



Vehicle Standard (Australian Design Rule 87/00 – Cornering 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

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1. LEGISLATIVE PROVISIONS

- 1.1. Name of Standard
 - 1.1.1. This Standard is the Vehicle Standard (Australian Design Rule 87/00 – Cornering Lamps) 2016.
 - 1.1.2. This Standard may also be cited as Australian Design Rule 87/00 – Cornering 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 photometric requirements for Cornering Lamps, which are used to provide supplementary illumination of that part of the road which is located near the forward corner of the vehicle at the side towards which the vehicle is going to turn.

3. APPLICABILITY

- 3.1. The circumstances under which Cornering Lamps are mandatory, optional or prohibited are set out in either ADR 13/..., 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 2 Application for approval
 - Section 3 Markings

Section 4	Approval
Section 10	Penalties for non-conformity of production
Section 11	Production definitely discontinued
Section 12	Names and addresses of Technical Services responsible for conducting approval tests, and of Type Approval Authorities
Section 13	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. 119 – UNIFORM PROVISIONS CONCERNING THE APPROVAL OF PARKING LAMPS FOR POWER-DRIVEN VEHICLES, incorporating the 01 series of amendments, 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 118: Regulation No. 119

Revision 2

Incorporating all valid text up to:

Supplement 1 to the 01 series of amendments - Date of entry into force: 18 November 2012

Supplement 2 to the 01 series of amendments – Date of entry into force: 15 July 2013

Supplement 3 to the 01 series of amendments – Date of entry into force: 3 November 2013

Supplement 4 to the 01 series of amendments – Date of entry into force: 8 October 2015

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

This document is meant purely as documentation tool. The authentic and legal binding texts of the supplements are listed on the following page.



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.

The authentic and legal binding texts are:

- ECE/TRANS/WP.29/2012/18
- ECE/TRANS/WP.29/2012/84
- ECE/TRANS/WP.29/2013/24
- ECE/TRANS/WP.29/2015/31

Regulation No. 119

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

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- 5 Minimum requirements for conformity of production control procedures
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SCOPE

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

1. DEFINITIONS

- 1.1. "*Cornering lamp*" means a lamp used to provide supplementary illumination of that part of the road which is located near the forward corner of the vehicle at the side towards which the vehicle is going to turn.
- 1.2. "*Cornering 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 (level of intensity, light distribution angles, category of light source, light source module, etc.);
- A change of the colour of the filament lamp or the colour of any filter does not constitute a change of type.
- 1.3. The definitions of the colour of the light emitted 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.
- 1.4. 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.

2. APPLICATION FOR APPROVAL

- 2.1. The application for approval shall be submitted by the holder of the trade name or mark or by his duly accredited representative.
- 2.2. For each type of cornering lamp, the application shall be accompanied by:
- 2.2.1. Drawings, in triplicate, in sufficient detail to permit identification of the type of the cornering lamp and showing in what geometrical position the cornering lamp is to be mounted on the vehicle; the axis of observation to be taken as the axis of reference in the tests (horizontal angle $H = 0$, vertical angle $V = 0$); and the point to be taken as the centre of reference in the said tests. The drawings shall show the position intended for the approval number and the additional symbol in relation to the circle of the approval mark;
- 2.2.2. 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 No. 37 and its series of amendments in force at the time of application for type approval; and/or

¹ As defined in the Consolidated Resolution on the Construction of Vehicles (R.E.3.), document ECE/TRANS/WP.29/78/Rev.4 para. 2 - www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html

- (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.

2.2.3. Two samples. If the devices are not identical but are symmetrical and suitable for mounting one on the left and one on the right 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.

