clause 45.2.2.1 for the colour in question.

\* The category code may also be in the format L<sub>1</sub>, L<sub>A</sub> etc.

## 45.2.2.1. Colours of Lamps- Trichromatic Co-ordinates

Red:

limit towards yellow:  $y \leq 0.335$ limit towards purple:  $z \leq 0.008$ 

White:

limit towards blue:  $x \geq 0.310$ limit towards yellow:  $x \leq 0.500$ limit towards green :  $y \leq 0.150 + 0.640 x$ limit towards green:  $y \leq 0.440$ limit towards purple:  $y \geq 0.050 + 0.750 x$ limit towards red:  $y \geq 0.382$ 

Amber:

limit towards yellow:  $y \leq 0.429$ limit towards red:  $y \geq 0.398$ limit towards white  $z \leq 0.007$ 

45.2.2.2. For verifying the limits above, a source of light at a colour temperature of 2856 K (illuminant A of the International Commission on Illumination (CIE)), in combination with appropriate filters, may be used.

**45.3. INDIVIDUAL SPECIFICATIONS**45.3.1. *'SIDE MARKER LAMP'*

45.3.1.1. Colour of light emitted amber/red (see figure 1)

45.3.1.2. Intensity of light emitted.

45.3.1.2.1. Minimum: 0.3 cd within the angles of light distribution of clause 45.3.1.3.

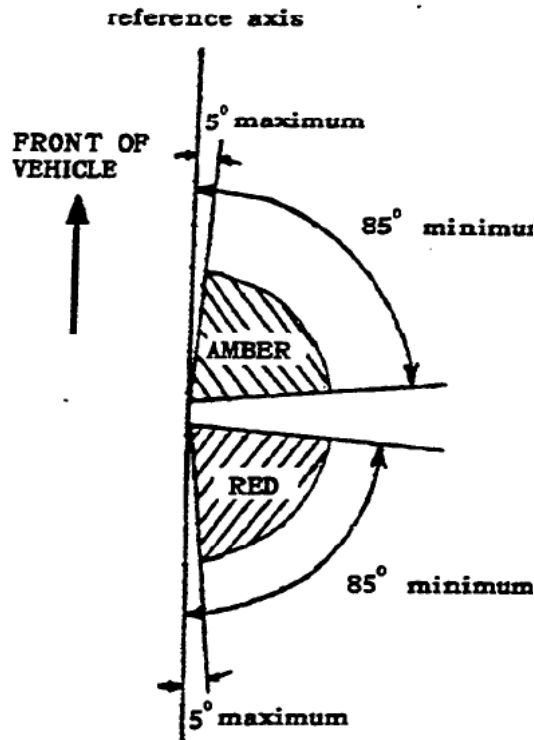
45.3.1.2.2. Maximum: 12 cd in any direction. However, for *'Side Marker Lamps'* combined with front position (side) lamps, a luminous intensity of 60 cd shall be permitted within a forward angle from 45° inboard to 80° outboard.

