

First draft for
 Regulation 7
 to demonstrate
 the application of
 the HRD

17. October 2014

Regulation No. 7

Uniform provisions concerning the approval of front and rear position lamps, stop-lamps and end-outline marker lamps for motor vehicles (except motor cycles) and their trailers

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Scope

This Regulation applies to:

Front and rear position lamps and stop lamps for vehicles of categories L, M, N, O and T¹; and,

End-outline marker lamps for vehicles of categories M, N, O and T.

1. Definitions

For the purpose of this Regulation:

The definitions including the definition of type etc. given in the Horizontal Reference Document (HRD) shall apply to this Regulation;

2. Application for approval

2.1. The applicant shall follow instructions stated in paragraph 3. of the HRD.

2.2. The drawings required by paragraph 3. of the HRD shall also identify the illuminating surface of the device.

3. Markings

The applicant shall follow instructions stated in paragraph 4. of the HRD.

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.

4. Approval

4.1. General

The applicant shall follow instructions stated in paragraph 5. of the HRD.

4.2. Composition of the approval mark

4.2.1. The applicant shall follow instructions stated in paragraph 5.. of the HRD.

4.2.2. The approval mark has also to include following additional symbol or symbols.

- 4.2.2.1. On devices meeting the requirements of this Regulation in respect of the front position lamps, the letter "A";
- 4.2.2.2. On devices meeting the requirements of this Regulation in respect of the rear position lamps, the letter "R" followed or not by the Figure "1" when the device produces steady luminous intensity and by the Figure "2" when the device produces variable luminous intensity.
- 4.2.2.3. On devices meeting the requirements of this Regulation in respect of the front end-outline marker lamps, the letters "AM";
- 4.2.2.4. On devices meeting the requirements of this Regulation in respect of the rear end-outline marker lamps, the letters "RM" followed by the Figure "1" when the device produces steady luminous intensity and by the Figure "2" when the device produces variable luminous intensity;
- 4.2.2.5. On devices meeting the requirements of this Regulation in respect of the stop-lamps, the letter "S" followed by the figure:
 - "1" When the device produces steady luminous intensity;
 - "2" When the device produces variable luminous intensity;
 - "3" When the device meets the specific requirements for category S3 stop-lamps and produces steady luminous intensity;
 - "4" When the device meets the specific requirements for category S4 stop-lamps and produces variable luminous intensity;
- 4.2.2.6. On devices comprising both a rear position lamp and a stop- lamp meeting the requirements of this Regulation in respect of such lamps, the letters "R" or "R1" or "R2" and "S1" or "S2" as the case may be, separated by a horizontal dash;
- 4.2.2.7. On front or rear position lamps of which the visibility angles are asymmetrical with regard to the reference axis in a horizontal direction, and on front or rear end-outline marker lamps, a horizontal arrow pointing towards the side on which the photometric specifications are met up to an angle of 80° H;
- 4.2.2.8. On devices which may be used as part of an assembly of two lamps, the additional letter "D" to the right of the symbol mentioned in paragraphs 4.2.2.1. and 4.2.2.6;

- 4.2.2.9. On devices with reduced light distribution in conformity to paragraph 2.3. in Annex 4 to this Regulation a vertical arrow starting from a horizontal segment and directed downwards.
- 4.2.2.10. On interdependent lamps, which may be used as part of an interdependent lamp system, the additional letter "Y" to the right of the symbol mentioned in paragraph 4.2.2.1. to 4.2.2.6. shall be marked on each device.
- 4.2.2. The following additional symbol or symbols:
- 4.2.3. The two digits of the approval number (at present 02 corresponding to the 02 series of amendments which entered into force on 5 May 1991), which indicate the series of amendments incorporating the most recent major technical amendments made to the Regulation at the time of issue of the approval and, if necessary, the required arrow may be marked close to the above additional symbols.
- 4.2.4. The marks and symbols referred to in paragraphs 4.2.1. and 4.2.2. above shall be clearly legible and indelible even when the device is fitted in the vehicle.

4.3. Arrangement of the approval mark

Follow the corresponding instructions in paragraph 5.3. and Annex 1 of the HRD.

Annex 3, to this Regulation and in addition Annex 1 of the HRD gives examples specific to this regulation of arrangements of approval marks for grouped, combined or reciprocally incorporated lamps with all the above-mentioned additional symbols.