3. MARKINGS

The samples of a type of cornering lamp submitted for approval shall:

- 3.1. Bear the trade name or mark of the applicant; this marking shall be clearly legible and be indelible;
- 3.2. With the exception of lamps with non-replaceable light sources, bear 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.
- 3.3. Provide adequate space for the approval mark and for the additional symbols prescribed in paragraph 4.3. below; the said space shall be shown in the drawings referred to in paragraph 2.2.1. above;
- 3.4. In the case of lamps with an electronic light source control gear and/or non-replaceable light sources and/or light source module(s), bear the marking of the rated voltage or range of voltage and rated maximum wattage.
- 3.5. In the case of lamps with light source module(s), the light source module(s) shall bear:
 - 3.5.1. The trade name or mark of the applicant; this marking shall be clearly legible and indelible;
 - 3.5.2. The specific identification code of the module; this marking shall 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 4.3.1.1. 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 2.2.1. 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.
 - 3.5.3. The marking of the rated voltage and rated wattage.
- 3.6. Lamps operating at voltages other than the nominal rated voltages of 6 V, 12 V or 24 V respectively, by the application of an electronic light source control gear being not part of the lamp, shall also bear a marking denoting the rated secondary design voltage.

3.7. An electronic light source control gear being part of the lamp but not included into the lamp body shall bear the name of the manufacturer and its identification number.

4. APPROVAL

4.1. If the two samples of a type of cornering lamp meet the requirements of this Regulation, approval shall be granted.

4.2. An approval number shall be assigned to each type approved. The same Contracting Party shall not assign the same number to another type of cornering lamp covered by this Regulation. Notice of approval or of extension or refusal or withdrawal of approval or production definitively discontinued of a type of cornering lamp pursuant to this Regulation shall be communicated to the Parties to the 1958 Agreement which apply this Regulation by means of a form conforming to the model in Annex 1 to this Regulation.

4.3. Every cornering lamp conforming to a type approved under this Regulation shall bear in the space referred to in paragraph 3.3. above, in addition the mark and the particulars prescribed above in paragraphs 3.1., 3.2. and 3.3. or 3.4. respectively:

4.3.1. An international approval mark consisting of:

4.3.1.1. A circle surrounding the letter "E" followed by the distinguishing number of the country which has granted the approval;² and

4.3.1.2. An approval number;

4.3.2. An additional symbol consisting of the letter "K" as shown in Annex 2 to this Regulation.

4.3.3. The first two digits (at present 01) of the approval number which indicate the most recent series of amendments to this Regulation may be placed in the vicinity of the additional letter "K".

4.4. When two or more lamps are part of the same assembly of grouped, combined or reciprocally incorporated lamps, approval is granted only if each of these lamps satisfies the requirements of this Regulation or of another Regulation. Lamps not satisfying any one of those Regulations shall not be part of such an assembly of grouped, combined or reciprocally incorporated lamps.

4.4.1. Where grouped, combined or reciprocally incorporated lamps comply with the requirements of several Regulations, a single international approval mark may be applied, consisting of a circle surrounding the letter "E" followed by the distinguishing number of the country which has granted the approval, an approval number and, if necessary, the required arrow. This approval mark may be placed anywhere on the grouped, combined or reciprocally incorporated lamps provided that;

4.4.1.1. It is visible after their installation;

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.4, Annex 3 - www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html

- 4.4.1.2. No part of the grouped, combined or reciprocally incorporated lamps that transmits light can be removed without at the same time removing the approval mark.
- 4.4.2. The identification symbol for each lamp appropriate to each Regulation under which approval has been granted, together with the corresponding series of amendments incorporating the most recent major technical amendments to the Regulation at the time of issue of the approval, shall be marked:
 - 4.4.2.1. Either on the appropriate light-emitting surface;
 - 4.4.2.2. Or in a group, in such a way that each lamp of the grouped, combined or reciprocally incorporated lamps may be clearly identified (see three possible examples in Annex 2).
- 4.4.3. The size of the components of a single approval mark shall not be less than the minimum size required for the smallest of the individual marks by a Regulation under which approval has been granted.
- 4.4.4. An approval number shall be assigned to each type approved. The same Contracting Party may not assign the same number to another type of grouped, combined or reciprocally incorporated lamps covered by this Regulation.
- 4.5. The mark and symbol referred to in paragraphs 4.3.1. and 4.3.2. shall be indelible and shall be clearly legible even when the cornering lamp is mounted on the vehicle.
- 4.6. Annex 2 gives examples of approval marks for a single lamp (Figure 1) and for grouped, combined or reciprocally incorporated lamps (Figure 2) with all the additional symbols referred to above, in which the letter "K" indicates a cornering lamp.
- 4.7. 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. GENERAL SPECIFICATIONS