45.3.1.3. Angles of light distribution

45.3.1.3.1. Vertical from 10° above to 10° below the horizontal.

45.3.1.3.2. Horizontal See Figure 1.

45.3.1.4. Other requirements None.

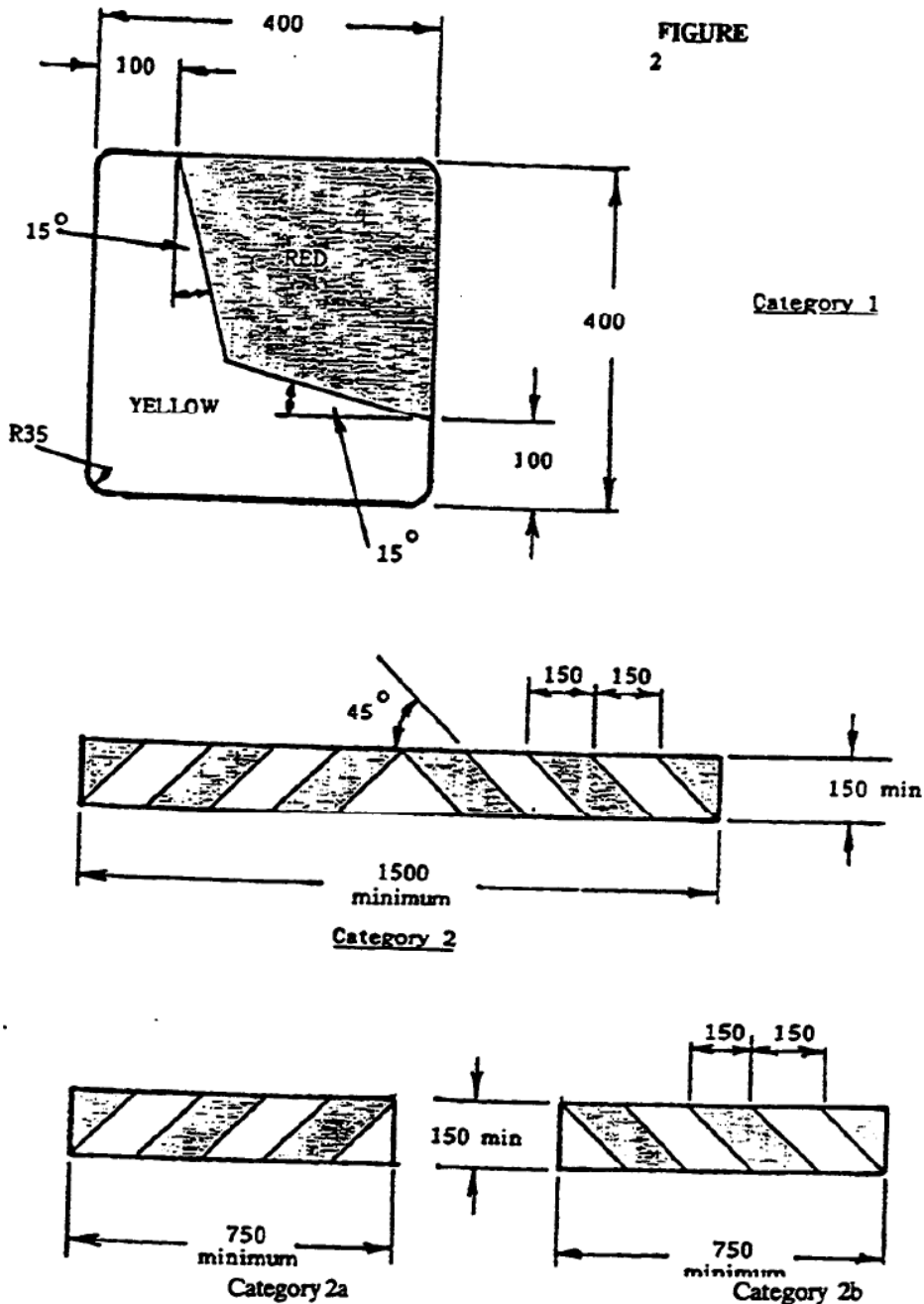


**Figure 1**  
**Angle of Horizontal Light Distribution**

Note. Right-hand requirements are as shown. Left-hand requirements are the same but opposite hand.

- 45.3.2. *'EXTERNAL CABIN LAMP'*
- 45.3.2.1. Colour of light emitted Amber
- 45.3.2.2. Intensity of light emitted
- 45.3.2.2.1. Minimum: 0.3 cd within the angles of light distribution of Clause 45.3.2.3.
- 45.3.2.2.2. Maximum: 12 cd in any direction.
- 45.3.2.2.3. Angles of light distribution:  
Vertical: from 5° above to 15° below the horizontal  
Horizontal: forward from 45° to the left to 45° to the right.
- 45.3.2.3. Other requirements  
None.
- 45.3.3. *'PASSENGER CAR SIDE MARKER LAMP'*
- 45.3.3.1. Colour of light emitted
- 45.3.3.1.1. Front: amber
- 45.3.3.1.2. Rear: red
- 45.3.3.2. Intensity of light emitted
- 45.3.3.2.1. Minimum: 0.25 cd within the angles of light distribution of clause 45.3.3.3.