5. General specifications

Follow instructions in paragraph 6. and 7 of the HRD.

6. Intensity of light emitted

- 6.1. The light emitted by each of the two devices supplied shall be in the reference axis, of not less than the minimum intensity and of not more than the maximum intensity specified below:

		<i>Maximum luminous intensity in cd when used as</i>	
		<i>Single lamp</i>	<i>Lamp (single) marked "D" (paragraph 4.2.2.6.)</i>
	<i>Minimum luminous intensity in cd</i>		
6.1.1. Front position lamps, front end-outline marker lamp A or AM	4	140	70
6.1.2. Front position lamps incorporated in a headlamp	4	140	-
6.1.3. Rear position lamps, rear end-outline marker lamp			
6.1.3.1. R or R1 or RM1 (steady)	4	17	8.5
6.1.3.2. R2 or RM2 (variable)	4	42	21
6.1.4. Stop-lamps	60	260	130
6.1.4.1. S1 (steady)			
6.1.4.2. S2 (variable)	60	730	365
6.1.4.3. S3 (steady)	25	110	55
6.1.4.4. S4 (variable)	25	160	80

- 6.1.5. For an assembly of two or more lamps the total intensity shall not exceed the maximum value prescribed for a single lamp.
- 6.1.6. When an assembly of two independent lamps to be type approved as "D" lamps having the same function is deemed to be a single lamp, it shall comply with the requirements for:
- Maximum intensity if all lamps together are lit;
 - Minimum intensity if either lamp has failed.
- 6.1.7. In case of failure of a single lamp containing more than one light source the following provisions shall apply:
- 6.1.7.1. 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.
- 6.1.7.2. The lamp shall comply with the minimum intensity required in the table of standard light distribution in space as shown in Annex 4 when any one light source has failed. However, for lamps designed for only two light sources, 50 per cent of the minimum intensity in the axis of reference of the lamp shall be considered sufficient, provided that a note in the communication form states that the lamp is only for use on a vehicle fitted with an operating tell-tale which indicates when any one of these two light sources has failed.

- 6.2. Outside the reference axis and within the angular fields defined in the diagrams in Annex 1 to this Regulation, the intensity of the light emitted by each of the two devices supplied must:
- 6.2.1. In each direction corresponding to the points in the light distribution table reproduced in Annex 4 to this Regulation, be not less than the product of the minimum specified in the table of paragraph 6.1. above, by the percentage specified in the said table of the direction in question;
- 6.2.2. In no direction within the space from which the light-signalling device is visible, exceed the maximum specified in the table of paragraph 6.1. above;
- 6.2.3. However, a luminous intensity of 60 cd shall be permitted for rear position lamps reciprocally incorporated with stop-lamps (see paragraph 6.1.3. above) below a plane forming an angle of 5° with and downward from the horizontal plane;
- 6.2.4. Moreover,
- 6.2.4.1. Throughout the fields defined in the diagrams in Annex 1, the luminous intensity of the light emitted must be not less than 0.05 cd for front and rear position lamps and end-outline marker lamps, not less than 0.3 cd for stop-lamps;
- 6.2.4.2. If a rear position lamp is reciprocally incorporated with a stop-lamp producing either steady or variable luminous intensity, the ratio between the luminous intensities actually measured of the two lamps when turned on simultaneously at the intensity of the rear position lamp when turned on alone should be at least 5: 1 in the field delimited by the straight horizontal lines passing through $\pm 5^\circ V$ and the straight vertical lines passing through $\pm 10^\circ H$ of the light distribution table.
- If the rear position lamp or the stop lamp or both contain more than one light source and are considered as a single lamp, the values to be considered are those obtained with all sources in operation;
- 6.2.4.3. The provisions of paragraph 2.2. of Annex 4 to this Regulation on local variations of intensity must be observed.
- 6.3. The intensities shall be measured with the filament lamp(s) continuously alight and, in the case of devices emitting red light, in coloured light.
- 6.4. In the case of devices of categories R2, RM2, S2 and S4 the time that elapses between energising the light source(s) and the light output measured on the reference axis to reach 90 per cent of the value measured in accordance with paragraph 6.3. above shall be measured for the extreme levels of luminous intensity produced by the device. The time measured to obtain the lowest luminous intensity shall not exceed the time measured to obtain the highest luminous intensity.
- 6.5. The variable intensity control shall not generate signals which cause luminous intensities:
- 6.5.1. Outside the range specified in paragraph 6.1. above and
- 6.5.2. Exceeding the respective steady luminous intensity maximum specified in paragraph 6.1. for the specific device:
- (a) For systems depending only on daytime and night time conditions:
under night time conditions;

- (b) For other systems: under standard conditions².
- 6.6. Annex 4, to which reference is made in paragraph 6.2.1. above, gives particulars of the methods of measurement to be used.