- 5.1. Each sample shall conform to the specifications set forth in the paragraphs below.
- 5.2. Cornering lamps shall be so designed and constructed that in normal use, despite the vibration to which they may then be subjected, they continue to function satisfactorily and retain the characteristics prescribed by this Regulation.
- 5.3. In the case of light source modules, it shall be checked that:
 - 5.3.1. 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.

- 5.3.2. The light source module(s) shall be tamperproof.
- 5.3.3. 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.
- 5.4. In the case of replaceable light sources:
 - 5.4.1. 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.
 - 5.4.2. The design of the device shall be such that the light source can be fixed in no other position but the correct one.
 - 5.4.3. 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.

6. INTENSITY OF LIGHT EMITTED

- 6.1. The intensity of light emitted by each of two samples shall be not less than the minimum intensity and not greater than the maximum intensity specified in paragraphs 6.2. and 6.3. The intensity shall be measured in relation to the axis of reference in the directions shown below (expressed in degrees of angle with the axis of reference). Test points are given for a lamp mounted on the left side of the vehicle, the L designations become R designations for a lamp mounted on the right side of the vehicle.
- 6.2. For the left-hand device, the minimum intensity of the light at the specified measuring points shall be as follows:
 - (1) 2.5D – 30L: 240 cd
 - (2) 2.5D – 45L: 400 cd
 - (3) 2.5D – 60L: 240 cdThe same values apply symmetrically for a right-hand device. (Shown in Annex 3)
- 6.3. The intensity of the light emitted in all directions shall not exceed:
 - (a) 300 cd above the 1.0U, L and R line;
 - (b) 600 cd between the horizontal plane and the 1.0U, L and R Line; and
 - (c) 14,000 cd below the 0.57 D, L and R line.
- 6.4. 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.

7. TEST PROCEDURE

- 7.1. In the case of a lamp with replaceable light source, when not supplied by an electronic light source control gear, 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 lamp(s), 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, 13.5 V or 28.0 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.
- 7.2. All measurements on lamps equipped with non-replaceable light sources (filament lamps and other) shall be made at 6.75 V, 13.5 V or 28.0 V respectively, when not supplied by an electronic light source control gear.
- 7.3. In the case of a system that uses an electronic light source control gear being part of the lamp,³ shall be applied at the input terminals of the electronic light source control gear a voltage of 6.75 V, 13.5 V or 28.0 V respectively.
- 7.4. 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. The test laboratory shall require from the applicant the light source control gear needed to supply the light source and the applicable functions.
- The voltage to be applied to the lamp shall be noted in the communication form in Annex 1 of this Regulation.
- 7.5. For any lamp except those equipped with filament lamps, 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.

8. COLOUR OF LIGHT EMITTED

The colour of the light emitted inside the field of the light distribution grid defined in paragraph 2. of Annex 3 shall be white. For testing see Annex 4 to this Regulation. Outside this field, no sharp variations of colour shall be observed.

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, from the lamp body but supplied by the lamp manufacturer as part of the lamp system.

9. 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:

- 9.1. Lamps approved under this Regulation shall be so manufactured as to conform to the type approved by meeting the requirements set forth in paragraphs 6. and 8. above.
- 9.2. The minimum requirements for conformity of production control procedures set forth in Annex 5 to this Regulation shall be complied with.
- 9.3. The minimum requirements for sampling by an inspector set forth in Annex 6 to this regulation shall be complied with.
- 9.4. 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.

10. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

- 10.1. The approval granted in respect of a type of cornering lamp pursuant to this Regulation may be withdrawn if the foregoing requirements are not complied with or if a cornering lamp bearing the mark referred to in paragraphs 4.3.1. and 4.3.2. does not conform to the type approved.
- 10.2. If a Contracting 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.