- 45.3.3.2.2. Maximum: 15 cd in any direction.
- 45.3.3.3. Angles of light distribution
  - 45.3.3.3.1. Vertical: from 10 ° above to 10 ° below the horizontal.
  - 45.3.3.3.2. Horizontal: from 45° forwards to 45° rearwards.
- 45.3.3.4. Other requirements
  - None.
- 45.3.4. '*SEARCH LAMP*'
  - 45.3.4.1. Colour of light emitted: White
  - 45.3.4.2. Intensity of light emitted: No requirement
  - 45.3.4.3. Angles of light distribution: no requirement
  - 45.3.4.4. Other requirements: None
- 45.3.5. '*INTERNAL LAMP*'
  - 45.3.5.1. Colour of light emitted: No requirement
  - 45.3.5.2. Intensity of light emitted: No requirement
  - 45.3.5.3. Angles of light distribution: No requirement
  - 45.3.5.4. Other requirements: None
- 45.3.6. '*REAR MARKING PLATES*'
  - 45.3.6.1. Colours of light reflected: Red and yellow
  - 45.3.6.2. Photometric properties
    - Not less than that required by AS 1906 - 1976 \*Retroreflective Materials and Devices for Road Traffic Control Purposes Part 1 - Retroreflective Materials' - for Class 2 material.
  - 45.3.6.3. Physical properties
    - 45.3.6.3.1. Material: Retroreflective surface
    - 45.3.6.3.2. Durability: Not less than that required by the AS document.
  - 45.3.6.4. Dimensions: See Figure 2. The dimensions shown are in mm, with a general tolerance of  $\pm 5$  mm or  $\pm 5$ .
  - 45.3.6.5. Other requirements
    - 45.3.6.5.1. Each plate shall bear the name of the manufacturer and a statement identifying the class of material used and the standard to which it is manufactured
    - 45.3.6.5.2. A yellow margin of up to 5 mm thickness is allowed on the outside edges of the red (if required for ease of manufacture).
    - 45.3.6.5.3. The combined area for a vehicle set shall be 0.32 square metres.



Note: Or as subsequently amended, endorsed by ATAC and included in Part 5 of the "ADR Definitions".

- 45.3.6.5.4. The warning sign "DO NOT OVERTAKE TURNING VEHICLE" may, where applicable, be printed in black lettering 50 mm high on the yellow portion of one of the "Category 1" plates
- 45.3.7. *'DAYTIME RUNNING LAMP';*
  - 45.3.7.1. Colour of light emitted: White.
  - 45.3.7.2. Intensity of light emitted
    - 45.3.7.2.1. Minimum: 130 cd on the axis of reference; 0.3 cd within the angles of light distribution of Clause 45.3.7.3.

