



Vehicle Standard (Australian Design Rule 86/00 – Parking Lamps) 2016

I, PAUL FLETCHER, Minister for Urban Infrastructure, determine this vehicle standard under section 7 of the *Motor Vehicle Standards Act 1989*.

Dated 8/11/2017

[SIGNED]

Paul Fletcher

Minister for Urban Infrastructure

CONTENTS

1.	LEGISLATIVE PROVISIONS	3
2.	FUNCTION	3
3.	APPLICABILITY	3
4.	DEFINITIONS.....	3
5.	REQUIREMENTS.....	3
6.	EXEMPTIONS AND ALTERNATIVE PROCEDURES.....	3
7.	ALTERNATIVE STANDARDS.....	4
	APPENDIX A	5

1. LEGISLATIVE PROVISIONS

1.1. Name of Standard

1.1.1. This Standard is the Vehicle Standard (Australian Design Rule 86/00 – Parking Lamps) 2016.

1.1.2. This Standard may also be cited as Australian Design Rule 86/00 – Parking Lamps.

1.2. Commencement

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

2. FUNCTION

2.1. The function of this standard is to prescribe the photometric requirements for Parking Lamps, which are intended to be used to draw attention to the presence of a stationary vehicle.

3. APPLICABILITY

3.1. The circumstances under which Parking Lamps are mandatory, optional or prohibited are set out in ADR 13/..., ADR 19/..., or 67/... as applicable.

4. DEFINITIONS

4.1. For vehicle categories, definitions and meanings used in this standard, refer to:

4.1.1. Definitions in Appendix A of this standard; and where there is no conflict

4.1.2. Vehicle Standard (Australian Design Rule – Definitions and Vehicle Categories) 2005.

5. REQUIREMENTS

5.1. Vehicles subject to the requirements of this standard must comply with the requirements of Appendix A, except as varied by Section 6 Exemptions and Alternative Procedures.

5.2. In place of Regulation No. 37 where referenced in Appendix A, read ADR 51/00.

5.3. In place of Regulation No. 48 where referenced in Appendix A, read ADR 13/00.

6. EXEMPTIONS AND ALTERNATIVE PROCEDURES

6.1. Compliance with the following parts, sections and annexes of Appendix A is not required for the purposes of this standard:

Section 1 Scope

Section 3 Application for approval

Section 4 Markings

Section 5 Approval

Section 11 Modification of a type of parking lamp and extension of approval

Section 13	Penalties for non-conformity of production
Section 14	Production definitely discontinued
Section 15	Names and addresses of Technical Services responsible for conducting approval tests, and of Type Approval Authorities
Section 16	Transitional provisions
Annex 1	Communication
Annex 2	Examples of arrangements of approval marks

7. ALTERNATIVE STANDARDS

- 7.1. The technical requirements of the United Nations Regulation No. 77 – UNIFORM PROVISIONS CONCERNING THE APPROVAL OF CORNERING LAMPS FOR POWER-DRIVEN VEHICLES, in its original form, shall be deemed to be equivalent to the technical requirements of this standard.

APPENDIX A

Agreement

Concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be Fitted and/or be Used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of these Prescriptions¹

(Revision 2, including the amendments which entered into force on 16 October 1995)

Addendum 76: Regulation No. 77

Revision 3

Incorporating all valid text up to:

Supplement 12 to the original version of the Regulation - Date of entry into force: 15 October 2008

Supplement 13 to the original version of the Regulation - Date of entry into force: 9 December 2010

Supplement 14 to the original version of the Regulation - Date of entry into force: 26 June 2011

Supplement 15 to the original version of the Regulation - Date of entry into force: 15 July 2013

Supplement 16 to the original version of the Regulation - Date of entry into force: 3 November 2013

Uniform provisions concerning the approval of parking lamps for power-driven vehicles



UNITED NATIONS

¹ Former title of the Agreement: Agreement Concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, done at Geneva on 20 March 1958.

Regulation No. 77

Uniform provisions concerning the approval of parking lamps for power-driven vehicles

Contents

Regulation

1. Scope
2. Definitions
3. Application for approval
4. Markings
5. Approval
6. General specifications
7. Photometric characteristics
8. Test procedure
9. Colour of light emitted
10. Remarks concerning colours
11. Modifications of a type of parking lamp and extension of approval
12. Conformity of production
13. Penalties for non-conformity of production
14. Production definitively discontinued
15. Names and addresses of Technical Services responsible for conducting approval tests, and of Type Approval Authorities
16. Transitional provisions

Annexes

- 1 Communication
- 2 Examples of arrangement of approval marks
- 3 Minimum angles required for the light distribution in space
- 4 Photometric measurements
- 5 Minimum requirements for conformity of production control procedures
- 6 Minimum requirements for sampling by an inspector

1. SCOPE

Regulation applies to parking lamps for vehicles of categories M, N and T.¹

2. DEFINITIONS

For the purposes of this Regulation:

- 2.1. "*Parking lamp*" means the lamp used to draw attention to the presence of a stationary vehicle;
- 2.2. The definitions given in Regulation No. 48 and its series of amendments in force at the time of application for type approval shall apply to this Regulation;
- 2.3. "*Parking lamps of different types*" means lamps which differ in such essential respects as:
 - (a) The trade name or mark;
 - (b) The characteristics of the optical system (levels of intensity, light distribution angles, category of light source, light source module, etc.).

A change of the colour of the light source or the colour of any filter does not constitute a change of type.

- 2.4. References made in this Regulation to standard (étalon) filament lamp(s) and to Regulation No. 37 shall refer to Regulation No. 37 and its series of amendments in force at the time of application for type approval.
References made in this Regulation to standard (étalon) LED light source(s) and to Regulation No. 128 shall refer to Regulation No. 128 and its series of amendments in force at the time of application for type approval.