11. PRODUCTION DEFINITELY DISCONTINUED

If the holder of the approval completely ceases to manufacture a type of cornering lamp approved in accordance with this Regulation, he shall so inform the Type Approval Authority which granted the approval. Upon receiving the relevant communication that Authority shall inform thereof the other Parties to the 1958 Agreement which apply this Regulation by means of a communication form conforming to the model in Annex 1 to this Regulation.

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

The Contracting Parties to the 1958 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 Authority which grant approval and to which forms certifying approval or extension or refusal or withdrawal of approval, issued in other countries or production definitively discontinued, are to be sent.

13. TRANSITIONAL PROVISIONS

- 13.1. From the date of entry into force of the 01 series of amendments to this Regulation, no Contracting Party applying it shall refuse to grant approvals under this Regulation as amended by the 01 series of amendments.
- 13.2. As from 60 months after the date of entry into force of the 01 series of amendments, Contracting Parties applying this Regulation shall grant approvals only if the cornering-lamp meets the requirements of this Regulation as amended by the 01 series of amendments.
- 13.3. Existing approvals for cornering-lamps already granted under this Regulation before the date of entry into force of the 01 series of amendments, shall remain valid indefinitely.
- 13.4. Contracting Parties applying this Regulation shall not refuse to grant extensions of approvals to the preceding series of amendments to this 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 cornering lamp pursuant to Regulation No. 119

Approval No:

Extension No:

1. Trade name or mark of the device:
2. Manufacturer's name for the type of device:
3. Manufacturer's name and address:
4. If applicable, name and address of the 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:
By category of lamp:
Number, category and kind of light source(s):³
Voltage and wattage:
Light source module: yes/no²
Light source module specific identification code:
Application of an electronic light source control gear:
(a) Being part of the lamp yes/no²
(b) Being not part of the lamp yes/no²
Input voltage supplied by an electronic light source control gear:
Electronic light source control gear 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/extended/refused or withdrawn approval.

² Strike out what does not apply.

³ For cornering lamps with non-replaceable light sources indicate the number and total wattage of the light sources used.

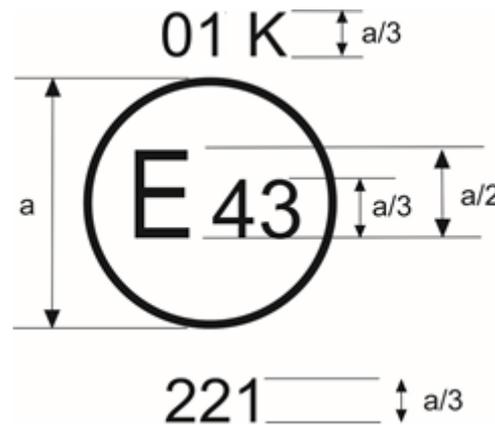
- Geometrical conditions of installation and relating variations, if any:
10. Position of the approval mark:
 11. Reason(s) for extension (if applicable):
 12. Approval granted/extended/refused/withdrawn²
 13. Place:
 14. Date:
 15. Signature:
 16. The list of documents deposited with the Type Approval Authority which has granted approval is annexed to this communication and may be obtained on request.

