

## Scope

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

## 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.
- 1.2.1. The trade name or mark:
  - (a) Lamps bearing the same trade name or mark but produced by different manufacturers shall be considered as being of different types;
  - (b) Lamps produced by the same manufacturer differing only by the trade name or mark shall be considered as being of the same 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;

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<sup>1</sup> 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](http://www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html)

- 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
  - (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.
- 2.2.4. In the case of a type of lamp differing only by the trade name or mark from a type that has already been approved it shall be sufficient to submit:
- 2.2.4.1. A declaration by the lamp manufacturer that the type submitted is identical (except in the trade name or mark) with and has been produced by the same manufacturer as, the type already approved, the latter being identified by its approval code;
- 2.2.4.2. Two samples bearing the new trade name or mark or equivalent documentation.
- 2.2.5. In the case of a non-replaceable filament lamp(s) or light source module(s) equipped with non-replaceable filament lamp(s), the documents according to paragraph 5.5. of this Regulation.

### **3. Markings**

Cornering lamps 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.
- 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 or range of voltage.
- 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;<sup>2</sup> and
    - 4.3.1.2. An approval number;

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<sup>2</sup> 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](http://www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html)

- 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;
    - 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

The requirements contained in sections 5. "General specifications" and 6. "Individual specifications" and in the Annexes referenced in the said sections of Regulations Nos. 48 or 86, and their series of amendments in force at the time of application for the lamp type approval shall apply to this Regulation.

The requirements pertinent to each lamp and to the category/ies of vehicle on which the lamp is intended to be installed shall be applied, where its verification at the moment of lamp type approval is feasible.

- 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. The cornering lamp shall only be equipped with light source(s) approved according to Regulation No. 37 and/or Regulation No. 128, 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.
- 5.5. In the case of non-replaceable filament lamp(s) or light source module(s) equipped with non-replaceable filament lamp(s), the applicant shall annex to the type approval documentation a report (by the light source manufacturer

indicated in the type approval documentation), acceptable to the Authority responsible for type approval, that demonstrates compliance of these non-replaceable filament lamp(s) with the requirements as specified in paragraph 4.11. of IEC 60809, Edition 3.

## 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 cd

The 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 when all light sources are illuminated the maximum intensities shall not be exceeded.

6.5. Failure of a single lamp containing more than one light source:

6.5.1. In a single lamp containing more than one light source, a group of light sources, wired so that the failure of any one of them causes all of them to stop emitting light, shall be considered to be one light source.

6.5.2. In case of failure of any one light source in a single lamp containing more than one light source, at least one of the following provisions shall apply:

- (a) The light intensity complies with the minimum intensity required in the table of standard light distribution in space as shown in Annex 3, or
- (b) A signal for activation of a tell-tale indicating failure, as indicated in paragraph 6.20.8. of Regulation No. 48, is produced, provided that the luminous intensity at 2.5°D 45°L for a left-side lamp (the L angle

should be substituted for the R angle for a right-side lamp) is at least 50 per cent of the minimum intensity required. In this case a note in the communication form states that the lamp is only for use on a vehicle fitted with a tell-tale indicating failure.

## **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,<sup>3</sup> 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.

## **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.

## **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:

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<sup>3</sup> 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.

- 9.1. Cornering lamps shall be so manufactured as to conform to the corresponding type approved according to this Regulation.
- The compliance with the requirements set forth in paragraphs 6. and 8. above shall be verified as follows:
- 9.1.1 The minimum requirements for conformity of production control procedures set forth in Annex 5 to this Regulation shall be complied with.
- 9.1.2 The minimum requirements for sampling by an inspector set forth in Annex 6 to this regulation shall be complied with.
- 9.2. 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.
- 9.3. In the case of non-replaceable filament lamp(s) or light source module(s) equipped with non-replaceable filament lamps, a report (by the light source manufacturer indicated in the type approval documentation) shall demonstrate compliance of these non-replaceable filament lamp(s) with lifetime requirements and, in the case of colour coated filament lamps, also with colour endurance requirements, as specified in paragraph 4.11. of IEC 60809, Edition 3.

## **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 definitively 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:<sup>2</sup> 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):<sup>2</sup> .....  
 Voltage and wattage: .....  
 Light source module: yes/no<sup>3</sup>  
 Light source module specific identification code: .....  
 Application of an electronic light source control gear:

<sup>1</sup> Distinguishing number of the country which has granted/extended/refused or withdrawn approval.

<sup>2</sup> Strike out what does not apply.

## Annex 1

(a) Being part of the lamp: yes/no<sup>3</sup>

(b) Being not part of the lamp: yes/no<sup>3</sup>

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):

Geometrical conditions of installation and relating variations, if any: .....