3. APPLICATION FOR APPROVAL

- 3.1. The application for approval shall be submitted by the holder of the trade name or mark or by his duly accredited representative.

At the choice of the applicant, it will specify that the device may be installed on the vehicle with different inclinations of the reference axis in respect to the vehicle reference planes and to the ground or rotate around its reference axis; these different conditions of installation shall be indicated in the communication form.

- 3.2. For each type of parking lamp the application shall be accompanied by:
 - 3.2.1. A brief technical description stating, in particular, with the exception of lamps with non-replaceable light sources:
 - (a) The category or categories of filament lamp(s) prescribed; this filament lamp category shall be one of those contained in Regulation

¹ As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3.), document ECE/TRANS/WP.29/78/Rev.2, para. 2. -
www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html

- No. 37 and its series of amendments in force at the time of application for type approval; and/or
- (b) The category or categories of LED light source(s) prescribed; this LED light source category shall be one of those contained in Regulation No. 128 and its series of amendments in force at the time of application for type approval; and/or
 - (c) The light source module specific identification code.
- 3.2.2. Drawings (three copies), in sufficient detail to permit identification of the type of the parking lamp and showing geometrically the position(s) in which the lamp may be mounted on the vehicle; the axis of observation to be taken as the axis of reference in the tests (horizontal angle $H = 0^\circ$, vertical angle $V = 0^\circ$), and the point to be taken as the centre of reference in the said tests;
- 3.2.3. Two samples; if the parking lamps are such that they can be mounted only on one side of the vehicle, the two samples submitted may be identical and be suitable for mounting only on the right or only on the left side of the vehicle.

4. MARKINGS

- 4.1. Parking lamps submitted for approval shall clearly, legibly and indelibly bear:
- 4.1.1. The trade name or mark of the applicant;
 - 4.1.2. With the exception of lamps with non-replaceable light sources, a clearly legible and indelible marking indicating:
 - (a) The category or categories of light source(s) prescribed; and/or
 - (b) The light source module specific identification code.
 - 4.1.3. In the case of lamps with non-replaceable light sources or light source module(s), the marking of rated voltage or the range of voltages, and the rated wattage.
- 4.2. Each lamp shall have a space of adequate dimensions for the approval mark and for the additional symbol prescribed in paragraph 5.5. below; this space shall be indicated in the drawings referred to in paragraph 3.2.2. above.
- 4.3. In the case of lamps with light source module(s), the light source module shall bear:
- 4.3.1. The trade name or mark of the applicant; this marking must be clearly legible and indelible;
 - 4.3.2. The specific identification code of the module; this marking must be clearly legible and indelible. This specific identification code shall comprise the starting letters "MD" for "MODULE" followed by the approval marking without the circle as prescribed in paragraph 5.5.1. below and, in the case several non-identical light source modules are used, followed by additional symbols or characters; this specific identification code shall be shown in the drawings mentioned in paragraph 3.2.2. above.

The approval marking does not have to be the same as the one on the lamp in which the module is used, but both markings shall be from the same applicant.
 - 4.3.3. The marking of the rated voltage and rated wattage.

5. APPROVAL

- 5.1. If the two samples of a parking lamp type submitted in accordance with paragraph 3.2.3. above meet the requirements of this Regulation, approval shall be granted.
- 5.2. An approval number shall be assigned to each type approved. Its first two digits (at present 00 for the Regulation in its original form) shall indicate the series of amendments incorporating the most recent major technical amendments to the Regulation at the time of issue of the approval. The same Contracting Party may not assign the same number to another type of parking lamp.
- 5.3. Where approval is requested for a type of lighting and light-signalling device comprising a parking lamp and other lamps a single approval mark may be issued provided that the lamp in question complies with the requirements of this Regulation and that each of the other lamps forming part of the lighting and light-signalling device for which approval is requested, comply with the specific Regulation applying to them.
- 5.4. Notice of approval or refusal or extension or withdrawal of approval or production definitively discontinued shall be communicated to the Parties to the Agreement which apply this Regulation by means of a form conforming to the model in Annex 1 to this Regulation.
- 5.5. Every parking lamp conforming to a type approved under this Regulation shall bear in the spaces referred to in paragraph 4.2. above, in addition to the marking prescribed in paragraph 4.1. above an international approval mark consisting of:
 - 5.5.1. A circle surrounding the letter "E" followed by the distinguishing number of the country which has granted approval;²
 - 5.5.2. The number of this Regulation followed by the letter "R", a dash and the approval number;
 - 5.5.3. When a lamp emits a light of amber colour towards the front and rear, the lamp must be marked with an arrow indicating its orientation, the arrow showing the front of the vehicle;
 - 5.5.4. Where a single approval number is issued, as under paragraph 5.3. above, for a type of lighting and light-signalling device comprising a parking lamp, and other lamps, a single approval mark may be affixed, consisting of the additional symbols prescribed by the various Regulations under which approval has been granted;
 - 5.5.5. On devices with reduced light distribution in conformity to paragraph 2.3. of Annex 4 to this Regulation a vertical arrow starting from a horizontal segment and directed downwards.

² The distinguishing numbers of the Contracting Parties to the 1958 Agreement are reproduced in Annex 3 to the Consolidated Resolution on the Construction of Vehicles (R.E.3), document ECE/TRANS/WP.29/78/Rev.2/Amend.3 - www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html

- 5.6. The marking according to paragraphs 4.1.1. and 5.5. above shall be clearly legible and be indelible even when the parking lamps are fitted on the vehicles.
- 5.7. The approval marking shall be clearly legible and indelible. It may be placed on an inner or outer part (transparent or not) of the device which cannot be separated from the transparent part of the device emitting the light. In any case the marking shall be visible when the device is fitted on the vehicle or when a movable part such as the hood or boot lid or a door is opened.
- 5.8. Annex 2 to this Regulation gives an example of an arrangement of the approval mark.