7. Test procedure

Follow instructions in paragraph 7. and Annex 7 of the HRD.

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 4 shall be red or white. Outside this field, no sharp variation of colour shall be observed. To check these colorimetric characteristics, the test procedure described in paragraph 7. of this Regulation shall be applied.

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 the relevant subparagraph of **paragraph 7 and Annex 4 of the HRD**.

In the case of a category S3 or S4 stop lamp, which is intended to be mounted inside the vehicle, the colorimetric characteristics shall be verified with the worst case combination(s) of lamp and rear window(s) or sample plate(s).

These requirements shall also apply within the range of variable luminous intensity produced by:

- (a) Rear position lamps of category R2;
- (b) Rear end-outline marker lamps of category RM2;
- (c) Stop lamps of categories S2 and S4.

9. Conformity of production

Devices approved in accordance with this Regulation and the referred HDR shall be so manufactured as to conform to the type approved and to meet the requirements set forth by this Regulation and the Horizontal Reference Document as described in paragraph 11 of the HRD.

10. Penalties for non-conformity of production

See paragraph 12. of the HDR.

² Good visibility (meteorological optical range MOR > 2,000 m defined according to WMO, Guide to Meteorological Instruments and Methods of Observation, Sixth Edition, ISBN: 92-63-16008-2, pp 1.9.1/1.9.11, Geneva 1996) and clean lens.

11. Production definitively discontinued

See paragraph 13. of the HDR.

12. Remarks concerning colours and particular devices

The Contracting Parties to the Agreement to which this Regulation is annexed are not precluded by Article 3 of that Agreement from prohibiting, for devices installed on vehicles registered by them, certain colours for which provision is made in this Regulation, or from prohibiting for all categories or for certain categories of vehicles registered by them stop-lamps having only steady luminous intensity.

13. Names and addresses of Technical Services responsible for conducting approval tests, and of Type approval Authorities

See paragraph 14. of the HDR.

14. Transitional provisions

14.1. Signalling lamps not equipped with filament lamps and category S3 stop lamps intended to be mounted inside a vehicle.

14.1.1. As from the date of entry into force of Supplement 6 to the 02 series of amendments, no Contracting Party applying this Regulation shall refuse to grant approvals under this Regulation as amended by Supplement 6 to the 02 series of amendments.

14.1.2. As from 36 months after the date of entry into force of Supplement 6 to the 02 series of amendments, Contracting Parties applying this Regulation shall grant approvals only if the type of lamps as described in paragraph 14.1. above meets the requirements of this Regulation as amended by Supplement 6 to the 02 series of amendments.

14.1.3. Contracting Parties applying this Regulation shall not refuse to grant extensions of approvals to the preceding series of amendments to this Regulation.

14.1.4. Contracting Parties applying this Regulation shall continue to grant approvals to those types of lamps as described in paragraph 14.1. above which comply with the requirements of this Regulation as amended by the preceding series of amendments during the 36 months' period which follows the date of entry into force of Supplement 6 to the 02 series of amendments.

14.2. Fitting of lamps described in paragraph 14.1. above on a vehicle.

14.2.1. As from the date of entry into force of Supplement 6 to the 02 series of amendments, no Contracting Party applying this Regulation shall prohibit the fitting on a vehicle of lamps described in paragraph 14.1. above approved under this Regulation as amended by Supplement 6 to the 02 series of amendments.