ANNEX 2

Examples of arrangements of approval marks

Figure 1
Marking for single lamps

Model A



$A = 5 \text{ mm min.}$

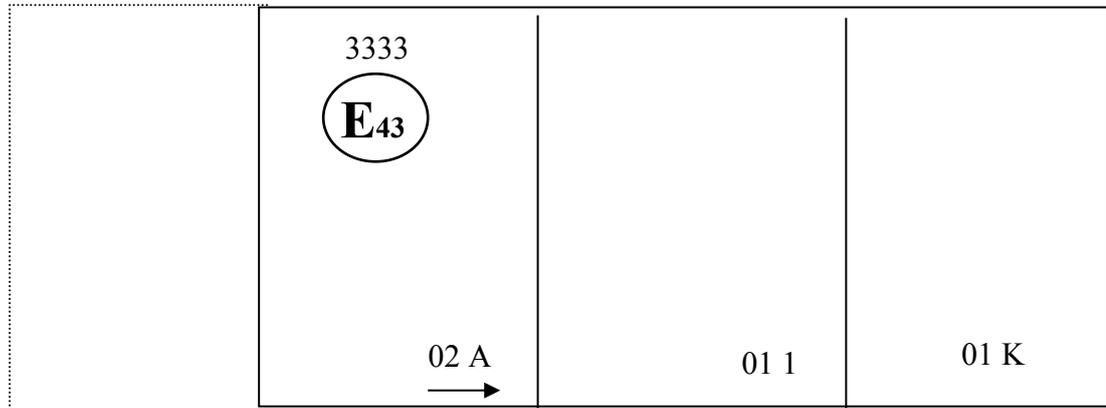
The device bearing the approval mark shown above is a cornering lamp approved in Japan (E 43) pursuant to Regulation No. 119 under approval number 221. The approval number indicates that the approval was granted in accordance with the requirements of Regulation No. 119 as amended by the 01 series of amendments.

Note: The approval number and additional symbol shall be placed close to the circle and either above or below the letter "E" or to the left or right of that letter. The digits of the approval number and of the production serial number shall be on the same side of the letter "E" and face the same direction. The use of Roman numerals as approval numbers should be avoided so as to prevent any confusion with other symbols.

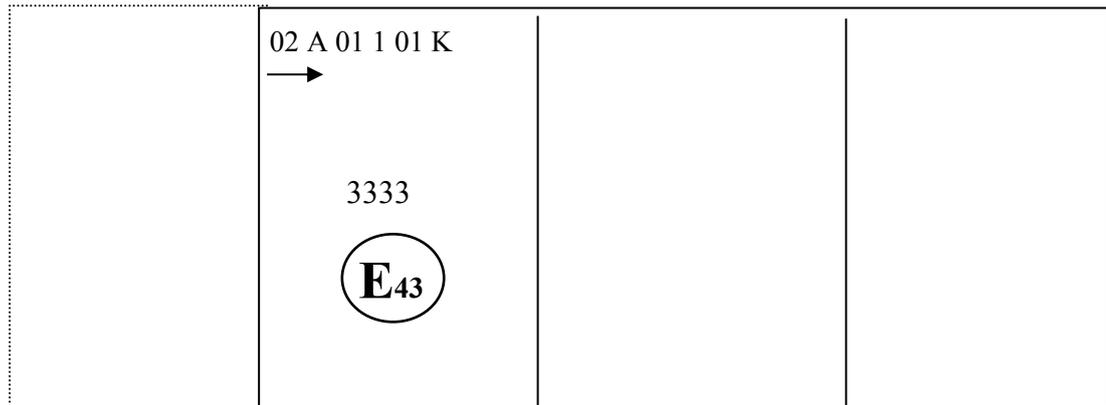
Figure 2
Simplified marking for Grouped, combined or reciprocally incorporated lamps

(The vertical and horizontal lines schematize the shape of the light-signalling device. These are not part of the approval mark.)