6. GENERAL SPECIFICATIONS

- 6.1. Each sample shall conform to the specifications of paragraphs 7. and 9. of this Regulation.
- 6.2. Parking lamps shall be so designed and constructed that in normal use, despite the vibrations to which they may be subjected, their satisfactory operation continues to be ensured and they retain the characteristics prescribed by this Regulation.
- 6.3. In the case of light source modules, it shall be checked that:
- 6.3.1. The design of the light source module(s) shall be such as:
- (a) That each light source module can only be fitted in no other position than the designated and correct one and can only be removed with the use of tool(s);
 - (b) If there are more than one light source module used in the housing for a device, light source modules having different characteristics cannot be interchanged within the same lamp housing.
- 6.3.2. The light source module(s) shall be tamperproof.
- 6.3.3. A light source module shall be so designed that regardless of the use of tool(s), it shall not be mechanically interchangeable with any replaceable approved light source.
- 6.4. In the case of replaceable light source(s):
- 6.4.1. Any category or categories of light source(s) approved according to Regulation No. 37 and/or Regulation No. 128 may be used, provided that no restriction on the use is made in Regulation No. 37 and its series of amendments in force at the time of application for type approval or in Regulation No. 128 and its series of amendments in force at the time of application for type approval.
- 6.4.2. The design of the device shall be such that the light source can be fixed in no other position but the correct one.
- 6.4.3. The light source holder shall conform to the characteristics given in IEC Publication 60061. The holder data sheet relevant to the category of light source used, applies.

7. PHOTOMETRIC CHARACTERISTICS

7.1. In the reference axis, the light emitted by each of the two samples shall be of not less than the minimum intensity and of not more than the maximum intensity specified below:

	Minimum	Maximum
	(cd)	(cd)
7.1.1. Intensity of forward facing parking lamps	2	60
7.1.2. Intensity of rearward facing parking lamps	2	30

7.1.3. In the case of a single lamp containing more than one light source, the lamp shall comply with the minimum intensity required when any one light source has failed and when all light sources are illuminated the maximum intensities shall not be exceeded.

All light sources which are connected in series are considered to be one light source.

7.2. Outside the reference axis and within the angular fields defined in the diagrams in Annex 3 to this Regulation, the intensity of the light emitted by each of the two samples shall:

7.2.1. In each direction corresponding to the points in the luminous intensity distribution table reproduced in Annex 4 to this Regulation be not less than the value shown in the said table for the direction in question, expressed as a percentage of the minimum specified in paragraph 7.1. above;

7.2.2. In any direction within the space from which the light in question is visible, not exceed the maximum specified in paragraph 7.1. above;

7.2.3. However, a luminous intensity of 60 cd shall be permitted for parking lamps directed to the rear incorporated with stop lamps (see paragraph 7.1.2. above) below a plane forming an angle of 5° with and downward from the horizontal plane;

7.2.4. Moreover,

7.2.4.1. Throughout the fields defined in Annex 3 the intensity of the light emitted shall be not less than 0.05 cd,

7.2.4.2. The requirements of paragraph 2.2. of Annex 4 on local variations of intensity shall be observed.

7.3. Annex 4 to this Regulation to which reference is made in paragraph 7.2.1. above, gives particulars of the methods of measurement to be used.

8. TEST PROCEDURE

8.1. All measurements, photometric and colorimetric shall be carried out with an uncoloured or coloured standard light source of the category prescribed for the device, supplied with the voltage;

(a) In the case of filament lamps, that is necessary to produce the reference luminous flux required for that category of filament lamp;

- (b) In the case of LED light sources of 6.75 V or 13.5 V; the luminous flux value produced shall be corrected. The correction factor is the ratio between the objective luminous flux and the mean value of the luminous flux found at the voltage applied;
- (c) In the case of lamps with non-replaceable light sources: 6.75 V and 13.5 V respectively;
- (d) In the case of a system that uses an electronic light source control gear being part of the lamp³ applying at the input terminals of the lamp the voltage declared by the manufacturer or, if not indicated, 6.75 V, 13.5 V or 28.0 V, respectively;
- (e) In the case of a system that uses an electronic light source control gear not being part of the lamp, the voltage declared by the manufacturer shall be applied to the input terminals of the lamp.

8.2. The test laboratory shall require from the manufacturer the light source control gear needed to supply the light source and the applicable functions.

8.3. The voltage to be applied to the lamp shall be noted in the communication form in Annex 1 to this Regulation.

8.4. The limits of the apparent surface in the direction of the reference axis of a light-signalling device shall be determined.

9. COLOUR OF LIGHT EMITTED

The colour of the light emitted inside the field of the light distribution grid defined at paragraph 2. of Annex 4 shall be red, white or amber. To check these colorimetric characteristics, the test procedure described in paragraph 8. of this Regulation shall be applied. Outside this field no sharp variation of colour shall be observed.

However, for lamps equipped with non-replaceable light sources (filament lamps and other), the colorimetric characteristics should be verified with the light sources present in the lamp, in accordance with relevant subparagraphs of paragraph 8.1. of this Regulation.

10. REMARKS CONCERNING COLOURS

Every approval under this Regulation is, by virtue of paragraph 5. above, granted for a type of device emitting light of a particular colour or uncoloured light; the Contracting Parties to the Agreement to which this Regulation is annexed are accordingly not precluded by article 3 of that Agreement from prohibiting, for devices fitted on the vehicles registered by them certain colours provided for in this Regulation.