- 14.2.2. Contracting Parties applying this Regulation shall continue to allow the fitting on a vehicle of lamps described in paragraph 14.1. above approved to this Regulation as amended by the preceding series of amendments during the 48 months' period which follows the date of entry into force of Supplement 6 to the 02 series of amendments.
- 14.2.3. Upon the expiration of a period of 48 months after the date of entry into force of Supplement 6 to the 02 series of amendments, Contracting Parties applying this Regulation may prohibit the fitting of lamps described in paragraph 14.1. above which do not meet the requirements of this Regulation as amended by Supplement 6 to the 02 series of amendments on a new vehicle for which type approval or individual approval was granted more than 24 months after the entry into force of Supplement 6 to the 02 series of amendments to this Regulation.
- 14.2.4. Upon expiration of a period of 60 months after the date of entry into force of Supplement 6 to the 02 series of amendments, Contracting Parties applying this Regulation may prohibit the fitting of lamps as described in paragraph 14.1. above which do not meet the requirements of this Regulation as amended by Supplement 6 to the 02 series of amendments on a new vehicle first registered more than 60 months after the date of entry into force of Supplement 6 to the 02 series of amendments to this Regulation.

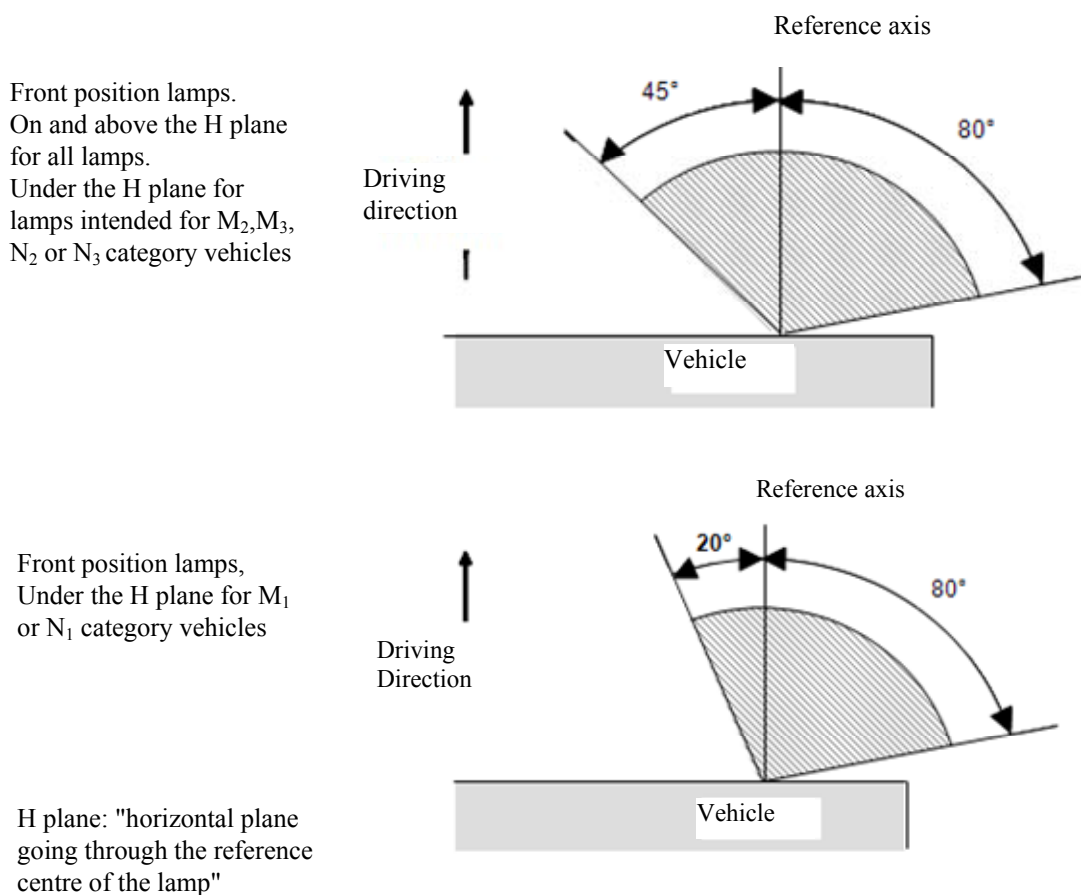
Annex 1

Front and rear position lamps, end-outline marker lamps and stop-lamps: minimum angles required for light distribution in space of these lamps¹

In all cases, the minimum vertical angles of light distribution in space are 15° above and 15° below the horizontal for all categories of devices included in this Regulation, except:

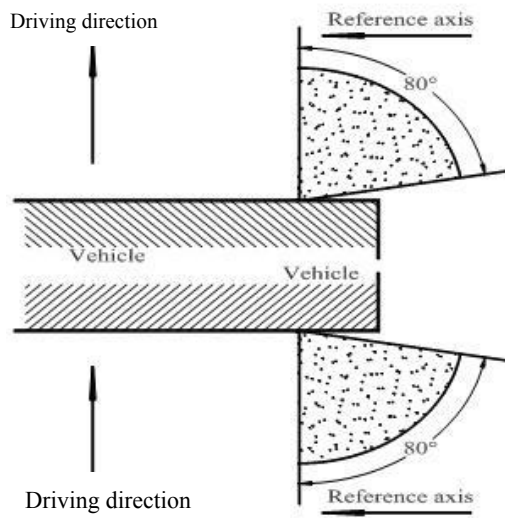
- (a) For lamps with a permissible mounting height \neq 750 mm above the ground, for which they are 15° above and 5° below the horizontal;
- (b) For category S3 or S4 stop lamp for which they are 10° above and 5° below the horizontal.

Minimum horizontal angles of light distribution in space



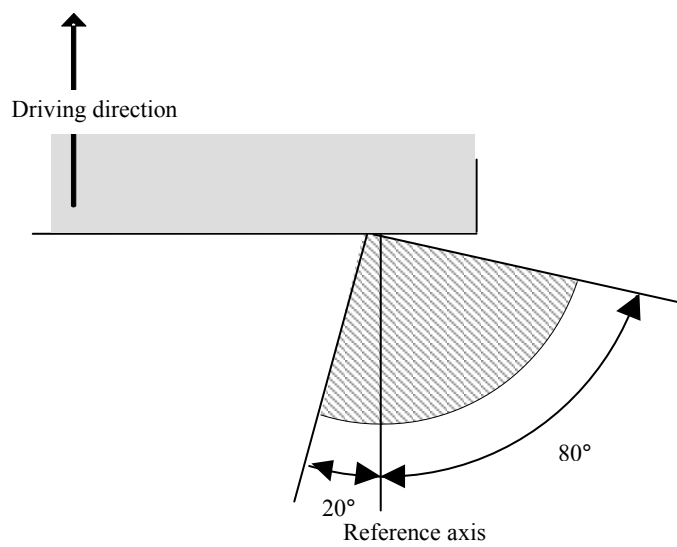
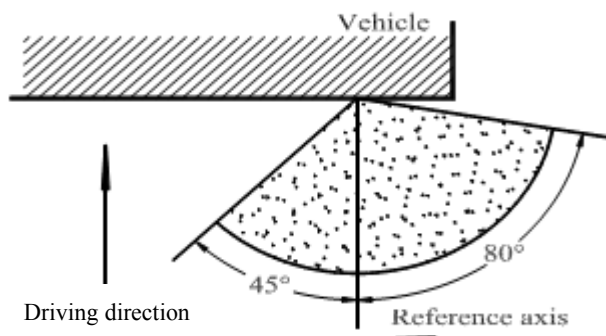
¹ The angles shown in these diagrams are correct for devices to be mounted on the right side of the vehicle. The arrows point to the front of the vehicle.

Front end-outline marker lamp (AM)

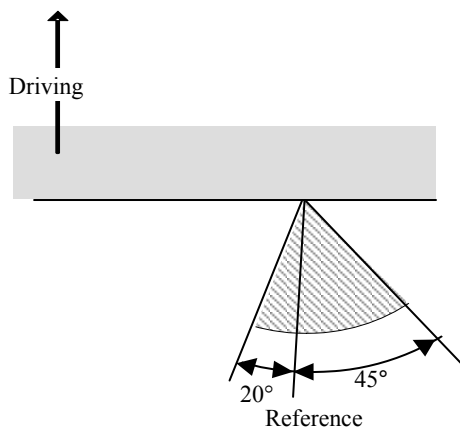
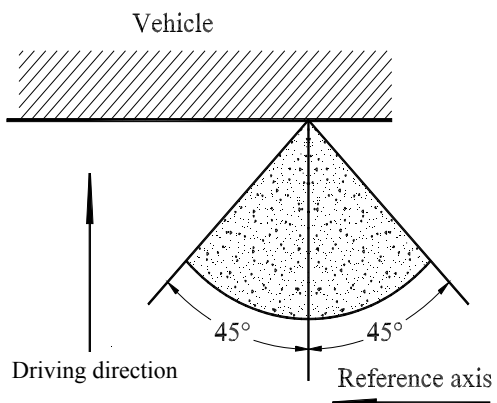