The lamp is only for use on a vehicle fitted with a tell-tale indicating failure: yes/no<sup>3</sup>

10. Position of the approval mark: .....
11. Reason(s) for extension (if applicable): .....
12. Approval granted/extended/refused/withdrawn<sup>2</sup>
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. .

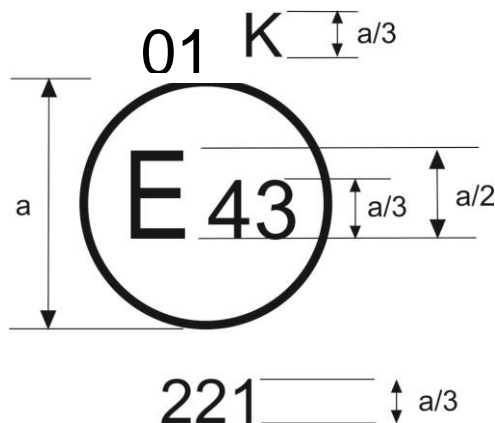
## Annex 2

### Examples of arrangements of approval marks

Figure 1

#### Marking for single lamps

Model A



a = 5 mm min.

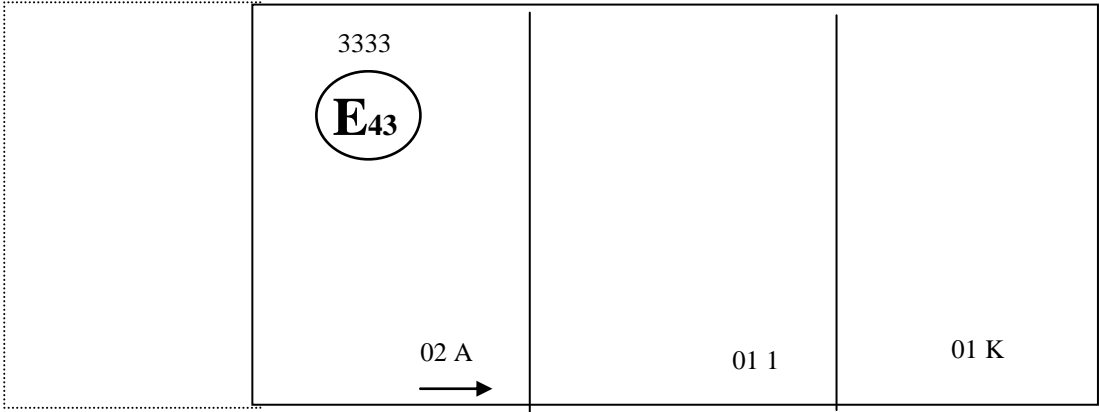
The device bearing the approval mark shown above is a cornering lamp approved in Japan (E 43) pursuant to Regulation No. 119 under approval number 221. The approval number indicates that the approval was granted in accordance with the requirements of Regulation No. 119 as amended by the 01 series of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

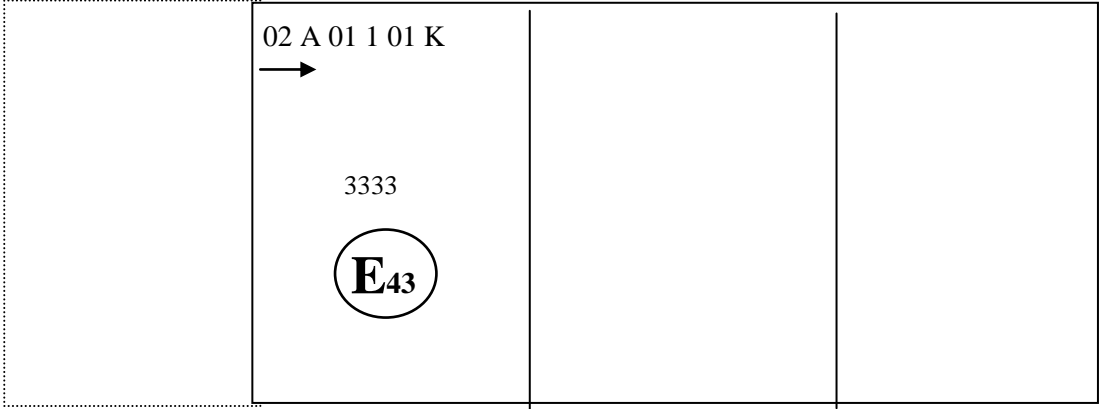
Figure 2  
**Simplified marking for Grouped, combined or reciprocally incorporated lamps**