³ For the purpose of this Regulation "being part of the lamp" means to be physically included in the lamp body or to be external, separated or not, but supplied by the lamp manufacturer as part of the lamp system. The functioning and installation conditions of these additional systems will be defined by special provisions.

11. MODIFICATIONS OF A TYPE OF PARKING LAMP AND EXTENSION OF APPROVAL

- 11.1. Every modification of the type of parking lamp shall be notified to the Type Approval Authority which approved the type of parking lamp. The Type Approval Authority may then either:
- 11.1.1. Consider that the modifications made are unlikely to have an appreciable adverse effect and that in any case the parking lamp still complies with the requirements; or
- 11.1.2. Require a further test report from the Technical Service responsible for conducting the tests.
- 11.2. Confirmation or refusal of approval, specifying the modification shall be communicated by the procedure specified in paragraph 5.4. above.
- 11.3. The Type Approval Authority issuing the extension of approval shall assign a series number to each communication form drawn up for such an extension.

12. CONFORMITY OF PRODUCTION

The conformity of production procedures shall comply with those set out in the Agreement, Appendix 2 (E/ECE/324-E/ECE/TRANS/505/Rev.2), with the following requirements:

- 12.1. Lamps approved under this Regulation shall be so manufactured as to conform to the type approved by meeting the requirements set forth in paragraphs 7. and 9. above.
- 12.2. The minimum requirements for conformity of production control procedures set forth in Annex 5 to this Regulation shall be complied with.
- 12.3. The minimum requirements for sampling by an inspector set forth in Annex 6 to this Regulation shall be complied with.
- 12.4. The Type Approval Authority which has granted type approval may at any time verify the conformity control methods applied in each production facility. The normal frequency of these verifications shall be once every two years.

13. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

- 13.1. The approval granted in respect of a type of parking lamp pursuant to this Regulation may be withdrawn if the requirements set forth above are not complied with or if a parking lamp bearing the approval mark does not conform to the type approved.
- 13.2. If a Party to the Agreement which applies this Regulation withdraws an approval it has previously granted, it shall forthwith so notify the other Contracting Parties applying this Regulation by means of a communication form conforming to the model in Annex 1 to this Regulation.

14. PRODUCTION DEFINITELY DISCONTINUED

If the holder of the approval completely ceases to manufacture a parking lamp under this Regulation, he shall so inform the Type Approval Authority which granted the approval. Upon receiving the relevant communication that Type Approval Authority shall inform thereof the other Parties to the Agreement

applying this Regulation by means of a communication form conforming to the model in Annex 1 to this Regulation.

15. NAMES AND ADDRESSES OF TECHNICAL SERVICES RESPONSIBLE FOR CONDUCTING APPROVAL TESTS AND OF TYPE APPROVAL AUTHORITIES

The Contracting Parties to the Agreement which apply this Regulation shall communicate to the United Nations Secretariat the names and addresses of the Technical Services responsible for conducting approval tests and of the Type Approval Authorities which grant approval and to which forms certifying approval or extension or refusal or withdrawal of approval, issued in other countries, are to be sent.

16. TRANSITIONAL PROVISIONS

- 16.1. As from the official date of entry into force of Supplement 5 to the Regulation, no Contracting Party applying this Regulation shall refuse to grant approval under this Regulation as amended by Supplement 5.
- 16.2. As from 24 months after the date of entry into force, Contracting Parties applying this Regulation shall grant approvals only if the type of parking lamp to be approved meets the requirements of this Regulation as amended by Supplement 5.
- 16.3. Contracting Parties applying this Regulation shall not refuse to grant extensions of approval to this Regulation in its original form and the subsequent supplements.
- 16.4. Contracting Parties applying this Regulation shall continue to grant approvals to those types of parking lamp which comply with the requirements of this Regulation in its original form and the subsequent supplements during the 12 months period which follows the date of entry into force of Supplement 5 to the Regulation.
- 16.5. Approvals granted under this Regulation earlier than 12 months after the date of entry into force and all extensions of approvals, including those to this Regulation in its original form and the subsequent supplements shall remain valid indefinitely. When the type of parking lamp approved to this Regulation in its original form and the subsequent supplements meets the requirements of this Regulation as amended by Supplement 5, the Contracting Party which granted the approval shall notify the other Contracting Parties applying this Regulation thereof.
- 16.6. No Contracting Party applying this Regulation shall refuse a type of parking lamp approved to Supplement 5 to this Regulation.
- 16.7. Until 36 months after the date of entry into force of Supplement 5 to the Regulation, no Contracting Party applying this Regulation shall refuse a type of parking lamp approved to the Regulation in its original form and the subsequent supplements.
- 16.8. Starting 36 months after the date of entry into force of Supplement 5 to the Regulation, Contracting Parties applying this Regulation may refuse the sale of a type of parking lamp which does not meet the requirements of Supplement 5

to this Regulation unless the parking lamp is intended as a replacement for fitting on vehicles in use.

- 16.9. Contracting Parties applying this Regulation shall continue to issue approvals for parking lamps on the basis of any previous Supplements to the Regulation, provided that parking lamps are intended as replacements for fitting to vehicles in use.
- 16.10. As from the official date of entry into force of Supplement 5 to the Regulation, no Contracting Party applying this Regulation shall prohibit the fitting on a vehicle of a parking lamp approved under this Regulation as amended by Supplement 5.
- 16.11. Contracting Parties applying this Regulation shall continue to allow the fitting on a vehicle of a parking lamp approved to this Regulation in its original form and the subsequent supplements during the 48 months period which follows the date of entry into force of Supplement 5 to the Regulation.
- 16.12. Upon the expiration of a period of 48 months after the date of entry into force of Supplement 5 to the Regulation, Contracting Parties applying this Regulation may prohibit the fitting of a parking lamp which does not meet the requirements of this Regulation as amended by Supplement 5 on a new vehicle for which national type or individual approval was granted more than 24 months after the date of entry into force of Supplement 5 to the Regulation.
- 16.13. Upon the expiration of a period of 60 months after the date of entry into force, Contracting Parties applying this Regulation may prohibit the fitting of a parking lamp which does not meet the requirements of this Regulation as amended by Supplement 5 on a new vehicle first registered more than 60 months after the date of entry into force of Supplement 5 to the Regulation.