Rear end-outline marker lamp (RM1, RM2)

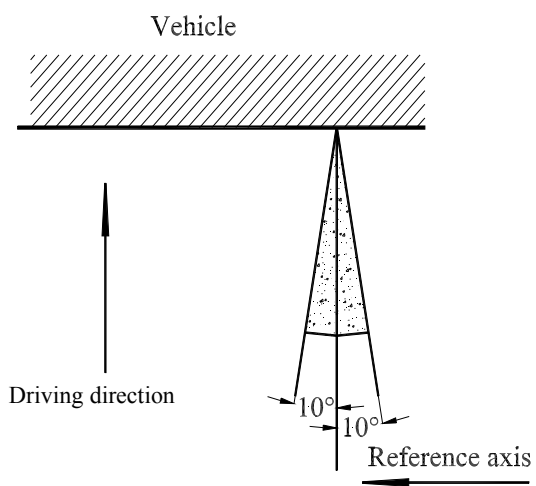
Rear position lamps



Stop lamps (S1 and S2)



Stop-lamps (S3)



Annex 2

Communication

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



issued by: Name of Administration:

.....
.....
.....

concerning²: Approval granted
Approval extended
Approval refused
Approval withdrawn
Production definitively discontinued

of a type of device pursuant to Regulation No. 7

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:
 - 9.1. By category of lamp:
For mounting either outside or inside or both²
Colour of light emitted: red/white²
Number, category and kind of light source(s):
Voltage and wattage:

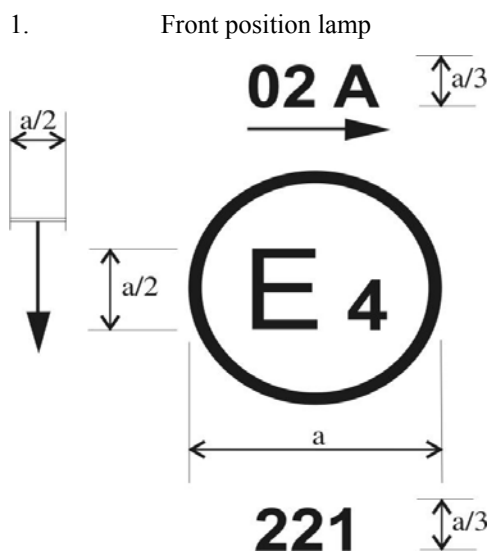
¹ Distinguishing number of the country which has granted/extended/refused/withdrawn approval (see approval provisions in the Regulation).

² Strike out what does not apply.

- Light source module specific identification code:
- Only for installation on M₁ and/or N₁ category vehicles: yes/ no²
- Only for limited mounting height of equal to or less than 750 mm above the ground: yes/no²
- 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/no²
- (b) Being not part of the lamp: yes/no²
- 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):
- Variable luminous intensity: yes/no²
- 9.2. Function(s) produced by an interdependent lamp forming part of an interdependent lamp system:
- | | |
|-------------------------|----------------------|
| Front position lamp | yes/ no ² |
| R1 Rear position lamp | yes/ no ² |
| R2 Rear position lamp | yes/ no ² |
| S1 Stop lamp | yes/ no ² |
| S2 Stop lamp | yes/ no ² |
| S3 Stop lamp | yes/ no ² |
| S4 Stop lamp | yes/ no ² |
| End-outline marker lamp | yes/ no ² |
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 3

Examples of arrangements of the approval marks



The device bearing the approval mark shown above is a front position lamp approved in the Netherlands (E4), under approval number 221 pursuant to Regulation No. 7.

The number mentioned close to the symbol "A" indicates that approval was granted in accordance with the requirements of Regulation No. 7 as amended by the 02 series of amendments. The horizontal arrow indicates the side on which the required photometric specifications are met up to an angle of 80° H. 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.

2. Rear position lamp

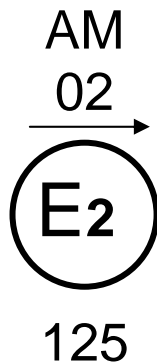


The device bearing the approval mark shown above is a rear position lamp approved in the Netherlands (E4) under approval number 221 pursuant to Regulation No. 7, which may also be used in an assembly of two rear position lamps.