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

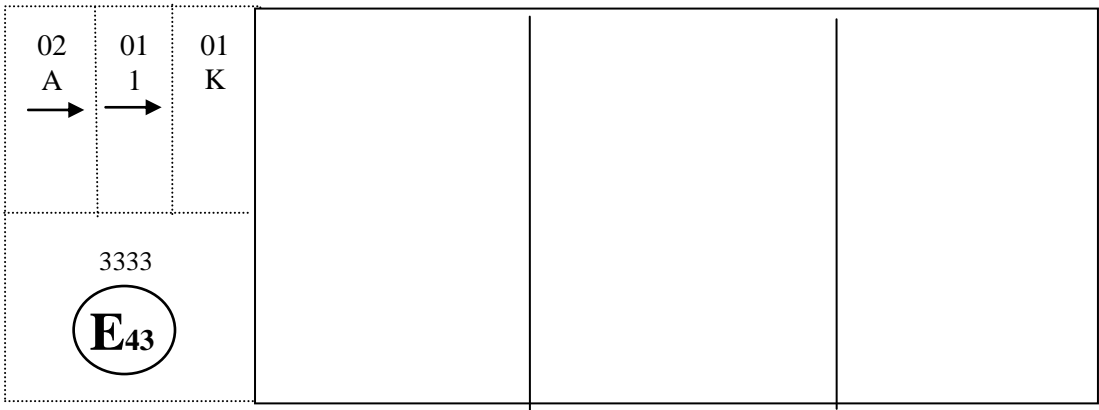
Model B



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**

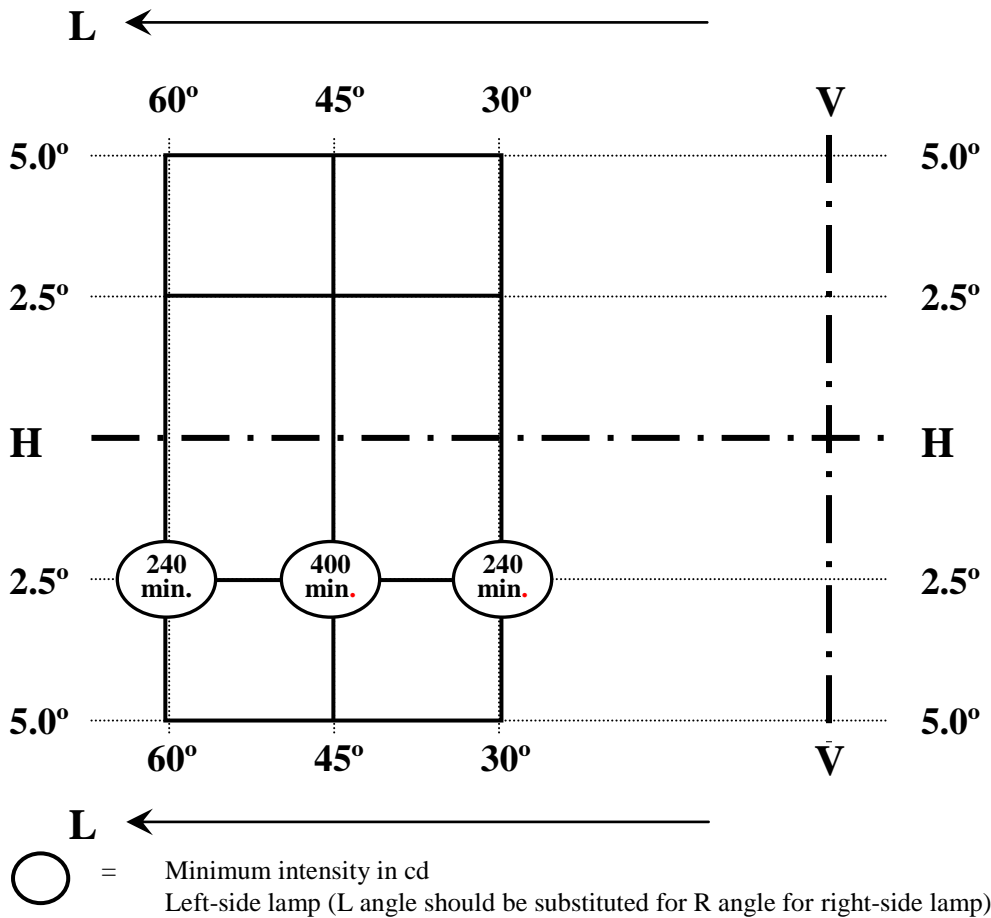
The light source module bearing the identification code shown above has been approved together with a lamp approved in Italy (E3) under approval number 17325.