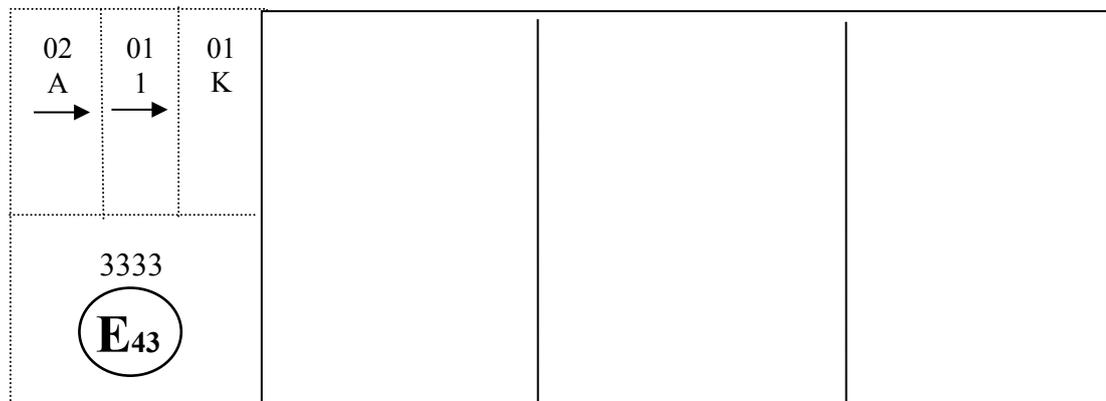
Model B



Model C



Model D



Note: The three examples of approval marks, models B, C and D represent three possible variables for the marking of a lighting device when two or more lamps are part of the same assembly or grouped, combined or reciprocally incorporated lamps. This approval mark

shows that the device was approved in Japan (E 43) under approval number 3333 and comprising:

A direction indicator lamp of category 1 approved in accordance with the 01 series of amendments to Regulation No. 6;

A front position lamp approved in accordance with the 02 series of amendments to Regulation No. 7;

A cornering lamp approved in accordance with the 01 series of amendments to Regulation No. 119.

Figure 3

Light source modules

MD E3 17325

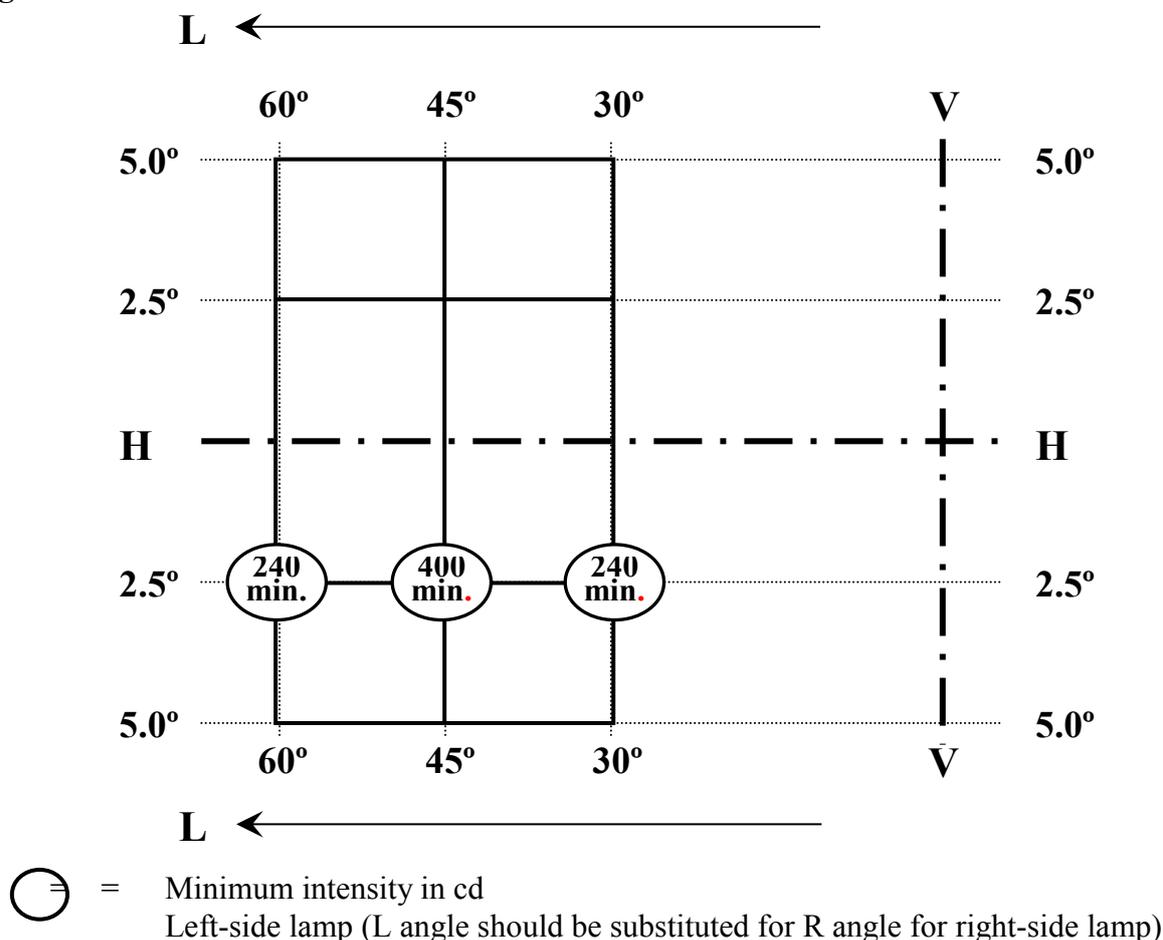
The light source module bearing the identification code shown above has been approved together with a lamp approved in Italy (E3) under approval number 17325.