ANNEX 1

Communication

(maximum format: A4 (210 x 297 mm))



issued by: Name of administration

concerning:² Approval granted
 Approval extended
 Approval refused
 Approval withdrawn
 Production definitively discontinued

of a type of parking lamp pursuant to Regulation No. 77

Approval No.

Extension No.

1. Designation of the type of parking lamp:
2. Trade name or mark:
3. Manufacturer's name and address:
4. If applicable, name and address of manufacturer's representative:
5. Submitted for approval on:
6. Technical Service responsible for conducting approval tests:
7. Date of report issued by that Service:
8. Number of report issued by that Service:
9. Concise description:
Colour of light emitted: red / white /amber²
Number and category (ies) of light source(s):
Light source module: Yes /No²
Light source module specific identification code:
Geometrical conditions of installation and relating variations, if any:
Application of an electronic light source control gear/variable intensity control:
(a) Being part of the lamp: Yes/No/Not applicable²
(b) Being not part of the lamp: Yes/No/Not applicable²
 Input voltage(s) supplied by an electronic light source control gear/variable intensity control:
 Electronic light source control gear/variable intensity control manufacturer and identification number (when the light source control gear is part of the lamp but is not included into the lamp body):

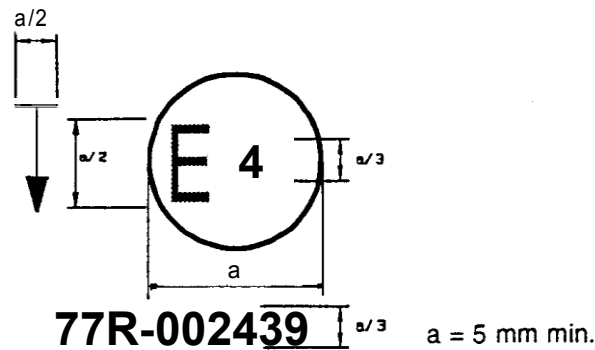
¹ Distinguishing number of the country which has granted/refused/withdrawn approval (see approval provisions in the Regulation).

² Strike out which does not apply.

10. Only for limited mounting height of equal to or less than 750 mm above the ground
Yes/No²
11. Approval granted/refused/extended/withdrawn²
12. Place:
13. Date:
14. Signature:
15. The attached drawing No. shows the geometrical position in which the device is to be mounted on the vehicle and the axis of reference and centre of reference of the device.

ANNEX 2

Examples of arrangements of the approval marks



The lamp bearing the above approval mark has been approved in the Netherlands (E 4) pursuant to Regulation No. 77 under the approval number 002439. The first two digits of the approval number indicate that the approval was granted according to the requirements of Regulation No. 77 in its original form. The vertical arrow starting from a horizontal segment and directed downwards indicates a permissible mounting height of equal to or less than 750 mm from the ground for this device.

Light source modules

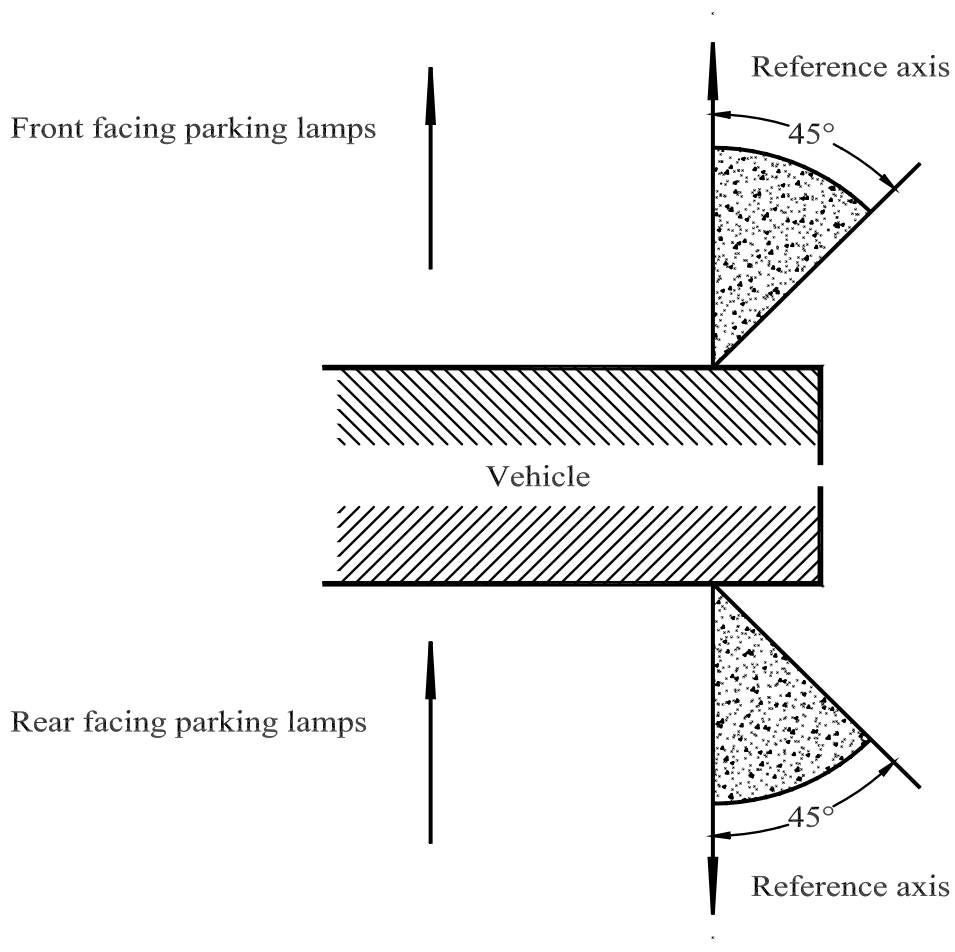
MD E3 17325

The light source module bearing the identification code shown above has been approved together with a lamp approved in Italy (E 3) under approval number 17325.