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

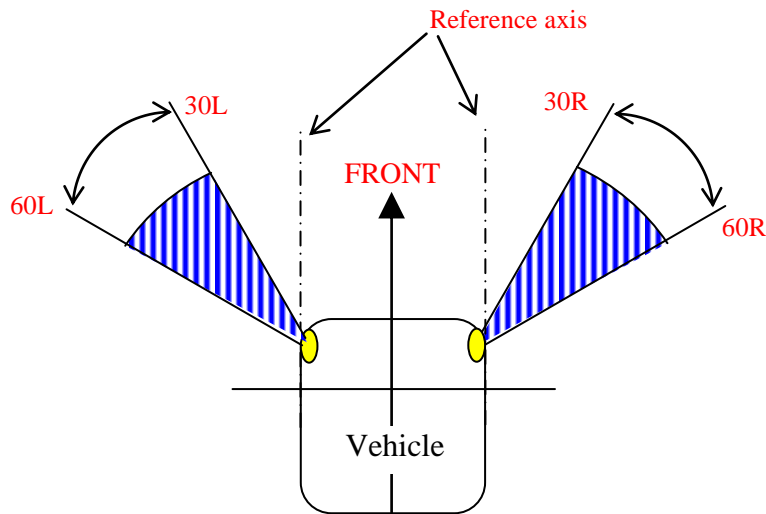
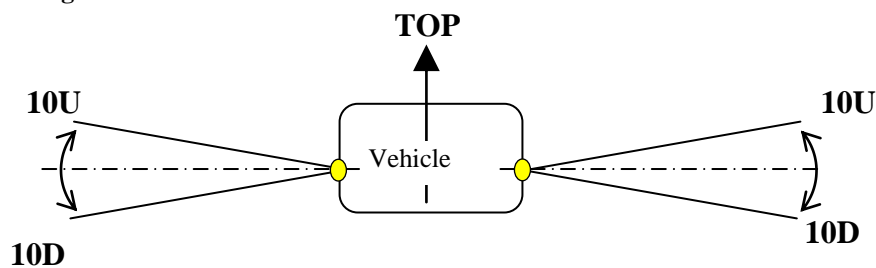


Figure 2



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  $\pm 5$  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.
  - 1.4. In the case of non-replaceable filament lamp(s) or light source module(s) equipped with non-replaceable filament lamps, at any conformity of production check:
    - 1.4.1. The holder of the approval mark shall demonstrate the use in normal production and show the identification of the non-replaceable filament lamp(s) as indicated in the type approval documentation;
    - 1.4.2. In the case where doubt exists in respect to compliance of the non-replaceable filament lamp(s) with lifetime requirements and/or, in the case of colour coated filament lamps, with colour endurance requirements, as specified in paragraph 4.11 of IEC 60809, Edition 3, conformity shall be checked (by the light source manufacturer indicated in the type approval documentation) as specified in paragraph 4.11. of IEC 60809, Edition 3.
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 cornering 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 of mass-produced cornering lamps shall not be contested if the deviation of any specimen of samples A and B (all four lamps) is not more than 20 per cent.
 

In the case, that the deviation of both lamps of sample A is not more than 0 per cent, the measurement can be closed.
  - 2.2. The conformity of mass-produced cornering lamps shall be contested if the deviation of at least one specimen of samples A or B is more than 20 per cent.
 

The manufacturer shall be requested to bring his production in line with the requirements (alignment) and a repeated sampling according to paragraph 3. below shall be carried out within two months' time after the notification. The samples A and B shall be retained by the Technical Service until the entire Conformity of Production process is finished.
3. First repeated sampling
 

A sample of four lamps is selected at random from stock manufactured after alignment.

- The first sample of two is marked C, the second sample of two is marked D.
- 3.1. The conformity of mass-produced cornering lamps shall not be contested if the deviation of any specimen of samples C and D (all four lamps) is not more than 20 per cent.
- In the case, that the deviation of both lamps of sample C is not more than 0 per cent the measurement can be closed.
- 3.2. The conformity of mass-produced cornering lamps shall be contested if the deviation of at least:
- 3.2.1. One specimen of samples C or D is more than 20 per cent but the deviation of all specimen of these samples is not more than 30 per cent.
- The manufacturer shall be requested again to bring his production in line with the requirements (alignment).
- A second repeated sampling according to paragraph 4. below shall be carried out within two months' time after the notification. The samples C and D shall be retained by the Technical Service until the entire Conformity of Production process is finished.
- 3.2.2. One specimen of samples C and D is more than 30 per cent.
- In this case the approval shall be withdrawn and paragraph 5. below shall be applied.
4. Second repeated sampling
- A sample of four lamps is selected at random from stock manufactured after alignment.
- The first sample of two is marked E, the second sample of two is marked F.
- 4.1. The conformity of mass-produced cornering lamps shall not be contested if the deviation of any specimen of samples E and F (all four lamps) is not more than 20 per cent
- In the case, that the deviation of both lamps of sample E is not more than 0 per cent, the measurement can be closed.
- 4.2. The conformity of mass-produced cornering lamps shall be contested if the deviation of at least one specimen of samples E or F is more than 20 per cent.
- In this case the approval shall be withdrawn and paragraph 5. below shall be applied.
5. Approval withdrawn
- Approval shall be withdrawn according to paragraph 10. of this Regulation.
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