ANNEX 3

Photometric measurements

1. Measurement methods
 - 1.1. When photometric measurements are taken, stray reflections shall be avoided by appropriate masking.
 - 1.2. In the event that the results of measurements are challenged, measurements shall be taken in such a way as to meet the following requirements:
 - 1.2.1. The distance of measurement 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 angle subtended by the receiver 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 satisfied if the required intensity is obtained in a direction deviating by not more than one quarter of a degree from the direction of observation.
2. Measuring points expressed in degrees of angle with the axis of reference

Figure 1



2.1. Field of geometric visibility

Figure 1

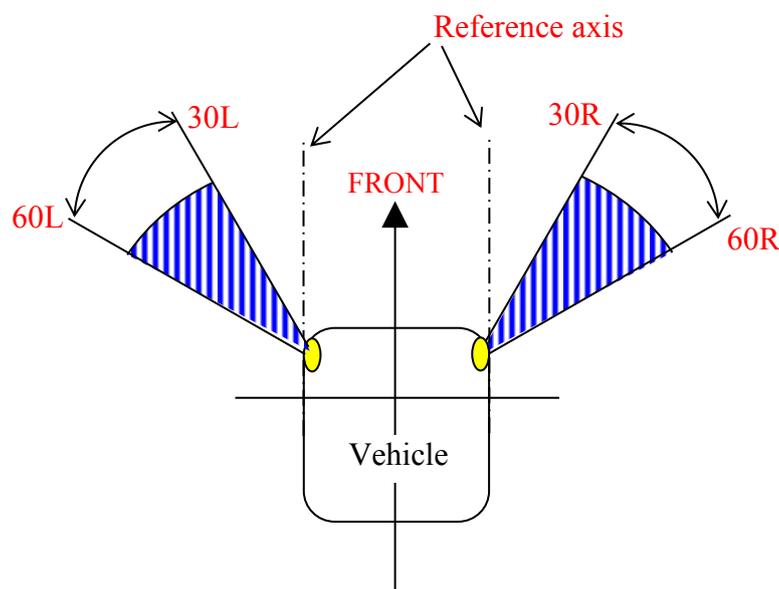
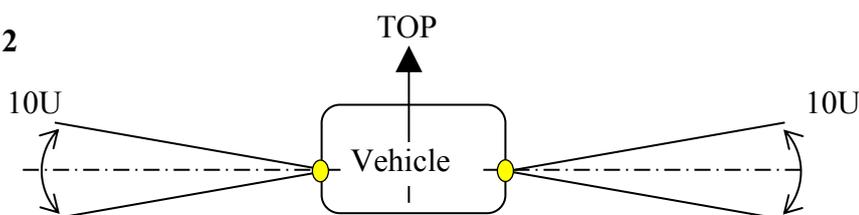