The number mentioned below the symbol "R1D" indicates that approval was granted in conformity with the requirements of Regulation No. 7 as amended by the 02 series of amendments.

The absence of an arrow means that, both right and left, the required photometric specifications are met up to an angle of 80° H.

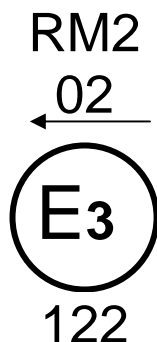
3. Front end-outline marker lamp



The device bearing the approval mark shown above is a front end-outline marker lamp approved in France (E2) under approval number 125 pursuant to Regulation No. 7.

The number mentioned below the symbol "AM" indicates that approval was granted in conformity with the requirements of Regulation No. 7 as amended by the 02 series of amendments. The horizontal arrow indicates the side on which the required photometric specifications are met up to an angle of 80° H.

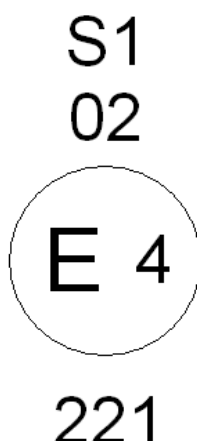
4. Rear end-outline marker lamp



The device bearing the approval mark shown above is a rear end-outline marker lamp with variable luminous intensity approved in Italy (E3) under approval number 122 pursuant to Regulation No. 7.

The number mentioned below the symbol "RM" indicates that approval was granted in conformity with the requirements of Regulation No. 7 as amended by the 02 series of amendments. The horizontal arrow indicates the side on which the required photometric specifications are met up to an angle of 80° H.

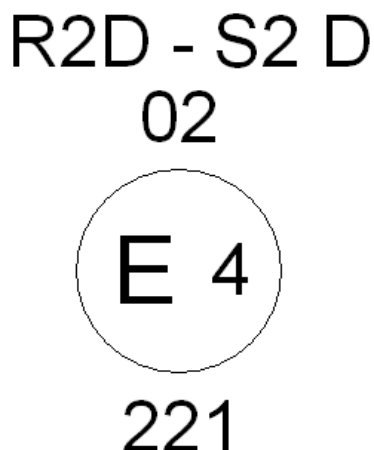
5. Stop-lamp



The device bearing the approval mark shown above is a stop-lamp with one level of illumination approved in the Netherlands (E4) under approval number 221 pursuant to Regulation No. 7.

The number mentioned below the symbol "S1" indicates that the approval was granted in conformity with the requirements of Regulation No. 7 as amended by the 02 series of amendments.

6. Device comprising both a rear position lamp and a stop-lamp



The device bearing the approval mark shown above is a device comprising both a rear position lamp and a stop-lamp with variable luminous intensity, approved in the Netherlands (E4) under approval number 221 pursuant to Regulation No. 7.

The number mentioned below the symbol "R2D-S2D" indicates that approval was granted in conformity with the requirements of Regulation No. 7 as amended by the 02 series of amendments. The rear position lamp is incorporated into a stop-lamp, both with variable luminous intensity, which may also be used in an assembly of two lamps.

The absence of an arrow means that, both right and left, the required photometric specifications are met up to an angle of 80° H.

Note: The approval number and the additional symbols shall be placed close to the circle and either above or below the letter "E" or to the right or to the left of that letter. The digits of the approval number shall be on the same side of the letter "E" and face the same direction. The approval number and the additional symbol including the number of the series of amendments to the Regulation in question, where applicable, shall be placed diametrically opposite to each other.

The use of Roman numerals as approval numbers should be avoided so as to prevent any confusion with other symbols.

7. Marking of independent lamps

F 2a AR R S1
00 01 00 02 02



1432

The above example corresponds to the marking of a lens intended to be used in different types of lamps. The approval marks indicate that the device was approved in Spain (E9) under approval number 1432 and comprises:

A rear fog lamp (F) approved in accordance with Regulation No. 38 in its original version,

A rear direction indicator lamp of category 2a approved in accordance with the 01 series of amendments to Regulation No. 6,

A reversing lamp (AR) approved in accordance with Regulation No. 23 in its original version,

A red rear position lamp (R) approved in accordance with the 02 series of amendments to Regulation No. 7,

A stop-lamp with one level of illumination (S1) approved in accordance with the 02 series of amendments to Regulation No. 7.