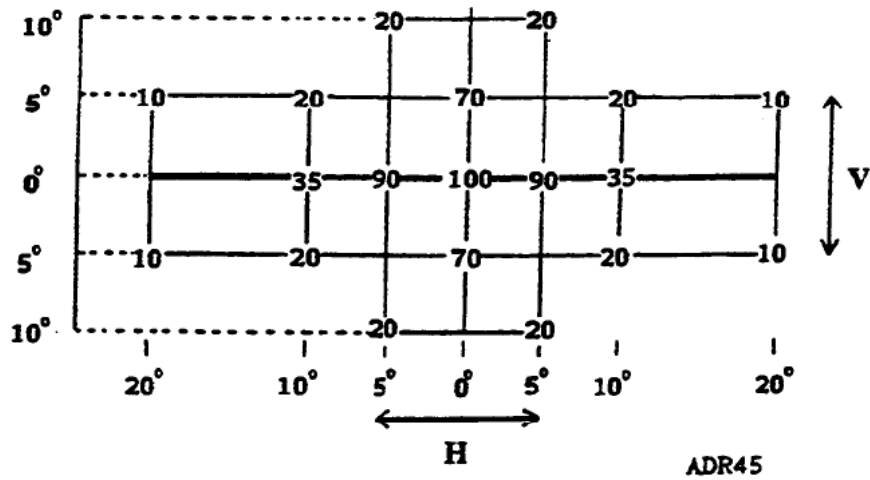


- 45.3.7.2.2. Maximum: 520 cd in any direction.
- 45.3.7.2.3. In each direction corresponding to the points in the light distribution table reproduced is Clause 45.4.2.2 of this Rule, be not less than the product of 130 cd by the percentage specified in the said table for the direction in question.
- 45.3.7.3. Angles of light distribution  
Vertical: from 15° above to 15° below the horizontal.  
Horizontal: from 45° inwards to 80° outwards.
- 45.3.7.4. Other requirements: None.
- 45.3.8. CORNERING LAMPS
- 45.3.8.1. Colour of light emitted: White or amber.
- 45.3.8.2. Intensity of light emitted: Maximum 5,000 cd in any direction. The maximum intensity of light emitted above the horizontal shall not exceed the values of maximum permitted light intensity for dipped beam headlamps when measured above the horizontal in accordance with the requirements of ADR 46/... "Headlamps for Vehicles other than L-group Vehicles".
- 45.3.8.3. Angles of light distribution: No requirement
- 45.3.8.4. 45.3.8.4 Other requirements Lamps to SAE J852b 'Cornering Lamps' shall be deemed to be equivalent to the technical requirements of this Clause.

#### **45.4. TEST PROCEDURES**

- 45.4.1. All measurements shall be made with a standard filament globe of the category prescribed for the device, the supply voltage being so regulated as to produce the normal luminous flux prescribed.
- 45.4.2. Photometric measurements
- 45.4.2.1. Measurement methods
- 45.4.2.1.1. During photometric measurements, stray reflections shall be avoided by appropriate masking
- 45.4.2.1.2. in case the results of measurements should be challenged, measurements shall be carried out in such a way as to meet the following requirements
- 45.4.2.1.2.1. The distance of measurement shall be such that the law of the inverse of the square of the distance is applicable;
- 45.4.2.1.2.2. The measuring equipment shall be such that the angular aperture of the receiver viewed from the reference centre of the light is comprised between 10° and one degree;
- 45.4.2.1.2.3. The intensity requirement for a particular direction of observation shall be deemed to be satisfied if that requirement is met in a direction deviating by not more than one-quarter of a degree from the direction of observation.
- 45.4.2.2. Table of standard light distribution (see Table 1).

Table 1



## NOTES

This compilation of Vehicle Standard (Australian Design Rule 45/00 - Lighting and Light-Signalling Devices not Covered by ECE) 2006 includes all the instruments set out in the Table of Instruments. The Table of Amendments provides a history of clauses that have been amended, inserted or deleted.

### Table of Instruments

<b>Name of Instrument</b>	<b>Registration Date</b>	<b>Commencement Date</b>
Vehicle Standard (Australian Design Rule 45/00 - Lighting and Light-Signalling Devices not Covered by ECE) 2006	28/08/06	29/08/06
Vehicle Standard (Australian Design Rule 45/00 - Lighting and Light-Signalling Devices not Covered by ECE) 2006 Amendment 1	29/03/2007	30/03/2007

### Table of Amendments

<b>Clause affected</b>	<b>How affected</b>	<b>Amending instrument</b>
45.3.6.5.3.	am	Vehicle Standard (Australian Design Rule 45/00 - Lighting and Light-Signalling Devices not Covered by ECE) 2006 Amendment 1
45.3.7.	am	Vehicle Standard (Australian Design Rule 45/00 - Lighting and Light-Signalling Devices not Covered by ECE) 2006 Amendment 1

ad = added or inserted

am = amended

del = deleted or removed

rr = removed and replaced

→ = clause renumbered. This takes the format of old no. → new no.