Figure 2



- 2.1.1. The directions $H = 0^\circ$ and $V = 0^\circ$ correspond to the axis of reference. On the vehicle they are horizontal, parallel to the median longitudinal plane of the vehicle and oriented in the required direction of visibility. They pass through the centre of reference. The values shown in the table give, for the various directions of measurement, the minimum intensities in cd.
3. Photometric measurement of lamps equipped with several light sources
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 paragraph 7.1.1. 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 cornering lamp except those equipped with filament lamp(s), the luminous intensities, measured after one minute and after 10 minutes of operation, shall comply with the minimum and maximum requirements. The luminous intensity distributions after one and after 10 minutes of operation shall be calculated from the luminous intensity distribution measured after photometric stability has occurred by applying at each test point the ratio of luminous intensities measured at $45^\circ\text{L } 2.5^\circ\text{D}$ for a left-side lamp (the L angle should be substituted for the R angle for a right-side lamp):

- (a) After one minute;
- (b) After 10 minutes; and
- (c) After photometric stability has occurred.

Photometric stability has occurred means the variation of the luminous intensity for the specified test point is less than 3 per cent within any 15 minute period.

ANNEX 4

Colour of white light

(Chromaticity coordinates)

1. For checking the colorimetric characteristics, a source of light at a colour temperature of 2,856 K, corresponding to illuminant A of the International Commission on Illumination (CIE), shall be used. For lamps equipped with non-replaceable light sources (filament lamps and other), or light sources (replaceable or non-replaceable) operated together with an electronic light source control gear, the colorimetric characteristics should be verified with the light sources present in the lamp, in accordance with paragraph 7. of this Regulation.
2. The replaceable light source shall be subjected to the intensity, which produces the same colour as the illuminant A of the CIE.

ANNEX 5

Minimum requirements for conformity of production control procedures

1. General
 - 1.1. 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.
 - 1.2. 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:
 - 1.2.1. No measured value deviates unfavourably by more than 20 per cent from the values prescribed in this Regulation.
 - 1.2.2. 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.
 - 1.3. 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.
2. 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.

 - 2.1. Nature of tests

Tests of conformity in this Regulation shall cover the photometric and colorimetric characteristics.
 - 2.2. Methods used in tests
 - 2.2.1. Tests shall generally be carried out in accordance with the methods set out in this Regulation.
 - 2.2.2. 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.

- 2.2.3. The application of paragraphs 2.2.1. and 2.2.2. requires regular calibration of test apparatus and its correlation with measurements made by a Type Approval Authority.
- 2.2.4. In all cases the reference methods shall be those of this Regulation, particularly for the purpose of administrative verification and sampling.
- 2.3. 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.
- 2.4. 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.
- 2.5. 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 9.1. 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

1. General
 - 1.1. 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.
 - 1.2. 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:
 - 1.2.1. No measured value deviates unfavourably by more than 20 per cent from the values prescribed in this Regulation.
 - 1.2.2. 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.
 - 1.2.3. Lamps with apparent defects are disregarded.
 - 1.3. 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.
2. 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.

 - 2.1. The conformity is not contested
 - 2.1.1. 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:
 - 2.1.1.1. Sample A

A1:	One lamp	0 per cent
	One lamp not more than	20 per cent
A2:	Both lamp more than	0 per cent
	But not more than	20 per cent
 - 2.1.1.2. Sample B

- B1: Both lamps 0 per cent
- 2.1.2. Or, if the conditions of paragraph 1.2.2. for sample A are fulfilled.
- 2.2. The conformity is contested
- 2.2.1. 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:
- 2.2.1.1. 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 |
- 2.2.1.2. 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 |
- 2.2.2. Or, if the conditions of paragraph 1.2.2. for sample A are not fulfilled.
- 2.3. Approval withdrawn
- Conformity shall be contested and paragraph 10. 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:
- 2.3.1. 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 |
- 2.3.2. 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

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

3. 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.

3.1. The conformity is not contested

3.1.1. 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:

3.1.1.1. 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

3.1.1.2. Sample D

D1: In the case of C2
Both lamps 0 per cent

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

3.2. The conformity is contested

3.2.1. 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:

3.2.1.1. 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

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

3.3. Approval withdrawn

Conformity shall be contested and paragraph 10. 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:

3.3.1. 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

3.3.2. Sample D

D3: In the case of C2

One lamp 0 or more than 0 per cent

One lamp more than 20 per cent

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

Figure 1