8. Simplified marking of grouped, combined or reciprocally incorporated lamps when two or more lamps are part of the same assembly

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

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.

Further examples are stated in Annex 1 of the HRD.

Annex 4

Photometric measurements

1. In addition with the following paragraph the photometric measurements are carried out according to Annex 5 of the HRD.
2. Table of standard light distribution

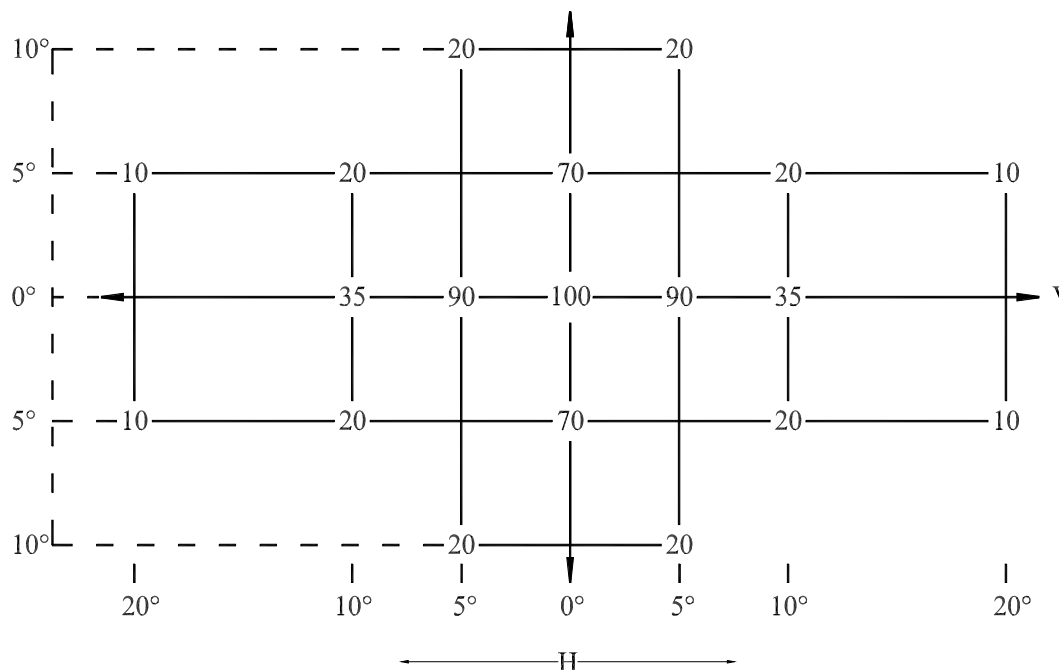


Table of light distribution for category S3 stop-lamp

10°	32	-	64	-	32
5°	64	100	100	100	64
0°	64	100	100	100	64
5°	64	100	100	100	64
10°	32	-	64	-	32

- 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 measurement, 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., schematically shown as a grid, the light pattern should be substantially uniform, i.e. the light intensity

in each direction of a part of the field formed by the grid lines shall meet at least the lowest minimum value being shown on the grid lines surrounding the questioned direction as a percentage.

- 2.3. However, in the case where a device is intended to be installed at a mounting height of equal to or less than 750 mm above the ground, the photometric intensity is verified only up to an angle of 5° downwards.

Annex 5

Minimum requirements for conformity of production control procedures

The minimum requirements for conformity of production control procedures set forth in **Annex 2** to the HRD shall be complied with;

1. In addition to the paragraph “deviations” the following requirements shall apply:
 - 1.1. **No measured value deviates unfavourably by more than 20 per cent from the values prescribed in this Regulation.**

For the minimum values required throughout the fields specified in Annex 1 the respective maximum deviations of the measured values shall correspond to the values shown in the table below:

Required minimum value	Equivalent 20 per cent	Equivalent 30 per cent
cd	cd	cd
0,3	0,2	0,1
0,05	0,03	0,02

Annex 6

Minimum requirements for sampling by an inspector

The minimum requirements for sampling by an inspector set forth in **Annex 3** to the Horizontal Reference Document shall be complied with;