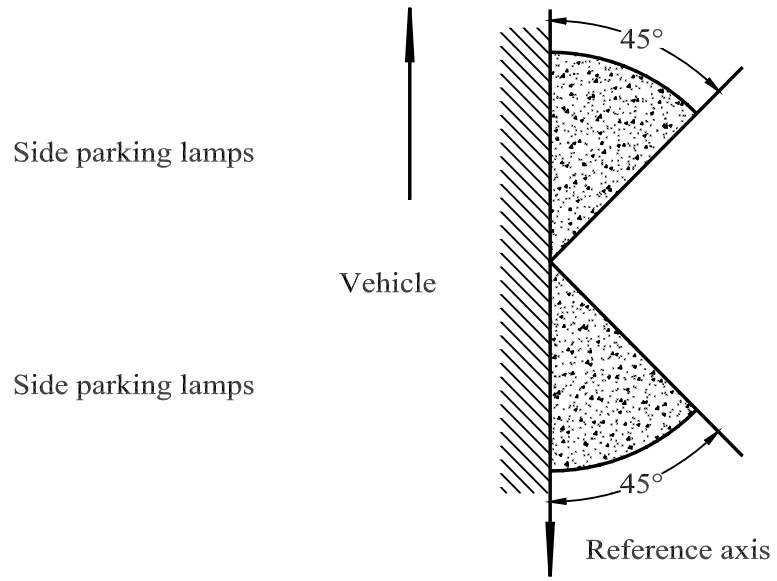
ANNEX 3

Minimum angles required for the light distribution in space*

In all cases, the minimum vertical angles of light distribution in space are 15° above and 15° below the horizontal except for lamps intended to be installed with their H plane at a mounting height less than 750 mm above the ground, for which they are 15° above and 5° below the horizontal.



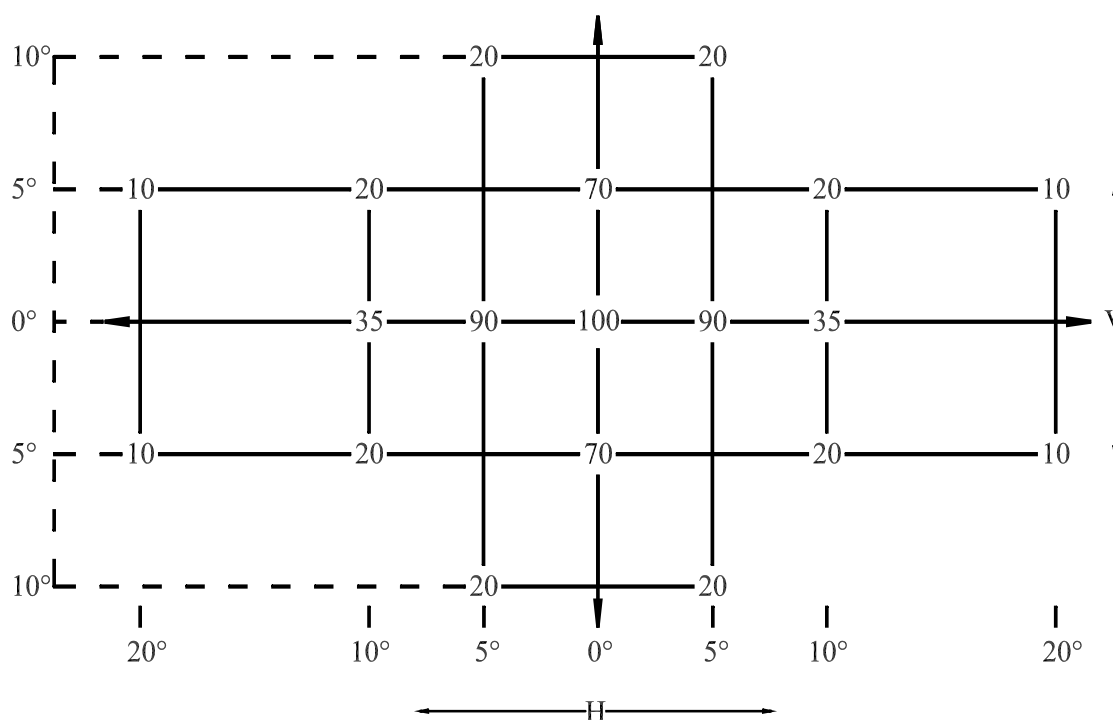
* The angles shown in these diagrams are correct for devices to be mounted on the right side of the vehicle. The arrows point to the front of the vehicles.



ANNEX 4

Photometric measurements

1. Measurement methods
 - 1.1. During photometric measurements, stray reflections shall be prevented by appropriate masking.
 - 1.2. Should the results of measurements be challenged, measurements shall be carried out in such a way as to meet the following requirements:
 - 1.2.1. The distance of measurements shall be such that the law of the inverse of the square of the distance is applicable;
 - 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 between $10'$ and 1° ;
 - 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 $15'$ from the direction of observation.
 - 1.3. In the case where the device may be installed on the vehicle in more than one or in a field of different positions the photometric measurements shall be repeated for each position or for the extreme positions of the field of the reference axis specified by the manufacturer.
2. Standard luminous intensity distribution table



- 2.1. The direction $H = 0^\circ$ and $V = 0^\circ$ corresponds to the reference axis. (On the vehicle it is horizontal, parallel to the median longitudinal plane of the vehicle and oriented in the required direction of visibility.) It passes through the

centre of reference. The values shown in the table give, for the various directions of measurements, the minimum intensities as a percentage of the minimum required in the axis for each lamp (in the direction $H = 0^\circ$ and $V = 0^\circ$).

- 2.2. Within the field of light distribution of paragraph 2. above, schematically shown as a grid, the light pattern should be substantially uniform in so far as the light intensity in each direction of a part of the field formed by the grid lines meets at least the lowest minimum percentage value being shown (available) on the grid lines surrounding the questioned direction.
- 2.3. However in the case where a device is intended to be installed with its H plane at a mounting height less than 750 mm above the ground, the photometric intensity is verified only up to an angle of 5° downwards.
3. Photometric measurement of lamps
The photometric performance shall be checked:
 - 3.1. For non-replaceable light sources (filament lamps and other):
With the light sources present in the lamp, in accordance with the relevant subparagraph of paragraph 8.1. of this Regulation.
 - 3.2. For replaceable light sources:
When equipped with light sources at 6.75 V, 13.5 V or 28.0 V, the luminous intensity values produced shall be corrected. For filament lamps the correction factor is the ratio between the reference luminous flux and the mean value of the luminous flux found at the voltage applied (6.75 V, 13.5 V or 28.0 V).
For LED light sources the correction factor is the ratio between the objective luminous flux and the mean value of the luminous flux found at the voltage applied (6.75 V, 13.5 V or 28.0 V).
The actual luminous fluxes of each light source used shall not deviate more than ± 5 per cent from the mean value. Alternatively and in case of filament lamps only, a standard filament lamp may be used in turn, in each of the individual positions, operated at its reference flux, the individual measurements in each position being added together.
 - 3.3. For any signalling lamp except those equipped with filament lamp(s), the luminous intensities, measured after one minute and after 30 minutes of operation, shall comply with the minimum and maximum requirements. The luminous intensity distribution after one minute of operation can be calculated from the luminous intensity distribution after 30 minutes of operation by applying at each test point the ratio of luminous intensities measured at HV after one minute and after 30 minutes of operation.

ANNEX 5

Minimum requirements for conformity of production control procedures

4. General
 - 4.1. The conformity requirements shall be considered satisfied from a mechanical and geometric standpoint, if the differences do not exceed inevitable manufacturing deviations within the requirements of this Regulation.
 - 4.2. With respect to photometric performances, the conformity of mass-produced lamps shall not be contested if, when testing photometric performances of any lamp chosen at random and equipped with a standard light source, or when the lamps are equipped with non-replaceable light sources (filament lamps or other), and when all measurements are made at 6.75 V, 13.5 V or 28.0 V respectively:
 - 4.2.1. No measured value deviates unfavourably by more than 20 per cent from the values prescribed in this Regulation.
 - 4.2.2. If, in the case of a lamp equipped with a replaceable light source and if results of the test described above do not meet the requirements, tests on lamps shall be repeated using another standard light source.
 - 4.3. The chromaticity coordinates shall be complied with when the lamp is equipped with a standard light source, or for lamps equipped with non-replaceable light sources (filament lamps or other), when the colorimetric characteristics are verified with the light source present in the lamp.
5. Minimum requirements for verification of conformity by the manufacturer

For each type of lamp the holder of the approval mark shall carry out at least the following tests, at appropriate intervals. The tests shall be carried out in accordance with the provisions of this Regulation.

If any sampling shows non-conformity with regard to the type of test concerned, further samples shall be taken and tested. The manufacturer shall take steps to ensure the conformity of the production concerned.

 - 5.1. Nature of tests

Tests of conformity in this Regulation shall cover the photometric and colorimetric characteristics.
 - 5.2. Methods used in tests
 - 5.2.1. Tests shall generally be carried out in accordance with the methods set out in this Regulation.
 - 5.2.2. In any test of conformity carried out by the manufacturer, equivalent methods may be used with the consent of the Type Approval Authority responsible for approval tests. The manufacturer is responsible for proving that the applied methods are equivalent to those laid down in this Regulation.
 - 5.2.3. The application of paragraphs 2.2.1. and 2.2.2. above requires regular calibration of test apparatus and its correlation with measurements made by a Type Approval Authority.

- 5.2.4. In all cases the reference methods shall be those of this Regulation, particularly for the purpose of administrative verification and sampling.
- 5.3. Nature of sampling
- Samples of lamps shall be selected at random from the production of a uniform batch. A uniform batch means a set of lamps of the same type, defined according to the production methods of the manufacturer.
- The assessment shall in general cover series production from individual factories. However, a manufacturer may group together records concerning the same type from several factories, provided these operate under the same quality system and quality management.
- 5.4. Measured and recorded photometric characteristics
- The sampled lamp shall be subjected to photometric measurements for the minimum values at the points listed in Annex 4 and the required chromaticity coordinates
- 5.5. Criteria governing acceptability
- The manufacturer is responsible for carrying out a statistical study of the test results and for defining, in agreement with the Type Approval Authority, criteria governing the acceptability of his products in order to meet the specifications laid down for verification of conformity of products in paragraph 12.1. of this Regulation.
- The criteria governing the acceptability shall be such that, with a confidence level of 95 per cent, the minimum probability of passing a spot check in accordance with Annex 6 (first sampling) would be 0.95.

ANNEX 6

Minimum requirements for sampling by an inspector

6. General
- 6.1. The conformity requirements shall be considered satisfied from a mechanical and a geometric standpoint, in accordance with the requirements of this Regulation, if any, if the differences do not exceed inevitable manufacturing deviations.
- 6.2. With respect to photometric performance, the conformity of mass-produced lamps shall not be contested if, when testing photometric performances of any lamp chosen at random and equipped with a standard light source, or when the lamps are equipped with non-replaceable light sources (filament lamps or other), and when all measurements are made at 6.75 V, 13.5 V or 28.0 V respectively:
- 6.2.1. No measured value deviates unfavourably by more than 20 per cent from the values prescribed in this Regulation.
- 6.2.2. If, in the case of a lamp equipped with a replaceable light source and if results of the test described above do not meet the requirements, tests on lamps shall be repeated using another standard light source.
- 6.2.3. Lamps with apparent defects are disregarded.
- 6.3. The chromaticity coordinates shall be complied with when the lamp is equipped with a standard light source, or for lamps equipped with non-replaceable light sources (filament lamps or other), when the colorimetric characteristics are verified with the light source present in the lamp.
7. First sampling
- In the first sampling four lamps are selected at random. The first sample of two is marked A, the second sample of two is marked B.
- 7.1. The conformity is not contested
- 7.1.1. Following the sampling procedure shown in Figure 1 of this annex the conformity of mass-produced lamps shall not be contested if the deviation of the measured values of the lamps in the unfavourable directions are:
- 7.1.1.1. Sample A
- | | | |
|-----|------------------------|-------------|
| A1: | one lamp | 0 per cent |
| | one lamp not more than | 20 per cent |
| A2: | both lamps more than | 0 per cent |
| | but not more than | 20 per cent |
| | go to sample B | |
- 7.1.1.2. Sample B
-

- B1: both lamps 0 per cent
- 7.1.2. Or, if the conditions of paragraph 1.2.2. above for sample A are fulfilled.
- 7.2. The conformity is contested
- 7.2.1. Following the sampling procedure shown in Figure 1 of this annex the conformity of mass-produced lamps shall be contested and the manufacturer requested to make his production meet the requirements (alignment) if the deviations of the measured values of the lamps are:
- 7.2.1.1. Sample A
- | | | |
|-----|------------------------|-------------|
| A3: | one lamp not more than | 20 per cent |
| | one lamp more than | 20 per cent |
| | but not more than | 30 per cent |
- 7.2.1.2. Sample B
- | | | |
|-----|------------------------|-------------|
| B2: | in the case of A2 | |
| | one lamp more than | 0 per cent |
| | but not more than | 20 per cent |
| | one lamp not more than | 20 per cent |
| B3: | in the case of A2 | |
| | one lamp | 0 per cent |
| | one lamp more than | 20 per cent |
| | but not more than | 30 per cent |
- 7.2.2. Or, if the conditions of paragraph 1.2.2. above for sample A are not fulfilled.
- 7.3. Approval withdrawn
- Conformity shall be contested and paragraph 13 of this Regulation. applied if, following the sampling procedure in Figure 1 of this annex, the deviations of the measured values of the lamps are:
- 7.3.1. Sample A
- | | | |
|-----|------------------------|-------------|
| A4: | one lamp not more than | 20 per cent |
| | one lamp more than | 30 per cent |
| A5: | both lamps more than | 20 per cent |
- 7.3.2. Sample B
- | | | |
|-----|--------------------|-------------|
| B4: | in the case of A2 | |
| | one lamp more than | 0 per cent |
| | but not more than | 20 per cent |
| | one lamp more than | 20 per cent |
-

B5: in the case of A2
both lamps more than 20 per cent

B6: in the case of A2
one lamp 0 per cent
one lamp more than 30 per cent

7.3.3. Or, if the conditions of paragraph 1.2.2. above for samples A and B are not fulfilled.

8. Repeated sampling

In the cases of A3, B2, B3 a repeated sampling, third sample C of two lamps and fourth sample D of two lamps, selected from stock manufactured after alignment, is necessary within two months' time after the notification.

8.1. The conformity is not contested

8.1.1. Following the sampling procedure shown in Figure 1 of this annex the conformity of mass-produced lamps shall not be contested if the deviations of the measured values of the lamps are:

8.1.1.1. Sample C

C1: one lamp 0 per cent
one lamp not more than 20 per cent
C2: both lamps more than 0 per cent
but not more than 20 per cent
go to sample D

8.1.1.2. Sample D

D1: in the case of C2
both lamps 0 per cent

8.1.2. Or, if the conditions of paragraph 1.2.2. above for sample C are fulfilled.

8.2. The conformity is contested

8.2.1. Following the sampling procedure shown in Figure 1 of this annex the conformity of mass-produced lamps shall be contested and the manufacturer requested to make his production meet the requirements (alignment) if the deviations of the measured values of the lamps are:

8.2.1.1. Sample D

D2: in the case of C2
one lamp more than 0 per cent
but not more than 20 per cent
one lamp not more than 20 per cent

8.2.1.2. Or, if the conditions of paragraph 1.2.2. above for sample C are not fulfilled.

8.3. Approval withdrawn

Conformity shall be contested and paragraph 13. of this Regulation applied if, following the sampling procedure in Figure 1 of this annex, the deviations of the measured values of the lamps are:

8.3.1. Sample C

C3: one lamp not more than 20 per cent

one lamp more than 20 per cent

C4: both lamps more than 20 per cent

8.3.2. Sample D

D3: in the case of C2

one lamp 0 or more than 0 per cent

one lamp more than 20 per cent

8.3.3. Or, if the conditions of paragraph 1.2.2. above for samples C and D are not fulfilled.

Figure 1

